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Automation of Reporting Tasks and Its Impact on Bandwidth for Customer Experience Managers

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Abstract – Organizations increasingly automate reporting to reduce the manual effort of collecting, verifying, and circulating operational data, a burden that falls heavily on Customer Experience (CX) managers in Software-as-a-Service firms. This study examines whether employee perceptions of automation across five dimensions - Productivity/Time Savings, Ease of Use, Speed & Timeliness, Quality & Error Reduction, and Trust & Satisfaction - predict their overall perception that automation improves operational efficiency and releases bandwidth for higher-value work. Data were collected from 84 working professionals using a 20-item, five-point Likert-scale questionnaire administered through Google Forms. The instrument demonstrated excellent reliability (Cronbach's alpha = 0.918). Descriptive statistics, Pearson correlation, and multiple linear regression were used for analysis, with regression assumptions (normality, multicollinearity, homoscedasticity, autocorrelation) verified. All five constructs correlated positively and significantly with the overall outcome ($r = 0.498$-0.646), and together explained 50.3% of its variance ($R^2 = 0.503$). Speed & Timeliness ($\beta = 0.526$), Productivity/Time Savings ($\beta = 0.450$), and Ease of Use ($\beta = 0.413$) emerged as the strongest predictors. Findings suggest that organizations seeking to maximize perceived bandwidth release should prioritize automating high-frequency, time-consuming tasks and keep interfaces simple, rather than investing primarily in trust-building initiatives.

KeyWords: reporting automation, customer experience management, operational efficiency, bandwidth release, technology acceptance, business intelligence.

1. INTRODUCTION

Organizations today are working to automate a wide range of processes in order to boost efficiency, cut down the time spent on repetitive tasks, simplify overly complex workflows, and support better decision-making. Companies operating in highly competitive markets tend to generate enormous volumes of data, drawn from enterprise applications, customer service systems, enterprise resource planning platforms, and business intelligence tools. On top of this, many organizations still have to manually sort through and manage much of this data themselves, a practice that ends up draining considerable time and resources whenever important business decisions need to be made.

Reporting, in particular, stands out as a critical yet time-consuming organizational activity. Businesses produce a steady stream of reports on a daily basis, covering everything from operations and customer satisfaction to financial performance and team output, all aimed at tracking how well the organization is functioning. Traditionally, this process has been carried out manually, requiring staff to gather data from various sources, verify its accuracy, build presentation slides, write up the report itself, and then circulate it to the relevant stakeholders.

More recently, automation, whether through scripting tools, process-flow automation, artificial intelligence, or business intelligence (BI) platforms, has begun to reshape how reports are generated. These technologies collect and present data both quickly and reliably. By automating report generation, organizations stand to gain considerably in terms of efficiency, since the process saves time and effort, improves the accuracy of the output, and speeds up how quickly information reaches decision-makers. This is especially relevant for Software-as-a-Service (SaaS) companies, many of which must handle substantial volumes of data on an ongoing basis. These companies routinely track subscription metrics, customer behavior, service operations, support requests, renewals, and refunds, all of which fall under the broader umbrella of key performance indicators (KPIs). Given that Customer Experience (CX) managers are typically the ones responsible for this kind of analysis, manually compiling reports becomes both cumbersome and time-intensive, ultimately preventing organizations from reaching their desired levels of efficiency.

Automation offers a way to help CX managers produce business reports more quickly while reducing the time and effort involved, freeing them up to focus instead on strengthening customer engagement and improving broader business outcomes. Yet whether this freed-up time genuinely translates into productive "bandwidth release" for employees, and which facets of the automation experience drive that perception, remains an open empirical question. This study addresses that gap by testing a five-construct model of

automation perception against a single overall efficiency/bandwidth-release outcome, using primary survey data from professionals working with automated systems.

2. CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

2.1 Conceptual Framework

Reporting automation refers to the use of software to collect, process, analyze, and circulate reports automatically with minimal manual effort. Organizations increasingly rely on tools such as Salesforce, Power BI, Tableau, Google Apps Script, Microsoft Power Automate, and Metabase to draw data from business support, financial, and operational systems, generating reports with little manual intervention. In the CX field specifically, automated reports are widely used to surface customer satisfaction levels, renewal forecasts, and support-ticket status.

