

The digital-era industrial/organisational psychologist: Employers' view of key service roles, skills and attributes



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Orientation: The nature of the Fourth Industrial Revolution's technology-driven work and business profoundly alters the foundational assumptions upon which industrial/organisational (I/O) psychologists in future will base their understanding of their professional roles in the modern workplace.

Research purpose: The objective of the study was to gain deeper insight into South African employers' views of the service roles, skills and attributes of the future-fit digital-era I/O psychologist.

Motivation for the study: More research is needed on the service roles, skills and attributes that employers require from I/O psychologists as companies are transitioning to technology-enabled hybrid and flexible models of work.

Research approach/design and method: The study utilised a qualitative research approach. An open-ended question survey was conducted amongst ($N = 14$) executives and human resource managers of South African companies. Thematic analysis was utilised to analyse the collected data.

Main findings: The data analysis revealed a shift toward key technology-enabled service roles and several intradigital, interdigital, interpersonal and intrapersonal skills and attributes that employers require the digital-era I/O psychologist to bring to the digital-driven workplace.

Practical/managerial implications: Digitally dexterous I/O psychologists should be at the forefront of technology and its impact on workplaces and the profession's scope of practice.

Contributions/value-add: The study adds to the Industrial/Organisational Psychology research literature and reveals the dire need for I/O psychologists to adapt and evolve their scope of practice services and products to ensure the continued relevance of the IOP profession.

Keywords: digital-era industrial/organisational psychologist; industrial/organisational psychologist service roles; industrial/organisational psychologist skills and attributes; technology-driven workplaces; hybrid/remote models of work.

Introduction

The digital-era industrial/organisational (I/O) psychologist faces a fundamental paradigm shift that alludes to employers' and employees' understanding of the nature of technology-driven work and business (Howe, Chauhan, Soderberg & Buckley, 2021). The mindset shift profoundly alters the foundational assumptions upon which I/O psychologists in future will base their understanding of their professional roles in the modern workplace (Howe et al., 2021; Veldsman, 2020). Companies at the forefront of technology are creating new high-tech jobs and roles for their workforce; they are becoming more worker-centric and supportive of their workers by engaging them for a digitally-enabled future and by creating opportunities for technology-enabled continuous upskilling and reskilling (Luchtenberg, 2022). With the digital transformation of companies and the Fourth Industrial Revolution (4IR) technology in the hands of a capabilities-empowered workforce, digital-era I/O psychologists must make the necessary mindset shift to embrace the new roles, skills and attributes required from them by employers (Oosthuizen, 2022; Veldsman, 2020).

The increasingly visible effects of technological advancement on the nature of business, work and jobs in the post-pandemic workplace have escalated employer awareness of the dire need for digitally dexterous I/O psychologists. Such I/O psychologists can help leaders and employees build a digitally dexterous organisational culture that is alert and open to emerging technologies

and innovative digital solutions in rapidly changing market conditions (Jaiswal, 2019; Kropp, Smith & Cain, 2021; Rudakova, 2021). Digital dexterity enables organisations and their employees to operate agile-efficient in a digital-enabled hybrid and remote work environment whilst adding value to business performance in unprecedented times (Baran & Woznyj, 2021; Gratton, 2021; Kropp et al., 2021; Leighton, 2021; Rudakova, 2021). Innovative digitisation of work processes, roles and tasks enforced by the pandemic accelerated the transition to hybrid and remote workforces that can work from both onsite (place-constrained) and offsite (place-unconstrained) locations (Fowell, 2021; Gratton, 2021; Leighton, 2021). Research shows that hybrid work models through virtual engagement of staff promote productive collaboration and good work relationships and increase employee well-being through better work-life balance options. Flexible work models that include remote working also give employers access to a wider talent pool and appear to boost productivity (Leighton, 2021).

However, as with any major organisational change, the transition to technology-enhanced, digitally dexterous hybrid and remote work models also brings its own human-behavioural and organisational development challenges that the digital-era I/O psychologist must face. For example, leaders need to be empowered with skills and tools that enable an organisational culture of virtual inclusivity and connectedness, supported by a climate of psychological safety; they also need coaching in motivating and managing a virtual workforce and ensuring personal and employee well-being (Reyes, Luna & Salas, 2021). Heightened levels of workplace virtuality bring concerns about maintaining and monitoring team trust and strategic business alignment with decreased opportunity for observation (Feitosa & Salas, 2021; Newman & Ford, 2021). Employees need agility and, apart from upskilling and reskilling in adopting the technology of virtual work, they also need to learn how to balance resulting work-life challenges with productivity and performance requirements (Feitosa & Salas, 2021; Fowell, 2021; Gratton, 2021; Leighton, 2021). Leaders and employees further need to adapt to the transitioning of companies to positive-impact value-creation businesses that are committed to economic viability and profitability whilst contributing to a flourishing society and healthy, regenerative natural environment, and improving human well-being through purpose-based stakeholder partnerships (Pavez et al., 2021; Veldsman, 2020). In this regard, Veldsman (2020) and Oosthuizen (2022) outline reimaged roles, skills and attributes for the digital-era I/O psychologist.

