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# Adoption of Information Technology and Organisational Performance on Private Security Firms in Mombasa County, Kenya

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**Abstract** **Review Article**

The adoption of information technology (IT) has become a fundamental way of improving the performance in an organization, especially in case of a private security firm which operates on a very dynamic and sensitive environment of service delivery. Security firms are being compelled to adopt and incorporate new and advanced IT-based solutions in a world where changes in technologies are increasingly changing service delivery in various industries. In case of private security firms that are faced with handling critical safety operations and working in real time world, IT adoption does not only reduce operational risks of such security firms but also enhances accountability and transparency in the delivery of their services. The primary aim of the research was to explore the use of information technology and organizational performance within private security companies in Mombasa County, Kenya. The study was determined to evaluate the influence of technological literacy on organizational performance of Private Security Firms (PSFs), to assess the influence of business application on organizational performance of Private Security Firms (PSFs), to determine the impact of technology infrastructure on organizational performance of Private Security Firms (PSFs), and to research the influence of information security on organizational performance of Private Security Firms (PSFs). The research was informed by Technology Diffusion Theory (TDT) and the Resource-Based View (RBV). The research design was descriptive cross-sectional. The study target population consisted of all 71 licensed Private Security Firms (PSFs) members of the Kenya Security Industry Association (KSIA) and the Protective Security Industry Association (PSIA) in the County of Mombasa as of January 2025. Questionnaires were the primary mode of data collection. A pilot test was done on the research instrument to establish its reliability and validity in generating the desired data. Data was analyzed using both descriptive and inferential statistical (quantitative) tests. The analyses were performed in SPSS software. The data was summarised using descriptive statistics like mean, standard deviation and frequencies. The results were presented in tables and narrative descriptions to make them understandable. The study results indicates that technology literacy ($\beta_1$=0.152*, p=0.000), business application ($\beta_2$=0.221*, p=0.000), technology infrastructure ($\beta_3$=0.139*, p=0.000) and information security ($\beta_4$=0.294, p=0.001) had a positive linear effect on organizational performance of Private Security Firms (PSFs). The study concludes that implementation of the information technology will make the organizational performance of the private security firms to perform significantly better due to better literacy on technology, better applications of business, better infrastructure and better information security. The study further recommends the use of ongoing IT education by the private security companies, the improvement of the current business software contemporary systems towards enhanced security policies, and the upgrading of the IT management teams by way of frequent audits and other innovative security procedures. It is also recommended in future research to assess the level of satisfaction of the business applications users and the measurements of the influence of certain components of IT infrastructure (biometric systems and tracking technologies), on other parameters that are important to the functioning of the business such as the response time and the reliability of the system.

**Keywords:** Information Technology, Organizational Performance, Private Security Firms, Mombasa County, Resource-Based View, Technology Diffusion Theory.

# BACKGROUND OF THE STUDY

One of the sectors that is constantly evolving due to internal and external factors such as resource scarcity, increased regulations, rising prices, market competition, and technological advancements is business environment. Security firms face challenges such as inadequate personnel capacity, increased government regulation, and conflicting interests among stakeholders (Marotta & Madnick, 2021). To address these challenges, private security firms are leveraging adoption of information technology solutions, such as leveraging adoption of information technology to improve their operations and maintain competitiveness (Layton, 2020).

This study involves investigating how technological advancements influence key performance metrics on private security firms. The independent variable is adoption of information technology, which comprises the integration of adoption of information technology tools such as biometric access controls and digital communication platforms. These technological interventions have a direct impact on the dependent variable organizational performance measured via customer satisfaction, operational efficiency, and market competitiveness. Moderating variables including managerial support, employee ICT literacy, and financial capacity have a role in either impeding or enhancing the effectiveness of information technology adoption. External factors, such as security trends, government regulations, and technological infrastructure also influence potential benefits for private security firms in technological adoption (Clohessy & Acton, 2021).

