Future of Work Skills

Research Findings

- South Africa -
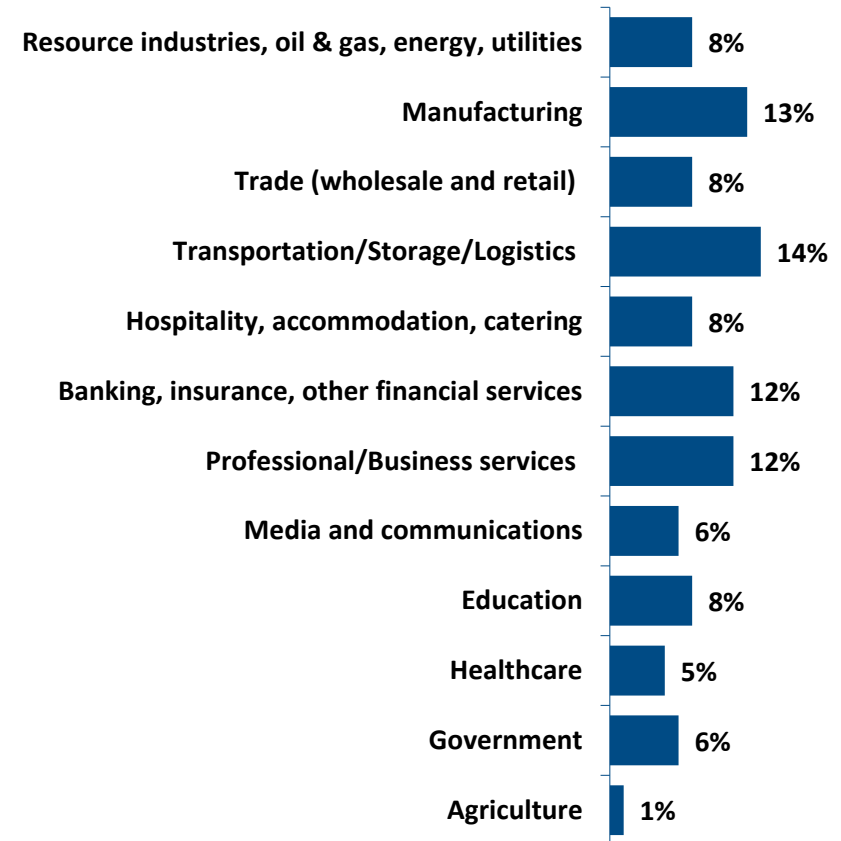
November 2019

Executive Summary

- Digital transformation is well underway at the majority of enterprises operating in South Africa, as 71% of them have embarked on company-wide strategy, while 33% have made good progress in implementing it. To meet the needs of these initiatives, organizations are deploying a wide array of technologies

- However, with the adoption of many of these impactful technologies, such as AI/ML, a hamstring is caused by the lack of skills necessary to derive real value from these technologies. This effect is witnessed today, and anticipated to intensify in the future

- South African organization leaders tend to believe that DX will have a neutral or positive effect on headcount – albeit the new skills required by their organizations in future would require some degree of digital skills. They anticipate that the need for deep technical skills will accelerate in the future

- By far, the difficulty in acquiring these skills, stems from a lack of expertise amongst candidates (as opposed to qualifications, business or soft skills). To meet this growing concern, organizations tend to rely on the strategy of hiring experienced staff from their own or from other industries, on a permanent basis. In addition, they see success in retaining, re-training and up-skilling their current staff to meet future requirements, which will provide IT and staff from other functions, training in new technologies that are relevant for their functions, as well as developing cross-functional skill sets

- When an organizations successfully acquires the required digital skillset, the impact can be witnessed across the board – customer experience, operational efficiency, revenue, profitability and more benefits

- To derive these benefits, organizations look to individual academic institutions, international programs run by organizations such as the UN, or industry and professional associations, and academia as whole, over partnership with the South African government. However, all these avenues are perceived to be possible sources of value for South African organizations

