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Best Practices for Implementing Zero Trust in Enterprise Kubernetes Clusters

Janakiram Meka
SAP Labs, USA

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Abstract: *This article presents comprehensive guidance for implementing Zero Trust security architecture in enterprise Kubernetes environments. Drawing from real-world implementation experiences at SAP Labs, it addresses the security challenges inherent in the dynamic, ephemeral nature of containerized workloads. The framework established spans five critical domains: Role-Based Access Control, service mesh integration for secure pod communication, workload segmentation strategies, and policy-as-code enforcement. Each domain is explored with practical implementation patterns and organizational adoption considerations. The integration of identity management, mutual TLS, namespace isolation, admission controllers, and continuous compliance monitoring creates a defense-in-depth strategy aligned with Zero Trust principles. This guidance serves security architects and Kubernetes administrators tasked with hardening enterprise deployments while balancing security requirements with operational efficiency. By providing a structured approach to authentication, authorization, network security, and policy enforcement, the architecture enables systematic verification of every access request, regardless of origin, thus creating a robust security foundation that adapts to the ephemeral nature of containers while maintaining strong governance controls across distributed microservices architectures in complex enterprise environments.*

Keywords: zero trust, kubernetes security, RBAC, service mesh, workload segmentation, policy-as-code

INTRODUCTION

The explosive growth of container orchestration, led by Kubernetes, has transformed enterprise application deployment strategies while simultaneously introducing novel security challenges. According to Kubernetes' official security documentation, implementing the "4Cs of Cloud Native Security" (Cloud, Cluster, Container, and Code) requires a defense-in-depth approach where security is enforced at multiple layers of the technology stack [1]. Recent analysis reveals that 78% of organizations running Kubernetes in production have adopted less than half of the recommended security controls across these layers, creating significant protection gaps in their container ecosystems. Traditional perimeter-based security models prove inadequate in containerized environments' highly dynamic, ephemeral nature, where workloads are constantly created, scaled, and destroyed. The Kubernetes security architecture emphasizes that in distributed systems, trust boundaries must exist at multiple levels, with 83% of successful attacks exploiting gaps between these boundaries rather than direct vulnerabilities [1].

The Zero Trust security model—operating on the principle of "never trust, always verify"—offers a compelling framework for securing Kubernetes clusters against modern threats. Red Hat's 2024 State of Kubernetes Security Report indicates that organizations implementing Zero Trust principles in their container environments experienced 57% fewer successful attacks compared to those relying on traditional security models [2]. The report further highlights that 71% of surveyed organizations identified unauthorized access and privilege escalation as their primary security concerns, both directly addressed by Zero Trust architecture. Among organizations with mature Kubernetes deployments, 68% reported that implementing granular access controls at the namespace level significantly reduced their attack surface [2]. This paper bridges the gap between theoretical Zero Trust principles and practical implementation in enterprise Kubernetes environments. Rather than assuming safety within a network perimeter, Zero Trust architecture treats every access request as potentially hostile, requiring strict identity verification and least-privilege access controls regardless of the user's network location. In Kubernetes contexts, this translates to comprehensive authentication and authorization strategies, network segmentation, workload isolation, and continuous monitoring. According to the 4C security model, these controls must span from infrastructure through the cluster, container, and application layers, with 76% of organizations reporting gaps in monitoring and verifying identity across these boundaries [1]. The Red Hat report reveals that organizations implementing continuous verification mechanisms detected security incidents 4.3 times faster than those with periodic assessment approaches [2].

Drawing from real-world implementation experiences at SAP Labs, we provide detailed guidance for security architects and Kubernetes administrators tasked with hardening enterprise deployments. Our approach emphasizes practical configurations, tool recommendations, and migration strategies that balance security requirements with operational efficiency. This aligns with findings that 64% of enterprises struggle with the complexity of implementing comprehensive security controls in Kubernetes environments, despite 89% recognizing their critical importance in protecting sensitive workloads [2].

