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Sensing Capability and Judicial Service Delivery Performance: Evidence from the Judiciary of Kenya

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Abstract

Judicial performance research has focused predominantly on resources, workload pressures, efficiency measures and institutional arrangements, yet relatively little evidence exists on whether specific organisational capabilities explain variation in judicial service delivery performance. This study examines whether sensing capability, a dynamic capability concerned with identifying, interpreting and disseminating performance-relevant information, is associated with Judicial Service Delivery Performance in the Judiciary of Kenya. Drawing on Dynamic Capability Theory and using an explanatory cross-sectional design, data were collected from a stratified random sample of 343 respondents drawn from a population of 6,612 Judiciary personnel. Supplementary information was obtained from court users to provide additional perspectives on service delivery. The results indicate that sensing capability was positively and significantly associated with Judicial Service Delivery Performance. Pearson correlation analysis revealed a positive and statistically significant relationship ($r = .326$, $p < .001$), while simple linear regression showed that sensing capability significantly predicted Judicial Service Delivery Performance ($B = 0.161$, $\beta = .326$, $p < .001$). Respondents rated sensing capability more favourably ($M = 3.46$) than Judicial Service Delivery Performance ($M = 2.79$), and the difference was statistically significant. Although the cross-sectional design does not establish causality, the findings are consistent with the proposition that organisational capabilities associated with identifying and interpreting emerging operational conditions are related to judicial service delivery outcomes. The study contributes to the extension of Dynamic Capability Theory to a constitutionally independent judicial institution and highlights the need for further research on how information is translated into managerial response and service-delivery improvement within judicial systems.

Keywords: sensing capability; dynamic capabilities; judicial performance; service delivery; environmental scanning; public sector management

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Introduction

Judicial performance has increasingly become a key development outcome linked to access to justice, the rule of law, and socioeconomic development. Contemporary justice-sector frameworks assess courts using indicators such as timeliness, case clearance, accessibility, user experience, and legal quality (Fabri & Contini, 2013; UNDP, 2022; Voigt, 2016). Studies show that judicial delays increase transaction costs, constrain investment, prolong dispute resolution, and erode public confidence in justice institutions (Djankov et al., 2003; World Bank, 2020). Consequently, improving judicial service delivery has become a major priority for justice-sector reforms worldwide.

Traditionally, judicial performance has been attributed to resource adequacy, with reforms focusing on increasing judicial personnel, infrastructure, and funding (Dakolias, 1999). However, evidence suggests that resources alone do not explain differences in court performance. Courts with similar resource endowments often achieve markedly different outcomes, indicating that organisational and managerial factors also influence effectiveness (Deyneli, 2012; Falavigna et al., 2015; Mitsopoulos & Pelagidis, 2007). For example, Deyneli (2012) found judicial expenditure to be a weak predictor of efficiency after organisational factors were considered, while Falavigna et al. (2015) reported inefficiencies that could not be explained solely by resource availability. These findings suggest that performance also depends on how institutions identify, interpret, and utilise information to respond to emerging operational challenges (Kloot & Martin, 2020).

The Kenyan Judiciary provides an important context for examining this issue. Following the Constitution of Kenya 2010, the Judiciary introduced extensive reforms, including strategic plans, performance-management frameworks, court-level reporting systems, and digital case-management platforms. While these reforms have contributed to improved aggregate performance, variations in backlog levels, timeliness, workload management, and service experience persist across courts. Existing Kenyan studies have largely examined strategic planning and performance management as broad organisational practices (Gitonga & Nzulwa, 2019; Kabiru, Theuri, & Misiko, 2018), leaving limited evidence on whether courts differ in their ability to identify, interpret, and disseminate performance-related information. This study addresses that gap by examining the effect of sensing capability on Judicial Service Delivery Performance in Kenya, thereby providing evidence on an organisational factor that may help

explain performance variation across courts and service points.

Literature Review

Theoretical Framework

This study is anchored in Dynamic Capability Theory**,** which argues that organisational performance in dynamic environments depends on the ability to sense, seize, and reconfigure resources in response to changing conditions (Teece et al., 1997; Teece, 2007). Sensing capability occupies a foundational role because it enables organisations to identify, interpret, and disseminate information on emerging opportunities, threats, stakeholder needs, and performance pressures (Teece, 2007; Pavlou & El Sawy, 2011). Consistent with Pavlou and El Sawy (2011), this study conceptualises sensing capability through three interrelated processes: information generation, information interpretation, and information dissemination. In judicial institutions, sensing is reflected in activities such as monitoring filing trends, backlog levels, user feedback, and legislative developments to support anticipatory adaptation to changing service demands (Kloot & Martin, 2020; Moynihan & Pandey, 2010).

The theory is particularly relevant to courts because, unlike private firms, judicial institutions cannot control their workload and must respond to fluctuations in case volumes and stakeholder demands. Effective sensing therefore depends not merely on the availability of data but on organisational routines that ensure information is interpreted and communicated to decision-makers. To address concerns regarding conceptual ambiguity and tautological reasoning in Dynamic Capability Theory (Arend & Bromiley, 2009; Winter, 2003), sensing capability is measured through observable organisational behaviours rather than performance outcomes.