Sample Profile

Organization Size

32%

68%

- 100 – 249 employees
- 250 employees or more

Verticals

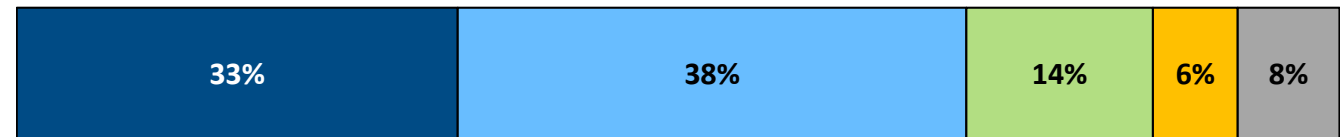|	
Resource industries, oil & gas, energy, utilities	8%
Manufacturing	13%
Trade (wholesale and retail)	8%
Transportation/Storage/Logistics	14%
Hospitality, accommodation, catering	8%
Banking, insurance, other financial services	12%
Professional/Business services	12%
Media and communications	6%
Education	8%
Healthcare	5%
Government	6%
Agriculture	1%

Base (RSA): 78

State of Digital Transformation

- Digital transformation is well underway at most South African organizations. 71% of organizations have embarked on company-wide strategy, with about half of them having made good progress in implementing it. Only 14% of organizations do not see DX as a high priority nor relevant to them – these organizations will face a significant risk in future, as their competitors enable more efficient operations and take enhanced customer experiences to market

- The 14% of organizations who have adopted a siloed approach to DX will similarly face limited success in their DX journey, and hence risk facing the inability to leverage their initiatives for the broader organization, resulting in limited operational efficiencies and fragmented customer experiences

■ **Company-wide DX strategy in place; good progress in implementing it**

■ **Company-wide DX strategy in place, but at an early stage of implementing it**

■ **Do not have a company-wide DX strategy, but have several DX initiatives at the department level (functions)**

■ **DX not a high priority for us, but have had some limited DX initiatives**

■ **Digitization is not relevant for us, and have not conducted any DX initiatives**

33%	38%	14%	6%	8%

Base (RSA): 78

Q1. What is the current state of digital transformation (DX) in your organizations?

Technologies/Solutions Deployed

- DX is enabled by a broad set of technologies. Of these, only 5 of the 12 possible options have less than 50% support. However, amongst these 5 less supported technologies, are some that could have the largest impact - RPA allows organizations to net very quick operational efficiency gains, allowing organizations to orchestrate business processes with greater ease than before. AI/ML enables a broad range of use cases that are supportive of their core functions for most industries but is only deployed by 40% of organizations. This implies that DX may be at a relatively early stage for many organizations.

Technology	%
Social networks for business purposes	79%
Cloud	76%
Collaboration apps (e.g., SharePoint)	71%
Internally developed apps	69%
Mobility technology	65%
Internet-of-Things (IoT) technologies	60%
Big data analytics/Data science	51%
Robotic process automation (RPA)	42%
Artificial intelligence (AI)/Machine learning technologies	40%
Augmented/Virtual reality (AR/VR) tools	29%
Blockchain	22%
3D printing	18%