The Resource-Based View (RBV) is a concept introduced by Birger Wernerfelt, (1984), Jay Barney (1991), and Edith Penrose (1959), which views firms as pools of resources that drive competitive advantage. It emphasizes internal resources as crucial for superior performance. RBV's relevance lies in leveraging unique human, financial, and technological resources to enhance organizational performance. Private security firms can apply this by adopting skilled personnel and advanced security technologies for superior service delivery. This study will be steered by two theories namely Resource-Based View (RBV) Theory and Technology Diffusion Theory (TDT). The Technology Diffusion Theory (TDT) by Rodgers (1995) is a lens used to study the development, growth, and adoption of new ideas. Rodger's theory advocates for the use of adoption of information technology -based models and platforms by stakeholders and their attitudes towards new adoption of information technology. Diffusion of innovation occurs when a social framework acknowledges and embraces new ideas. TDT is applied to analyze the impact of adoption of information technology on organizational performance in private security firms in Kenya, revealing environmental factors influencing adoption and performance. This study aims to assess the various aspects of adoption of information technology 's influence on private security firms' performance.

Kenya has seen a significant rise in criminal activities and terrorism attacks in the last decade, leading to the rise of Private Security Firms (PSFs) as a solution provider. With a crime rate of 3.5 per 100,000 people (Oruta, 2022), PSFs offer vital security services such as electronic surveillance, manned guarding, cash-in-transit services, and risk assessment. According to the economic survey report (2022), crime in Kenya rose by 16.7 percent in year 2021 relative to 2020 and the overall trend reveals an upturn year-on-year based on year 2016 (Oruta, 2022).

Notable PSFs in Mombasa Kenya includes G4S Kenya, KK Security, Wells Fargo Limited, Securex Agencies Ltd, BM Security, and Panda Security Services. Private security firms in Kenya are registered under the Company's Act 2015 and the Private Security Regulations Act 2016. They are overseen by the Protective Services Industry Association (Psia security.com, 2023) and the Kenya Security Industry Association (Ksia.or.ke, 2023). KSIA aims to maintain industry standards and represent companies' interests. The private security industry generates an annual turnover of KES 32.2 billion (Knbs.or.ke, 2021); providing services like cash-in-transit protection, critical infrastructure protection, event protection, and VIP safeguarding.

**Adoption of information technology**

Information technology adoption denotes the application of scientific knowledge, techniques, and tools to enhance processes, solve problems, and create new products. Adoption of information technology is the application and use of scientific knowledge for practical reasons; it is a capability generated by the practical use of knowledge (Mubarak & Petraite, 2020). Further, adoption of information technology denotes the systems, methods, and devices that are an outcome of scientific knowledge being applied for practical reasons. Adoption of information technology refers to the use of automated systems for storing, processing and disbursement of information (Akers, 2017). Examples of adoption of information technology include smartphones, Internet of Things (IoT), artificial intelligence, virtual reality, cloud computing, 3D printing, block chain, big data analytics, machine learning, augmented reality, and robotics. Merits of Adoption of information technology i i include: increased efficiency, innovation, automation, enhanced access to information, global connectivity, time saving, and reduce errors (Jabagi *et al.,* 2020). Demerits of Adoption of information technology include: privacy concerns, Job displacement, and dependence on devices, digital divide, cybersecurity risks, and environmental impact from e-waste.

Adoption of information technology plays an important role in improving efficiency, propelling

innovation, and promoting connectivity across various industries, including healthcare, security, and finance. The adoption of information technology has changed the way organizations conduct their business due to the capacity that comes with adoption of information technology (Frizzo-Barker *et al.,* 2020). Organizations are implementing various technologies to improve efficiency and performance outcomes, especially in a resource-constrained era. The adoption of information technology by firms is increasingly considered an important practice for enabling them to improve efficiency, develop close relationships, enhance resource capacity, and compete effectively (Anoop *et al.,* 2018). Adoption of information technology plays a crucial role in creating enterprise opportunities and addressing competitive pressures, as it is a vital component of mainstream businesses across all sectors.

According to Pelgrum (2019), adoption of information technology by organizations faces several obstacles including poor infrastructure, fear of security threats, high costs, inadequate skills and expertise, negative attitude and poor management support, lack of interest, and inadequate resources. Studies have shown that the adoption of information technology is slower in the small and medium firm compared to the large firms (Nduati *et al.,* 2015). The authors indicate the adoption of information technology among SMEs at a paltry rate of 15 percent (Nduati et al., 2015).