However, research on the views of employers in South African companies of the key professional service roles, skills and attributes they require from the I/O psychologist in the digital-enabled company is scarce. The present study sought to fill this gap in research. The study is timely as it sought to add more knowledge and deeper understanding of the evolving service roles, skills and attributes of the digital-era I/O psychologist. As such, the study contributes to the field of I/O psychology (IOP).

Literature review

Theoretical lens

Transition theory (Anderson, Goodman & Schlossberg, 2011; Schlossberg, 2011) posits that the transition into new situations requires people to adapt to new roles, relationships and ways of engaging with life and work. Transitioning becomes manageable when people develop insight into the triggers of the situational change, the new roles they must adopt, the resources they need to cope and the support they need to successfully move through the transition (Anderson et al., 2011; Lynes, 2003). The 4IR triggered rapid transitioning to a volatile, uncertain, complex, ambiguous (VUCA), technology-driven workplace involving unprecedented change experienced by employers and employees (Baran & Woznyj, 2021). The expertise of the professional, digitally dexterous I/O psychologist is now, more than ever, needed to help employers and employees move through the transition process and gain digital dexterity (Veldsman, 2020). In this regard, I/O psychologists need to gain a deeper understanding of the new situational context of workplaces and the new roles required from them by employers, including the skills and attributes they need to bring to support organisations in the transitioning process (Chinyamurindi et al., 2021; Stark, 2021; Veldsman, 2020).

Shifting roles of the industrial psychologist

In South Africa, the traditional roles of professional I/O psychologists are those of scientist-practitioners who are experts in the research, planning, development and application of paradigms, theory and principles of industrial/organisational psychology (IOP) for understanding, modifying and enhancing individual, group and organisational behaviour, performance and well-being in the workplace. Service role tasks involve performing psychometric and other assessments for selection, employment, training and development, and for optimising individual, group and organisational performance, effectiveness and well-being. Industrial/organisational psychologists also plan, design, facilitate and evaluate interventions for effective individual, group and organisational functioning (eds. Coetzee, Botha & De Beer 2021; Health Professions Act of 1974, 2011). However, scholars of IOP have started to pose new research questions that are yet to be answered. These questions allude to the integration of paradigms, theory and science-practice of IOP with paradigms of technology to find empirical evidence-based solutions to the challenges that technological advancement brings across the focal domains of selection, training and development, performance management and motivation of groups and teams, leadership, job design and organisational development (Howe et al., 2021; Landers & Marin, 2021).

The reality of the 4IR points to the dire need for a greater appreciation of the impact of a technology-evolutionary context on the scope-of-practice roles of the I/O psychologist (Oosthuizen, 2022; Veldsman, 2020). The American Society

for Industrial and Organisational Psychology (SIOP) (Stark, 2021) outlines several broad work trends that are dramatically changing the nature of the I/O psychologist's role and service to the business world. These trends represent complex issues of a modern society that require the help of professional I/O psychologists to find the right solutions for leaders and employees (Stark, 2021). Core trends of priority include remote and flexible work arrangements, employee health, well-being, wellness and safety, social justice, team effectiveness across virtual and distributed environments, work-life integration, the changing nature of work, virtual learning, building cultures of agility and adaptability, leadership development and inclusive practices to attract, retain and grow talent (Oosthuizen, 2022; Stark, 2021).

Research by Chinyamurindi et al. (2021) amongst professionally registered I/O psychologists in South Africa highlights new coping roles in a post-pandemic society, such as championing physical and mental health, developing technological skills and acumen, promoting innovative professional learning and development and developing support networks and structures. Initial research by Veldsman (2020) suggests the future-fit/future-ready practice-area roles of I/O psychologists include that of being intelligent knowledge brokers functioning seamlessly between science and practice. Industrial/organisational psychologists act as strategic agents engaging in policy formulation and implementation on organisational, national, regional and international level whilst providing IOP services and expertise to promote humanitarian work psychology in organisations, communities and society. They lead research on optimal and benevolent people-technology integration dynamics including fit-for-purpose big data and smart technology, artificial intelligence, robotics, algorithms (STARA: Oosthuizen, 2022), and digital-intelligent services in the domains of selection, employment, psychometric assessment, performance enhancement and training and development. Industrial/organisational psychologists facilitate interventions for enhancing the digital dexterity of leaders and employees in the use of technology. Such interventions empower leaders and employees with the capabilities and tools to drive business digital transformation goals whilst optimising people, team and organisational agility, resilience and well-being (Veldsman, 2020; Vigliarolo, 2019). However, South African research on the view of employers regarding the new needed service roles of digital-ready I/O psychologists are scarce.