Base (Organizations that have DX initiatives in place): 72

Demand for Positions in Near Future
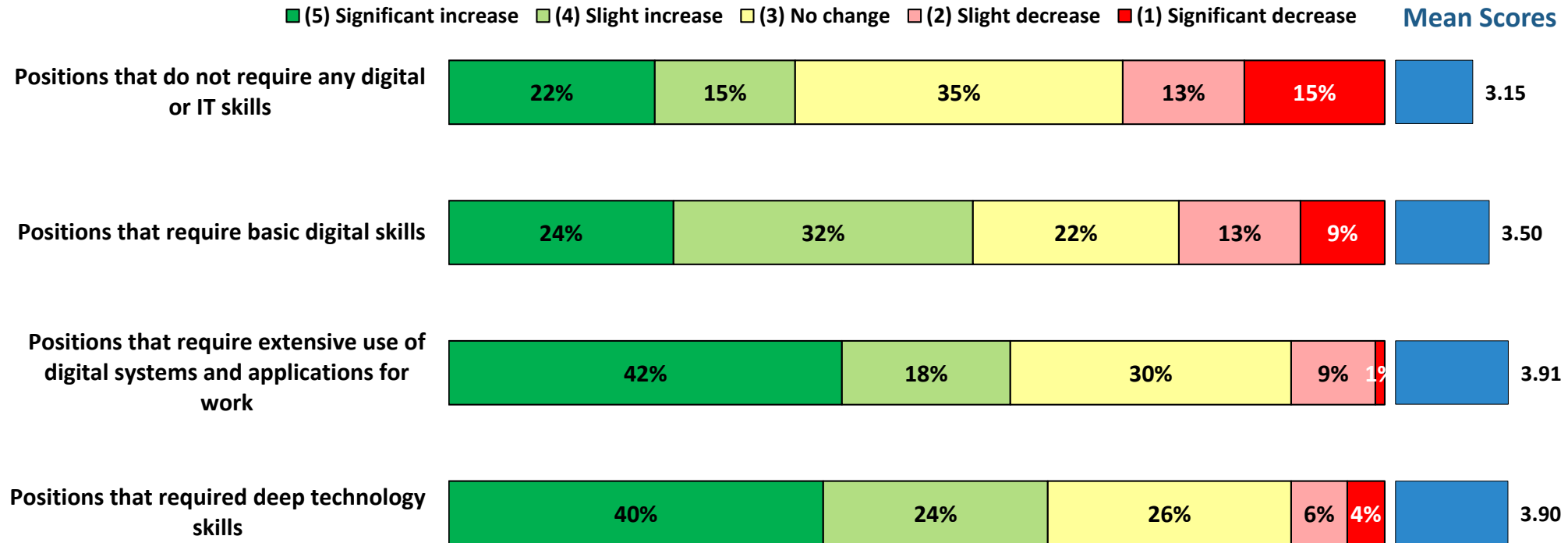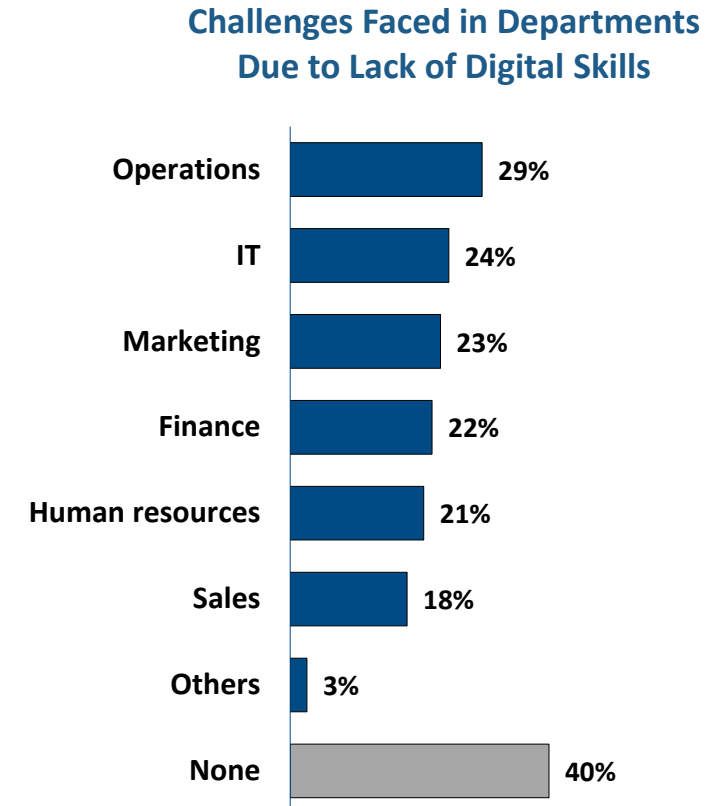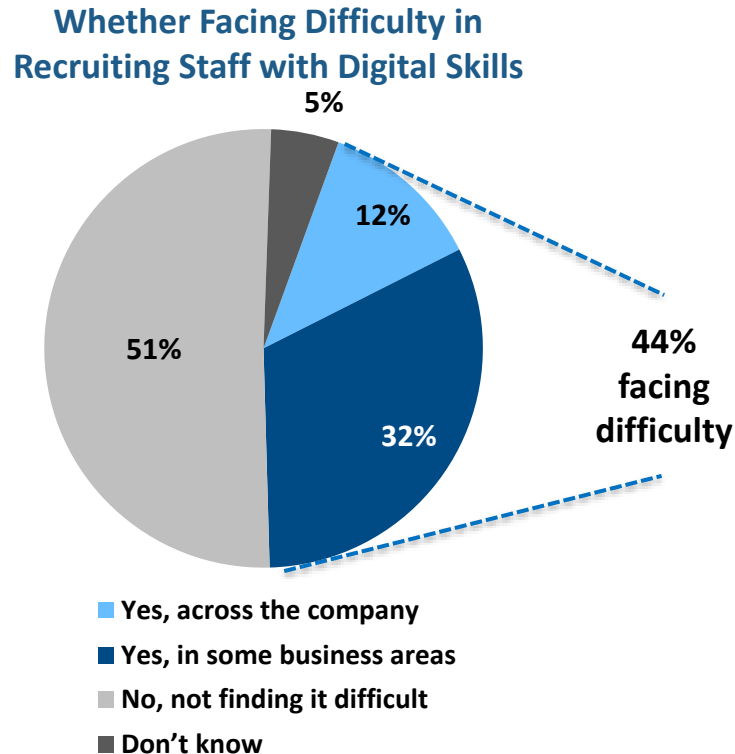
- DX is driving the need for deeper and more complex digital skills. In the coming 2 to 3 years, more organizations are anticipating a surge in their demand for positions that require extensive use of digital systems (60%) or require deep technology skills (64%). Basic digital skills are also anticipated to increase in demand according to 56% of organizations, as the definition of "basic skills" is expected to emerge in the future