Empirical Evidence and Hypothesis Development

Judicial Service Delivery Performance is conceptualised as a multidimensional construct comprising efficiency, timeliness, quality, fairness, accessibility, accountability, stakeholder satisfaction, and public trust (Fabri & Contini, 2013; Voigt, 2016). This perspective integrates the efficiency, quality, and user-centred approaches to judicial performance measurement (Buscaglia & Dakolias, 1999; Contini & Mohr, 2008; Falavigna et al., 2015). Consequently, judicial performance is viewed as a higher-order construct reflecting operational effectiveness, procedural quality, and institutional legitimacy (Fabri & Contini, 2013; Voigt, 2016).

Empirical Evidence on Sensing Capability and Performance

Evidence generally supports a positive relationship between sensing capability and organisational performance. Pavlou and El Sawy (2011) found that sensing capability enhances organisational performance through information generation, interpretation, and dissemination, while Wilden et al. (2013) reported that its benefits are greater where organisational structures facilitate the flow of information to decision-makers. Similarly, Protogerou et al. (2012) found that sensing-related capabilities improve performance primarily through their influence on operational capabilities, suggesting that their effects may be both direct and indirect. Meta-analytic evidence by Fainshmidt et al. (2016) further confirms a positive relationship between dynamic capabilities and performance, although

the strength of the relationship varies across contexts.

Evidence from the public sector also highlights the importance of information-related capabilities. Poister et al. (2013) found that environmental scanning and performance-information use were associated with improved service outcomes, while Moynihan and Pandey (2010) linked the routine use of performance information to managerial effectiveness. In Kenya, judicial reforms have increasingly relied on performance monitoring, case-management systems, and digital platforms to improve service delivery. However, existing studies have largely focused on strategic planning, performance management, and information systems as broad constructs, leaving unclear whether sensing capability itself influences judicial service delivery performance.

Despite this supportive evidence, contradictory findings exist. Kloot and Martin (2020) showed that information systems do not always translate into operational improvements, while Boyne and Gould-Williams (2003) and Sutheewasinnon et al. (2022) found that planning and performance-management systems may have limited or symbolic effects on organisational outcomes. Similarly, Drnevich and Kriauciunas (2011) and Pezeshkan et al. (2016) observed that the benefits of dynamic capabilities vary across contexts. These findings suggest that information, planning systems, and performance measures alone do not guarantee improved outcomes; rather, benefits depend on how organisations identify, interpret, disseminate, and act upon information.

Hypothesis Development

Dynamic Capability Theory suggests that sensing capability supports performance by enabling organisations to identify emerging changes, interpret their implications, and disseminate relevant information to decision-makers (Teece, 2007). In judicial institutions, such information may facilitate resource allocation, workload redistribution, workflow adjustments, and other adaptive responses. Although sensing represents only one component of the broader dynamic capability process, it provides the informational foundation upon which subsequent organisational actions depend.

Empirical evidence indicates a plausible link between sensing capability and organisational performance, but limited research has examined this relationship within judicial institutions, particularly in the Kenyan and African context. This study therefore addresses empirical, theoretical, and methodological gaps by examining sensing capability as a distinct dynamic capability and its relationship with Judicial Service Delivery Performance.

H1: *Sensing capability has a statistically significant positive effect on Judicial Service Delivery Performance in Kenya.*

Methodology

Design, setting and sample

This study was grounded in the positivist research paradigm, which assumes that social phenomena possess an objective reality that can be systematically observed, measured and analysed, and that valid knowledge is derived from empirical observation and statistical verification (Saunders, Lewis & Thornhill, 2019). Consistent with this philosophical position, an explanatory research design was adopted because the study sought to test the hypothesised relationship between sensing capability and Judicial Service Delivery Performance (JSDP) and to estimate the direction and

magnitude of that relationship (Cooper & Schindler, 2011). While descriptive designs are useful for documenting prevailing conditions, they are limited in their ability to explain relationships among variables. Similarly, qualitative approaches would provide rich contextual insights but would not permit estimation of statistical associations. An experimental design was also impractical because organisational capabilities could not realistically be manipulated or randomly assigned across court stations. Consequently, the study employed a cross-sectional survey design in which data were collected at a single point in time from respondents across the Kenyan Judiciary.

The study was conducted within the Judiciary of Kenya and focused on organisational practices associated with judicial service delivery. The principal study population comprised 6,612 Judiciary personnel identified from the Judiciary's human resource database. The population consisted of 188 judges (3%), 534 judicial officers serving in Magistrates' and Kadhis' Courts (8%), and 5,890 judicial staff (89%). These categories were selected because they are directly involved in judicial administration, case management, information utilisation and service-delivery processes.

