Value Derived from Digitalised Human Resource Management: Perspectives from South Africa

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Abstract

A lack of empirical research on the value derived from digitalised human resource management contributes to the sluggish adoption of its technology in organisations, also in South African workplaces. In this article, we present empirical findings of the value derived from digitalised human resource management. These findings are based on the observations of 312 human resource management professionals and line managers in the automotive industry in South Africa. The data were collected by means of a cross-sectional quantitative survey design using purposive and snowball sampling techniques. The findings of this study provide evidence of perceived value and impact value derived from digitalised human resource management. The perceived value of digitalised human resource management was evident for (1) performance, (2) stakeholders, (3) employees, and (4) talent creation, whereas the impact value was observed for (5) employment relations, (6) time and cost savings, and (7) human resource administration and control. These seven value factors were categorised as operational, relational or transformational, indicating the level at which the value of digitalised human resource management was realised. In the study, we provide a strong case for investing in the technology of digitalised human resource management to optimise strategic human resource management and maximise digitalised value in organisations. We caution human resource management practitioners that digitalisation is not an end goal, but a means to greater organisational effectiveness and stakeholder satisfaction.
Keywords: digitalised HRM, HRM value chain, digital HRM, technology, perceived value, impact value

Introduction

The adoption of digital technologies related to the Fourth Industrial Revolution (4IR) affects business processes, operations and work in an unprecedented manner regarding speed, scope, efficiency and effectiveness (Komm et al., 2021). The manufacturing industry, and specifically the automotive industry, is regarded as a pioneer in the adoption of digital technologies (Pfeiffer, 2017). This follows the adoption of the “High-Tech Strategy 2020” in Germany which was meant to propel the manufacturing industry as the leader of digital value chains and networked production (Pfeiffer, 2017). In South Africa, advanced analytics, robotics, cloud computing and advanced sensors are mostly associated with the automotive manufacturing industry (Deloitte, 2016; Trade and Industrial Policy Strategies [TIPS], 2019). The value of these technologies for decision-making, monitoring, and controlling business operations is considered important for South African automotive manufacturing organisations (Deloitte, 2016; TIPS, 2019).

However, owing to a lack of empirical research and evidence, scholars and businesses rely mostly on theoretical knowledge to convince others of the gain to be derived from digitalised business value chains. In fact, Venturini (2022) emphasises that research on 4IR and related technological applications in business is still in the infancy stage. In this regard, empirical research is required on the value of value chains of digitalised human resource management (HRM) (Baykal, 2019). HRM practitioners must consider qualitative (perceived) and quantitative (impact) data when measuring or reflecting on the effectiveness and efficiency of HRM service delivery (Chartered Institute of Personnel and Development [CIPD], 2017). They therefore need to consider perceptions of service delivery (perceived) and actual return on investment (impact) (Edwards, 2019; Thite, 2019; Ulrich, 2019). Such research could prompt HRM practitioners to capitalise on digital technologies to enhance HRM service delivery.

Technologies adopted for digitalising HRM include social media, mobile applications, cloud computing, artificial intelligence (AI), robotic process automation, machine learning, gamification, and virtual reality (Thite, 2019). Digitalised HRM augments the HRM function (Barman & Das, 2018). However, HRM units are generally seen to be lagging in adopting digital technologies (Bersin et al., 2017; Vishwakarma & Singh, 2023). It was only recently that the digitalisation of HRM began to accelerate, and this was because of the Covid-19 pandemic that forced many businesses to move online (Komm et al., 2021). The most cited reason for slow investment in HRM digitalisation is a lack of empirical evidence of the value added (Jani et al., 2021; Vishwakarma & Singh, 2023) and especially in the South African context (Muzanenhamo & Rankhumise, 2023). This comes at a time when HRM is increasingly challenged to fulfil its strategic role in business. HRM practitioners and organisational leaders require empirical evidence demonstrating the value of digital HRM systems to change mindsets about its adoption in organisations (Jani et al., 2021).
From a theoretical perspective, some scholars are optimistic that HRM digitalisation could add strategic value to organisational performance, whereas others are juxtaposed on either side of the argument, reflecting uncertainty in this respect (Stone et al., 2015; Strohmeier, 2020). These conflicting stances are unsurprising since the adoption of digital technologies could pose a threat to HRM (McAfee & Brynjolfsson, 2016; Schwab, 2016). For example, digitalisation could lead to the displacement of less skilled HRM staff, even if there is potential for the creation of new HRM roles (Hattingh, 2018; McAfee & Brynjolfsson, 2016). Redesigning jobs, upskilling and reskilling employees, and adopting a culture of long-life learning is a challenge associated with digitalisation (Hanson, 2021). Furthermore, it is cautioned that digitalisation gives HRM practitioners access to private and sensitive information about employees, which potentially creates ethical dilemmas when such information is used in decision-making (Kristoff et al., 2018). Despite these challenges, Komm et al. (2021) project an increase in HRM digitalisation even if investment decisions are made without evidence of its impact, or regarding the ways in which it could be utilised best.

Despite concerns, the capability of digital HRM to deliver seamless HRM services cannot be underestimated. Thite (2019) opines that the employee experience is enhanced by the adoption of a user-oriented digital HRM system, while Lager and Milojkovic (2018) highlight cost savings owing to simpler and faster information processing. Wang et al. (2022) predict more efficiency and effectiveness in HRM administrative, operational and transactional chores, providing scope for a greater focus on the strategic role of HRM.

