

Enhancing Professional Services Automation Utilisation through Workforce Capability: Action Research in a Malaysian Ict Firm

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Abstract

Professional Services Automation (PSA) systems integrate project tracking, resource allocation and reporting, but implementation does not guarantee sustained use. This action research examined PSA underutilisation in a Malaysian information and communication technology firm. Cycle One involved nine project-management stakeholders and used interviews, observations and organisational records to diagnose barriers and evaluate practical, scenario-based training. Cycle Two surveyed 30 employees on perceived usefulness, ease of use, enjoyment and PSA utilisation. Training improved confidence, workflow understanding, project visibility and coordination, although parallel reporting and uneven adoption remained. The survey measures were reliable (Cronbach's alpha = .880-.891). All three perceptions correlated significantly with utilisation ($r = .794-.928$, $p < .001$), while the regression model explained 86.6% of its variance. Perceived enjoyment was the only significant unique predictor ($\beta = .777$, $p < .001$), but this result requires caution because of the small sample and multicollinearity. PSA operationalisation therefore requires workforce capability, clear governance, workflow alignment, reliable data and a positive user experience.

Keyword: Action Research, Operational Efficiency, Professional Services Automation, Technology Acceptance, Workforce Competency

Introduction

Information and communication technology (ICT) professional-service organisations manage simultaneous projects, specialist employees, client commitments and reporting requirements. Professional Services Automation (PSA) systems support these activities by integrating project information, resource allocation, time recording and performance monitoring. Nevertheless, technology creates value only when it is embedded in routine work. Employees may continue using spreadsheets, email and informal communication when

an enterprise system does not fit established practices or when its information is not trusted (Boudreau & Robey, 2005; Melville et al., 2004).

ABC Company, a pseudonym for a Malaysian ICT firm, had implemented PSA but employees still maintained information in Excel, Microsoft Teams, slides and personal documents. Updates were frequently completed before reporting deadlines rather than continuously. Unclear ownership, incomplete resource records and parallel reporting reduced data reliability and required manual verification. This study examined how sequential interventions could strengthen employee capability and system utilisation. It asked how practical PSA training improved competency and how perceived usefulness, ease of use and enjoyment were related to reported utilisation.

Literature Review

Digital transformation involves changes in organisational processes, capability and value creation, not simply technology acquisition (Vial, 2019). Uthamaputhran and Thoti (2024) similarly argue that digital adoption requires workforce skills, continuous learning and alignment between technology and organisational practice. This is especially important for PSA because its usefulness depends on accurate, timely and interdependent inputs from different project roles. Inconsistent updating reduces information quality and trust, encouraging employees to return to alternative tools and creating a cycle of low use and incomplete data.

The Resource-Based View explains why employee knowledge and routines are strategic resources that allow technology to produce organisational value (Barney, 1991). Practical training can therefore convert an installed system into a usable organisational capability. The Technology Acceptance Model (TAM) complements this view by proposing that perceived usefulness and perceived ease of use influence technology adoption (Davis, 1989). Recent work by Zhu and Uthamaputhran (2026) reinforces the importance of usefulness, ease of use, digital literacy, self-efficacy, training and peer support in technology acceptance. For frequently used systems, perceived enjoyment may also matter because convenience, clarity and reduced frustration influence whether employees continue interacting with the system (Davis et al., 1992).

A socio-technical perspective integrates these arguments. PSA utilisation depends on employees' competence and perceptions, but also on workflow design, role clarity, management reinforcement and data governance. Action research is appropriate because it combines systematic inquiry with iterative organisational change through diagnosis, action, evaluation and reflection (Coghlan, 2019).

Prior empirical studies show that workforce capability and technology acceptance both matter for enterprise-system use. For example, research on ERP implementation has linked training and user support with employee acceptance, while enterprise-system studies have associated continued use with perceived usefulness, self-efficacy and facilitating conditions (Marler et al., 2006; See et al., 2019). These findings explain important individual and organisational influences, but they do not, on their own, show how employee learning, system perceptions and workplace routines combine when an implemented system remains underused. This study brings together the Resource-Based View, TAM and a socio-technical

perspective to address that question: the Resource-Based View frames employee knowledge and routines as capabilities; TAM helps explain employees' perceptions of usefulness, ease of use and enjoyment; and the socio-technical perspective situates those perceptions within workflows, role clarity and organisational support. The contribution is this integrated, practice-based account of PSA underutilisation, developed through an action-research cycle that diagnoses barriers, introduces practical training and reflects on remaining obstacles. The study applies established theories in a specific setting; it does not claim to create a new theory or establish causal effects.

Methodology

The study adopted a pragmatic mixed-method action-research design in ABC Company's project-management environment. Cycle One purposively involved nine stakeholders representing managerial, project, reporting, technical, resource-planning and client-facing roles. Semi-structured interviews, observations and organisational records were used to diagnose underutilisation. The intervention was a practical workshop using real project scenarios, standard update practices, workflow interdependence and peer learning. Pre- and post-intervention evidence was analysed thematically following Braun and Clarke's (2006) procedures.

