Unlocking Public Sector Innovation:
Can HR Tech Empower Civil Servants?

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Abstract: The Internet of things (IoT) has oriented organisations digitally in administrating human resources. In line with this trend, Indonesian public sectors are adopting Human Resources Information Systems (HRIS) to boost employee innovation outcomes. However, coercive pressure to implement HRIS has only resulted in fiascos for the technology, which cannot be fully considered to eliminate long, ineffective, and inefficient practices. This study examines the instrumental adoption factors to adopt HRIS in boosting employee innovation outcomes from technological, organisational, people, and social outlooks. The empirical data consisting of 500 valid datasets were obtained from public servants in Indonesia via web-based questionnaires. structural equation modelling (SEM), which was used to examine the relationship among constructs. Technology fit, organisational resources, knowledge, and social influences have positive impacts on technology adoption. However, when treated as a mediation, the negative path from HRIS to innovation outcomes implied that e-HRM reflected in HRIS implementation would not make employees innovative. The scrutinized under ability, motivation, and opportunity (AMO) framework and empirical insights clearly portray that Indonesian's ability to fit into this framework is problematical, making technological innovation in the Indonesian public sector only complimentary, not compulsory. This study suggests that HRM reform in public organisations is a top priority if the country wishes to achieve world-class bureaucracy by 2025.

Keywords: HRIS; Technology; Public Servants; Indonesia

Introduction

The Internet of things (IoT) has driven human resource management (HRM) into the digital era. This phenomenon makes researchers and practitioners concentrate on integrating IT and HRM systems called e-HRM (Myllymäki 2021). E-HRM is terminology covering all possible juxtaposition contrivances between performing HRM and technology (Thite 2020). Consequently, HR is no longer perceived as a supporting role in delivering employee services (Riana et al. 2020), instead it is a strategic business unit leading to digital transformation in providing organisations with a competitive advantage (Kutieshat and Farmanesh 2022).

The arrangement of technological innovations applied to human resources is classified into three categories of e-HR, including electronic human resources, human resources information systems (HRIS), and virtual human resources groups (VHR) (Moussa and El Arbi 2020). HRIS contributes to modernising and developing the HR function by disposing of the most sophisticated technological equipment and systems (De Alwis et al. 2022). This is because the information generated by the system lessens the uncertainty rate, reduces the gap between forecasting and reality, and produces data serving as a decision-making base (Rajawat and Sharma 2022). Although some researchers expressed assurance on e-HRM adoption (Johnson et al. 2022; Ullah et al. 2021; Myllymäki 2021), the empirical evidence displays various adverse concerns that the adoption of ICT in HRM does not always produce better services. For example, Duangekanong (2020) claimed that the implementation of HRIS only led to an accumulation of technology-related undertakings replacing administration without any improvement in HRM services. This was because organisations acknowledged the usefulness of ICT but did not consider it a competitive advantage. Organisations treat technology as an organisational tool rather than a standalone strategy since some HRM scholars take for granted the superiority of human activities over technology (Harney and Collings 2021; Cross and Swart 2022; Pan et al. 2022).

Several web-based management practices have proven effective in the private sector (Fetais et al. 2022). Though public organisations have commenced adopting the good practices of private sectors under the movement of new public management (Criado et al. 2021), they are designed and operated differently from the private sectors in terms of recruitment, career path, work environment, and

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political expectations (Suzuki and Hur 2021). Administration under the NPM model uses the application of physical, financial, and human resources to achieve government objectives. This new public management model is claimed to be a flexible, market-based form with the rhetoric of the private sector management art applied to the public sector (Aristovnik et al. 2022). The implication of HRM to public sector organisations is that public sector organisations should set conditions and develop a logical employment policy. Nevertheless, the meticulousness of the public sector focusing on public interest outcomes may create complexity in aligning HRM as a weapon in achieving organisational competitiveness and outcomes.