Conflicting views on the value of digitalised HRM provide a foundation for more research in this area. Marler and Fisher (2013), Bondarouk et al. (2017), Baykal (2019) and Wang et al. (2022) advocated more depth in research related to the value of digitalised HRM. In this study, we therefore sought to empirically investigate the value derived from digitalised HRM.

**Research Objectives**

The research objectives of the study were to

- synthesise theoretical views on the value of HRM digitalisation,
- present evidence of the perceived value of digitalised HRM collected from representatives in the automotive industry in South Africa, and
- present evidence of the impact value of digitalised HRM collected from representatives in the automotive industry in South Africa.

This study reported on in this article is part of a bigger research project that focused on the digitalisation of HRM in South Africa. In the bigger project, the extent of and challenges experienced in relation to the digitalisation of HRM in automotive sector organisations were explored. It also explored perceptions of the value and impact
derived from digitalised HRM, the latter being reported in this article. This article is divided into four main sections, namely,

- the literature section dealing with the theoretical underpinning,
- the research methodology section presenting the research design and approach, the instrument used for data collection, and data analysis procedures,
- the results section dealing with the empirical data collected, and
- the discussion section presenting practical implications related to the results.

Potential limitations of the study and recommendations for future research are offered.

Literature Review

Theoretical Framework

The professional body for HRM practice in South Africa, the South African Board for People Practices (SABPP) developed a standards model for HRM systems which was adopted as the blueprint for professional human resources (HR) practice in the country (SABPP, 2014). HR technology is an inherent aspect of the implementation of HRM services across the HR value chain (called HR architecture), with an HR metrics system to be adopted for review and continuous improvement. The value chain elements, comprising workforce planning, learning and development, performance management, rewards or recognition, employee wellness management, employment relations management, and organisational development are implemented in service of strategic HRM, talent management and HR risk management. In this regard, from a professional practice perspective, HRM digitalisation is underpinned by the national HRM practice standards.

In this study, we explored value derived from digitalised HRM. The benefit of HRM digitalisation, according to Baykal (2019), lies in cost savings, accurate and speedy HRM services, and HRM practitioners being released to focus on strategic and development issues. HRM digitalisation therefore serves a transactional and transformational purpose, even though investment in HRM digitalisation may be a costly process and direct personal contact may be sacrificed. According to Thite (2019), value is derived when digitalised HRM elements are integrated and streamlined, enabling HRM professionals to perform their duties more efficiently while contributing to the achievement of organisational goals (Thite 2019).

With the aim of ascertaining the value derived from digitalised HRM value chain elements, three levels in which value can manifest were identified based on the objectives of digital HRM. These levels are operational, relational and transformational (Thite, 2019; Vardarlier, 2020; Zehir et al., 2020). The most significant value is at strategic level, then relational level and lastly operational level (Iqbal et al., 2019; Thite,
2019; Vardarlier, 2020). At an operational level, HRM digitalisation is expected to provide more efficient processes, at a relational level better communication and transparency, and at a transformational level, positive outcomes for the organisation and its numerous stakeholders, as outline in the discussions below.

**Operational Value of Digitalised HRM**

Operational value is derived from digitalised HRM through more efficiency and effectiveness in executing routine, transactional and administrative processes (Martini et al., 2020). These operational activities include digital policy compliance, digital record-keeping, digital updating and administration of payroll, digital maintenance of personal data, digital compilation of HRM reports, and dissemination of HRM information (Martini et al., 2020). Typical digital HRM gains in the operational category include reduced HRM costs, reduced bias, time savings, and enhanced accuracy of data and reports (Bondarouk et al., 2016). Although now executed digitally, these activities include predominantly traditional and mostly mundane HRM administrative activities. Being typically less prominent, these activities are considered peripheral to the achievement of strategic objectives, and are often referred to as “the support function”, “back office”, and/or “cost centre” (Martini et al., 2020). In his seminal work on the functions of HRM, Ulrich (1997) refers to this role of the HRM practitioner as “the administrative expert”. It is noted that operational HRM activities that are executed digitally improve the effectiveness and transparency of HRM processes, thereby laying the foundation for advancing the strategic intent of the business and unleashing relational and transformational values across the value chain (Baykal, 2019; Jani et al., 2021).

**Relational Value of Digitalised HRM**

The relational value of digitalised HRM manifests when interactive relationships between the organisation, HRM and internal and external stakeholders improve (Martini et al., 2020; Thite, 2019); this being owing to greater transparency and integrity in HRM processes (Almashyakhi, 2022). For example, when recruitment and selection, training and development, performance management, and reward management are executed efficiently and effectively owing to these functions being digitalised, a talented workforce is attracted, motivated and retained (Moussaa & Arbib, 2020). Moreso, as HRM services offered to stakeholders improve, the reputation of HRM improves too (Moussaa & Arbib, 2020). Fulfilling the role of relationship builder with respect to employees, HRM practitioners are referred to as “employee champions” (Ulrich, 1997).

**Transformational Value of Digitalised HRM**

Transformational value derived from digitalised HRM sprouts from the function and roles of HRM changing from administrative to strategic (Martini et al., 2020; Thite, 2019) with associated benefits for organisational brand, change management, organisational culture, talent management, knowledge management and talent retention (DiRomualdo et al., 2018; Thite, 2019). The use of HR analytics, for example, promotes
advanced reporting and evidence-based decision-making (Bersin et al., 2017; Kambur & Yildirim, 2022). Digitalised HRM prompts HRM practitioners to develop digital skills and acquire new knowledge aligned with the new world of work (Andersson et al., 2016; Van den Berg et al., 2020), whereas for employees it results in enhanced job satisfaction, commitment, motivation, innovation and engagement (Wright & Ulrich, 2017). Using Ulrich’s typology (1997), the role of the HRM practitioner in creating transformational value through digitalised HRM is elevated from administrative expert to strategic partner and change agent (Ulrich, 1997).