Future-fit skills and attributes of the industrial/organisational psychologist

Digital-era roles require a new set of skills and attributes from I/O psychologists if they are to be effective in supporting employers and employees in the transitioning to a technology-driven world of work (Oosthuizen, 2022; Veldsman, 2020). The popular media and research on competencies for the digital-fit people professional (Jaiswal, 2019; Kropp et al., 2021; Rudakova, 2021; Veldsman, 2022; Vigliarolo, 2019) highlight in this regard the capability of digital dexterity to help ensure information technology, leaders and workforce work together to drive data-driven decisions that result in

real return on investment (ROI) for customers and business. Digital dexterity alludes to the behaviours, mindsets and capabilities to work digitally and build digital-astute business cultures (Kaushik, 2021; Rudakova, 2021).

The notion of digital dexterity seems to be emphasised in various research-based frameworks of future-fit competencies. Research by McKinsey and company (Dondi, Klier, Panier & Schubert, 2021) identified several future-fit distinct elements of talent (coined as DELTAs) that allude to (1) cognitive (e.g. critical thinking, planning/ways of working, communication and mental flexibility), (2) interpersonal (e.g. mobilising systems, developing relationships and teamwork effectiveness), (3) digital (e.g. digital fluency and citizenship, software use and development and understanding digital systems), and (4) self-leadership (e.g. self-awareness/self-management, entrepreneurship and goals achievement) skills and attributes needed by all citizens.

Based on their comprehensive work in industry, Kohl and Swartz (2019, p. 34, 35) suggest Industry 4.0-relevant digitally dexterous competencies that include DELTA-similar skills and attributes in four domains: (1) intrapersonal (e.g. concept formation, critical thinking, financial acumen, cognitive agility, analytical thinking, emotional resilience and regulation, inquisitiveness and complex problem-solving), (2) interpersonal (e.g. interpersonal relationships, emotional labour and communication), (3) interdigital (e.g. interdigital relationships, digital culture integration, digital affinity and digital familiarity), and (4) intradigital (e.g. technology know-how, compliance with policy, legal and legislative frameworks and administration of information, tasks and work schedules). Future-fit, digitally dexterous DELTAs are seen to help people add value beyond what can be carried out by automated systems and intelligent machines, operate in a digital environment and continually adapt to new ways of working and new occupations (Dondi et al., 2021, p. 2).

Based on industry research, Veldsman (2020, pp. 130, 131) proposes a profile of the future-fit I/O psychologist that comprises seven core domains: (1) personal attributes and abilities (e.g. adaptable/flexible/responsible, self-directedness, self-insight, ideation intelligence, deep critical-reflective thinking skills, systemic thinking and complex, real-time problem-solving); (2) global mindset, social citizenship, context-embeddedness and values-based frame of reference, (3) relevant IOP, multidisciplinary science-practice knowledge, expertise and skills; (4) personal, interpersonal and organisational abilities; (5) ethical leadership abilities; (6) professional, future-centric attitude; and (7) future-probing and innovative experimentation conduct.

Oosthuizen (2022, pp. 11–14) suggests four digitally dexterous competency domains of the future-fit, strategic-intelligent I/O psychologist: (1) specialised competencies (e.g. STARA knowledge, strategic business acumen, human capability advancement acumen, process comprehension, virtual media abilities, digital programming abilities and information technology security understanding); (2) methodological

competencies (e.g. ability to simplify complexity and mobilise information, creativity in design of smart technology and innovative products, innovative thinking, problem-solving, conflict resolution, decision-making, diagnostics and proficiency assimilation of algorithmic data); (3) societal competencies (e.g. language, communication, teamwork, networking and collaboration, knowledge transfer, leadership and intercultural abilities); (4) personal competencies (e.g. flexibility, resilience, working under pressure, continuous learning, compliance and sustainability mindset: Oosthuizen, 2022).

Although there is growing evidence of the shifting digitally dexterous service roles, skills and attributes of the future-fit I/O psychologist, more research is needed as companies continue to embrace technology in ways of working whilst rapidly transitioning to hybrid and flexible models of work. Current research in the South African context in companies that adopted new digital and virtual technology in their interface with employees and that make use of the services of I/O psychologists seems to be lacking. The present study builds on existing research evidence by seeking to answer the following three specific research questions:

1. What are the key people-oriented practices in the South African digital-era workplace?
2. What new service roles are required from the digital-era I/O psychologist?
3. What are the most critical skills and attributes that the digital-era I/O psychologist should bring to the workplace?