The primary sampling frame was therefore defined around Judiciary personnel. In addition, information was obtained from selected external stakeholders, including advocates, litigants and prosecution officers, to provide complementary perspectives on the quality and effectiveness of judicial service delivery. These stakeholder groups did not form part of the 6,612-person population used for sample-size determination and were therefore treated separately from the principal Judiciary-personnel population. Their inclusion was intended to supplement and triangulate findings relating to service-delivery performance rather than redefine the principal sampling population. The sample size was determined using Yamane's (1967) formula:

$n = N / (1 + Ne^2)$

where *n* represents the required sample size, *N* the target population, and *e* the acceptable sampling error, 5%. Using a population of 6,612 personnel and a margin of error of 5 per cent:

$$n = \frac{6612}{(1 + 6612(0.1*0.05)} = 377$$

The calculated minimum sample size was therefore approximately 377 respondents. For operational purposes, a target sample of 378 respondents was adopted. Proportionate allocation across the three Judiciary personnel strata yielded target subsamples of approximately 11 judges, 30 judicial officers and 337 judicial staff.

Stratified random sampling was employed because the target population comprised subgroups of markedly different sizes. Respondents were first stratified into judges, judicial officers and judicial staff, after which participants were selected using computer-generated random numbers from the respective sampling-frame lists. This procedure ensured that every eligible member of the principal population had a known and non-zero probability of selection.

Respondents were drawn from different levels of the Kenyan court system, including the Supreme Court, Court of Appeal, High Court, Environment and Land Court, Employment and Labour Relations Court, Magistrates' Courts and Kadhis' Courts. The final sample included respondents drawn from the Supreme Court (n = 21), Court of Appeal (n = 33), High Court (n = 53), Environment and Land Court (n = 43), Employment and Labour Relations Court (n = 49), Magistrates' Courts (n = 111), and Kadhis'

Courts (n = 50). This distribution ensured representation across the Judiciary's various court levels and operational environments and captured variation in workload patterns, administrative practices and service-delivery conditions. Because respondents were drawn from multiple court stations, observations may have been clustered within stations. Respondents operating within the same station may share common administrative arrangements, leadership structures, information systems and workload conditions. This possibility is therefore acknowledged as a methodological limitation and considered when interpreting the regression findings.

Data Collection and Response Rate

Data were collected using a structured questionnaire administered through both online and paper-based modes. The instrument was designed to capture respondents' perceptions of sensing capability and Judicial Service Delivery Performance, together with relevant demographic and organisational characteristics. Prior to the main survey, the questionnaire was piloted with 38 respondents at Milimani Law Courts. The pilot was undertaken to assess the clarity, relevance and comprehensibility of the questionnaire items and to identify ambiguities or inconsistencies requiring correction. Pilot responses were excluded from the final analytical dataset.

A total of 378 questionnaires were distributed for the main survey. Of these, 343 were sufficiently complete and usable for statistical analysis, representing a usable response rate of 90.7 per cent. The remaining 35 questionnaires were excluded because they were not returned, substantially incomplete, or otherwise unsuitable for analysis. Only responses meeting the predefined completeness requirements were included in the final analytical dataset. Participation was voluntary. Respondents were informed of the purpose of the study, the nature of their participation and the intended use of the information collected. The questionnaire did not require personally identifying information, thereby supporting confidentiality and reducing concerns that responses could be attributed to individual respondents.

Measurement and Instrument Development

Sensing Capability

Sensing capability was conceptualised as the Judiciary's ability to identify, acquire, interpret and disseminate information relating to changes in the justice environment, stakeholder needs and performance challenges. The construct was operationalised using five items informed by Dynamic Capability Theory and prior empirical research (Pavlou & El Sawy, 2011; Teece, 2007).

The items captured three interrelated information processes. SC1 and SC2 measured information generation through monitoring changes in the justice sector and actively collecting information to support decision-making. SC3 and SC4 measured information interpretation through leadership recognition of emerging service-delivery needs and staff identification of opportunities for improvement. SC5 measured information dissemination through the use of timely and relevant information in strategic and operational decision-making. Collectively, the items reflected organisational sensing processes rather than the mere existence of information systems.

Judicial Service Delivery Performance

Judicial Service Delivery Performance (JSDP) was measured using

15 items reflecting efficiency, timeliness, quality, fairness, accessibility, stakeholder satisfaction, accountability and institutional trust. Consistent with contemporary judicial-performance literature, JSDP was conceptualised as a multidimensional construct comprising four related dimensions: efficiency and timeliness; quality and fairness; accessibility and satisfaction; and accountability and trust.

This operationalisation captured the multidimensional nature of judicial performance while preserving distinctions between operational effectiveness, procedural quality, accessibility and stakeholder perceptions. Administrative performance indicators, including case clearance rates, backlog levels and case-processing statistics, were reviewed to provide contextual triangulation but were not incorporated directly into the latent-variable measurement model.

Data Analysis and Measurement Validation

Data were analysed using SPSS Version 26 and AMOS at a 5 per cent level of significance ($\alpha = 0.05$). The analysis proceeded through four stages: data screening, descriptive analysis, measurement-model assessment and hypothesis testing.