- In the coming 2 to 3 years, positions that do not require any digital skills are diminishing, as just about one third of the organizations expect either no change or even a decrease in such positions. The 37% of organizations that anticipate some increase in the demand for these skills, mainly in the transportation and trade verticals, are those not anticipating that their DX journeys will reduce their requirement for low skilled (blue collar) positions, despite their increasing need for skilled positions

Legend: ■ (5) Significant increase ■ (4) Slight increase ☐ (3) No change ■ (2) Slight decrease ■ (1) Significant decrease   **Mean Scores**

Position type	(5) Significant increase	(4) Slight increase	(3) No change	(2) Slight decrease	(1) Significant decrease	Mean Score
Positions that do not require any digital or IT skills	22%	15%	35%	13%	15%	3.15
Positions that require basic digital skills	24%	32%	22%	13%	9%	3.50
Positions that require extensive use of digital systems and applications for work	42%	18%	30%	9%	1%	3.91
Positions that required deep technology skills	40%	24%	26%	6%	4%	3.90

Base (RSA): 78

Q3. Do you expect your company to witness an increase or a decrease in demand for the following position types in the coming 2 or 3 years? Please use a 5-point scale on which 1 = a significant decrease and 5 = a significant increase.

Difficulties and Growing Departmental Challenges

- Almost half of the organizations surveyed report that they do not have challenges in recruiting staff with digital skills. Of the 44% that have reported difficulties, the majority of them face this challenge only in some areas of their business functions
- In terms of departmental specifics, Operations is the area of the business hardest hit by recruitment challenges with 29% of organizations claiming this area as problematic. IT, Marketing, Finance and HR are all within a 3% band between 21%-24%

Whether Facing Difficulty in Recruiting Staff with Digital Skills

5%

12%

51%

32%

44% facing difficulty

- ■ Yes, across the company
- ■ Yes, in some business areas
- ■ No, not finding it difficult
- ■ Don't know

Challenges Faced in Departments Due to Lack of Digital Skills

Department	%
Operations	29%
IT	24%
Marketing	23%
Finance	22%
Human resources	21%
Sales	18%
Others	3%
None	40%