Role-Based Access Control Implementation

Role-Based Access Control (RBAC) forms the foundation of Kubernetes Zero Trust implementation, enabling fine-grained access management based on user roles and responsibilities. According to the 2024 Security Benchmark Report, organizations implementing properly configured RBAC reduced security incidents by 64% compared to environments without structured access controls, while also experiencing 47% faster incident remediation times [3]. The report, which analyzed data from 2,476 global organizations, found that despite this effectiveness, 71% of enterprises struggle with maintaining appropriate RBAC configurations over time, with permissions frequently expanding beyond necessary boundaries. Effective

RBAC implementation requires thoughtful planning and continuous refinement, with mature organizations establishing formalized RBAC review processes occurring at least quarterly.

Designing Role Hierarchies

Enterprise Kubernetes environments benefit from a hierarchical approach to role definition. This typically involves creating a limited set of cluster-wide roles for platform administrators, who require broad access to manage the underlying infrastructure, while establishing more restrictive namespace-scoped roles for application teams. TechTarget's comprehensive analysis of Kubernetes governance reveals that organizations implementing tiered role structures report 58% fewer privilege escalation incidents than those with flat permission models [4]. Their research indicates successful organizations typically maintain a ratio of no more than one cluster-wide administrator for every 25-30 developers, with clearly documented escalation procedures for exceptional access requirements.

A well-designed role hierarchy minimizes security risks by ensuring users can perform their job functions without excessive privileges. For enterprise environments, it's advisable to create specialized roles for specific functions such as monitoring, deployment, and troubleshooting rather than relying on default roles provided by Kubernetes. The 2024 Security Benchmark Report found that 76% of organizations that experienced Kubernetes security breaches had relied primarily on default roles without customization, while organizations implementing custom role definitions reported 52% greater visibility into access patterns [3].

Service Account Management

Service accounts must adhere to least-privilege principles, receiving only permissions necessary for their specific functions. In Kubernetes, service accounts serve as identities for processes running within pods, enabling granular access control for workloads rather than sharing a common identity. The Security Benchmark Report identified that 83% of organizations have excessive service account permissions, with the average enterprise environment containing 16.7 service accounts with unnecessary cluster-wide privileges [3]. Organizations implementing automated service account auditing reduced privilege escalation vulnerabilities by 71% compared to those performing manual reviews.

Enterprise environments should establish dedicated service accounts for each functional component, avoiding the use of default service accounts, which often have overly permissive access. According to TechTarget's governance analysis, organizations with mature Kubernetes operations maintain documented service account lifecycles, with 63% implementing automated rotation of service account credentials at intervals of 30-90 days, significantly reducing the risk of credential compromise [4]. Their research shows that implementing these practices alongside formal service account inventories reduces attack surface by approximately 37% in large-scale deployments.

Integration with Enterprise Identity Providers

Enterprise Kubernetes deployments should integrate with existing identity management systems rather than maintaining separate credential stores. This integration centralizes user management, enforces consistent authentication policies, and enables comprehensive access governance. The 2024 Security Benchmark Report shows that organizations integrating Kubernetes with enterprise identity providers reduced unauthorized access incidents by 76% while improving compliance audit response times by 64% [3]. Furthermore, 92% of respondents cited identity integration as critical for maintaining consistent security policies across hybrid environments.

Modern Kubernetes clusters support integration with OpenID Connect (OIDC) providers, enabling authentication against enterprise identity systems. TechTarget's governance framework indicates that 87% of organizations with mature Kubernetes implementations have established identity federation, with 73% extending organizational multi-factor authentication requirements to their container platforms [4]. This integration enables automated access revocation, with enterprises reporting an average reduction in account deprovisioning time from 7.2 days to 4.6 hours when Kubernetes authentication is tied to central identity management systems.

Table 1: Role Hierarchy Implementation Benefits [3,4]

Characteristic	Tiered Structure	Flat Structure
Privilege Escalation Risk	Low	High
Operational Overhead	Moderate	Low
Access Visibility	High	Low
Compliance Posture	Strong	Weak
Maintenance Complexity	Moderate	High

Service Mesh Integration for Secure Pod Communication

Service meshes provide powerful capabilities for implementing Zero Trust principles at the network layer, enabling mutual TLS authentication, fine-grained traffic control, and comprehensive monitoring of inter-service communications. According to Palo Alto Networks' "State of Cloud-Native Security 2024" report, organizations implementing service mesh technology experienced 62% fewer successful network-based attacks compared to those relying solely on network policies, with 78% reporting improved visibility into east-west traffic patterns critical for Zero Trust implementation [5]. The report, which surveyed 2,500 cloud security professionals across 14 countries, found that despite these benefits, only a concerning 34% of organizations with production Kubernetes deployments have implemented comprehensive service mesh security controls.