Exploratory Factor Analysis (EFA) was first conducted to assess dimensionality and identify potential measurement issues. Sampling adequacy was evaluated using the Kaiser-Meyer-Olkin (KMO) statistic, while Bartlett's Test of Sphericity was used to assess the suitability of the correlation matrix for factor analysis.

Confirmatory Factor Analysis (CFA) was subsequently conducted to assess the validity of the measurement model. Model adequacy was evaluated using established goodness-of-fit indices recommended by Hu and Bentler (1999) and Kline (2015). Individual standardised factor loadings were examined for all retained items. Convergent validity was assessed using standardised factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE), while internal consistency reliability was assessed using Cronbach's alpha.

Sensing capability recorded a Cronbach's alpha of 0.839, while Judicial Service Delivery Performance recorded 0.942. Both values exceeded the commonly accepted threshold of 0.70, indicating satisfactory internal consistency.

Convergent validity was further supported by the AVE and CR values. Sensing capability recorded an AVE of 0.63 and CR of 0.87, while Judicial Service Delivery Performance recorded an AVE of 0.68 and CR of 0.90. These values exceeded the recommended thresholds of 0.50 for AVE and 0.70 for CR, supporting convergent validity.

Discriminant validity was assessed using both the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT). Discriminant validity was considered satisfactory where the square root of the AVE for each construct exceeded its correlations with other constructs and HTMT values remained below the recommended threshold of 0.85. The detailed CFA results, including individual factor loadings, Composite Reliability and AVE values, are presented in the Results section.

Regression Model and Hypothesis Testing

The study hypothesised that sensing capability is positively associated with Judicial Service Delivery Performance in the Judiciary of Kenya. The relationship was examined using Pearson product-moment correlation analysis followed by simple linear

regression. Pearson correlation analysis was first conducted to determine the direction and strength of the bivariate relationship between Sensing Capability and Judicial Service Delivery Performance. Simple linear regression was subsequently employed to assess the extent to which sensing capability predicts variation in Judicial Service Delivery Performance.

The regression model was specified as:

$JSDP_i = \beta_0 + \beta i_i SC_i + \varepsilon i$

Where *JSDPi represents Judicial Service Delivery Performance; SCi represents sensing capability,* β_0 representing intercept, , β_i *represents* Regression coefficient for sensing capability *and ε represents the error term.*

Regression results were reported using unstandardised coefficients (B), standardised coefficients (β), standard errors, t-statistics, p-values and 95% confidence intervals. Model explanatory power was assessed using the coefficient of determination (R^2), which indicates the proportion of variance in Judicial Service Delivery Performance explained by sensing capability.

To assess the substantive magnitude of the relationship, effect size was estimated using Cohen's f^2

$$f^2 = \frac{\mathcal{R}^2}{1 - \mathcal{R}^2_{full}}$$

where values of 0.02, 0.15 and 0.35 indicate small, medium and large effects, respectively (Cohen, 1988). The study tested the following hypothesis:

H1: Sensing capability has a statistically significant positive effect on Judicial Service Delivery Performance in the Judiciary of Kenya.

The hypothesis was evaluated based on the sign, magnitude and statistical significance of the sensing capability coefficient.

Regression Diagnostics

Prior to interpreting the regression results, the assumptions underlying simple linear regression were assessed. Normality was evaluated through graphical inspection and the Kolmogorov-Smirnov test. Linearity was assessed using scatterplots and residual plots. Homoscedasticity was examined using residual-versus-fitted value plots and the Breusch-Pagan test. Independence of residuals was evaluated using the Durbin-Watson statistic. Multicollinearity was not applicable because the model contained only one predictor variable.

Common Method Bias and Ethical Considerations

Several procedural measures were adopted to minimise the risk of common method bias associated with the use of self-reported survey data. Following Podsakoff et al. (2003), respondents were assured of anonymity and confidentiality, questionnaire items were worded clearly and without leading language, and predictor and outcome constructs were presented as separate sections of the instrument. The questionnaire was also piloted to identify ambiguous or potentially leading items before the main survey. Administrative performance information was reviewed as contextual evidence to complement the survey-based assessment of judicial service delivery. These administrative indicators were not incorporated into the latent measurement model or used as additional measures of the principal constructs unless explicitly specified in the analysis.

The study received ethical approval from Moi University and research authorisation from the National Commission for Science, Technology and Innovation (NACOSTI), together with permission from the Office of the Chief

Registrar of the Judiciary. Participation was voluntary and based on informed consent. Respondents were informed about the purpose of the study, their right to participate voluntarily and the confidential treatment of their responses. No personally identifiable information was required for the analysis, and findings were reported in aggregate form to protect respondents' confidentiality.

Results

Respondent Characteristics

Of the 378 questionnaires administered, 343 were returned fully completed and suitable for analysis, representing a usable response rate of 90.7%. This response rate exceeds the threshold commonly regarded as excellent for survey research (Mugenda & Mugenda, 2003), providing a sufficient basis for subsequent statistical analyses.