Base (RSA): 78

Q4. Is your company facing any difficulty in recruiting staff with digital skills?
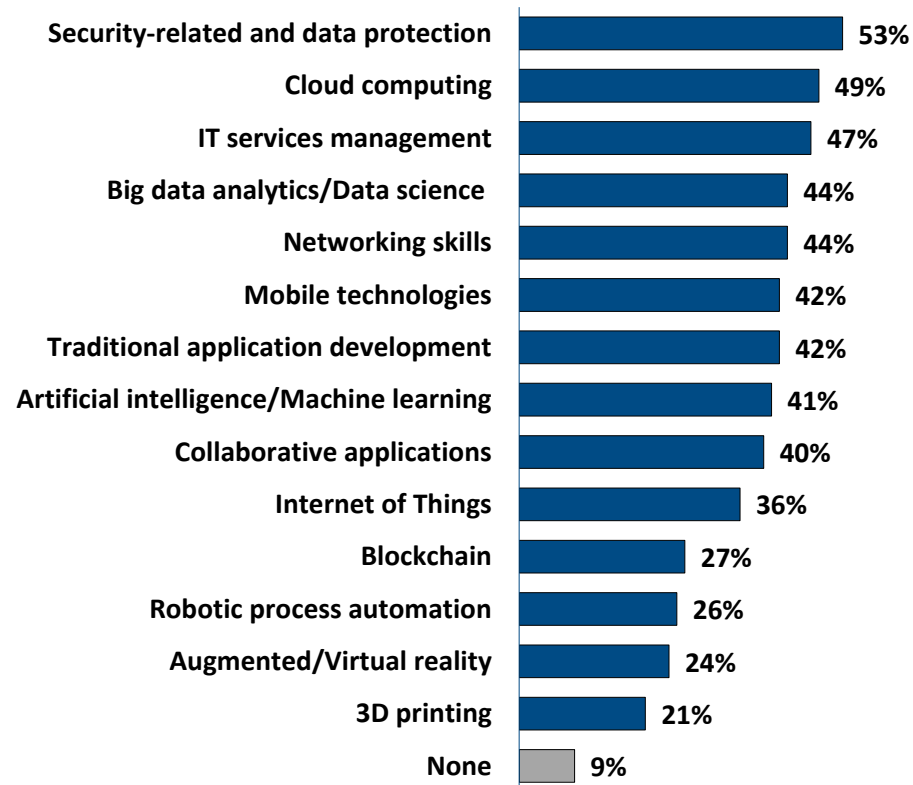Q5. Is your company facing any growing challenges as a result of a lack of digital skills among employees in the following departments?
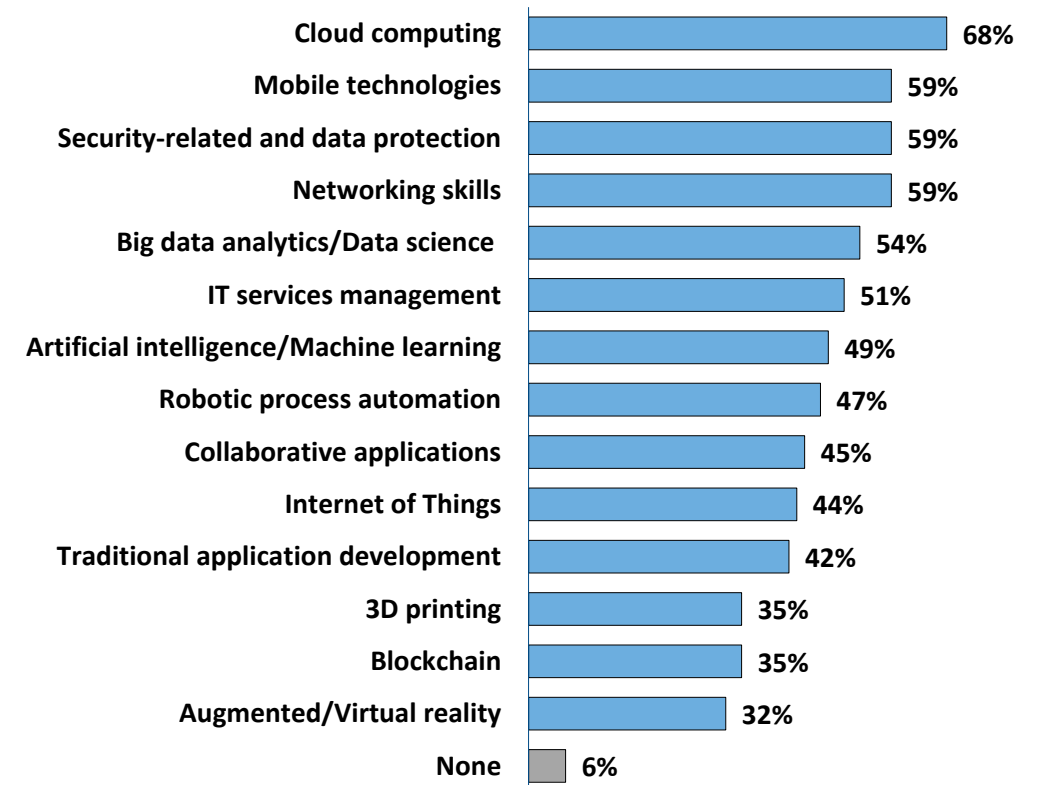
Currently Lacking and Future Skills Needed

- Across technologies, there is a current lack of skill that is likely to only increase over time. All specific technology skill requirements are anticipated to grow in the coming years (with the exception of traditional application development, which will remain stable), as organizations seek to deploy a wider array of technologies in support of their DX initiatives

- The biggest jump in skills requirements will be in RPA (a key enabler for DX) – with a 22% jump in terms of todays requirements (26%) and future requirements (47%). Given cloud's dominance in terms of current deployment (76%), it is no surprise that there is a significant need for cloud skills today (49%) that will continue in the future (68%)