**Value Generated by Digitalised HRM Across the HR Value Chain**

The digital HR value chain is implicitly encapsulated in the HR Management System Standards Model of the SABPP (2014). The digitalisation of workforce planning, recruitment and selection reduces the administrative burden of HRM, resulting in cost and time savings, with less time spent on shortlisting and coordinating interviews, and candidate queries being handled through chatbots (Sivathanu & Pillai, 2018). In addition, digital onboarding is more impactful and improves the employee experience, with complex and unique queries being resolved promptly (Johnson et al., 2020; Fenech, 2022). Talent acquisition is conducted in a cost-effective manner, increasing the probability of attracting highly qualified applicants from across the globe (Holm & Haahr, 2019). Machine learning, using a “keywords system” checks that minimum job requirements are met, with automated responses being sent to applicants (Sivathanu & Pillai, 2018). AI also enables matching new employees with career paths and identifying turnover risk, therefore proactively influencing retention, engagement, and development decisions and strategies (Jian et al., 2018; Johnson et al., 2020).

However, there are pitfalls. Digitalised recruitment and selection favour applicants with digital skills and internet access, sidelining and discouraging others (Holm & Haahr, 2019). The online administration of screening tests requires video monitoring to ensure test integrity (Karadža, 2020). Digitalisation, therefore, requires organisations to improve their public image through more attractive and user-friendly websites and portals.

Digital performance management enables cost savings, and also reduced effort and time spent on monitoring, feedback and reporting on employee performance (Vardarlier, 2020; Zehir et al., 2020). It allows more time for aligning performance with desired business outcomes, mentoring and coaching, and planning multisource feedback (Kambur & Yildirim, 2022). The digital collection of data, assessment and provision of feedback make performance management more fair, transparent and accurate (Karadža, 2021), preventing recency effect and inaccuracy (Vardarlier, 2020). The results of digital employee performance reviews can be linked to other HRM processes, such as compensation, training and development (Rondeau, 2019).

Digitalised learning and development reduce costs associated with face-to-face learning situations, including travelling, renting training facilities, printing, and binding of
learning materials (Fenech, 2022). In addition, a digital learning management system eases the coordination and monitoring of diverse learning interventions (Johnson & Stone, 2019). More time can therefore be spent on developing integrated digital learning and development strategies, and offering digitalising learning experiences (Tan, 2019).

Digitalised learning and development enable employees to study at their own time, pace, and place, enhancing their work-life balance and motivation (Johnson & Stone, 2019; Vardarlier, 2020; Kambur & Yildirim, 2022). Social media technologies facilitate access to learning material, making it convenient for learners to learn at their own pace (Fenech, 2022). There are limitations such as learners possibly feeling disconnected and isolated from co-learners and a lack of discussion and engagement which may affect motivation and course completion (Tan, 2019). Networking with others, developing leadership skills, and the ability to work in teams are considered essential to career growth and less possible with digitalised learning (Johnson & Stone, 2019; Vardarlier, 2020). However, there are remedies, including digital learner-to-learner mentoring and online discussion forums.

In digitalised reward and recognition systems, cloud solutions and mobile applications enable easy access to rewards and benefits information, consequently streamlining administration and facilitating strategic decision-making (Kambur & Yildirim, 2022). Claim submissions and data accuracy can also be verified using AI-powered systems and machine learning, while a deluge of reward queries can be dealt with by chatbots (Vardarlier, 2020). The integration of internal and external reward data for purposes of benchmarking promotes equity, and perceptions of fairness of reward structures, which is important when considering the equity theory (Dede, 2019; Johnson & Stone, 2019; Rondeau, 2019). However, using a digital reward system does not eliminate the need for cognitive intervention from HRM practitioners and managers, but it provides a good basis for making strategic decisions about issues such as healthcare providers and health interventions (Johnson & Stone, 2019).

Digitalised employee wellness management gives easy access to employee health data, thereby promoting quick mitigation measures in the case of health risks and persistent absenteeism issues (Brassey et al., 2021). It also secures productivity and engagement levels (Goh, 2018). Digital wellness management applications promote employee self-management providing them with digitalised health data and various health management options (Moore & Piwek, 2017), which benefit especially organisations that employ less health professionals and consultants (Block et al., 2015). Areas of concern are the cost of digital applications (Widmer et al., 2015) and privacy issues relating to personal information (Rose et al., 2014). HR managers must therefore ensure that digital data governance measures are in place to regulate the use of data, especially when it comes to security and privacy.

In digitalised employment relations management, AI and machine learning enable the administration of employee engagement surveys (Willis Towers Watson, 2020). From
an administrative perspective, documents and communication can be digitalised, and employment relationship issues can be categorised (Willis Towers Watson, 2020). This enables HRM practitioners to use their time more productively in developing holistic employment relations solutions, which may include engaging shop stewards and trade unions, planning employee engagement, and giving attention to diverse employees’ career planning. Using real-time information and analytics, interventions can be developed and deployed in time (Moussa, 2015; Sigh & Jain, 2013). External and internal communication among parties in the employment relationship can be improved using social media channels and mobile applications (Vardarlier, 2020). A challenge in digital communication is the lack of boundaries between work and personal time, leading to overwork and stress (Fedorova et al., 2019), with potential negative results for employee morale and productivity. Digitalisation could compromise face-to-face contact among employees, and especially between managers and employees (Burbach, 2019; Thite, 2019).