Research method

Research design

The study utilised a qualitative research approach to inductively gain deeper insight into employers' views of the roles, skills and attributes of the future-fit digital-era I/O psychologist. An open-ended questionnaire (Züll, 2016) was used to obtain employers' views on the three research questions. The three open-ended research questions allowed respondents to express their opinions freely and in their own words.

Sampling and research participants

Purposive sampling was adopted to identify executives and human resource managers of South African companies who (1) have adopted new digital and virtual technology (e.g. hybrid work with a combination of physical and digital engagement with workers or digital-first engagement practices with some physical interaction with workers) and (2) utilises I/O psychologists for specific priorities or as an integral part of the business.

The final sample of participants ($N = 14$) was from companies in the South African services industry (i.e. business/talent management consulting: $n = 5$; financial/insurance: $n = 5$; and telecoms/ICT: $n = 4$). Seven of the companies had a moderate adoption of new digital/virtual technology, and seven had a high, digital-first adoption in their employee

engagement. The companies all made use of the services of I/O psychologists to help improve employee and team behaviour for sustainable business performance. As per the guidelines of Creswell (2013) for qualitative studies, the final sample of $N = 14$ respondents was regarded as being adequate for data analysis.

Data collection and data recording

The respondent recruitment process started with an invitation on the co-researcher's professional LinkedIn platform and by a personal email invitation with a URL link to the open-ended online survey questionnaire. The participants' responses were captured on an Excel spreadsheet. A review of the responses showed that theoretical saturation had been reached.

Strategies to ensure data integrity

Drawing from the guidelines of Nowell, Norris, White and Moules (2017), trustworthiness (i.e. credibility, transferability, dependability and confirmability) of the study was ensured by means of keeping a record of the research process, the data coding, labelling and derivation of categories and themes.

Data analysis

The researchers independently read and reread the qualitative responses to highlight the key themes that were relevant to the objective and literature review of the study. Following the approach suggested by Al-Asfour, Tlaiss and Shield (2021), the data were coded and important categories were highlighted. The researchers then independently scrutinised the categories to identify subthemes from the data. As per the guidelines provided by Al-Asfour et al. (2021, p. 109), the researchers gave a frequency label for each category of themes: general (found in all participants), typical (found in half or more but all participants), or variant (found in less than half but more than one or two participants). Table 1 and Table 2 summarise the outcome of the identified themes, categories and frequency.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of South Africa IOP Ethics Review Committee (ERC Ref#: 2020_CEMS/IOP_014). The online questionnaire was administered via the Lime survey facilities of the university to ensure voluntary participation and anonymity in responses. All respondents provided informed consent that the responses may be used for research purposes. Because the responses were collected as anonymous group-based data, responses could not be traced back to an individual respondent and as such their privacy and confidentiality were ensured.

Findings

The section below highlights the most important aspects from the data analysis that emerged in terms of the three research questions.

Key digital-era people-oriented practices

Research question 1 was posed to assess whether the SIOP (Stark, 2021) digital-era work trends are reflected in participants' responses and thus relevant for the South African context. The categories and their respective subthemes summarised in Table 1 all reflect the key digital-era workplace trends identified by SIOP (Stark, 2021). It was evident that although the identified people-oriented practices in Table 1 fell within the scope of practice of the I/O psychologist, these practices have evolved to fit the needs of the technology-enabled workplace. As such, the key digital-era people-oriented practices (Table 1) provided a credible backdrop for analysing the findings of research questions 2 and 3.

Key industrial/organisational psychologist digital-era service roles

As shown in Table 1, most participants stressed the importance of the digitally dexterous I/O psychologist to empower leaders with, and coach them on the tools, attributes and processes needed for their successful transitioning to virtual leaders. More than half of the participants highlighted the strategic business partnering role of the I/O psychologist and their role in empowering management with the tools and processes for strategic workforce and business planning in the uncertain, digital-driven business environment. Staff retention, succession planning and workforce diversity and inclusion in hybrid/remote workforce models also emerged

as strategic issues for which the services of the I/O psychologist are required. The participants acknowledged the I/O psychologist as a behavioural specialist who helps translate the roles of employees, teams and management for better alignment to business goals. As behavioural specialist, the digitally dexterous I/O psychologist is also seen to provide a service of care, coaching and counselling to leaders and employees in the transitioning to a technology-enabled workplace and hybrid/remote models of working.