Currently Needed Lacking Skills

Skill	%
Security-related and data protection	53%
Cloud computing	49%
IT services management	47%
Big data analytics/Data science	44%
Networking skills	44%
Mobile technologies	42%
Traditional application development	42%
Artificial intelligence/Machine learning	41%
Collaborative applications	40%
Internet of Things	36%
Blockchain	27%
Robotic process automation	26%
Augmented/Virtual reality	24%
3D printing	21%
None	9%

Skills Likely to be Needed in Near Future

Skill	%
Cloud computing	68%
Mobile technologies	59%
Security-related and data protection	59%
Networking skills	59%
Big data analytics/Data science	54%
IT services management	51%
Artificial intelligence/Machine learning	49%
Robotic process automation	47%
Collaborative applications	45%
Internet of Things	44%
Traditional application development	42%
3D printing	35%
Blockchain	35%
Augmented/Virtual reality	32%
None	6%

Base (RSA): 78

IDC ANALYZE THE FUTURE

Q6. In which of the following areas is your company currently in need of, but lacking, the necessary talent/skills?
Q7. And in which of the following areas will your company likely need (more) talent/skills over the next two years?

8

Ease of Acquiring Digital Skills

- Clearly a lack of skills is hindering adoption of many newer technologies. While AI and ML is deployed by 40% of the organizations surveyed, it was found that 47% of organizations find acquiring those skills either difficult or extremely difficult. A similar argument could be made for RPA, which is uses by 42% of organizations, while 44% of organizations are finding difficulty in acquiring those skills.