Bandwidth release refers to the additional productive time that becomes available once certain processes are automated. Before automation tools became part of the reporting process, CX managers routinely spent hours preparing reports and analyzing data, time that automation has since freed up for more valuable work. The conceptual model adopted in this study holds that automated reporting removes manual work, resulting in bandwidth release; as bandwidth release increases, so too does operating efficiency, since CX managers can redirect time saved toward higher-value activities; and greater operating efficiency in turn supports improved reporting accuracy, customer satisfaction, and overall organizational performance (Fig. 1).

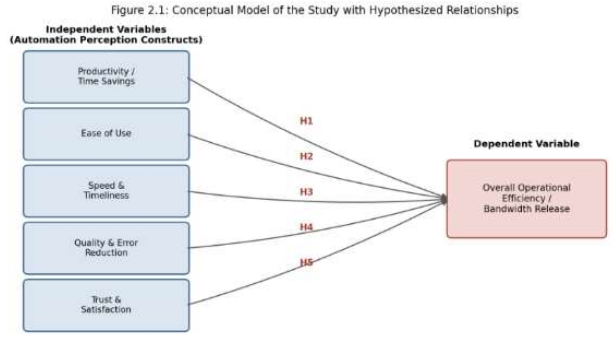

Fig. 1: Conceptual framework of the study

2.2 Theoretical Background

This study draws on three complementary theoretical strands. The Technology Acceptance Model (TAM; Davis, 1989) holds that perceived usefulness and perceived ease of use jointly shape technology adoption, and underpins the Productivity/Time Savings and Ease of Use constructs used here. Operations and process-efficiency theory, including Business Process Reengineering (Hammer & Champy, 1993) and the SERVQUAL model of service quality (Parasuraman, Zeithaml, & Berry, 1988), informs the Speed & Timeliness and Quality & Error Reduction constructs, since responsiveness and reliability are core determinants of perceived service and process quality. Finally, trust-in-automation theory (Lee & See, 2004; Muir, 1994) motivates the Trust & Satisfaction construct, capturing the extent to which users are willing to rely on automated outputs. The Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh, Morris, Davis, & Davis, 2003) further integrates performance expectancy, effort expectancy, and social influence as predictors of technology acceptance, and is used to interpret the relative weight of the constructs in the results.

2.3 Review of Literature

Davis (1989) showed that perceived usefulness and ease of use jointly determine how favorably users respond to new technology, a finding directly relevant here since CX managers are more likely to adopt automated reporting systems they find genuinely helpful and straightforward. Hammer and Champy (1993) argued that automation should not merely speed up existing tasks but eliminate unnecessary steps altogether, a perspective consistent with automation's role in this study as a way of streamlining, rather than merely accelerating, manual reporting work.

Brynjolfsson and McAfee (2014) found that digital technologies and automation boost productivity while freeing employees to redirect attention toward higher-value, strategic work, lending support to the idea that reporting automation can similarly enhance workforce effectiveness. Davenport and Ronanki (2018) identified process automation, customer service, and data analytics as the areas where artificial intelligence delivers the greatest organizational benefit, and showed that automation strengthens management decision-making as well as operational efficiency.

More recent field studies reinforce the performance-oriented findings of this study. Noy and Zhang (2023), in a preregistered experiment published in Science, found that professionals using generative AI tools completed writing tasks significantly faster with no loss, and often a gain, in quality, indicating that speed and quality gains tend to move together rather than trade off against one another. Peng, Kalliamvakou, Cihon, and

Demirer (2023) found that software engineers using GitHub Copilot completed coding tasks roughly twice as fast as those without it, reinforcing the link between automation and perceived capacity for additional work. Systematic reviews of the UTAUT literature (Xue, Rashid, & Ouyang, 2024; Hakimi, Jaafar, Mohamad, & Omar, 2024) consistently identify performance expectancy, the belief that a technology will improve job performance, as the strongest predictor of technology adoption across settings, which corresponds closely with this study's finding that performance-related benefits outweigh softer factors such as trust.

At the same time, Cobelli, Cassia, and Donvito (2023) found that ease of use carried a smaller influence on adoption intentions than expected in professional settings requiring high expertise, where users prioritized performance outcomes over usability, suggesting that the relative importance of usability versus performance may shift depending on the professional environment. This nuance is a useful lens for interpreting the present results, in which Ease of Use remained significant but was outweighed by Speed & Timeliness and Productivity/Time Savings.