Less than half of the participants reported virtual performance management and workplace motivation, virtual psychological/psychometric assessment, virtual employee well-being programmes and virtual workforce skills development as important service roles of the I/O psychologist. The call seems especially for the I/O psychologist to empower leaders of the hybrid/remote workforce with the virtualised coaching, skills, tools and processes they need to optimally engage and motivate their staff, monitor and manage the performance of a remote workforce, and present virtualised well-being programmes and counselling that help the hybrid/remote workforce to sustain mental well-being, manage stress and support a healthy work-life balance. Some participants also expressed the need for management tools and processes that help the workforce to engage successfully with virtual/online skills needs identification, training, learning and development workshop facilitation. Virtual psychological/psychometric assessment was also indicated as an important service role of

TABLE 1: Key digital-era people practices and industrial/organisational psychologist roles: Categories, frequency and themes.

| SIOP trends-aligned categories Key digital-era people-oriented practices | Frequency | Themes | Categories: Key I/O Psychologist digital-era service roles | Frequency | Themes |
|---|-----------|--|---|-----------|--|
| Remote work/digital nature of work | General | Digital work adoption Hybrid and flexible models of working | Virtual leadership development and coaching | General | Leader tools, skills, processes and coaching to empower leaders for virtual leadership/adaptation to remote work models Leader coaching for emotional intelligence and human empathy |
| Organisational culture | Typical | Psychological safety for voicing concerns Virtual alignment between management, employees, employer, brand and culture Inclusive environment for a diverse, hybrid workforce | Strategic business value creator and communicator | Typical | Management tools and processes for strategic workforce scenario planning in uncertain business environment, succession planning and staff retention Navigator of conversations about workforce diversity, belonging and inclusion |
| Team effectiveness | Typical | Working remotely with teams Remote collaborative work and connectivity | Behavioural specialist | Typical | Translator of role clarity for employees, teams, management for alignment to business goals Understand people to provide care, coaching and counselling |
| Leadership development | Variant | Adapting to hybrid models of working and managing Motivating/managing employees remotely Authority delegation | Virtual performance management and workplace motivation | Variant | Manager/leader tools, processes and coaching to empower leaders for virtual staff engagement, motivation and performance management |
| Employee health/safety/well-being | Variant | Work-life integration/balance for hybrid workforce | Virtual psychological/psychometric assessment | Variant | Virtual assessment, administration/feedback/workshop facilitation |
| Training, learning and development | Variant | Skills identification and future-fit upskilling | Virtual employee well-being programmes | Variant | Tools, processes and counselling for dealing with change and work-life balance in remote/hybrid models of working |
| Talent management/retention | Variant | Retention of key employees Virtual onboarding | Virtual skills development | Variant | Tools and processes for virtual skills development |
| Psychological assessment | Variant | Virtual assessment | Digitally dexterous scientist-practitioner knowledge-broker | Variant | Manage real-time digital, research and workforce data including STARA knowledge Able to produce and manage evidence-based knowledge/research for strategic problem-solving and decision-making |
| Performance management | Variant | Technology for virtual performance management | | | |

I/O, industrial/organizational; STARA, smart technology, artificial intelligence, robotics, algorithms; SIOP, Society for Industrial and Organisational Psychology.

the I/O psychologist, especially virtual administration of assessments, feedback, counselling and workshop facilitation.

Finally, some participants also regarded the I/O psychologist as a scientist-practitioner and knowledge-broker of digital, STARA and evidence-based research data for strategic problem-solving and decision-making. The I/O psychologist is also seen as a manager of real-time workforce data.

Most critical digital-era industrial/organisational psychologist skills and attributes

As shown in Table 2, strategic business acumen and digital/STARA intelligence and know-how emerged for most participants as critical skills for the digital-era I/O psychologist. Strategic business acumen translated into the ability for systemic thinking, translating business needs and strategy for a distributed workforce, linking employees and teams to business strategy and productivity, industry-specific knowledge and thought-leadership on 4IR change and insight into the impact of the changing world of work on business demands and people. Other strategic business acumen abilities included the ability to integrate technology and people in business decision-making and problem-solving, strategic workforce planning to ensure future skills and business demands are met and the ability to manage projects. Digital/STARA intelligence and know-how alluded to digital dexterity and people-technology integration know-how, the ability to contribute to STARA-informed scientific business initiatives, tools and processes, and the ability to utilise and adopt technology to collaborate with and facilitate engaging digital sessions with leaders, teams and employees.

Virtual change management and virtual consulting, coaching and counselling skills were reported by more than half of the participants. Change management skills alluded to the ability to assist business leaders to adapt to virtual leadership roles and a distributed hybrid/remote workforce. The ability to design and facilitate virtualised behavioural change and performance management interventions with the workforce and leaders were also deemed important. The virtualised consulting, coaching and counselling skills of the I/O psychologist were regarded as critical in facilitating virtual change management and employee well-being programmes, interventions and workshops. The I/O psychologist should also be able to counsel leaders and employees in cases of symptoms of psychopathology, mental health and stress in virtualised contexts.