Digitalised HRM reduces mundane administrative tasks, saves time and directs attention to strategic issues. Digitalised organisational development facilitates organisational diagnostics by managing change projects, sharing knowledge, aligning cultures, and promoting the organisational brand (Manuti & De Palma, 2018; Zehir et al., 2020).

Table 1 provides a synthesis of value added by digitalised HRM systems, as gleaned from the literature review.

**Table 1: Theorised value of digitalised HRM systems**

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational</strong></td>
<td>Removal of HR errors and duplication</td>
</tr>
<tr>
<td></td>
<td>Reduction of HR administrative costs</td>
</tr>
<tr>
<td></td>
<td>Reduction of HR transactional and operational costs</td>
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<tr>
<td></td>
<td>Headcount reduction</td>
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<tr>
<td></td>
<td>Quick responses to employee and candidate queries</td>
</tr>
<tr>
<td></td>
<td>Improved accuracy and speed in data processing</td>
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<tr>
<td><strong>Relational</strong></td>
<td>Improved communication with stakeholders</td>
</tr>
<tr>
<td></td>
<td>Improved HRM service delivery to internal and external stakeholders</td>
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<tr>
<td></td>
<td>Improved execution of HRM practices</td>
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<td></td>
<td>Enhanced relationships between stakeholders and the HRM department</td>
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<tr>
<td><strong>Transformational</strong></td>
<td>Enhanced employee experience</td>
</tr>
<tr>
<td></td>
<td>Quality decision-making</td>
</tr>
<tr>
<td></td>
<td>Improved employee innovativeness and creativity</td>
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<tr>
<td></td>
<td>Enhanced shaping of organisational culture</td>
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<tr>
<td></td>
<td>Improved organisational brand</td>
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<tr>
<td></td>
<td>Improved management of change</td>
</tr>
<tr>
<td></td>
<td>Improved alignment between business strategy and HRM strategy and policies</td>
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<tr>
<td></td>
<td>Improved HRM focus on business strategy</td>
</tr>
<tr>
<td></td>
<td>Improved employee job satisfaction, motivation, engagement, and involvement levels</td>
</tr>
</tbody>
</table>

Source: Adapted from Baykal (2019), Thite (2019) and Vardarlier (2020)
Based on the literature review and research objectives of this study, the following hypotheses are relevant to the study:

H₁ = Digitalised HRM is perceived to add significant value to automotive organisations in South Africa
H₂ = Digitalised HRM has a significant positive impact on automotive organisations in South Africa

Research Design

Research Approach

This study was based on the positivism philosophy, using a cross-sectional survey design and quantitative methodology, with a structured online questionnaire to collect data. The positivistic paradigm is anchored in the belief that reality is objective and is not influenced by the actions of the researcher (Hair et al., 2018). It also assumes that behaviour is observable and measurable, allowing scientific methods such as questionnaire surveys, and descriptive and inferential statistics to be used in the collection and analysis of data from a representative sample of a population (Hair et al., 2018).

Research Respondents and Sampling

The target respondents for the study comprised HRM professionals and line managers employed in the automotive industry in South Africa. The automotive industry is the hub of digital transformation in South Africa (Deloitte, 2016; TIPS, 2019). The population of the study from which the sample was drawn comprises 160 automotive manufacturing companies in the Eastern Cape province of South Africa (National Association of Automobile Manufacturers of South Africa [NAAMSA], 2018). A self-developed online questionnaire administered via QuestionPro survey software was distributed to potential respondents, using purposive and snowball sampling methods. These sampling methods allow the researchers to contact prospective respondents of the sample (population), who, in turn, identify other prospective members of the sample whom they believe have the knowledge of the phenomenon under study to participate in the study (Hair et al., 2018). Of the 425 questionnaires distributed, 328 were completed. A total of 312 were considered usable, achieving a response rate of 73.41%. The demographic profile indicates that most respondents were HRM professionals (63.77%), followed by line managers (34.94%) and “Others” (1.28%) who comprised the HRM assistant manager and a general manager. The respondents who had a degree as the highest qualification constituted 52.56% of the 312. This was followed by a diploma (31.73%), master’s degree (12.50%), doctorate (0.64%), and matric (2.56%). These demographics indicate that data were collected from the targeted group.
Research Measuring Instrument

In addition to eliciting biographical data, the questionnaire consisted of two sections, Perceived Value and Impact Value. In Section B (Perceived Value), the respondents were asked to indicate the extent to which they perceived digitalised HRM as contributing value to various stakeholder groups (for example, managers, employees, trade unions and the government) and HRM aspects such as recruitment and selection, onboarding and performance improvement. Section B included 34 items measured on the five-point Likert scale with the following range of answer options: not at all (1), small extent (2), moderate extent (3), great extent (4), and a very great extent (5).

In Section C (Impact Value), the respondents were, for example, asked to indicate the extent to which digitalised HRM affected aspects such as training logistics and administration costs, data accuracy (less errors and less duplication), and time and cost related to setting performance standards. This section included 25 items measured on a Likert-type scale with the following range of answer options: substantially increased (1), slightly increased (2), remained the same (3), slightly decreased (4), and substantially decreased (5).

No existing validated scale was located to measure the value of digitalised HRM, consequently the items for both Perceived Value and Impact Value scales were derived from the literature. This included perusing the HR Management System Standards Model of the SABPP outlining the HR value chain.