However, there is a lack of knowledge about the adoption, utility, and prevalence of adoption of information technology among private security firms and its impact on their performance. To address this, a knowledge base should be created on how private security firms integrate and adopt information technology, and whether adoption of information technology i i improves organizational performance. In the present context, adoption of information technology is operationalized as Technological Tools & Systems comprising: Surveillance Systems, Biometric Systems, GPS and Fleet Management Systems, Cloud-Based Solutions; Employee Readiness & Training comprising: Training Programs; Adoption of information technology Process; Adoption of information technology Integration into Operations; Performance Metrics; and Support Systems. By operationalizing these elements of information technology, this study can provide better insights to help understand how the adoption of information technology affects the performance of PSFs in Mombasa County.

**Organizational Performance**

Organizational performance refers to an analysis of an organisation's performance compared or relative to its goals and objectives (Serrat, 2017). Kaplan and Norton (1996) explained organizational performance to be the balanced outcomes of customer, financial, internal processes, and learning and growth perspectives. Richard *et al.,* (2009) define OP as an organization's ability to realise its goals via product market performance, financial performance, and shareholder returns. Neely *et al.,* (2002) describe OP as the measurement of a firm's effectiveness in attaining its objectives. These definitions of OP underline the financial and non-financial dimensions vital for performance evolution.

Organizational performance is normally evaluated via numerous variables, to gauge a firm's efficiency and effectiveness in attaining its goals. The various variables comprise**;** financial performance which includes metrics such as profitability, revenue growth, cost efficiency, and return on investment (ROI). In the business world, there are several primary performance outcomes which include: market performance, financial performance, and shareholder value performance. Financial Performance echoes the organization's ability to produce financial returns for various stakeholders. Operational efficiency includes metrics such as production cycle time, r esource utilization, and process improvements. The efficient operations of firms reduce costs and improve productivity. Customer satisfaction include assessment via retention rates, feedback, and service quality. Employee performance variable comprises employee engagement levels, productivity, and turnover rates. Market performance is e valuated by metric such as competitive positioning, market share, and brand recognition. Innovation and growth are measured through new product development, technological advancements, and adaptability to change.

The significance of performance measurement continues to grow considerably over the years and the reinvention and result leaning management initiatives propagate more performance measurement for improved organizational efficiency and greater accountability (Singh *et al.,* 2018). Many scholars and stakeholders are contented with the elevated prominence of performance measurement and much accord value to the concept as a means to help understand the extent of performance for an organisation (Bouckaert & Van Dooren, 2018).

Performance measurement advocates the various measures to provide a comprehensive view of an organization's performance, including output, efficiency, productivity, service quality, outcome, cost-effectiveness, and customer satisfaction, reflecting various dimensions of performance. In the current study, OP is operationalized by gauging key performance indicators that echo the effectiveness and efficiency of PSFs in Mombasa County. These performance indicators comprise financial metrics like cost efficiency and revenue growth, operational efficiency like resource utilization and response time to incidents, and customer satisfaction levels like feedback and client retention rates. These variables together convey a comprehensive evaluation of how adoption of information technology impacts performance and competitiveness of PSFs.

**Private Security Firms in Kenya**

Due to a challenging spell of rise in criminal activities and terrorism attacks in the last decade, PSFs have emerged strongly as solution provider. Statistics show that the crime rate in Kenya is around 3.5 per 100,000 persons although crime incidences often go unreported due to lack of adequate capacity by law enforcers (Oruta, 2022). According to the economic survey report (2022), crime in Kenya rose by 16.7 percent in year 2021 relative to 2020 and the overall trend reveals an upturn year-on-year based on year 2016 (Oruta, 2022). In Kenya, PSFs provide vital security services to businesses, institutions, and individuals. PSFs offer services such as electronic surveillance, manned guarding, cash-in-transit services, and risk assessment services. The PSFs operate independently from government security forces and are engaged to safeguard people, assets, and property. Notable PSFs in Mombasa County, Kenya include: G4S Kenya, KK Security, Wells Fargo Limited, Securex Agencies Ltd, BM Security, and Panda Security Services.