Less than half of the participants reported the ability to articulate and communicate qualitative behavioural information into quantitative, measurable data for operational business people as a critical skill. The participants also highlighted the ability to virtually measure performance and psychometric/psychological assessments, including the ability to design and conduct virtual workshops and interventions as important skills. The participants also reported the ability to adopt and leverage technology and contribute scientific digital tools and processes for remote motivational and performance management practices as critical skills.

Finally, some of the participants also highlighted attributes such as adaptability and resilience, compassion and persuasiveness as important. Industrial/organisational psychologists should be open to continuous learning,

TABLE 2: Most critical digital-era skills and attributes: Categories, frequency and themes.

| Categories: Most critical digital-era I/O Psychologist skills and attributes | Frequency | Themes |
|--|-----------|---|
| Strategic business acumen | General | Systemic thinking Able to translate business needs and strategy for a distributed workforce Able to link employees and teams to business strategy Industry-specific knowledge Insight into the link between workspaces and productivity Insight into business demands and people impact of the changing world of work Able to integrate technology and people data in decision making Able to stay abreast (thought leader) of industry changes as 4IR continue to impact businesses Able to match current skills with future business demands and aspirations (strategic workforce planning) Able to study and develop business case studies for solving business problems Able to manage projects |
| Digital/STARA intelligence/know-how | General | Digital dexterity Able to contribute STARA-informed scientific business initiatives, tools and processes Able to align people, process and technology Able to utilise and adopt technology for collaboration and facilitation of engaging digital sessions |
| Virtual change management skills | Typical | Able to assist business leaders to adapt to a distributed workforce Able to design and facilitate virtual behavioural change and performance management interventions |
| Virtual consulting, coaching and counselling skills | Typical | Able to consult on, develop and facilitate employee, team and organisational wellness programmes Able to counsel employees for symptoms of psychopathology, mental health, work stress Able to consult on change management programmes |
| Communication skills | Variant | Able to articulate qualitative behavioural information into quantitative, measurable data for operational business people |
| Virtual people/behavioural measurement/assessment skills | Variant | Able to virtually measure performance Able to conduct virtual psychometric assessments |
| Virtual intervention facilitation skills | Variant | Able to design and conduct/facilitate virtual workshops and interventions |
| Acumen in digital IOP tools development and leveraging | Variant | Agility and dexterity in adopting technology in people practices to changing work environments |
| People behaviour and motivation skills | Variant | Able to contribute scientific digital tools and processes for remote motivational and performance management practices |
| Adaptability and resilience | Variant | Open to continuous learning, upskilling and change |
| Compassion | Variant | Able to demonstrate compassion for people |
| Persuasiveness | Variant | Able to sell and scientifically measure/evaluate return on investment (ROI) of interventions and IOP tasks for business leaders |

4IR, Fourth Industrial Revolution; I/O, industrial/organizational; STARA, smart technology, artificial intelligence, robotics, algorithms; IOP, industrial/organizational psychology.

upskilling and change, demonstrate compassion for people and be able to sell and scientifically measure/evaluate the ROI of IOP interventions to management.

Discussion

This study showed that the world of work is changing rapidly and that employers and their workforces are now, more than ever, in need of the specialist services that digitally dexterous I/O psychologists may bring to help leaders and employees build the digital dexterity needed to move through the transition to digital-driven work models. The findings corroborated global research by SIOP (Stark, 2021) on workplace trends and showed that the impact of technology on people-oriented practices are already pervasive in the South African workplace. The findings highlighted practices such as the remote work/digital nature of work and the concomitant need to craft an inclusive organisational cultural environment for a hybrid, distributed, multi-culturally diverse workforce. In such a culture, all employees feel psychologically safe to voice their concerns in the transition

to digital and remote ways of working whilst leaders strive to achieve virtualised alignment between the business brand, culture, goals, management, teams and employees. Stark (2021) points out that increased virtualisation and the adoption of artificial intelligence, digitisation and automation in performing work will tend to isolate workers and dehumanise their working lives. In this regard, as also shown in the present study's findings, the digital dexterous I/O psychologist can help guide the future of work in a humane manner by empowering and supporting leaders and employees on an individual, team and strategic business-partnering level (Feitosa & Salas, 2021; Newman & Ford, 2021; Reyes et al., 2021; Stark, 2021; Veldsman, 2020).