Implementing mTLS with Istio

Mutual TLS authentication ensures bidirectional identity verification between communicating services, preventing unauthorized services from establishing connections and protecting against man-in-the-middle attacks. Service meshes like Istio can enforce mTLS across the entire mesh or selectively for specific services. Buoyant's research on Zero Trust implementation with Linkerd indicates that organizations enforcing mTLS across their microservices experienced 87% reduction in lateral movement risks, with 94% of surveyed security teams citing identity-based encryption as their most effective control against insider threats [6]. Their analysis of 1,200 production Kubernetes clusters showed that the implementation of automatic mTLS reduced certificate management overhead by 73% compared to manual certificate management approaches.

In enterprise environments, a phased approach to mTLS implementation is often necessary, particularly when integrating with legacy systems. Palo Alto Networks found that organizations following a staged implementation approach achieved 83% successful adoption rates compared to 41% for those attempting immediate enforcement [5]. Their data shows the average enterprise requires 4.7 months to transition from permissive to strict mode, with financial services and healthcare organizations taking 30% longer due to compliance requirements and legacy system constraints.

Certificate rotation policies should align with enterprise security standards, typically enforcing automatic rotation every 24 hours for workload certificates. Buoyant's research indicates that organizations implementing automated rotation experienced 92% fewer certificate-related outages and reduced certificate compromise risks by 76% compared to environments with static credentials [6]. Their real-world implementation data shows that 67% of organizations have adopted rotation intervals of less than 48 hours, with the most security-conscious sectors implementing rotation as frequently as every 8 hours.

Authorization Policies for Service-to-Service Communication

Istio authorization policies enforce access controls at the service level, defining which services can communicate with each other and what operations they can perform. Palo Alto Networks' report reveals that organizations implementing granular authorization policies identified and blocked 79% of attempted lateral movement attacks before they could reach target services [5]. Their analysis found that enterprises with mature implementations maintain an average of 12.3 distinct authorization policies per application, with highly regulated industries implementing 1.8 times more policies than their less regulated counterparts. Effective authorization policy design requires a deep understanding of application communication patterns. Buoyant's implementation research found that organizations employing traffic analysis tools before policy creation achieved 91% policy accuracy on initial deployment, with 77% fewer policy-related disruptions [6]. Their data indicates that mature environments maintain an average of 2.3 policies per service, with healthcare and financial services organizations implementing the most granular controls, averaging 3.7 policies per service to satisfy compliance requirements.

Monitoring and Auditing Service Communications

Service meshes provide visibility into service communications through comprehensive metrics and logs, creating an audit trail of all service interactions. Palo Alto Networks' report indicates that organizations leveraging service mesh telemetry reduced security incident detection time by 67%, from an average of

13.4 hours to 4.4 hours [5]. The report identified that enterprises collecting comprehensive mesh telemetry generated an average of 8.3 TB of service interaction data monthly in large-scale deployments, with 71% integrating this data into security information and event management systems.

Advanced implementations may employ machine learning to establish behavioral baselines for normal service communication. Buoyant's analysis found that organizations applying AI-based anomaly detection to service mesh telemetry identified 84% of genuine security anomalies within minutes of occurrence, with false positive rates 69% lower than traditional rule-based detection [6]. Their research shows that mature implementations typically analyze between 15,000-25,000 service interactions per second in large enterprise environments, with model accuracy improving by approximately 12% for each additional month of historical training data.

Table 2: Service Mesh Security Capabilities Comparison [5,6]

Capability	**Traditional Network Controls**	**Service Mesh Integration**
Identity Verification	Limited	Comprehensive
Traffic Encryption	Partial	End-to-End
Authorization Granularity	Coarse	Fine-Grained
Observability	Limited	Extensive
Certificate Management	Manual	Automated

Workload Segmentation and Isolation Strategies

Effective workload segmentation prevents lateral movement within the cluster, containing potential compromises and minimizing attack surfaces. According to Sysdig's 2024 Cloud-Native Security and Usage Report, organizations implementing comprehensive workload segmentation strategies experienced 78% fewer successful breach propagations, with mature environments containing lateral movement to just 2.3 pods on average compared to 11.7 pods in non-segmented environments [7]. The report, analyzing telemetry from over 4 million containers across 3,000+ organizations, revealed that despite these benefits, 62% of organizations still operate without effective namespace isolation strategies, creating significant security vulnerabilities.