Further, although western public administration (primarily British, American, French, and Dutch) has been the leading paradigm, a flowering conviction has emerged that public administration in East and Southeast Asia represents typical uniqueness (Haque 2022). Historically, culturally, and practically, public employees in these regions have different perspectives and expectations toward their careers. Given these differences, the way employees accept technology as an innovation is also different (Vu and Lim 2022). In adopting e-HRM technology, researchers focus mainly on the TOP (technology, organisation, and people) framework proposed by Bondarouk et al. (2017). However, researchers have also argued that some social factors, such as social pressure from the external environment, also impact technology adoption (Venkatesh 2021).

Recently, research on public innovation has become of interest to international scholars (Cinar et al. 2022). The urgency to transform organisations to create public value has led to the creation of specific entities or organisations that are responsible for creating innovative activities (Lopes and Farias 2022). In terms of effectiveness, these innovations increased the pressures for strengthening the services and quality management by innovating technology and management (Rajiani and Ismail 2019; Tan et al. 2022). As a developing country, Indonesia is somewhat technologically well-prepared for implementingweb-based management practices (Agastiya et al. 2022). However, the digitalisation of public services still needs to be acknowledged to the degree and impacts of developed countries or some developing countries (Kadarisman et al. 2022). Existing research has examined a relationship between HRIS and the quality of HR services (Harlie et al. 2019), neglecting the effect of HRIS practices on organisational-level outcomes, such as the employees' innovation capability. Moreover, the current HRIS frameworks are conceptualised to justify westerners' practices and beliefs that little is known about the use of HRIS and its impact on organisational outcomes in South-East Asia. As such, this study aims to fill this gap by investigating whether HRIS practices improve the public servants' innovation capability in Indonesia by integrating technology, organisation, people, and social factors.

HRIS is materials, software, staff, data, and proceedings that allow acquiring, storing, processing, analysing, retrieving, and disseminating information about an organisation's human resources (Moussa and El Arbi 2020). Factors impacting e-HRM adoption theoretically are technology, organisation, and people factors (Bondarouk et al. 2017). However, recent studies in the implementation of e-HRM are shifting towards addressing the dynamic nature of the HRIS implementation(Zhou et al. 2022) and towards the use of concepts of innovation (Neumann et al. 2022) and the technology acceptance model (Wiblen and Marler 2021). Empirical reports have indicated that the use of HRIS as e-HRM implementation in Asian public sector organisations has increased, although still mainly for administrative purposes (Duangekanong 2020; Naveed et al. 2022). Nevertheless, HRIS implementation still focuses on the thriving sophistication of IT and the qualities of IT requirements for HRM departments (Holland et al. 2022).

Two models of information technology utilisation behaviour: the technology acceptance model (TAM) and the task technology fit model (TTF), are mainly used (Al-Emran 2021). The TAM identifies perceived ease of use and perceived usefulness as critical independent variables. However, the TTF model argues that users only adopt technology when it fits their tasks and improves their performance (Sabah and Altalbe 2022). Incorporating the technology acceptance model into e-HRM studies has resulted in the notion that the use of e-HRM by targeted employees is highly influenced by the degree of usefulness and ease of use of the HRIS (Kivijärvi and Pärnänen 2021). This study is built upon an approach using the frameworks of user acceptance and the behaviour change model. Within the user acceptance framework, a person aims to understand better why people use the HRM portal. In contrast, behaviour change theory aims to understand how intentions to use the

HR portal could be influenced. It was shown that the usage of HRIS increased when user acceptance principles were integrated with behaviour change principles (Nelson and Allwood 2021) and by analysing the context at the organisation and country levels (Zhou et al. 2022). Since TTF is

appropriate for investigating the adoption of a system whose usage is mandatory (Khechine et al. 2022), we used this model as it fits the bureaucratic culture of the public sector. Therefore, we hypothesise the following:

Hypothesis 1. Technology fit positively affects HRIS adoption in public sector organisations.