The findings of the present study also corroborated additional people-oriented practices that require digital know-how of the I/O psychologist. These include the move towards the remote collaboration and connectivity of teams, virtualised training, learning and development interventions, virtualised employee health/safety/well-being programmes for work-life integration, mental health and wellness; virtualised

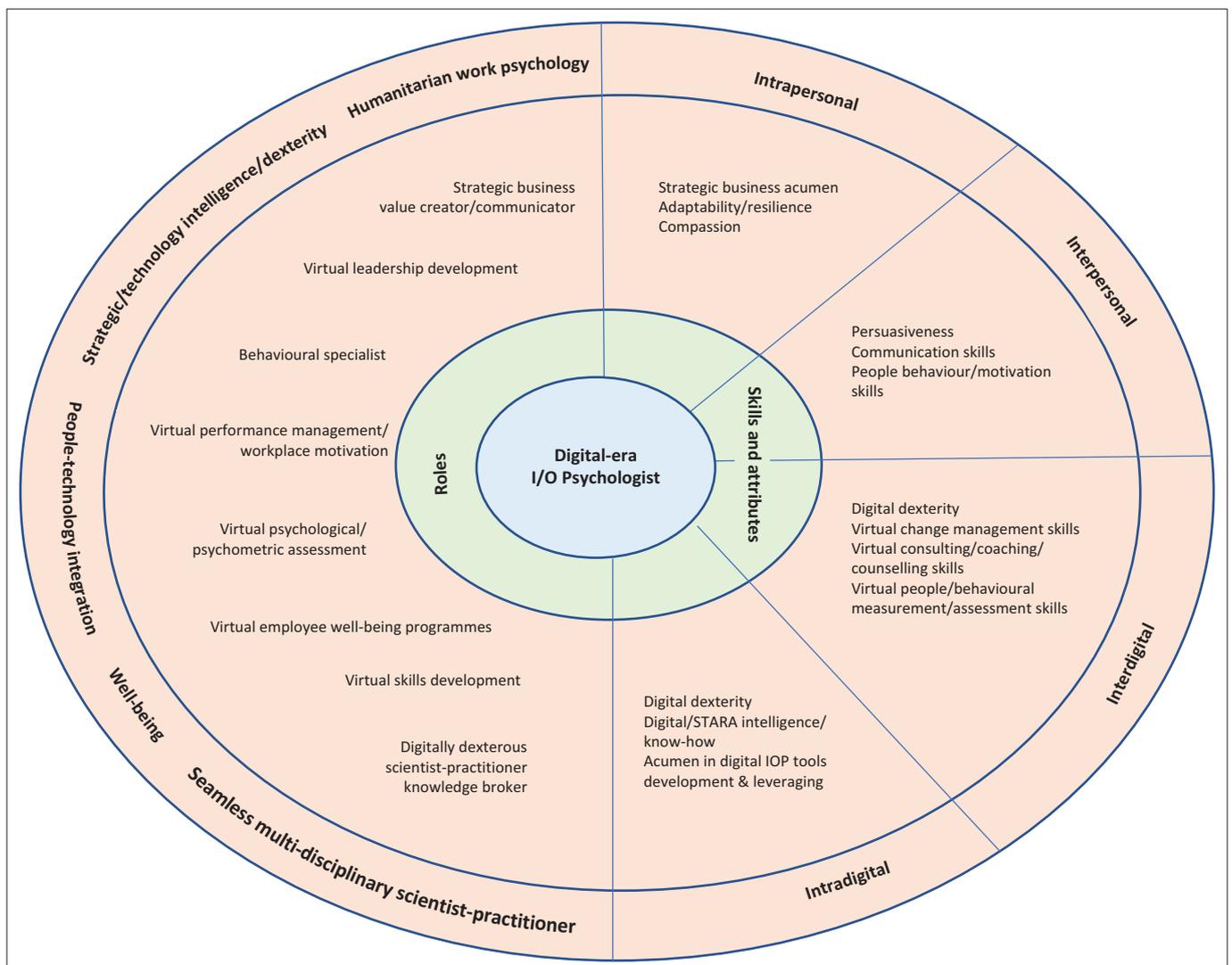


FIGURE 1: Key roles, skills and attributes of the digital-era industrial/organisational psychologist. I/O, industrial/organizational.

onboarding and talent retention strategies; virtualised psychometric assessment; and virtualised performance management and workforce motivation. Finally, leadership development for virtualised ways of managing, motivating, and engaging a remote and hybrid workforce was deemed as important. These people-oriented practices are corroborated by SIOP's (Stark, 2021) global research on workplace trends. It seems apparent from the findings that digital-era people-oriented practices require virtualised learning and upskilling of leaders and employees including capacitating them with the digital dexterity, tools and know-how to optimally perform in technology-enabled workplaces (Stark, 2021).

The identified people-oriented practices provided an illustrative backdrop for the digitally dexterous service roles, skills and attributes employers seem to require from I/O psychologists in their transition to technology-driven workplaces. Figure 1 illustrates the key findings of the present study that I/O psychologists need to heed to become future-fit in the digital-era.