The private security firms are registered under the Company's Act 2015. Under the Private Security Regulations Act 2016, the private security firms need to be registered with the Private Security Regulatory Authority (PSRA). There are two umbrella bodies that oversee their operations namely, the Protective Services Industry Association (PSIA), and Kenya Security Industry Association (KSIA). There are 75 firms registered as members of PSIA (Psia security.com, 2023) and 82 registered under KSIA (Ksia.or.ke, 2023). The objective of the KSIA is to create and maintain high standards and best practices in the industry, as well as to provide a central venue for discussing common concerns and representing the companies' interests. The PSIA is an association of medium or small private security firms. The objective of PSIA is to promote professional standards among its members and also represent the members' interests. ' PSFs play an important role in the provision of security services, employment opportunities, and social stability in Kenya. The PSF segment plugs the gaps that exist because of government's capacity inadequacy in security (Oketch, 2018). Today, the PSF industry is projected to generate an annual turnover of KES 32.2 billion (Knbs.or.ke, 2021). The Kenya PSFs provides wide-array of services including; protection of cash-in-transit, conventional physical security of critical and private infrastructure, protection of events and social centres, and safeguarding of VIP. The leading PSFs include Wells Fargo, SGA, G4S, BM, and KK.

Despite the numerous external challenges, PSFs face numerous internal challenges such as increased government regulation, inadequate personnel capacity, conflict of interests among stakeholders, and deficient standards/structures of quality framework (Quirico, 2017). The intensely challenging environment has made adoption of information technology solution an important consideration for many PSFs' (Quirico, 2017). Thus, the upward trend in crime and low compliance to law and order and the role PSFs play to complement regular security agencies makes the present topic an interesting consideration in regard on how adoption of information technology may influence the capacity and performance of PSFs in Mombasa County, Kenya. PSFs in Mombasa County play an essential role in augmenting safety and security for residential areas, businesses, and public institutions. The PSFs cater to assorted sectors, including private residences, hotels, retail businesses, and ports given Mombasa's position as a key tourist and commercial hub. However, challenges including inadequate training of personnel, erratic adoption of information technology, and regulatory gaps upset their performance. Notwithstanding these issues, PSFs in Mombasa County remain essential in augmenting public law enforcement, safeguarding the protection of property and life in Mombasa County, Kenya.

The adoption of information technology is crucial for enhancing the performance of private security firms in Kenya. A study by Achiando (2018) on private security firms in Nairobi County revealed that integrating e-commerce strategies, such as website development, social media engagement, and online marketing, significantly boosted sales and profitability. Specifically, 72% of firms experienced increased sales, and 82% reported higher profitability after adopting these IT solutions. Similarly, research by Osman and Ragui (2017) highlighted that the implementation of ICT positively influenced organizational performance, emphasizing the need for a supportive organizational structure and resource mobilization to maximize the benefits of information technology. These findings underscore the importance of IT adoption in improving operational efficiency, customer engagement, and overall competitiveness in the private security sector.

**Research Problem**

Despite the rising recognition of adoption of information technology as a key enabler of organizational performance, the relationship between adoption of information technology and organizational performance outcomes in Private Security Firms (PSFs) remains underexplored, particularly in the Kenyan context. While several studies (Dvojmoč *et al.,* 2020; Hasani *et al.,* 2023; Kagame & Ndahiriwe, 2021) underscore the transformative role of adoption of information technology in enhancing operational efficiency, scalability, and customer satisfaction, the conceptual clarity on which dimensions of IT (e.g., surveillance systems, communication tools, etc) directly influence PSF performance remains ambiguous. The contextual gap is evident as much of the existing literature is centered on PSFs in other countries or urban hubs like Nairobi, with limited focus on Mombasa County, a region with distinct operational, infrastructural, and regulatory challenges.

Methodologically, most prior studies adopt descriptive designs or case-based approaches that lack empirical depth and limit generalizability (Creswell & Creswell, 2017). Moreover, there exists a knowledge gap in post-pandemic realities, where digital transformation has accelerated, yet little is known about how PSFs in Mombasa County have adapted their IT strategies in response. Furthermore, existing studies focus more on benefits or challenges of IT adoption without robustly analyzing causal relationships between adoption of information technology and firm-level performance indicators. Therefore, this study seeks to address these gaps by empirically examining the impact of IT adoption on the organizational performance of PSFs in Mombasa County in Kenya, aiming to provide a grounded understanding that informs both theory and practice.