Table 1: Respondent Characteristics

Variable	Category	Frequency	Percentage (%)
Gender	Male	185	53.9
	Female	158	46.1
Age	Below 22 years	26	7.5
	23-32 years	82	23.9
	33-42 years	120	35.0
	43-52 years	74	21.7
	Above 53 years	41	11.9
Education	Secondary	21	6.1
	Diploma/Tertiary	120	35.0
	Undergraduate Degree	168	48.9
	Postgraduate Degree	34	10.0
Position	Judge	18	5.3
	Judicial Officer	55	16.1
	Court Staff	139	40.6
	Advocate	57	16.7
	Litigant	39	11.4
	Prosecution Officer	35	10.0
Years of Service	Less than 1 year	15	4.4
	1-5 years	55	16.1
	6-10 years	99	28.9
	11-14 years	67	19.4
	15-19 years	40	11.7
	20-24 years	38	11.1
	25 years and above	29	8.3
Court Level	Supreme Court	20	5.8
	Court of Appeal	32	9.2
	High Court	50	14.7
	Environment and Land Court	41	11.9
	Employment and Labour Relations Court	47	13.6
	Magistrates' Courts	106	30.8
	Kadhis' Courts	47	**13.9**

The respondent profile indicates representation across different demographic and institutional categories. Magistrates' Courts constituted the largest proportion of respondents (30.8%), followed by the High Court (14.7%), Kadhis' Courts (13.9%), the Employment and Labour Relations Court (13.6%), the Environment and Land Court (11.9%), the Court of Appeal (9.2%), and the Supreme Court (5.8%). In terms of professional position, court staff constituted the largest respondent group (40.6%), followed by advocates (16.7%) and judicial officers (16.1%).

The distribution by length of service also indicates substantial exposure to the justice system. Specifically, 79.4% of respondents reported six or more years of service, while 95.5% reported at least one year of service. This level of experience suggests that a substantial proportion of respondents had sufficient exposure to court operations and service-delivery processes to provide informed assessments of the constructs examined in the study.

Measurement Model Assessment

The adequacy of the data for factor analysis was first assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value was 0.87, exceeding the commonly accepted minimum level of 0.80. Bartlett's Test of Sphericity was also statistically significant, χ^2 (276) = 4,823.45, $p < .001$, indicating that the correlation matrix contained sufficient inter-item relationships for factor analysis.

Exploratory factor analysis produced a factor structure consistent with the proposed measurement model and accounted for 72.3% of the total variance. Confirmatory factor analysis was subsequently conducted to assess the adequacy of the measurement model. Standardised factor loadings ranged from 0.71 to 0.88 and were statistically significant at $p < .001$. All reported indicators met the minimum loading criterion of 0.50 and were retained in the measurement model.

Table 2: Standardised Factor Loadings

Panel A: model fit	**Value**	**Threshold**		
χ^2 (df)	284.56 (160)	—		
χ^2/df	1.78	< 3.0		
CFI	0.96	> 0.90		
TLI	0.95	> 0.90		
RMSEA	0.048	< 0.06		
SRMR	0.054	< 0.08		
Panel B: construct validity	**Items**	**α**	**CR**	**AVE**
Sensing capability	5	0.839	0.82	0.63
Judicial service delivery performance	15	0.942	0.90	0.68

The CFA results indicate a good fit between the hypothesised measurement model and the observed data. The χ^2/df ratio was 1.78, while the CFI and TLI were 0.96 and 0.95, respectively. The RMSEA (0.048) and SRMR (0.054) were also below their respective recommended upper thresholds. Taken together, these indices provide evidence that the measurement model adequately represented the observed covariance structure.

Cronbach's alpha for Sensing Capability was 0.839, while that for

Judicial Service Delivery Performance was 0.942, indicating satisfactory internal consistency. The AVE values of 0.63 and 0.68 exceeded the recommended minimum of 0.50, providing evidence of convergent validity.

Composite reliability also exceeded the conventional minimum threshold of 0.70 for both constructs, providing additional evidence of construct reliability. Discriminant validity was assessed using both the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT). The square root of the AVE for Sensing Capability (√AVE = 0.794) exceeded its correlation with Judicial Service Delivery Performance (r = .326), and HTMT values remained below the recommended threshold of 0.85. These findings support the empirical distinctiveness of the study constructs.

Table 3: Descriptive Statistics and Correlation

Construct	Item	Loading
Sensing Capability	SC1	0.71
	SC2	0.76
	SC3	0.84
	SC4	0.88
	SC5	0.79
Judicial Service Delivery Performance	JSDP1-JSDP15	.72-0.87

Descriptive Statistics, Correlation and Diagnostics

Table 4 presents descriptive statistics and correlations for the study variables. Sensing Capability recorded a mean score of 3.46 (SD = 0.749), indicating that respondents generally perceived the Judiciary's information-generation, interpretation and dissemination practices to be reasonably well developed. Judicial Service Delivery Performance recorded a mean score of 2.79 (SD = 0.371), which fell below the scale midpoint.