The digital-era service roles highlighted by the findings of the present study are corroborated by Veldsman's (2020) narrative on the 'critical future-fit foci of a future-ready IOP field and I/O psychologist' (p. 86). Some of these future-fit IOP foci are shown in Figure 1. The digital-era I/O psychologist is seen as a seamless, multidisciplinary scientist-practitioner and knowledge-broker that brings fit-for-purpose technology-enabled tools, approaches, processes, designs and methodologies to the digital-era workplace and its leaders (Veldsman, 2020). The various service roles highlighted by the present study's findings on required behavioural specialist service roles allude to Veldsman's (2020) notion of a new humanitarian work psychology whereby workplaces become more worker-centric and start to place a high premium on the well-being, motivation, performance, upskilling/reskilling, psychometric assessment and engagement of a virtualised digital-enabled remote/hybrid workforce (Stark, 2021). Chinyamurindi et al.'s (2021) research amongst South African I/O psychologists also highlighted the championing role of physical and mental health.

The findings of the study further corroborate Veldsman's (2020) and Oosthuizen's (2022) notion of the digitally dexterous and strategic-intelligent I/O psychologist. Employers seem to increasingly require digital-era I/O psychologists to function as strategic business partners that can help businesses to integrate people-technology in a manner that adds value to the business and helps align management, teams and individuals to strategic business goals. Veldsman (2020) argues that future-ready I/O psychologists need to 'work closely with and act as go-betweens for technology developers and end-users' (p. 91). They should use technology to empower leaders through development programmes and interventions with the know-how of integrating the workforce with technology in performance management, workforce motivation and psychometric assessment for talent management and retention. The future-fit I/O psychologist seems to be a behavioural specialist who

leads research on human-technology dynamics. Such research data and knowledge must support the design, implementation, management and ROI evaluation of collaborative, technology-enabled systems, interventions, and models, including the ethical management of workforce data analytics (Oosthuizen, 2022; Stark, 2021; Veldsman, 2020). Chinyamurindi et al.'s (2021) research amongst South African I/O psychologists further corroborates the study finding that I/O psychologists have an important role in promoting innovative technology-enabled professional learning and development interventions in virtualised workplaces.

As shown in Figure 1, the findings of the present study further revealed the most critical digitally dexterous skills and attributes employers seem to require the I/O psychologist to bring to workplaces. Figure 1 shows that the identified skills and attributes allude to Kohl and Swartz' (2019) intrapersonal, interpersonal, interdigital and intradigital competency framework for the Industry 4.0 professional. There seems a need for the digital-era I/O psychologist to reimagine the technology-enabled services and products they can offer to employers, teams and individuals in digitised and virtualised work contexts. The IOP service roles that employers require now need rapid upskilling, agile learning and adaptation from the I/O psychologist on an intrapersonal, interpersonal, interdigital and intradigital level. Chinyamurindi et al.'s (2021) research amongst South African I/O psychologists also emphasised the importance of I/O psychologists to develop technological skills and acumen. In agreement with the present study findings, Dondi et al. (2021) identified intradigital skills and attributes such as digital fluency and citizenship, software use and development, and understanding digital systems as critical foundational skills to thrive in the future of work. They also found intrapersonal attributes such as adaptability and resilience to increase the likelihood of employment.

Practical value

It is evident from the findings that the digital-era I/O psychologist needs to be at the forefront of technology and its impact on workplaces and the scope of practice of the I/O psychologist (Chinyamurindi et al., 2021; Oosthuizen, 2022; Veldsman, 2020). The research presented here elucidated the pervasive impact of technology in South African workplaces and employers' dire need for specialised IOP services, skills and attributes that can help leaders to build the digital dexterity to move their organisations, teams and employees through the rapid transitioning to full-fledged technology-driven business models. The challenges of the digital-era workplace for the IOP profession are real and pressing (Stark, 2021). The present study offered an initial glimpse of the stark people-oriented reality that South African employers are facing and the promising new technology-enabled services, skills and attributes that can help take the professional practice of IOP forward.

Limitations and future work

Some of the limitations of the study include the qualitative nature of the research. Although the data analysis pointed to theoretical data saturation, the study reported on the subjective views of a limited number of South African employers. Therefore, the findings cannot be generalised to all South African employers. Future qualitative and quantitative studies could build on the findings and extend the study to a broader representation of employers in the South African work context. Such studies will help to build our evolving knowledge of the future-fit requirements emerging for the digital-era I/O psychologist.

Conclusion

The study generated important new knowledge that complements existing research literature on the changing nature of workplaces and people-oriented practices in the digital era. The study brought new knowledge on South African employers' views of the digitally dexterous service roles, skills and attributes required from the digital-ready, future-fit I/O psychologist. The take-home insight from the study is the reality of an evolving technology-enabled workplace and the dire need for I/O psychologists to adapt and evolve their scope of practice services and products to ensure the continued relevance of the IOP profession.

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Data availability

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