Cycle Two surveyed 30 employees using 12 five-point Likert items: three each for perceived usefulness, perceived ease of use, perceived enjoyment and PSA utilisation. Analysis included Cronbach's alpha, descriptive statistics, Pearson correlations and multiple regression. Participation was voluntary, informed consent was obtained, and the company and participants were anonymised. The institutional ethics committee and approval number should be inserted before submission: [ethics committee; approval number].

Results

Cycle One Findings

Before the intervention, PSA operated mainly as a secondary reporting tool. Employees preferred Excel and informal communication because they were familiar and flexible. Some participants knew where to enter information but did not understand how their entries affected resource planning, reporting and management decisions. Responsibility for updating project, technical and allocation data was unclear. Informal support work was often absent from the system, while duplicated reports increased administrative effort. Incomplete data weakened trust and reinforced dependence on parallel tools.

After the workshop, participants reported stronger confidence, greater independence and improved understanding of PSA workflow. They used the system more purposefully during project reviews, supporting clearer action ownership, better progress tracking, earlier risk visibility and improved information sharing. Formal resource visibility and peer learning also improved, while some manual follow-up was reduced. However, adoption remained uneven, informal workload was still incompletely captured and management reinforcement remained necessary.

Cycle Two Findings

All scales demonstrated good internal consistency: perceived usefulness ($\alpha = .891$), ease of use (.880), enjoyment (.884) and utilisation (.881). Mean scores were moderate, ranging

from 2.99 for utilisation to 3.16 for usefulness and ease of use. Usefulness ($r = .794$), ease of use ($r = .842$) and enjoyment ($r = .928$) were positively associated with utilisation; all relationships were significant at $p < .001$.

The regression model was significant, $F(3, 26) = 55.975$, $p < .001$, and explained 86.6% of the variance in reported utilisation (adjusted $R^2 = .850$). Enjoyment was the only significant unique predictor ($\beta = .777$, $p < .001$); usefulness and ease of use became non-significant when all predictors were considered together. Because the sample was small and the enjoyment VIF was 5.508, the coefficient should be treated as exploratory rather than causal evidence.

Discussion

The findings show that PSA underutilisation was an organisational operationalisation problem rather than a software-availability problem. Training developed human capability and helped employees connect data entry with wider project outcomes, supporting the Resource-Based View. However, knowledge alone did not ensure consistent use. The strong associations among usefulness, ease of use, enjoyment and utilisation support TAM while showing that workplace technology adoption includes experiential and organisational conditions. This interpretation aligns with Zhu and Uthamaputhran's (2026) argument that acceptance is influenced by capability and facilitating support, and with Uthamaputhran and Thoti's (2024) emphasis on continuous learning during digital transformation.

For practice, management should define ownership for every update, use PSA during project reviews, reduce duplicate reports and designate it as the official source for agreed information. Scenario-based onboarding, refresher training and peer support should continue. Workflows should be simplified, and informal technical support should be captured to improve workload accuracy. Objective indicators—including update timeliness, data completeness, report-preparation time and resource-allocation accuracy—are needed to determine whether stronger utilisation produces measurable efficiency gains.

The sequential design also produced organisational learning. Cycle One addressed the immediate capability gap, but reflection showed that training could not resolve every barrier. Cycle Two therefore examined whether employees experienced PSA as useful, manageable and satisfying. This movement from correcting existing behaviour to questioning the assumptions behind continued use resembles double-loop learning. It suggests that managers should avoid interpreting inconsistent utilisation simply as resistance or non-compliance. Employees may be responding rationally to duplicated processes, uncertain responsibilities, incomplete records or an inconvenient interface. Addressing these conditions is likely to be more effective than repeatedly instructing employees to update the system.

Limitations

Several limitations affect interpretation. The study involved one organisation, nine qualitative participants and 30 survey respondents, so the findings cannot be generalised statistically to all ICT firms. The Cycle Two questionnaire was cross-sectional and self-reported, creating a risk of common-method bias. The predictors were strongly correlated, and the VIF for enjoyment indicates possible construct overlap. In addition, the same quantitative measures were not collected before the intervention, and no comparison group was available. Consequently, the regression identifies association rather than intervention impact. The

insider-researcher role provided contextual understanding and access but may also have influenced participant responses and interpretation. Triangulation reduced this risk but could not eliminate it.

Conclusion

The two action-research cycles moved the organisation from capability building towards more meaningful PSA utilisation. Practical training improved confidence, workflow understanding and process visibility, while survey results showed that functional value, manageable effort and positive experience were closely associated with use. The study does not establish a precise causal improvement in operational efficiency because it lacked objective pre- and post-intervention performance measures and used a small single-organisation sample. Nevertheless, it demonstrates that sustained PSA use requires the alignment of people, technology and routines. Future research should use larger longitudinal samples, system logs and objective operational indicators to test whether the observed process improvements are sustained.

For ABC Company, the next cycle should combine governance and measurement. Managers should agree on mandatory data fields, update frequency and accountable roles, then monitor compliance alongside operational outcomes. Quarterly user-feedback sessions can identify unnecessary steps and emerging support needs. This approach would preserve the participatory character of action research while shifting evaluation from perceived benefits towards demonstrable changes in reporting speed, resource visibility, project continuity and decision quality.

Declarations

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