Organisations with sufficient resources are more enthusiastic about providing facilities to adopt HRIS, such as IT infrastructure, training, and technical support (Harlie et al. 2019). This is because a well-designed IT infrastructure is the prerequisite for organisations to implement HRIS (Shet et al. 2021), and adequate training provides employees with an understanding of the urgency to adopt HRIS (Siam and Alhaderi 2019). Furthermore, technical support facilitates employees in solving problems when using the HRIS application (Ziebell et al. 2019). Therefore, we hypothesise the following:

Hypothesis 2. Organisational resources are positively related to HRIS adoption in public sector organisations.

The people's side of HRIS adoption is knowledge. Employees who are well-informed about technology are keen to accept HRIS, for knowledgeable individuals have a higher wisdom of technology self-efficacy (Alnoor et al. 2020). They believe they can use information systems properly and are convinced that the technological characteristics of HRIS are compatible with their tasks (Al-Rahmi et al. 2021). Further, such employees tend to appreciate the tangible value of technology, making them eager to shift from traditional HRM to HRIS (Vazquez and Sunyer 2021). Since task and technical characteristics are the main determinants of technology fit, knowledgeable employees are more apparent to adopt HRIS (Yuen et al. 2021). Thus, we propose the following:

Hypothesis 3. Public servants' knowledge of technological characteristics is positively related to HRIS adoption.

Social influence (e.g., subjective norms) and social pressure could influence an individual's intention to adopt IT (Zhou et al. 2022). Subjective norms are individuals' perceptions when performing a target behaviour due to social expectations and become a standard for the individuals' preferences (Zhuang et al. 2021). Subjective norms significantly impact individuals' perception of adopting technology to fulfill leaders' and colleagues' expectations (Wiafe et al. 2020). Organisation pressures when adopting digitalisation exist in coercive to mimetic to normative faces (Basuki Basuki et al. 2022). Coercive pressure is compulsory due to state intervention, while mimetic pressure can duplicate other successful organisations. Normative pressures are initiated from the opinions of professionals and scholars (Lorentz et al. 2021). In the case of developing countries, the dissemination of government policy on technology adoption is commonly coercive (Sukoco et al. 2021). Thus, when individuals perceive that others press them to use HRIS, they are more likely to accept and use the technology. Therefore, we hypothesise:

Hypothesis 4. Because of coercive pressure, social influence positively relates to HRIS adoption in public sector organisations.

Innovation in the public sector is defined as the creation and implementation of new processes, products, services, and delivery methods that can improve the efficiency, effectiveness, or quality of outcomes (Lopes and Farias 2022). This innovation is triggered by several factors, such as the shift in government policies, stakeholder push, technological adoption, or individuals' awareness toward something new to improve the way they work (Hjelmar 2021). Current works in the literature on public sector innovation (Turner et al. 2022) indicate that documentaries depend heavily on intra-organizational process innovations, which are strictly related to two major reform movements in public administration, namely NPM and e-government, for which one of the implementations is HRIS (Alkhwaldi et al. 2022). Since the usage of IT tools and applications improves and boosts operational efficiency (Shahzad et al. 2021), improving and promoting individual and organisation innovation (Prikshat et al. 2021), providing employees with new approaches (Khando et al. 2021), and promoting individual creativity (Aguilera and Ortiz-Revilla 2021), we propose the following:

Hypothesis 5. HRIS adoption in public sector organisations is positively associated with employee innovation.

The adoption of technologies has been viewed as a primary path to innovation (Cueto et al. 2022). However, more empirical evidence is needed in the literature on the rigorous mediating relationship between technology adoption and innovation outcomes of public sector employees. Dong et al. (2022) examined public organisation tendencies concerning technology adoption and revealed the rising significance of technologies to gain a competitive advantage. The empirical findings of Ahn and Chen (2022) suggested that technology is a crucial factor in the innovative performance of public sector employees. Mikalef et al. (2022) highlighted technological adoption's evolutionary role in European municipalities' public organisations to assist them in improving innovation capabilities. Therefore, this study suggests the mediating impact of technology adoption on the innovation of public organisations' employees. Thus, the following hypothesis is proposed:

Hypothesis 6. HRIS adoption in public sector organisations mediates technology fit, organisational resources, knowledge, and social influences on employee innovation.