- On the other end of the spectrum, organizations find it relatively easy to find IT service management (57%) and networking skills (50%). Cloud – which is utilized by 76% of organizations – is only found to be difficult to adequately staff by ¼ of the organizations surveyed
- High levels of neutrality in 3D Printing (44%), Blockchain (46%), and Augmented/Virtual Reality (48%) coupled with their low current adoption implies that may organizations are not pursuing these technologies with major intent
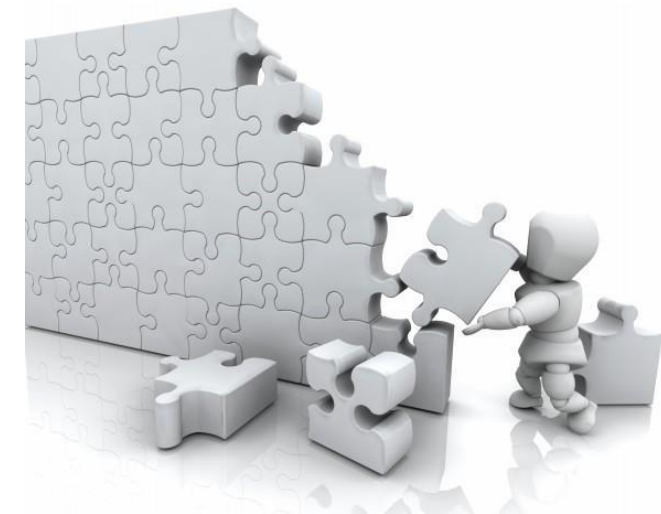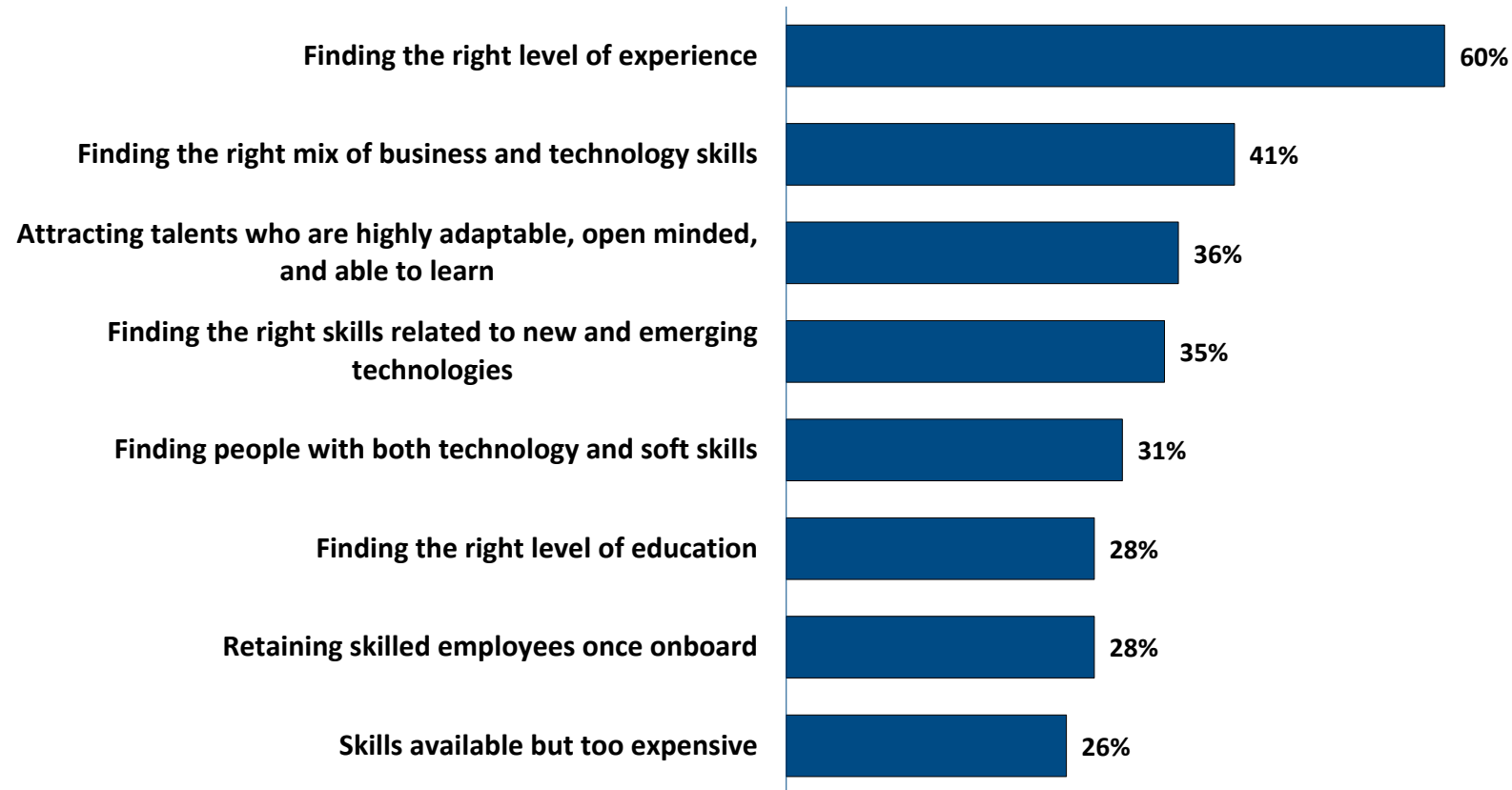
	(5) Extremely easy	(4)	(3) Neutral	(2)	(1) Extremely difficult	Mean Scores
IT services management	25%	32%	29%	9%	5%	3.62
Networking skills	26%	24%	31%	12%	7%	3.51
Collaborative applications	13%	27%	46%	8%	6%	3.32
Mobile technologies	22%	14%	44%	12%	8%	3.31
Traditional application development	18%	18%	40%	16%	8%	3.23
Cloud computing	16%	24%	35%	12%	13%	3.17
Internet of Things	17%	16%	39%	17%	11%	3.12
Security-related tasks and data protection	16%	16%	30%	25%	13%	2.96
Big data analytics/Data science	12%	13%	40%	19%	16%	2.86
Augmented/Virtual reality	10%	7%	48%	19%	16%	2.77
3D printing	10%	8%	44%	24%	14%	2.76
Robotic process automation	14%	12%	30%	19%	25%	2.71
Blockchain	6%	10%	46%	21%	17%	2.66
Cognitive and artificial intelligence	8%	11%	34%	18%	29%	2.50