**Empirical Literature**

Several studies have examined the relationship between adoption of information technology and organizational performance, particularly in SMEs and private security sectors. However, the focus, scope and methods of these studies vary significantly, leaving critical research gaps relevant to the context of Private Security Firms in Mombasa County.

Hasani *et al.,* (2023) conducted a study on the adoption of cybersecurity practices among SMEs in the United Kingdom, employing structural equation modeling and regression analysis on survey data from 147 respondents. The study explored factors influencing cybersecurity uptake and its role in improving operational efficiency and performance. It utilized a quantitative approach to assess how cybersecurity integration aligns with business objectives. However, this study focused solely on SMEs in a developed economy, leaving a contextual gap regarding how similar technologies are adopted and utilized within PSFs in developing regions like Kenya. Furthermore, human factors and localized barriers to IT implementation were underexplored.

Tahereh (2023) examined Privacy Enhancing Technology (PET) adoption using the adoption of information technology-Organization-Environment (TOE) framework in Canadian SMEs. A survey involving 202 firms analyzed factors such as firm size, IT readiness, and environmental context. The study effectively applied theoretical tools but lacked industry-specific analysis, particularly within service sectors like private security. The cross-sectional design and national context limit applicability in environments characterized by infrastructure constraints, regulatory pressure and informal market dynamics, as found in PSFs in Mombasa.

In the African context, Gonde *et al.,* (2021) investigated e-HRM practices in private security firms in Zimbabwe. Using a cross-sectional quantitative approach, the study analyzed how electronic human resource systems impact HR services and operational performance. Despite its relevance to PSFs, the study's focus was narrow, concentrating only on HR functions, and failed to capture broader technological integrations such as surveillance systems, mobile applications or data analytics tools used in operational management. Additionally, limitations in the technological infrastructure such as power outages and internet reliability were noted but not thoroughly examined.

Kagame and Ndahiriwe (2021) explored determinants of organizational performance in PSFs in Kigali, Rwanda. Through a mixed-methods approach, they assessed how factors like training, regulatory compliance, and information technology influence service quality and efficiency. The study was relevant to African PSFs but did not delve into cybersecurity, client-side perceptions, or evolving post-pandemic technological challenges. The research also maintained a primarily internal operational focus, overlooking broader market and environmental influences.

Achiando (2018) focused on e-commerce strategy adoption in PSFs in Nairobi County, Kenya. The study evaluated how tools such as social media integration, customer relationship management and online marketing strategies influence sales and performance. Despite its national relevance, the study's limited sample size and timeframe (2015–2017), along with a lack of in-depth exploration into long-term strategic IT adoption, revealed a temporal and methodological gap.

Additionally, Mburu (2015) and Mwangi (2016) used case study designs to explore how companies like Wells Fargo and Warrior Insight Ltd leverage adoption of information technology for competitive advantage. These qualitative studies contributed rich insights into firm-level strategies but lacked generality, scalability, and empirical rigor necessary to guide broader policy or strategic decisions across the industry.

**Research Design**

A descriptive cross-sectional research design was used in this study. Mugenda and Mugenda (2013) define a descriptive design as an approach that entails gathering information to test hypotheses or address questions related to the present condition of the topic under study. It defined and described the attributes of a population or phenomenon. On the other hand, a cross-sectional design enabled the researcher to gather information about the target population at one point. The method is well-suited to this study because it sought to evaluate how information technology impacts the performance of the organisational structure of private security companies in Mombasa County, Kenya. The design was appropriate to answer the research question: What is the impact of information technology adoption

on organisational performance of PSFs in Mombasa County, Kenya?

**Target Population**

A population of study refers to the set of objects or items the researcher is interested in and where generalisations shall be made (Creswell, 2014). All the licensed Private Security Firms (PSFs) qualifying as members of the Kenya Security Industry Association (KSIA) and the Protective Security Industry Association (PSIA), which will be in operation in the Mombasa County as of January 2025, will be the target population of this study.

According to records, there were 71 firms registered under KSIA and PSIA in Mombasa County. Therefore, the target population is 71 PSFs. The unit of analysis in this study was the firm, while the unit of observation were the managers within these private security firms, as they were responsible for strategic decisions regarding adoption of information technology and organizational performance.