HRIS systems that are designed to innovate are regarded as a combination of specific HR practices to develop employees' abilities, motivation, and opportunities to perform (Al-Tit 2020). Since public administration in East and Southeast Asia represents typical uniqueness (Haque 2022), the AMO framework focuses on those three practices and is used as a key to explain the influence of HRIS on employees' innovation and the difference in the results from established developed economic countries. The main objectives of those three practices are to augment employees' work-related abilities, motivate and offer them the opportunity to develop their job skills, and use their knowledge for the good of their organisation (Rajiani et al. 2016). Consequently, the AMO framework serves as the explanatory mechanism for how HRIS influences the employees' capability to involve with innovation.

Results

The respondent's demographic profiles were analysed in relation to gender, age, education, respondents, and length of current employment. Most respondents were male (75%), with the majority (52%) of respondents above 35 years old. Further, most of the respondents had undergone higher education, with the majority at the degree level (66%), followed by associate degrees (33%), with five respondents (1%) even attaining graduate degrees. Most respondents (57%) had been government employees for more than 10 years, followed by those who had been in organisations for 5 years (41.6%). Only seven respondents (1.4%) had served the organisation for less than 5 years. The mean of each variable is displayed in Table 1.

Table 1. Variable means.

Variables	N	Mean	Std. Error
Technology fit	500	3	0.203
Organisation resources	500	4	0.213
People knowledge	500	3	0.217
Social influence	500	4	0.402
HRIS adoption	500	3	0.302
Innovation outcome	500	2.5	0.231

Discerning the mean score of technology fit = 3, the respondent for this research was a combination between those who considered the technology to fit their task and those who did not. The mean score of organisation resources = 4 denotes that the organisation has provided adequate facilities to adopt HRIS regarding infrastructure, training, and technical support. The mean score of people knowledge = 3 demonstrates that respondents still doubt whether they can use information systems

properly and are not convinced that technology is compatible with their tasks. The mean score of social influence = 4 signifies the intense pressures of the organisation when adopting digitalisation when appearing in forms from coercive to mimetic to normative. The mean score of HRIS implementation = 3 indicates the tendency to wait and see before adopting the technology. The mean score for innovation outcome = 2.5 blatantly denotes the low possibility for improvement when adopting HRIS.

The operationalisation and validation of the instrument are displayed in Table 2. Factor loadings conducted under confirmatory factor analysis (CFA) for most items were close to 0.80 % exceeding the borderline of 0.50 (Hair et al. 2020). Additionally, the Cronbach α of each construct was 0. 775, 0.805, 0.751, 0.792, 0.801, and 0.715, respectively, exceeding the threshold values. Therefore, we conclude that validity and reliability have been fulfilled.

According to Shipley and Douma (2020), this model meets the model's goodness-of-fit by referring to Chi-square ($\chi 2$) (less than 639,232); and probability ($p = 0.05$). Additionally, by referring to Hair et al. (2020), the model displays good fitness: CMIN/DF = 1.627 (expected smaller than two), GFI = 0.985 (exceeding 0.90), AGFI = 0.990 (in the threshold of 0.90), CFI = 0.986 (exceeding 0.95), TLI = 0.987 (exceeding 0.95), and RMSEA = 0.088 (exceeding 0.08).

The summary result of structural equation modelling is presented in Table 3. The table indicates that four paths are significant.