Statistical Analysis

Using the Statistical Package for the Social Sciences (version 27) for data processing, we conducted the exploratory factor analysis to identify structures and latent factors. The Kaiser–Meyer–Olkin (KMO) and Bartlett’s Test of Sphericity (BTS) indicated adequate sampling and data suitability (Hair et al., 2018), with a KMO of 0.917 obtained for Perceived Value and 0.896 for Impact Value, and the BTS for both measuring 0.000. The factor extraction method used was principal axis factoring (Williams et al., 2012). For testing significance, one-sample t-tests were used.

Ethical Considerations

Ethics protocols pertaining to this study, such as obtaining ethics approval from the educational institution from where this study was undertaken, were observed. Communication with the respondents explained the purpose of the study, issues of anonymity, the right to withdraw and consent regarding responding.
Results

Factor Analysis

The pattern matrix and related loadings produced four factors for Perceived Value and three factors for Impact value. The Perceived Value factors were labelled: Factor 1 (Value for Performance), Factor 2 (Value for Stakeholders), Factor 3 (Value for Employees) and Factor 4 (Value for Talent Creation). The Impact Value factors were labelled Factor 1 (Value for Employment Relationship Management (ERM)), Factor 2 (Value for Time and Cost Saving), and Factor 3 (Value for HR Admin Control). Cronbach’s Alfa Coefficients obtained for these factors ranged between 0.872 and 0.957 (see Table 2). Item loadings ranged from 0.44 to 0.96 for the factors of both Perceived Value and Impact Value, indicating validity, with all loadings being higher than 0.30 (Hair et al., 2018). The factors were subsequently categorised as being at operational, relational or transformational level, as depicted in the literature study.

Perceived Value Factors

Factor 1 (Value for Performance)
The items for this factor relate to improving the performance of employees and the organisation, performance assessment, communication, conflict resolution and innovation. This factor is categorised as being at transformational level (Thite, 2019; Vardarlier, 2020).

Factor 2 (Value for Stakeholders)
The items for this factor relate to a range of stakeholders: employees, employers, managers, the organisation, the HRM department, the community and trade unions, who could all benefit from digitalised HRM. This factor is categorised at relational level (Thite, 2019; Vardarlier, 2020).

Factor 3 (Value for Employees)
The items for this factor relate to digitally enhanced work environments that enhance well-being and flexibility, connectivity and communication. This factor is categorised at transformational level (Thite, 2019; Vardarlier, 2020).

Factor 4 (Value for Talent Creation)
The items for this factor refer to the attraction, identification, development, and deployment of effective and competent personnel at the right place and time. This factor is categorised at relational level (Thite, 2019; Vardarlier, 2020).
**Impact Value Factors**

**Factor 1 (Value for Employment Relationship Management (ERM))**

The items for this factor contribute to effective employment relationship management, as depicted in a reduction of duplication and errors, reduction of the period between advertising and hiring, less grievances and disputes reported, and less employees being disengaged and dissatisfied. This factor is categorised at relational level (Thite, 2019; Vardarlier, 2020).

**Factor 2 (Value for Time and Cost Saving)**

The items for this factor relate to time and costs savings on various HRM practices, for example, time and cost saving in setting performance standards, training and change implementation, and labour turnover and absenteeism control. This factor is at the operational level (Thite, 2019; Vardarlier, 2020).

**Factor 3 (Value for HR Administrative Control)**

The items for this factor refer to effective HRM administration related to cost and time savings in training, outsourcing, data control and processing of terminations. This factor is at the operational level (Thite, 2019; Vardarlier, 2020).

**Descriptive Statistics for the Extracted Factors**

Table 2 presents descriptive statistics for the factors of Perceived Value and Impact Value. For Perceived Value (Table 2), the factor Talent Creation obtained the highest mean score (M = 4.13). For all the Perceived Value factors, mean scores, ranging between 3.71 and 4.13, reflect responses leaning to the answer option “a great extent”. The standard deviations, varying from 0.64 to 0.83 indicate the level of agreement among the respondents with regard to these factors. The respondents perceived “a great extent” of value for digitalised HRM, specifically with respect to value for stakeholders, performance, employees and talent creation.

With regard to Impact Value for digitalised HRM, the factor Value for HR Administrative Control obtained the highest mean score (3.82) and Value for Employment Relationship Management a mean score of 3.81. The Value for Time and Cost Savings obtained a lower but still respectable mean score (3.70). All three factors indicate a response option towards “slightly decreased”, indicating that time, cost, inaccuracies and various other issues have decreased as a result of digitalised HRM.
Table 2: Descriptive statistics for perceived value and impact value factors