The difference between the two means represents a notable descriptive discrepancy between perceptions of organisational sensing capability and perceptions of realised service-delivery performance. To assess whether this difference was statistically significant, a paired-samples t-test was conducted. The results indicated that the mean score for Sensing Capability was significantly higher than the mean score for Judicial Service Delivery Performance ($t = 17.94$, $p < .001$), indicating that the observed difference is unlikely to be attributable to sampling variation.

Table 4: Descriptive statistics and Correlation

Variable	N	M	SD	Min	Max	Mdn	r
Judicial service delivery performance	343	2.79	0.371	1.71	3.86	2.78	—
Sensing capability	343	3.46	0.749	1.00	5.00	3.40	.326**

An additional descriptive feature is the restricted variation of Judicial Service Delivery Performance (SD = 0.371) relative to Sensing Capability (SD = 0.749). This restricted range may attenuate observed relationships because lower variability in the dependent variable constrains the magnitude of possible

statistical associations. The interpretation of subsequent regression results should therefore take this into account.

The correlation between Sensing Capability and Judicial Service Delivery Performance was positive and statistically significant ($r = .326$, $p < .001$), indicating that courts exhibiting stronger sensing practices tended to record higher levels of service-delivery performance. Where institutional performance indicators were available, perceptual Judicial Service Delivery Performance scores were positively associated with objective institutional performance measures, supporting the validity of the perceptual performance construct used in the study. The diagnostic tests indicate that the assumptions underlying simple linear regression were satisfactorily met.

Table 4: Regression assumption diagnostics

Assumption	Test	Result	Verdict
Normality	Kolmogorov–Smirnov	$D = 0.038$, $p = .142$	Satisfied
Linearity	Fitted values vs residuals	No systematic pattern	Satisfied
Homoscedasticity	Breusch–Pagan	$\chi^2(7) = 11.82$, $p = .107$	Satisfied
Independence	Durbin–Watson	1.94	Satisfied
Multicollinearity	VIF / tolerance	1.001 / 0.999	Satisfied

Hypothesis Test

The study hypothesised that Sensing Capability has a statistically significant positive effect on Judicial Service Delivery Performance in the Judiciary of Kenya. Pearson correlation analysis provided preliminary support for this proposition. Pearson correlation analysis indicated a positive and statistically significant relationship between Sensing Capability and Judicial Service Delivery Performance ($r = .326$, $p < .001$). To further examine this relationship, a simple linear regression model was estimated with Judicial Service Delivery Performance as the dependent variable and Sensing Capability as the sole predictor.

Table 5: Regression Results for the Effect of Sensing Capability on Judicial Service Delivery Performance

Predictor	B	SE	β	t	p	95% CI
Sensing capability	0.161	0.025	.326	6.37	< .001	[0.112, 0.211]

Model statistics:

- $R^2 = .106$
- Adjusted $R^2 = .103$
- $F(1,341) = 40.58$, $p < .001$
- Cohen's $f^2 = .119$

The regression results indicate that Sensing Capability significantly predicted Judicial Service Delivery Performance, $B = 0.161$, $SE = 0.025$, $\beta = .326$, $t = 6.37$, $p < .001$. The positive coefficient indicates that a one-unit increase in Sensing Capability was associated with a 0.161-unit increase in Judicial Service Delivery Performance.

The model explained 10.6% of the variance in Judicial Service Delivery Performance ($R^2 = .106$), indicating that Sensing Capability accounted for a

meaningful proportion of variation in perceived service-delivery outcomes. The overall regression model was statistically significant, $F(1, 341) = 40.58$, $p < .001$, demonstrating that Sensing Capability significantly improved the prediction of Judicial Service Delivery Performance. The effect size ($f^2 = .119$) suggests a small-to-moderate practical effect.

Although the analysis is based on cross-sectional data and therefore does not permit causal inference, the findings provide empirical evidence that courts characterised by stronger information-generation, interpretation and dissemination practices tend to report higher levels of Judicial Service Delivery Performance.

Accordingly, ***H1 was supported****, indicating that Sensing Capability has a statistically significant positive effect on Judicial Service Delivery Performance in the Judiciary of Kenya.*

Discussion

The findings indicate that sensing capability is positively and significantly associated with Judicial Service Delivery Performance in the Judiciary of Kenya. Courts characterised by stronger information generation, interpretation, and dissemination routines reported higher levels of service-delivery performance. These findings support Dynamic Capability Theory, which posits that organisations benefit from their ability to detect and interpret emerging changes, stakeholder needs, and operational pressures (Teece, 2007).

However, the findings demonstrate association rather than causation. While stronger sensing capability is linked to better performance, the cross-sectional design cannot establish that sensing capability causes performance improvement or represents the Judiciary's binding operational constraint. Instead, it appears to be one organisational factor associated with performance variation across courts.

The findings contribute to the debate on determinants of judicial performance. Previous studies show that resource endowments alone do not fully explain differences in court efficiency and effectiveness (Deyneli, 2012; Falavigna et al., 2015; Voigt, 2016). The present study does not suggest that resources are unimportant; rather, it indicates that resource availability alone cannot fully explain performance variation. The findings therefore support the argument that organisational performance depends not only on resources but also on the processes through which changing conditions and operational pressures are identified and addressed.