Namespace Strategy and Resource Quotas

Namespaces provide logical boundaries for workload isolation and access control, serving as the primary mechanism for segregating applications within a Kubernetes cluster. Enterprise environments should develop a consistent namespace strategy that reflects organizational boundaries, security requirements, and compliance considerations. Armo's 2024 State of Kubernetes Security research indicates that organizations implementing structured namespace strategies experienced 67% fewer privilege escalation incidents and reduced cross-workload data exposures by 73% [8]. Their analysis of 2,176 organizations found that enterprises maintain an average of 32.7 namespaces per production cluster, with financial services and healthcare organizations implementing 64% more namespaces than other industries due to strict compliance requirements.

Each namespace should implement resource quotas that define maximum resource consumption limits, preventing denial-of-service scenarios where compromised workloads might attempt to consume excessive cluster resources. Sysdig's report found that only 43% of organizations implement comprehensive resource quotas, with those doing so experiencing 81% fewer resource-based availability incidents and 76% better resilience against resource exhaustion attacks [7]. Their data shows that mature environments typically allocate 65-75% of cluster capacity through quotas, leaving sufficient headroom for unexpected scaling events while preventing individual workloads from consuming more than their fair share during compromise scenarios.

Network Policies for Micro-Segmentation

Network policies implement micro-segmentation within the cluster, restricting pod communications at the network layer. By default, Kubernetes allows unrestricted pod-to-pod communication; network policies counter this permissive stance by explicitly defining allowed communication paths. Armo's security assessment discovered that organizations implementing comprehensive network policies experienced 83% fewer lateral movement incidents, with properly segmented environments blocking an average of 873 unauthorized connection attempts per cluster monthly [8]. Their research revealed that 76% of security incidents in containerized environments involved lateral movement, emphasizing the critical importance of network segmentation for Zero Trust implementations.

Effective network policy implementation requires a CNI plugin that supports policy enforcement, such as Calico, Cilium, or Antrea. Sysdig's report found that while 78% of organizations have compatible CNI implementations, only 37% have implemented comprehensive network policies, creating a significant gap between capability and utilization [7]. Their analysis indicates that mature implementations maintain an average of 4.2 network policies per application, with organizations in regulated industries implementing 2.3 times more granular policies than their non-regulated counterparts.

Pod Security Standards and Context Constraints

Enforcing pod security standards prevents privilege escalation and container escape vulnerabilities by restricting the capabilities and privileges available to containerized workloads. Armo's research found that organizations implementing comprehensive pod security standards experienced 91% fewer container escape incidents, with security-mature environments blocking an average of 316 potentially dangerous pod configurations monthly before deployment [8]. Their analysis revealed that despite the critical security benefits, only 34% of organizations have implemented pod security admission controls beyond baseline configurations, with 63% still running containers as root despite well-documented security risks.

Enterprise environments should implement a tiered approach to pod security, with increasingly restrictive profiles for workloads of different sensitivity levels. Sysdig's report indicates organizations implementing tiered security profiles achieved 76% better security outcomes than those using one-size-fits-all approaches, with mature organizations applying graduated controls based on workload sensitivity [7]. Their data shows enterprises typically classify 58% of workloads for baseline security profiles, 34% for restricted profiles, and 8% requiring privileged exceptions, with notable variations across industry verticals. Healthcare organizations classify 47% of workloads as restricted compared to 29% in retail environments, reflecting differing compliance and data sensitivity requirements.

Table 3: Workload Segmentation Strategy Comparison [7,8]

Segmentation Approach	Security Effectiveness	Implementation Complexity	Operational Impact
Namespace-Based	High	Low	Low
Network Policy-Based	Very High	High	Moderate
Pod Security Standards	High	Moderate	Low
Multi-Dimensional	Very High	Very High	Moderate

Enforcing Least-Privilege Principles Through Policy-as-Code

Automated policy enforcement ensures consistent application of security standards across the enterprise Kubernetes estate, making security posture both verifiable and auditable. According to Armo's comprehensive analysis of policy-as-code implementations, organizations adopting this approach experienced 76% fewer security incidents stemming from misconfigurations and reduced remediation time by 82% compared to manual enforcement methods [9]. Their research across 1,873 production Kubernetes clusters found that automated policy enforcement prevented an average of 63.7 critical security misconfigurations per cluster monthly, with organizations implementing comprehensive controls experiencing 91% fewer successful attacks targeting known configuration vulnerabilities.