Table 2. Validity and reliability measurement

Construct & Cronbach α	Items	Factors Loading
Technology fit (α = 0.775)	1. The functionalities of HRIS were adequate.	0.816
	2. The functionalities of HRIS were appropriate.	0.742
	3. The functionalities of HRIS were beneficial.	0.825
	4. The functionalities of HRIS were compatible with the task.	0.853
Organisation resources (α = 0.805)	1. My organisation allocated adequate physical resources necessary to innovate with the HRIS.	0.831
	2. My organisation allocated adequate financial resources necessary to innovate with the HRIS.	0.822
	3. My organisation provided us with the necessary experience to innovate with the HRIS.	0.792
	4. My organisation allocated adequate human resources necessary to innovate with the HRIS.	0.680
People knowledge (α = 0.751)	1. I am aware of the advancement of HRIS technology.	0.743
	2. I have access to the use of HRIS technology.	0.775
	3. I can use HRIS technology.	0.689
	4. Using HRIS makes me complete my task faster.	0.703
	5. I was given training on how to operate the technology.	0.686
Social influence (α = 0.792)	1. If government bodies consider HRIS necessary, our organisation will adopt it.	0.832
	2. Our organisation will benefit more if HRIS use is mandatory	0.821
	3. Public organisations that are using HRIS have more prestige than those that are not.	0.875
HRIS adoption (α = 0.801)	1. Whether mandatory or voluntary, I intend to use HRIS.	0.715
	2. Whether mandatory or voluntary, I recommend using HRIS.	0.732
	3. Whether mandatory or voluntary, I endorse the use of HRIS.	0.815
Innovation outcome (α = 0.715)	1. Innovation in using HRIS has increased the organisation's effectiveness.	0.657
	2. Innovation in using HRIS has increased the organisation's efficiency.	0.671
	3. Innovation in using HRIS has enabled the organisation to tackle societal problems.	0.781
	4. Innovation in using HRIS has enabled the organisation to improve customer satisfaction.	0.684
	5. Innovation in using HRIS has enabled the organisation to involve citizens.	0.714
	6. Innovation in using HRIS has enabled the organisation to involve private partners.	0.692

Table 3. Summary of path relationship among constructs.

Constructs	Estimate	SE.	CR.	*p*	Conclusion
Technology fit → HRIS	0.353	0.142	2.134	0.05	Significant
Organisational resources → HRIS	0.231	0.250	2.102	0.05	Significant
People knowledge → HRIS	0.342	0.182	2.206	0.05	Significant
Social influence → HRIS	0.509	0.102	3.262	***	Significant
HRIS → Innovation outcomes	0.101	0.310	0.154	0.10	Not Significant

Notes: *** = $p < 0.00$.

The critical ratio (CR) value of technology fit = 2.134, and the significance of ≤0.05 confirm the first hypothesis: technology fit is positively related to HRIS adoption in public sector organisations. Similarly, the critical ratio (CR) of organisational resources = 2.102, and the significance of ≤0.05 confirm the second hypothesis: organisational resources are positively HRIS adoption in public sector organisations. Additionally, the critical ratio (CR) value of people knowledge = 2.206, and the significance of ≤0.05 confirm the third hypothesis that public servants ' knowledge of technical characteristics is positively related to HRIS adoption. Finally, the critical ratio (CR) value of social influence = 3.262, and the significance of ≤0.00 confirm the fourth hypothesis that social influence is positively related to HRIS adoption in public sector organisations because of coercive pressure. This variable proves to be the most influential one in determining HRIS adoption among the respective respondents. However, the significance level of HRIS to innovation outcomes

= 0.155, and the probability of 0.10, which is >0.05, rejects the fifth hypothesis that HRIS adoption in public sector organisations is positively associated with employee innovation. Since this study employed an implicit method to test mediation (Baron and Kenny 1986), this negative result implicitly rejects the sixth hypothesis that HRIS adoption in public sector organisations mediates technology fit, organisational resources, knowledge, and social influences on employee innovation, against the findings of Cueto et al. (2022); Dong et al. (2022), Ahn and Chen (2022), and Mikalef et al. (2022). This result implies that using technology in managing HRM does not result in increased effectiveness and efficiency in tackling societal problems leading to customer satisfaction and fostering partnerships in the scope of Indonesian public organisations.