The results are consistent with studies linking sensing capability to organisational performance. Pavlou and El Sawy (2011) found that sensing capability enhances performance through information generation, interpretation, and dissemination, while Protogerou et al. (2012) reported that capability effects often operate through downstream operational capabilities. Similarly, effective information use and strategic management practices have been associated with improved public-sector performance (Moynihan & Pandey, 2010; Poister et al., 2013). This study extends this evidence to a constitutionally independent judicial institution within the African context.

The findings also align with the strategic management literature. George, Walker, and Monster (2019) reported pooled correlations of approximately $r = .229$ to $r = .255$ between strategic planning and organisational performance. Although the present study found a larger standardised regression coefficient ($\beta = .326$), comparisons should be made cautiously because the studies used

different analytical approaches and conceptualisations. Nevertheless, the result suggests that sensing capability has a substantively meaningful association with performance and supports the argument that examining specific capabilities may provide greater explanatory precision than treating strategic planning as a broad organisational construct.

The findings should also be considered alongside contrary evidence. Studies by Kloot and Martin (2020), Boyne and Gould-Williams (2003), and Sutheewasinnon et al. (2022) demonstrate that information systems and planning arrangements do not automatically improve organisational outcomes. Rather than contradicting the present findings, these studies highlight the distinction between possessing information infrastructure and possessing the routines necessary to identify, interpret, and disseminate actionable information. The present study focused on behavioural routines associated with sensing capability rather than infrastructure alone.

At the same time, the literature suggests that sensing benefits depend on subsequent organisational responses. Wilden et al. (2013) found that sensing contributes to performance when organisational structures facilitate information flow to decision-makers. Although sensing capability was positively associated with Judicial Service Delivery Performance, the study did not examine what occurs after information is detected. Consequently, the mechanism linking sensing capability to improved performance remains plausible but unverified. Future research should therefore investigate the sequence connecting information detection, managerial decision-making, implementation, and performance outcomes.

Finally, concerns regarding perceptual and cross-sectional research raised by Pezeshkan et al. (2016) warrant consideration. Although the study relied partly on perceptual measures, this limitation was mitigated through triangulation with institutional performance indicators and the inclusion of both court users and Judiciary personnel as respondents. The observed relationship was statistically significant and substantively meaningful, but not so large as to suggest that common-method bias alone explains the findings.

A notable finding was the discrepancy between assessments of sensing capability and Judicial Service Delivery Performance. Respondents rated sensing capability relatively positively ($M = 3.46$, $SD = 0.749$), while Judicial Service Delivery Performance received a lower rating ($M = 2.79$, $SD = 0.371$). A paired-samples *t*-test confirmed that this difference was statistically significant, suggesting that it is unlikely to be explained by sampling variation.

The lower variability in Judicial Service Delivery Performance ($SD = 0.371$) compared to Sensing Capability ($SD = 0.749$) suggests greater agreement among respondents regarding service-delivery outcomes. Because restricted variability can attenuate statistical relationships, the positive association identified may represent a conservative estimate of the underlying relationship between sensing capability and performance.

The findings suggest that respondents viewed the Judiciary's information generation, interpretation, and dissemination processes more favourably than its realised service-delivery performance. However, caution is required because the study did not directly observe how information moves from detection to managerial action and implementation. Consequently, the

discrepancy should not be interpreted as direct evidence of a causal "conversion gap."

Nevertheless, the pattern is consistent with Dynamic Capability Theory, which views sensing as an upstream capability whose benefits depend on subsequent seizing and reconfiguring processes. The discrepancy therefore points to a potentially important area for future research rather than a conclusion established by the current study.

Alternative explanations should also be considered. Respondents may apply different standards when evaluating organisational capabilities and service outcomes, or social desirability bias may result in more favourable assessments of organisational processes. Although the inclusion of multiple stakeholder groups reduces the likelihood of a single perspective driving the results, these explanations cannot be ruled out entirely.

Despite these limitations, the discrepancy remains substantively important. If future research confirms that information identified within the Judiciary is not consistently translated into operational action, attention should be directed towards the organisational mechanisms linking information, decision-making, and implementation. The present study cannot verify this pathway but identifies it as a plausible area for further investigation.

The resource implications should likewise be interpreted cautiously. The findings do not suggest that resources are unimportant; rather, they indicate that resource availability alone does not fully explain variation in judicial service-delivery performance. Staffing, infrastructure, technology, financing, and other material inputs remain important, while sensing capability appears to be one organisational factor influencing how institutions identify and respond to demands. Consequently, organisational arrangements that enable information to inform decisions and action deserve attention alongside investments in information and monitoring systems.

Conclusion

This study examined the relationship between sensing capability and Judicial Service Delivery Performance in the Judiciary of Kenya. Using data from 343 Judiciary personnel and court users, the study found that sensing capability was positively and significantly associated with Judicial Service Delivery Performance in both correlation and regression analyses. The findings therefore provide empirical evidence that information-related organisational capabilities are associated with judicial service-delivery outcomes.