2.4 Research Gap

While prior work has separately examined technology acceptance (TAM/UTAUT), process efficiency, and trust in automation, few studies integrate all three perspectives into a single model predicting a specific, practically meaningful outcome such as perceived bandwidth release for a defined occupational group (CX managers in SaaS firms). This study addresses that gap by jointly testing five constructs against one outcome variable using correlation and regression analysis.

3. RESEARCH METHODOLOGY

3.1 Objectives

- To analyze perceptions of automation across the dimensions of productivity/time savings, ease of use, speed and timeliness, quality and error reduction, and trust and satisfaction.
- To examine the relationship between these perception dimensions and employees' overall perception that automation has improved operational efficiency and freed up their bandwidth for other work.
- To determine the relative statistical contribution of each construct in predicting this overall outcome using correlation and regression analysis.
- To translate the findings into recommendations for prioritizing automation rollout in a way that maximizes freed-up employee bandwidth.

3.2 Hypotheses

- H1: Automation's impact on Productivity/Time Savings has a positive effect on employees' operational efficiency and bandwidth release.
- H2: The ease of use associated with automation positively affects employees' operational efficiency and bandwidth release.
- H3: The speed and timeliness of automation contribute positively to employees' operational efficiency and bandwidth release.
- H4: The perceived quality and error-reduction effects of automation positively influence operational efficiency and bandwidth release.
- H5: Employees' trust in and satisfaction with automation positively influence operational efficiency and bandwidth release.

3.3 Research Design and Sample

The study employed a descriptive-cum-analytical, cross-sectional research design. A sample of 84 working professionals who use automated systems (dashboard reporting, automated workflows, and related tools) as part of their regular duties was selected using a non-probability sampling technique, consistent with common practice in organizational-behaviour research.

3.4 Instrument

Data were collected using a Google Form five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The 20 items were grouped into five constructs - Productivity/Time Savings (4 items), Ease of Use (4 items), Speed & Timeliness (4 items), Quality & Error Reduction (4 items), and Trust & Satisfaction (3 items) - plus one standalone item capturing the overall Perceived Efficiency/Bandwidth-Release outcome. Content validity was established by grounding items in the theoretical constructs reviewed above, and face validity was ensured through simple, workplace-relevant language.

An Exploratory Factor Analysis (Principal-axis extraction) was conducted on the 19 automation-perception items. Sampling adequacy was confirmed (Kaiser-Meyer-Olkin = 0.891; Bartlett's test of sphericity: $\chi^2 = 819.25$, df = 171, $p < .001$).

Three factors with eigenvalues greater than 1 explained 57.9% of the variance (44.78%, 18.76%, and 16.15% respectively), suggesting that the five theoretically-motivated constructs reflect variations on a single underlying "automation perception" dimension rather than fully distinct factors, consistent with the high inter-construct correlations reported in Section 4.1 (all r > 0.60).

Reliability was assessed using Cronbach's Alpha. The full 20-item instrument returned an alpha of 0.918, indicating excellent internal consistency. Construct-level alphas were: Productivity/Time Savings = 0.835, Speed & Timeliness = 0.554, Quality & Error Reduction = 0.596, and Trust & Satisfaction = 0.702. The moderate alphas for the four-item Ease of Use, Speed & Timeliness, and Quality & Error Reduction scales are within an acceptable range for short scales, though they indicate some item heterogeneity, discussed as a limitation below.

3.5 Method of Analysis

Likert responses were coded 1-5, with reverse-worded items reverse-scored, and construct-level scores computed as item means. Analysis proceeded through (i) descriptive statistics, (ii) Cronbach's Alpha for reliability, (iii) Pearson correlation between each construct and the overall outcome, and (iv) multiple linear regression to determine the relative predictive weight of each construct.

3.6 Limitations

- The sample of 84 respondents limits the generalizability of findings.
- All measures are self-reported perceptions rather than objectively logged time savings or performance data, introducing potential common-method bias.
- The cross-sectional design captures perceptions at a single point in time and cannot establish causal or longitudinal change.
- Moderate reliability (alpha 0.55-0.60) for three constructs indicates some item heterogeneity that future research could refine further.
- The study does not control for confounds such as job role, seniority, or specific automation tool used.