<table>
<thead>
<tr>
<th>Value Factors</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value for Stakeholders</td>
<td>312</td>
<td>3.71</td>
<td>0.74</td>
<td>0.927</td>
</tr>
<tr>
<td>Value for Performance</td>
<td>312</td>
<td>3.87</td>
<td>0.76</td>
<td>0.957</td>
</tr>
<tr>
<td>Value for Employee</td>
<td>312</td>
<td>3.72</td>
<td>0.83</td>
<td>0.891</td>
</tr>
<tr>
<td>Value for Talent Creation</td>
<td>312</td>
<td>4.13</td>
<td>0.64</td>
<td>0.915</td>
</tr>
<tr>
<td><strong>Impact value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value for ERM</td>
<td>312</td>
<td>3.81</td>
<td>0.63</td>
<td>0.901</td>
</tr>
<tr>
<td>Value for Time and Cost Saving</td>
<td>312</td>
<td>3.70</td>
<td>0.75</td>
<td>0.928</td>
</tr>
<tr>
<td>Value for HR Admin Control</td>
<td>312</td>
<td>3.82</td>
<td>0.61</td>
<td>0.872</td>
</tr>
<tr>
<td><strong>Value totals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Perceived Value</td>
<td>312</td>
<td>3.86</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>Total Impact Value</td>
<td>312</td>
<td>3.78</td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 presents descriptive statistics for the various items measuring Perceived Value of digitalised HRM. The variable “payroll management” accounts for the highest mean score (M = 4.35) followed by “training logistics and administration” (M = 4.29), and “training needs analysis and evaluation of training interventions” (M = 4.27). Eight other items obtained mean scores of above 4: “Value for the HR department” (M = 4.07), “Recruitment and selection” (M = 4.19), “Onboarding/orientations” (M = 4.06), “Career management” (M = 4.04), “Setting of performance standards” (M = 4.08), “Assessment of performance” (M = 4.12), “Salary and wage reviews” (M = 4.07), and “Employee communication” (M = 4.14).
Figure 1: Perceived value of digitalised HRM: Mean scores

Figure 2 shows descriptive statistics for Impact Value of digitalised HRM. The item “Payroll errors” obtained the highest mean (4.26), followed by “Duplication costs and errors” (M = 4.05), and “Cost application for recruitment and selection” (M = 4.03). Overall, all the variables measuring the Impact Value obtained mean scores of above 3.00, with the variable “Number of people who report being disengaged” being the HRM service in which digitalisation had the least impact value (M = 3.09). This indicates that the respondents observed that digitalisation had an impact on HRM service delivery regarding reduction of cost, time, inaccuracies, errors, employee complaints, disciplinary issues and unproductive employee behaviours.
Figure 2: Perceived impact of digitalised HRM: Mean scores

One-sample t-tests were used to test for the significance of the factors measured and also the hypotheses. Table 3 presents the t-test results for the four factors extracted for Perceived Value. A t-test measures whether the result obtained for each factor is significantly different to a hypothetical “not at all” (1) response obtained. It is evident that the mean scores for all the factors are statistically and significantly higher than the score indicating “not at all”. To illustrate, the mean score for value for stakeholders (3.71 ± 0.74) is statistically and significantly higher than the score for “not at all” (t (311) = 64.57, p = 0.000) (see Table 3), with a mean difference of 2.71 (95% CI, 2.63 to 2.79). In addition, the mean score for Perceived Value Total (3.86 ± 0.64) is
statistically and significantly higher than the mean score for “not at all” \( (t(311) = 78.98, p = 0.000) \), with a mean difference of 2.86 (95% CI, 2.78 to 2.93).

**Table 3: One-sample t-test for perceived value of digitalised HRM**

<table>
<thead>
<tr>
<th>Test Value</th>
<th>Value for stakeholders</th>
<th>Value for performance</th>
<th>Value for employee</th>
<th>Value for talent creation</th>
<th>Perceived Value Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>( t )</td>
<td>64.57</td>
<td>66.68</td>
<td>57.83</td>
<td>86.00</td>
<td>78.98</td>
</tr>
<tr>
<td>( df )</td>
<td>311</td>
<td>311</td>
<td>311</td>
<td>311</td>
<td>311</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean Difference</td>
<td>2.71</td>
<td>2.87</td>
<td>2.72</td>
<td>3.13</td>
<td>2.86</td>
</tr>
<tr>
<td>95% Confidence Interval of the Difference</td>
<td>Lower 2.63, Upper 2.79</td>
<td>Lower 2.78, Upper 2.95</td>
<td>Lower 2.63, Upper 2.81</td>
<td>Lower 3.06, Upper 3.20</td>
<td>Lower 2.78, Upper 2.93</td>
</tr>
</tbody>
</table>

Hypothesis 1 is therefore accepted and the conclusion is made that digitalised HRM is perceived to add significant value to automotive organisations in South Africa.

Table 4 presents the results of the one-sample t-test used to test hypothesis 2. In this case, a one-sample t-test was performed to determine whether the mean scores for Impact Value factors were significantly different from a “remained the same” score of 3. All the Impact Value factors were found to be statistically and significantly higher than the mean score for “remained the same”. For example, the mean score for Value for ERM \((3.81 \pm 0.63)\) is statistically and significantly higher than the score for “remained the same” \((t(311) = 22.80, p = 0.000)\), with a mean difference of 0.81 (95% CI, 0.74 to 0.88) (see Table 4). In addition, the overall mean score for Impact Value Total \((3.78 \pm 0.58)\) is statistically and significantly higher than the mean score for “remained the same” \((t(311) = 23.71, p = 0.000)\), with a mean difference of 0.78 (95% CI, 0.71 to 0.84).
Hypothesis 2 is therefore accepted as the results indicate that digitalised HRM has a significant positive impact on automotive organisations in South Africa.

Discussion
In this study, we aimed to empirically investigate the value derived from digitalised HRM. In this respect, the objective was to first conduct a literature study, and then empirically probe the Perceived Value and Impact Value of digitalised HRM in the automotive industry in South Africa. This was done via observations from HRM practitioners and line managers.