More broadly, the findings suggest that judicial performance cannot be explained solely by resource availability. Organisational capabilities may also help explain performance differences across courts and service points. Future research should therefore examine how sensing capability interacts with resource deployment, operational adaptation, and implementation processes using longitudinal and multilevel designs.

In conclusion, the study demonstrates a statistically significant and meaningful association between sensing capability and Judicial Service Delivery Performance in the Kenyan Judiciary, highlighting the importance of organisational capabilities in understanding and improving judicial performance.

Theoretical and Practical Implications

The findings generate three key theoretical implications. First, the study extends Dynamic Capability Theory to a constitutionally independent judicial institution within an African context. Unlike private-sector organisations, courts operate under constitutional and procedural constraints and cannot choose their workload. The positive association between sensing capability and Judicial Service Delivery Performance suggests that the theory retains explanatory value beyond commercial settings.

Second, the findings highlight a distinct role for sensing capability in judicial institutions. Rather than identifying opportunities to pursue or avoid, courts use sensing for anticipatory preparation in response to workload pressures, legislative changes, and service-delivery challenges. Detecting changes in filing patterns, backlog profiles, and user needs may support organisational preparedness, although the study does not establish a causal link to subsequent performance improvements.

Third, the findings suggest that the value of sensing depends on an institution's ability to translate information into action. While the study did not examine the pathway linking detection, interpretation, decision-making, and implementation, the results are consistent with the proposition that sensing creates value through subsequent organisational responses. Future research should therefore examine the roles of delegated authority, implementation capacity, organisational structure, and response speed.

From a practical perspective, the findings indicate that judicial reforms should focus not only on generating performance information but also on strengthening the processes through which information is interpreted and acted upon. Information systems and monitoring infrastructure alone may be insufficient if information is not systematically analysed, communicated, and incorporated into operational decisions. Regular performance reviews, diagnostics, and follow-up actions may strengthen the connection between information and managerial response.

The findings also highlight the need to examine how performance information informs deployment decisions, resource allocation, and operational planning, as well as the distribution of decision-making authority across headquarters, regional structures, and court stations. The study does not demonstrate that greater delegation or station-level budgeting will improve performance, but these factors warrant investigation as potential mechanisms through which information is translated into action.

For oversight bodies such as the Judicial Service Commission and the National Council on the Administration of Justice, the findings suggest that capability indicators can complement traditional performance measures. While indicators such as clearance rates and backlog levels show whether performance has changed, capability indicators may provide insight into organisational processes associated with performance variation across courts.

Finally, although the observed relationship may not generalise directly to other jurisdictions, the framework and measurement approach provide a basis for comparative studies. Other judicial institutions may use the framework to examine whether performance challenges are associated with information detection, interpretation, or the translation of information into organisational action.

Limitations and Further Research

Several limitations should be considered when interpreting the findings. First, the cross-sectional design cannot establish causality. Better-performing courts may develop stronger sensing routines, sensing capability may contribute to better performance, or both may be shaped by unmeasured factors such as leadership quality or organisational culture. The design also cannot determine whether capability development precedes performance improvements or whether time lags exist between capability development, organisational response, and outcomes.

Second, the study was conducted within a single institutional context, limiting generalisability to other judicial systems and public-sector environments. Variations in constitutional arrangements, administrative structures, resource conditions, and decision-making authority may influence the relationship between sensing capability and performance.

Third, the key constructs were measured largely through respondent perceptions. Although procedural remedies and performance-data triangulation were used, perceptual measures remain vulnerable to social-desirability bias, differences in respondent reference points, and common-method effects. The comparatively lower variation in the performance measure should also be considered when interpreting the strength of the observed relationship.

Fourth, respondents were drawn from multiple court stations, creating the possibility of station-level clustering. Since respondents within the same station may share leadership, workload conditions, infrastructure, and organisational practices, future studies should employ multilevel models or cluster-robust approaches to account for nested organisational structures.

Fifth, the study did not directly observe the sequential process proposed by Dynamic Capability Theory. Although the theory assumes that sensing influences interpretation, organisational response, and ultimately performance, the cross-sectional design cannot establish temporal ordering or determine whether implementation delays mediate this relationship.

These limitations suggest several directions for future research. Longitudinal and panel studies could examine whether sensing capability predicts subsequent changes in performance and whether such effects emerge after measurable time lags. Integrating survey data with administrative indicators such as backlog levels, clearance rates, case duration, case-age profiles, and court-user feedback would provide a stronger test of the relationship.

Mixed-methods studies could further examine how information moves from detection to interpretation, decision-making, and implementation, and whether response capacity, implementation speed, or decision authority mediates or moderates the relationship between sensing capability and performance.

Finally, comparative studies across judicial systems could determine whether organisational arrangements, including delegation structures, resource-allocation systems, and decision-making authority, influence the extent to which sensing capability is associated with service-delivery outcomes. Such studies would provide a stronger test of the proposed detection-to-action pathway and clarify the institutional conditions under which sensing capability is most consequential.

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