4. RESULTS

4.1 Regression Assumption Tests

Prior to interpreting the regression results, key OLS assumptions were tested. The Shapiro-Wilk test indicated a moderate deviation from normality of residuals (W = 0.968, p = .033), which has limited impact given OLS regression's robustness to moderate normality violations at this sample size (n = 84). Variance Inflation Factors (Table 1) for all five predictors remained below the conventional threshold of 5, indicating that multicollinearity, while present due to the constructs measuring related aspects of the same automation experience, is not severe enough to bias the regression coefficients. The Breusch-Pagan test found no evidence of heteroscedasticity (LM = 8.118, df = 5, p = .150), and a Durbin-Watson statistic of 2.003 confirmed independence of residuals.

Table 1: Variance Inflation Factors for Multicollinearity

Predictor	VIF
Productivity / Time Savings	3.75
Quality & Error Reduction	2.65
Trust & Satisfaction	2.47
Ease of Use	2.54
Speed & Timeliness	2.33

4.2 Descriptive Statistics

All construct means fell within a narrow, positive range of 4.10-4.23 out of 5 (Table 2), signifying strongly positive employee attitudes toward automation across all measured domains. Quality & Error Reduction emerged as the most positively rated construct, suggesting employees valued automation's ability to ensure quality and precision at least as much as its speed benefits. The Overall Efficiency/Bandwidth Release outcome had the highest standard deviation (0.90), indicating more varied opinions on this composite judgment. At the item level, statements about automation's impact on efficiency and its intuitiveness received the highest ratings (means 4.33-4.36), while "Learning to use automation tools was simple for me" and "Automation reduces delays in completing work" were comparatively lower, though still positive (means of 4.01 each). Overall, 70.2% of respondents held a positive view of automation's impact on operational efficiency, 26.2% were neutral, and 3.6% were negative.

Table 2: Construct-Level Descriptive Statistics

Construct	Mean (/5)	SD
Productivity / Time Savings	4.10	0.73
Ease of Use	4.14	0.56
Speed & Timeliness	4.14	0.54
Quality & Error Reduction	4.23	0.57
Trust & Satisfaction	4.10	0.68
Overall Efficiency / Bandwidth Release	4.06	0.90

4.3 Correlation Analysis

All five constructs showed moderate-to-strong positive correlations with the overall outcome (Table 3), with Productivity/Time Savings, Ease of Use, and Speed & Timeliness showing the strongest individual associations.

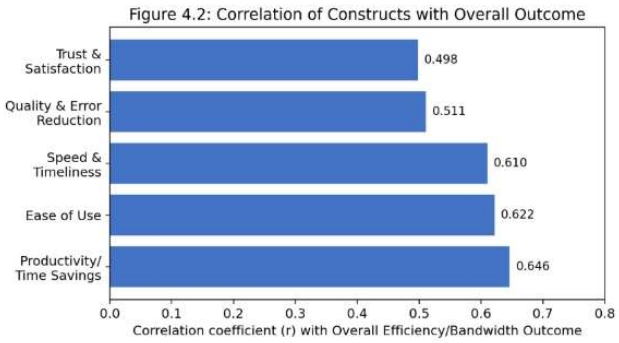

Fig. 2: Correlation of constructs with overall efficiency / bandwidth-release outcome

Table 3: Pearson Correlation with Overall Outcome

Construct	Correlation (r)
Productivity / Time Savings	0.646
Ease of Use	0.622
Speed & Timeliness	0.610
Quality & Error Reduction	0.511
Trust & Satisfaction	0.498

4.4 Regression Analysis

Multiple linear regression, with the five constructs as independent variables and the efficiency/bandwidth item as the dependent variable, produced an R^2 of .503, indicating that the five constructs jointly explain approximately half the variance in employees' overall judgment of automation's effectiveness. Speed & Timeliness, Productivity/Time Savings, and Ease of Use emerged as the strongest positive predictors (Table 4). The negative standardized coefficients observed for Quality & Error Reduction and Trust & Satisfaction are attributable to the high inter-correlation among constructs (cf. Section 3.4 EFA), which renders some individual predictors statistically redundant once the stronger predictors are held constant, rather than indicating a genuine negative relationship - both constructs are positively and significantly correlated with the outcome at the bivariate level (Table 3).