Factor Analysis
The factor analysis produced four factors for the Perceived Value of digitalised HRM: Value for Performance, Value for Stakeholders, Value for Employees, and Value for Talent Creation, and three factors for Impact Value for digitalised HRM: Value for HR Administrative Control, Value for time and cost saving, and Value for Employment Relationship Management. Each of these factors was described in relation to the variables that clustered on it. Impact Value for HR Admin Control and Impact Value for Time and Cost Saving factors were categorised under the operational level. Perceived Value for Stakeholders, Perceived Value for Talent Creation and Impact Value for ERM were classified under the relational level. Perceived Value for Performance and Perceived Value for Employees were classified under transformational value. These factors emerged as prominent areas in which digitalised HRM adds value.
Descriptive Analysis

The mean scores for Perceived Value Factors ranged from 3.71 to 4.13 (Table 2), indicating perceived value “to a great extent”. Talent Creation was perceived to benefit most from digitalisation, followed by Value for Performance, Employees and Stakeholders. These value factors are at relational and transformational levels, indicating that value will be created for the greater organisation and its stakeholders, as well as for HRM. Digitalised HRM creates value across the HR value chain, from workforce planning (talent acquisition and retention), enhanced performance (performance management, communication, creativity), employee well-being (flexible arrangements, engagement), leading to multiple stakeholder satisfaction. These results are aligned with literature that states that digitalised HRM enhances employee well-being, flexibility and employee experience (Society for Human Resource Management [SHRM], 2018) and contributes value to employees, customers, organisations, communities and investors (Ulrich, 2019). Digitalised HRM, applied across the HRM value chain, enhances talent capacity and is therefore a mechanism to deal with the “war for talent” in the new world of work (Thite, 2019).

With regard to Impact Value of digitalised HRM, mean scores range from 3.70 to 3.82, indicating “a slight decrease” observed in costs, effort and time involved, or a “slight decrease” observed in duplication and errors, in delivering various services across the HR value chain, including interventions for managing and enhancing the relationship between employees, employers and trade unions. The efficiency and effectiveness of the HRM function to discharge daily duties such as data entry, administration, training and development, recruitment and selection were enhanced by digitalised HRM. These findings are important, as they deal with a concern raised by researchers regarding the lack of hard evidence on the value contributed by digitalised HRM (Thite, 2019; Ulrich, 2019).

Considering individual items measured, the item “payroll management” was perceived to have benefited most from digitalisation, having obtained a mean score of 4.35 (Figure 1), while the item “payroll errors” (Figure 2) was observed to be most affected by digitalisation, with a mean score of 4.26. Interestingly, the item “payroll management” was the only item that did not load onto a Perceived Value factor, and that obtained the lowest standard deviation (0.70) in the results of individual items not presented in this study. Statistically, a benefit for “payroll management” could be considered an outlier and at the same time it demonstrates the potential for further advantage to be derived from digitalising HRM across the value chain.

The literature review highlighted that digitalising the reward system enables the generation of job evaluations and salary structures through the integration of internal and external data including job descriptions, employee performance review scores and data from salary surveys (Dede, 2019). Reward is still regarded as one of the leading factors in employing talent, and a digital reward system facilitates equity (Garibaldi et al., 2023; Johnson & Stone, 2019). Organisations that offer both competitive and fair
compensation are more likely to attract and retain competitive talent, committed to the cause of the organisation when work content factors are, in addition to compensation, perceived as positive (Rondeau, 2019).

Notably, there is congruence between the results for Perceived Value ($M = 3.86$) and Impact Value ($M = 3.78$). These results prompt the conclusion that there is alignment between representatives from the automotive industry’s perceptions of the value of digitalisation in HRM and the observed impact thereof. HRM professionals are encouraged to come up with evidence-based decisions (Armstrong & Taylor, 2020) and from the results, it seems that this is occurring in practice. Organisations should utilise both perceived and observed indicators to measure HRM outcomes for organisations to achieve a competitive advantage (Armstrong & Taylor, 2020; Burbach, 2019; CIPD, 2017). This way the type of analytics used in organisations are continuously tested for accuracy and validity.

With regard to level of contribution, Value for HR Administrative Control ($M = 3.82$) and Value for Time and Cost Savings ($M = 3.70$) fall under operational level; Value for ERM ($M = 3.81$), Value for Talent Creation ($M = 4.13$) and Value for Stakeholders ($M = 3.71$) fall under relational level, while Value for Performance ($M = 3.87$) and Value for Employees ($M = 3.72$) fall under transformational level. Based on the aggregate mean scores of these factors, most value seems to be derived at relational level $(3.71 + 4.13 + 3.81)/3 = 3.88$, followed by the transformational level $(3.87 + 3.72)/2 = 3.80$, with least value at operational level $(3.70 + 3.82)/2 = 3.76$.

These finding are congruent with the opinion of Thite (2019) that the least value to be gained from digitalised HRM is at operational level. Although digitalisation can result in more accurate data, less duplication, and time and cost savings, it does not mean that the data are appropriately analysed to inform decision-making at a relational or transformational level (Thite, 2019; Vardarlier, 2020). Attaining the most value at relational level implies that the surveyed organisations managed to deliver HRM services that satisfy stakeholders. This means that they satisfy the needs of job applicants; attract, identify, develop and deploy talent effectively; and effectively and efficiently manage employment relationships, both on an individual and collective basis (Burbach, 2019).

Using digital technologies to execute operational and administrative HRM duties more efficiently and effectively leaves HRM professionals with more time to focus on relational and strategic value-adding activities (Thite, 2019; Vardarlier, 2020; Zehir et al., 2020). Digitalised HRM should add value to the attainment of strategic objectives of the business (Ruël, 2018). In this respect, it could be argued that the surveyed organisations could explore adding more value at strategic level, in addition to relational and operational level, through the use of digitalised HRM.
One-Sample T-Test and Testing of the Hypotheses

The one-sample t-test indicated that both Perceived Value (M = 3.86; SD = 0.64) \( t(311) = 78.98, p = 0.000 \) and Impact Value (M = 3.78; SD = ±0.58) \( t(311) = 78.98, p = 0.000 \) were statistically significant. Hypothesis 1 and Hypothesis 2 were therefore accepted. Digitalised HRM is perceived to add significant value to automotive organisations in South Africa (H1). Digitalised HRM has a significant positive impact on automotive organisations in South Africa (H2).