Discussion

The positive, significant paths of technology fit, organisational resources, knowledge, and social influences on technology adoption support the previous study of Agastiya et al. (2022) that the Indonesian capability of utilising and developing digitalisation opportunities is comparable to some developing or developed countries. This is because digital infrastructure, the acceleration of digital transformation, and increasing human resource productivity through economic knowledge are currently the focus of government spending (Kurniawan et al. 2022). In the latest developments, Indonesia scored high in the e-Government Development Index (EGDI) group in the UN e-Government Survey 2022, putting Indonesia in the top 100 world rankings at position 77 ahead of Qatar (United Nations 2022). However, this study confirms that e-HRM reflected in HRIS implementation will not make employees innovative. This finding strengthens the previous studies on the superiority of human activities over technology (Harney and Collings 2021; Cross and Swart 2022; Pan et al. 2022). Therefore, for Indonesian public organisations, HRIS is not compulsory; instead, it is complementary. Technology fit, organisational resources, knowledge, and social influences are compulsory to realise digital transformation, but there are other factors besides this. Other key factors include innovation and talent capabilities. Unfortunately, Indonesia's capabilities in these various indicators have yet to show convincing results.

To justify why HRIS implementation does not make employees innovative, we refer to one of the most acknowledged theories in modern HRM research: the AMO theory. According to this theory, employees display positive attitudes and preferred behaviours and excellent service quality when (Mia et al. 2022): (1) they have the abilities in knowledge, skills, and competencies to operate HRIS through competitive recruitment and selection, training, and development, and coaching; (2) they are motivated because of performance appraisal and feedback, payment, and promotion opportunities that can be

identified through HRIS, and (3) they have the opportunity to perform their work because of the existence of organisational support and interpersonal (e.g., peer pressure) factors to operate HRIS (Bahrami et al. 2021).

In terms of recruitment and selection, the pool of eligible applicants was minimal except at the levels of a new school or university graduates. Above these levels, only some people were hired outside the civil service or the department. This prevailing system of Indonesian public organisations has been continuously criticised. For example, Turner et al. (2022) criticised it as one of the non-transparent processes, producing a poorly skilled workforce, and institutionalised corruption. They further emphasise that performance incentives and personnel arrangements are wasteful and unnecessary. Long before, Mardiasmo et al. (2012) observed that human resource management policies and practices do not equip government agencies with the qualified human resources needed to improve performance. Although McLeod (2006) has long suggested adopting private-sector HRM practices to solve the blatantly poor performance of the public sector, the introduction of the NPM private-sector style HRM practices has yet to be discovered and untried (Harun et al. 2019). Formerly, before the implementation of HRIS, civil servants' performances were evaluated through a manually filled form which applies ambiguous and subjective criteria on assessing civil servants' behaviours. Since performance review dialogue and reporting are lumbering, an online reporting submission under HRIS should ease the situation. Presidential Regulation, Number 95/2018 on Electronic-Based Government System Electronic-Based Government System forces all public institutions to digitalise public services, including the implementation of HRIS (Rachmawati et al. 2022).

Consequently, managers or workers may involuntarily adopt e-HRM arrangements under HRIS. The finding is in line with Sukoco et al. (2021) and Basuki Basuki et al. (2022) that the dissemination of government policies related to technology development is usually connected to coercive pressure since employees prefer to work in traditional ways. In Indonesia, civil servants are acknowledged for their low income but are secure in tenure regardless of performance. The permanent employment option may be the main reason for the HRIS system because irrespective of its effectiveness—being innovative or not in delivering public service—the system hardly affects employment. Moreover, priority in promotion nearly always reflects seniority rather than capability or merit. This performance appraisal decreases employees' motivation to innovate as there is no clear distinction between the bad and good apple, reflecting what Turner et al. (2022) described as "wasteful and unnecessary". Thus, from the perspective of AMO, employees do not have the abilities in knowledge, skills, and competencies to operate HRIS for they have not gone through competitive recruitment and selection, (2) they are not motivated because of performance appraisal; therefore, HRIS does not affect their career, and (3) any opportunity to operate HRIS is because of coercive power.