**Data Collection**

The main source of data for this study was the primary source. Saunders et al (2016) observe that the features of the research topics, subject, research problem, the objectives, data type, the research design, and the expected results inform the choice of study instruments and tools. The primary data was sourced using questionnaires. The questionnaire was structured, comprising closed-ended questions. Closed questions enabled respondents to select from the options using the 5-point Likert scale.

The data collection procedure denotes a process that facilitates the collection of data to determine some facts or evidence being studied (Mugenda & Mugenda, 2003). The initial step sought an authorisation letter and an introduction letter from the university. These reflected the study's legitimacy and sought any assistance or support that facilitated the survey exercise. A research assistant was recruited and trained to help collect data. The questionnaires were administered through a combination of drop and pick, mail, and phone to minimise interruptions and achieve the convenience of various respondents. After data collection, the questionnaires were scrutinised for accuracy and completeness.

A pilot test was conducted on the research instrument to determine its reliability and validity in producing the intended data. According to Sekaran & Bougie (2016), a pilot test helps to ensure that the instrument generates reliable and valid data to answer the research problem. A population similar to the main study was used for the pilot test, and 10% (7 security firms) of the sample size was used in the pilot test process. The pilot test helped understand various elements, including strength, weaknesses, clarity of the content, redundancy, timelines, relevance, and layout for correction and refinement.

**Data Analysis and Presentation**

This research analysis used descriptive and inferential statistical procedures (quantitative). SPSS software was used to process the data. The approaches are suitable because they allowed the researcher to create detailed information on the connection between adopting information technology and organisational performance. The research undertaking measures performance during the post-COVID period, 2020-25. The data was summarised using descriptive statistics, including the mean, standard deviation, and frequencies. Simple linear regression analysis was used to examine the impact of information technology adoption on the performance of Private Security Firms (PSFs). This aided in establishing the type and intensity of the association between the variables (independent and dependent). The tables and narrative easily explain the results.

**Table 3.1: Equation for Model**

| | |
|---|---|
| Equation for model<br>$Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \varepsilon$ | Y = Organizational performance<br>βo = Constant<br>β1 to β4 = Regression coefficient indicating the study variables<br>X1 to X4= Information technology adaptation indicators<br>ε = error term |

**Data Analysis and Conclusion**

The study concludes that majority of staff are conversant with the modern security information technology and possess the skills required in using the information technology in their daily functions. Routine formal education in information technology has made them able to work with efficiency but still some find it difficult to use information techonolgy tools because it is complex and decentralized in nature. The regression analysis, in turn, established a substantial positive impact of information technology literacy on PSF performance, implying that a constant investment into the IT education and training considerably can increase the success of operations of PSFs in Mombasa County.

The study also concludes that business applications have significant roles in enhancing the performance of PSFs in Mombasa County. The presence and constant utilization of such systems as the incident reporting tools, human resource management systems and client management software was regarded as positive in terms of daily work. According to respondents, those tools enhanced the efficiency, albeit the user problems existed, as well as they thought that

extant applications could be better with added functionalities. These findings also suggested that proper employee training should be done to bring full value to these systems. Business applications use had a high positive impact on the performance of the organization, which is statistically significant, which further goes to illustrate its utility in operational effectiveness.

The study further concludes that the companies had deployed an ample selection of IT-based systems, including CCTV, alarm systems and GPS tracking tools which aid in the day-to-day operations. The majority of respondents saw these infrastructures as reliable and maintained on regular basis, but some of them recalled the difficulties they had with the infrastructure and security breaches. Such obstacles establish the necessity of endless upgrade and maintenance to enhance infrastructure performance. The positive coefficient of the regression obtained in the analysis further justifies the importance of strong IT infrastructure as a major contributor of better results in the performance of the privately owned security companies.

Finally, the study findings concludes that the performance of PSFs is heavily dependent on information security practices. Formal policies, training of the staff, regular system audit and backup were found in majority of the firms. Most of the companies demonstrated high rates of incident response and active involvement in cybersecurity investments, but their long-run performances had been breached. Through these findings, one can identify an increasing interest in data and system safeguard in general and in vicinities that are more prone to digital threats. Since a statistically significant relationship has been predetermined between information security and firm performance, it is evident that strategic investment in cybersecurity could enable growth and operations resilience in the long run within the private security sector.

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