All the factors for Perceived Value and Impact Value were statistically and significantly higher than the score (test value) indicating “Not at all” (perceived value) and “Remained the same” (impact value). Both Perceived Value and Impact Value are relevant and significant. This is tantamount to the assertion by the CIPD (2017) that HRM strategies should add value, whether measured by soft or hard HR metrics (Armstrong & Taylor, 2020; Edwards, 2019; Strohmeier, 2020).

Practical Implications

The results of this study have implications for the HRM profession and organisational leaders at all levels, and specifically for HRM managers and leaders that function at senior level. The study confirmed the value of digitalised HRM at operational and especially at relational and transformational level. This is based on the perceptions of HRM practitioners and line managers in the automotive industry, and also on what they have observed in their organisations regarding the quantitative value impact of digitalised HRM in their organisations.

The study revealed that the value of digitalised HRM is realised in seven areas: value for performance, stakeholders, employees, talent creation, HR administrative control, time and cost savings, and employment relationship management. This indicates that HRM digitalisation creates significant value across numerous dimensions. The implementation thereof should form part of a greater organisational development change intervention with a clear vision of the expected value to be added by involving numerous stakeholders (HRM practitioners, line managers, employees, training providers, IT, suppliers and customers) and rolling it out across different HRM-related dimensions. Organisational change is associated with improved systems, processes and behaviours and, therefore, organisational learning, systems thinking and personal mastery will be necessary (Hanson, 2021; Martins & Geldenhuys, 2016). Ultimately, the digitalisation of HRM should be used as a basis for strategic decision-making. HRM professionals and leaders should therefore adopt appropriate digital HRM practices to harness potential benefits and contribute to the attainment of organisational goals in the new world of work.

However, the digitalisation of HRM should not be implemented solely owing to it being perceived as the right thing to do with the emergence of 4IR, as this will only realise
value at operational level, and bring value mostly for HRM at operational level rather than for a broad range of relevant stakeholders. The purpose of digitalisation should ultimately be to meet the strategic goals of the organisation. Although digitalised HRM practices such as digital talent and employment relationship management could add more operational and relational value, most value can be derived from focusing digital applications on organisational development, organisational design and cultural practices, in alignment with organisational vision, strategy and values (Ma & Ye, 2015; Thite, 2019).

Digitalisation could lead to the displacement of less skilled HR staff (Hattingh, 2018; McAfee & Brynjolfsson, 2016) and therefore upskilling and reskilling are necessary. Specific consideration should be given to training pivotal role players, especially HRM practitioners, on privacy issues and ethical dilemmas when it comes to being exposed to HRM data (Kristoff et al., 2018). Both organisational change and systems thinking require numerous and diverse stakeholders, diverse input and a human-centred approach (Martins & Geldenhuys, 2016).

Limitations of the Research

The population and sample surveyed in this study, being limited to the automotive manufacturing industry in South Africa and specifically the Eastern Cape province, could be considered a limitation. However, many of these organisations have a global footprint and the Eastern Cape is representative of the automotive industry in the country (NAAMSA, 2023).

Recommendations for Future Research

There is a lack of research conducted to determine the extent of value gained from adopting digital HRM (Bengtsson & Bloom, 2017; Bondarouk et al., 2017; SABPP, 2019; Thite, 2019; Vishwakarma & Singh, 2023; Zehir et al., 2020) and this research seems to be the first that was conducted in the South African workplace. Further research, perhaps using a case study methodology, could be conducted on the ways in which the HRM functions and departments are restructured to optimise strategic contribution to organisational goals. HRM professionals and organisational leaders could use the results of this study to confidently develop a compelling business case for investment in HRM technology. This could increase resources channelled to the HRM function for the advancement of HRM digitalisation. To accomplish this, HRM professionals should be endowed with the technological skills necessary to navigate the complexities of the HRM technology market with confidence and be able to negotiate viable HRM technology solutions with suppliers of technology (Bersin, 2021; Joseph et al., 2021).
Contribution of the Study

This research provides an empirical perspective on the value derived from HRM digitalisation and therefore supplements previous research in this area that mostly contributed a theoretical perspective. This study, therefore, demonstrates the potential of digitalised HRM to add value in the pursuit of organisational goals. For example, in this study, we identified seven digital HRM value factors, consequently expanding on the earlier classification of digital HRM value at operational, relational and transformational levels (Thite, 2019; Vardarlier, 2020; Zehir et al., 2020).

Conclusion

Organisations are compelled to digitalise HRM functions to enhance their service delivery and contribution to their strategic goals. In this study, we provide evidence that digital HRM is a worthwhile investment, with input provided by HRM professionals and managers in the automotive industry in South Africa. Digitalised HRM contributes value at operational level, but mostly at relational and strategic level. This should dispel the belief by some sections of the corporate world and media that digital HRM cannot add value to the organisation and strengthen the position of those who believe it can. Those who are undecided may be compelled to change their positions and beliefs about the value that digitalised HRM contribute to organisations, seeing that this study was conducted in a sector that is at the forefront of technological development.

References