Indonesia's civil servants are conscious of the considerable economic disadvantage of working in the civil service (Ananta et al. 2021). They are reluctant to trade off the security and benefits of current civil service employment with an unknown future (Umar et al. 2019). However, they are often criticised for continuously looking for ways to generate additional income so that they can achieve a standard of living comparable to their private sector counterparts. This is primarily the case with public university lecturers, who usually reduce their time teaching students to participate in well-paid consultancy projects and become keynote speakers at conferences. Other perfect ways to generate additional income legalised by organisations include introducing varieties of specific budgets for attending meetings and conferences, participating in study tours and projects, and appointment as commissioners of state-owned enterprises for those who are lucky to be in the inner circle of authorities. This condition is different in advanced countries where the performance review is strictly implemented and linked to remuneration (Hur and Perry 2020), and civil servants have no secured tenure policy. Therefore, the turnover of civil servants is high, for this employment is competitive.

As a developing country with a unique history, polity system, culture, and socioeconomic conditions, shifting the existing state civil servants' behaviour into quasi-market manners can be complicated and strenuous. As such, the shifting process undoubtedly requires assistance and guidance from the state to provide underlying grounds for the change process. This is because, within the Indonesian public organisation setting, nobody at a lower-level position dares to decide without referring it to his/her immediate supervisor (Basuki Basuki et al. 2022). Thus, the process of bureaucracy reform, referring to the work of Randma-Liiv and Drechsler (2017), in the Indonesian setting should be translated as state action, characterised by a monopoly on power, force, and coercion on one side, and focus on the public good.

Materials and Methods

This study employed a cross-sectional design. Using a snowball sampling strategy through the authors' networks and social media platforms, data were collected through a web-based questionnaire from 25 May to 24 October 2022. The strategy was commonly adopted during the COVID-19 pandemic due to social distancing (Awada et al. 2021; Sutarto et al. 2022). A convenient sample of 550 Indonesian public servants residing in Jakarta completed our questionnaires, resulting in 500 valid responses (90% of the completion rate). The technology fit was measured using four items: technology adequacy (X1.1), technology appropriateness (X1.2), technology usefulness (X1.3), and technology compatibility (X1.4) adopted from Lin and Huang (2008). The organisational resources were measured with four items of physical (X2.1), financial (X2.2), experiential (X2.3), and human (X2.4) resources adopted from Lokuge et al. (2019). Public servants ' knowledge was measured with awareness (X3.1), access (X3.2), skills (X3.3), experience (X3.4), and training (X3.5) adopted from Zhou et al. (2022). Social influence is the external influence of accepting information from another as objective evidence (Venkatesh 2021). The constructs of social influence include subjective norms (X4.1), mandatory (X4.2), and the image (X4.3) adapted from the study of Izuagbe et al. (2019).

We applied three (3) items to use technology from Venkatesh (2021) as a proxy for HRIS adoption. The items were labelled as intention (Y1.1), recommendation (Y1.2), and endorsement (Y1.3). Innovation outcomes were quantified using six (6) items: increasing effectiveness (Y2.1), increasing efficiency (Y2.2), tackling societal problems (Y2.3), improving customer satisfaction (Y2.4), involving citizens (Y2.5), and involving private partners (Y2.6). These items were adopted from the study of Abbas et al. (2018).