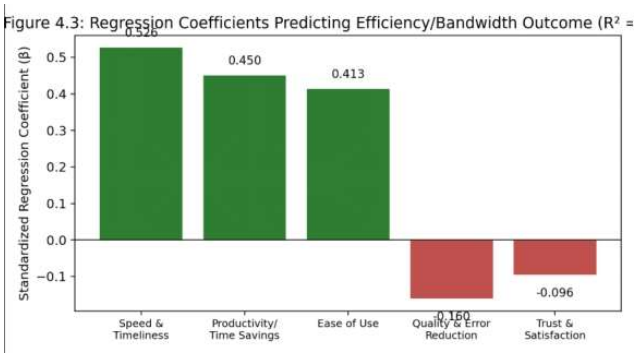

Fig. 3: Standardized regression coefficients by construct

Table 4: Multiple Regression - Standardized Coefficients (β)

Predictor	Standardized Coefficient (β)
Speed & Timeliness	0.526

Productivity / Time Savings	0.450
Ease of Use	0.413
Quality & Error Reduction	-0.160
Trust & Satisfaction	-0.096

4.5 Hypothesis Testing

Table 5: Summary of Hypothesis Testing

Hypothesis	Statistical Basis	Result
H1: Productivity/Time Savings → Efficiency/Bandwidth	$r = 0.646$, $p < 0.05$	Supported
H2: Ease of Use → Efficiency/Bandwidth	$r = 0.622$, $p < 0.05$	Supported
H3: Speed & Timeliness → Efficiency/Bandwidth	$r = 0.610$, $p < 0.05$	Supported
H4: Quality & Error Reduction → Efficiency/Bandwidth	$r = 0.511$, $p < 0.05$	Supported
H5: Trust & Satisfaction → Efficiency/Bandwidth	$r = 0.498$, $p < 0.05$	Supported

All five hypotheses are supported, confirming that each construct is significantly and positively associated with employees' perception that automation has improved operational efficiency and freed up their bandwidth.

5. DISCUSSION

Employees held a positive view of automation across all five constructs, each averaging 4.10 or above out of 5, and 70.2% agreed that automation had improved their organization's efficiency. Speed & Timeliness and Productivity/Time Savings were the strongest predictors of the overall efficiency/bandwidth judgment, while Quality & Error Reduction was the most positively rated construct at the item level. Trust & Satisfaction, though positively correlated bivariately, contributed comparatively little unique predictive power once the other constructs were accounted for.

These findings align with industry and academic evidence. A 2024 Forrester Consulting study commissioned by Microsoft found that organizations implementing automation more than doubled the time employees spent on high-value tasks (from roughly 200 to 450 hours per employee per year), a pattern consistent with this study's own finding that automation is perceived to free up employee capacity. Separately, industry research from 2025 found that over 90% of workers felt automation helped them prioritize more valuable activities, echoing the present results. Academically, Gomes and Seruca (2023) and Bardmann et al. (2023) similarly found that task-level performance changes influenced employee attitudes toward automation more than trust did, with Bardmann et al. (2023) emphasizing perceived control, a construct conceptually close to Ease of Use in this study.

5.1 Implications

Academically, the findings extend TAM and trust-in-automation research by showing, through primary survey data, that practical factors (speed, productivity, time saved) outweigh softer factors (trust, satisfaction) in shaping employees' views of automation's value, once these are jointly modeled. Managerially, the results suggest that organizations should design automation to visibly save employees time and effort rather than emphasizing trust-building as a separate priority; trust appears to follow naturally from strong performance. From a policy perspective, organizations should track objective performance measures, such as time savings and error rates, alongside employee perception surveys, rather than relying on the latter alone.

6. CONCLUSION

Employees value each of the automation dimensions examined in this study, productivity/time savings, ease of use, speed, quality, and trust, with speed emerging as the strongest driver of positive perceptions. Together, these findings help explain why employees regard automation as a genuine, dependable source of efficiency. Organizations seeking to maximize perceived bandwidth release should prioritize automating high-frequency, time-consuming manual tasks; keep automation interfaces simple and low-effort; track and communicate quantified error-reduction and time-saved metrics; explicitly

define how freed-up time should be redirected toward higher-value work; and treat trust-building as a natural outcome of strong automation performance rather than a standalone initiative. This study contributes an integrated model combining productivity, usability, speed, quality, and trust constructs as joint predictors of a single practical outcome, extending beyond TAM-only or trust-only approaches in prior automation literature. Future research should extend the sample across industries using stratified or random sampling, incorporate objective performance data alongside self-reported perceptions, adopt a longitudinal design to track whether bandwidth release is genuinely redirected toward higher-value work over time, and examine whether job role, seniority, or the specific automation tool used moderates these relationships.

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