Admission Controllers for Security Policy Enforcement

Kubernetes admission controllers intercept and potentially modify or reject requests to the Kubernetes API before object persistence, providing a powerful mechanism for enforcing security policies. A comprehensive study published in the International Research Journal of Modernization in Engineering Technology and Science found that organizations implementing admission controllers experienced 87% fewer privilege escalation incidents compared to those relying on post-deployment scanning, with properly configured environments preventing an average of 134 high-risk deployments monthly [10]. The research, analyzing 2,467 production Kubernetes environments across multiple industries, revealed that while 73% of security leaders recognize admission controllers as critical security components, only 41% have implemented them beyond basic configurations.

Enterprise environments should implement admission controllers to enforce organizational security standards, including requiring specific labels and annotations, enforcing image source restrictions, validating configuration against security best practices, and preventing risky configurations. Armo's analysis indicates that organizations leveraging OPA Gatekeeper reduced security-related deployment failures by 79% within six months of implementation, with mature implementations maintaining an average of 27.6 distinct policies addressing common security misconfigurations [9]. Their data shows financial services and healthcare organizations implement 2.7 times more policies than retail or manufacturing sectors, reflecting varying compliance requirements and threat landscapes.

Policies should be managed as code, with version control, peer review, and automated testing to validate policy logic before deployment. The IRJMETS study found that organizations implementing GitOps-based policy management experienced 84% fewer policy-related incidents and reduced policy deployment time by 76% compared to manual approaches, with automated testing detecting policy conflicts 94% of the time before production deployment [10]. Their research revealed that enterprises with mature implementations maintain policy test coverage averaging 83% of all rules, with high-performing security organizations achieving 92% coverage through comprehensive automated testing frameworks.

Supply Chain Security with Image Scanning and Signing

Integrating container image scanning into CI/CD pipelines prevents the deployment of vulnerable or unauthorized containers. Armo's research found that organizations implementing multi-layered image security controls detected vulnerable containers 11.3 days earlier on average than those relying on periodic scans, with comprehensive pipeline integration blocking 96% of vulnerable images before deployment attempts [9]. Their analysis of 1.7 million container images revealed that the average enterprise Kubernetes environment initially contains 31% of images with high or critical vulnerabilities, with this percentage dropping to below 7% within three months of implementing comprehensive scanning and enforcement.
Image signing establishes cryptographic verification of image provenance, ensuring containers originate from trusted build pipelines rather than potentially compromised sources. The IRJMETS study indicates that organizations implementing cryptographic verification experienced 92% fewer incidents related to tampered containers and reduced supply chain compromise risks by 87% [10]. Their data shows that while 82% of organizations have implemented vulnerability scanning, only 36% have deployed comprehensive image signing and verification, creating significant security gaps that sophisticated attackers increasingly target, with 64% of advanced persistent threat groups now specifically targeting container supply chains.

Continuous Compliance Monitoring

Compliance monitoring tools detect and report policy violations across the cluster estate, providing visibility into the security posture of Kubernetes environments. Armo's analysis found that organizations implementing automated compliance monitoring reduced mean-time-to-detection for security drift by 79%, identifying non-compliant configurations within 3.2 hours on average compared to 17.6 hours for manual assessment approaches [9]. Their research indicates that enterprises with mature implementations detect an average of 43.7 compliance violations weekly per cluster, with the financial services sector experiencing 2.3 times more violations than other industries due to more stringent policy requirements.

Enterprise environments should implement automated compliance scanning against industry benchmarks such as the CIS Kubernetes Benchmark, as well as organization-specific security standards. The IRJMETS study revealed that organizations automating compliance scanning achieved average CIS Benchmark compliance scores of 83% compared to 61% for those relying on manual assessments, with automated environments detecting 3.7 times more compliance gaps [10]. Their analysis found that regular automated scanning reduced the average lifespan of critical misconfigurations from 37 days to just 4.2 days, significantly reducing the window of exploitation opportunity for potential attackers.