Structural equation modelling with the assistance of SPSS Amos was used to examine the relationship. Respondents reported their level of agreement with each item using fivepoint Likert-type scales (1—strongly disagree; 5—strongly agree). SEM was employed as this methodology was designed to confirm a substantive theory from empirical data. In this research, the theory proposed that specific variables of technology adoption did not load on certain factors, and SEM was best fitted to validate the theory. The relationships in the model were justified through an appropriate comprehensivemeasurement. Schreiber et al. (2006) confirmed that the measures enabling justification were mainly: Chi-square ($\chi 2$); the minimum sample discrepancy function ($\chi 2/df$), goodness-of-fitindex (GFI); adjusted goodness-of-fit index (AGFI); CFI (comparative fit index), and RMSEA (root mean square error of approximation).

Hypothesis testing was carried out by examining the probability on each path of direct and indirect effects. The criteria for a significant effect required that the probability of each path was ≤ 0.05. To evaluate discriminant validity, the authors applied a factor-loading model where only items with factor loading surpassing 0.50 could stay in the model (Hair et al. 2020). The coefficient alpha with values of 0.60 or higher (Bonett and Wright 2015) was examined to determine reliability.

The presence of a mediated effect was determined based on the statistical significance of the coefficients estimated based on equations. Through mediation analysis, the methodology has flourished in recent years, generally including two categories of analysis methods for the mediation effect: implicit procedures and explicit procedures (Rasoolimanesh et al. 2021). The implicit procedures are a traditional model inferring the mediation effect by a single inferential test of path relationships between the independent and dependent variables (Baron and Kenny 1986). Although criticised as out of date (Bullock and Green 2021), scholars still use this model in social studies even now due to its simplicity (e.g., Zhou et al. 2023; Wittmann and Wulf 2023; Wu and Liu 2023).

Implicit procedures require scholars to stop when even only one of the paths is not significant. Therefore, in this model, technology fit, organisational resources, people knowledge, and social influence on HRIS must be significant. HRIS → Innovation outcomes must be significant. If HRIS → innovation outcomes are not significant, but technology fit, organisational resources, people knowledge, and social influence are → HRIS is significant, and innovation outcomes are a full mediator. If technology fit, organisational resources, people knowledge, social influence result from → HRIS and HRIS → innovation outcomes are significant, but the HRIS → innovation outcomes regression coefficient is reduced but is still significant, then this indicates that HRIS is potentially a partial mediator. Finally, if technology fit, organisational resources, people knowledge, social influence result from → HRIS and HRIS → innovation outcomes are significant, but the HRIS →

innovation outcomes regression coefficient is reduced but not significant, then this indicates that HRIS is not a mediator.

Conclusions

Born out of its distinctive history and bounded by the formation of its culture, society, economy, and polity system, Indonesia cannot simply adopt the Western model of the public reform of bureaucracy through digitalisation. It must be specified based on Indonesia's particular contextual characteristics that take the superiority of human activities over technology for granted. The critical reform for Indonesia should be in HRM—a significant shift from process to result orientation—if the country is to achieve a "world class" bureaucracy by 2025. The study reveals that from the perspective of technology, organisation, and people, Indonesian public organisation is open to technological innovations applied in HRM. Thus, combining a meticulous process of civil servants' registration and aiming to pick the best graduates and a solid implementation of an individual performance review using the highly advanced technology of HRIS may inspire civil servants' innovative behaviour.

This study is restrained to typical government agencies in Jakarta, the state capital, which raises the issues of the generalizability of its outcomes for different big cities and other local governments of Indonesia. While our findings are specific to Indonesia, the result is inconclusive for the developing economic world. Indonesian considerable state apparatus, various ethnic and religious mixtures, typical gender norms, and the history of both autocratic and democratic regimes put together a valuable case to highlight the civil service shifting from dictatorship to democracy. Though Indonesia has become a model for a successful case of transformation from authoritarianism to democracy, the naive application of this model of transition should be carefully examined. This way, we can prevent the risk of imitating the best practices in HRM successfully tested in private companies to the public sector domain without fully considering contextual differences (institutional, political, and cultural) between sectors.

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