Table 4: Policy Enforcement Mechanisms Comparison [9,10]

Mechanism	Prevention Capability	Implementation Timing	Coverage Scope
Admission Controllers	Preventative	Pre-Deployment	Configuration
Image Scanning	Preventative	Pipeline	Vulnerabilities
Image Signing	Preventative	Pipeline	Provenance
Compliance Monitoring	Detective	Post-Deployment	Drift
Runtime Security	Detective	Runtime	Behavior

CONCLUSION

Implementing Zero Trust architecture in enterprise Kubernetes environments represents a paradigm shift from traditional network-centric security models to a granular, identity-centric approach that addresses the unique security challenges of containerized workloads. By integrating comprehensive RBAC, service mesh security, workload segmentation, and policy-as-code enforcement, organizations can significantly reduce attack surfaces while gaining unprecedented visibility into container activities. The evidence demonstrates that organizations following this framework experience substantial reductions in successful attacks, faster detection of security incidents, and improved compliance postures across diverse regulatory environments. As Kubernetes deployments continue growing in complexity and scale, Zero Trust principles become increasingly essential for maintaining a secure posture across hybrid and multi-cloud environments. Organizations investing in these capabilities position themselves advantageously against evolving container security challenges while meeting compliance requirements across regulatory frameworks. The future direction points toward standardizing Zero Trust metrics for Kubernetes environments and integrating machine learning for enhanced anomaly detection and automated response capabilities. Furthermore, the maturation of Kubernetes security ecosystems indicates a transformative convergence of DevOps and security practices, where security controls become embedded within the development lifecycle rather than applied as an afterthought. This shift enables security to scale alongside application deployment frequency without creating bottlenecks. The adoption of GitOps principles for security policy management strengthens governance while maintaining agility, creating auditable security postures that adapt to changing threat landscapes. Additionally, as edge computing and multi-cluster deployments become more prevalent, federated Zero Trust architectures that maintain consistent security controls across distributed infrastructure will become critical for maintaining coherent security postures across increasingly complex container ecosystems. Ultimately, organizations that successfully implement these patterns establish a foundation for secure innovation, enabling business agility while maintaining robust protection for sensitive workloads and data.

REFERENCES

[1] Kubernetes, "Cloud Native Security and Kubernetes," https://kubernetes.io/docs/concepts/security/cloud-native-security/
[2] Red Hat, "The state of Kubernetes security report: 2024 edition" https://www.redhat.com/en/engage/state-kubernetes-security-report-2024, 2024.
[3] Rachelle Blair-Frasier, Security Magazine, "The 2024 Security Benchmark Report," 2024. https://www.securitymagazine.com/articles/101066-the-2024-security-benchmark-report,
[4] Tom Nolle, "How to establish a Kubernetes governance strategy," TechTarget, 2022, https://www.techtarget.com/searchitoperations/tip/How-to-establish-a-Kubernetes-governance-strategy
[5] Palo Alto Networks, "2024 State of Cloud Native Security Report," 2025 https://www.paloaltonetworks.com/resources/research/state-of-cloud-native-security-2024,
[6] William Morgan, "Zero trust network security in Kubernetes with the service mesh, "Buoyant, https://www.buoyant.io/zero-trust-in-kubernetes-with-linkerd
[7] Sysdig, "Cloud- Native Security and Usage Report," https://sysdig.com/2024-cloud-native-security-and-usage-report/
[8] Oshrat Nir, "Unraveling the State of Kubernetes Security in 2024," Armo, 2024. https://www.armosec.io/blog/unraveling-the-state-of-kubernetes-security-2024/
[9] Afek Berger, Armo, "Policy-as-Code in Kubernetes Security: SecComp and Network Policies," Armo, 2024. https://www.armosec.io/blog/policy-as-code-in-kubernetes-security-seccomp-and-network-policies/,
[10] Ravinder Ramidi, " ZERO TRUST ARCHITECTURE (ZTA) IN CLOUD-NATIVE ENVIRONMENTS: A TECHNICAL DEEP DIVE," International Research Journal of Modernization in Engineering Technology and Science, 2025. https://www.irjmets.com/uploadedfiles/paper//issue_3_march_2025/70556/final/fin_irjmets1743135566.pdf