Base (RSA): 78

Q8. Based on your experience, and regardless of whether your company requires these skills or not, how easy or difficult do you think it will be for companies to acquire (by recruiting or training existing staff) these skills over the next 2 or 3 years? Please use a 5-point scale on which 1 = extremely difficult and 5 = extremely easy.
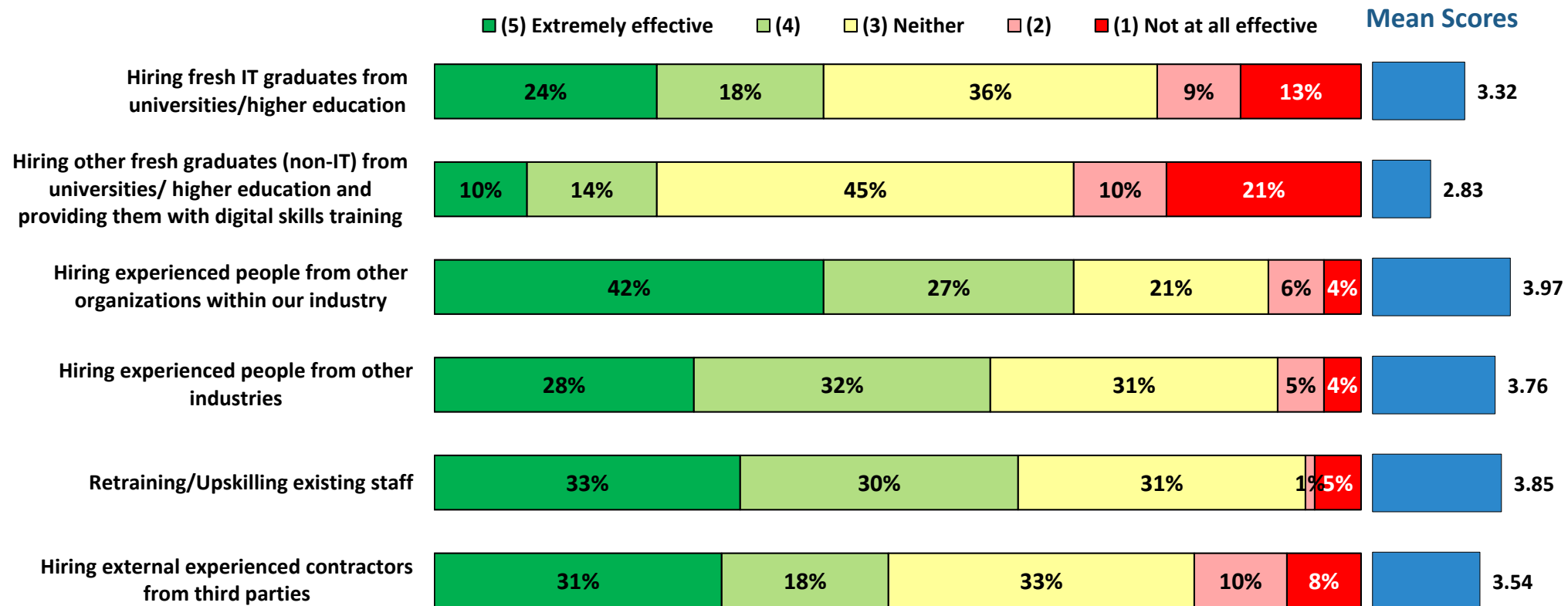
Challenges in Acquiring Digital Skills

- Organizations seem to struggle the most with finding candidates with the right level of experience, rather than candidates with the right level of education (28%) or candidates who are adaptable (36%). This implies a market mismatch in which there are many young, qualified candidates who are not being hired due to expectations of experience – an outcome more generally highlighted in the latest Statistics South Africa (Stats SA) unemployment figures, where 9.2% of all unemployed persons had some level of tertiary education

- Interestingly, organizations in South Africa do not appear to have a broad problem with the retention of staff (28%), nor do they have the perception that skills are available but too expensive (26%).

Challenge	%
Finding the right level of experience	60%
Finding the right mix of business and technology skills	41%
Attracting talents who are highly adaptable, open minded, and able to learn	36%
Finding the right skills related to new and emerging technologies	35%
Finding people with both technology and soft skills	31%
Finding the right level of education	28%
Retaining skilled employees once onboard	28%
Skills available but too expensive	26%

Base (RSA): 78

Q9. What are the top-three challenges in acquiring the digital skills necessary to execute digital transformation strategies in your company?

Effective Approaches to Acquire Digital Skills

- Given the difficulty that organizations have reported in finding experienced talent, the primary source for effective acquisition of talent is hiring of experienced talent from similar organizations in the same industry (69%), followed by retraining or upskilling of existing staff (63%), who while lacking the technical skills, would have a better understanding of the business and industry. 60% of organizations believe that they can effectively service their digital skills requirements through hiring experienced people from other industries

- The lack of emphasis in growing the national talent pool is likely an outcome of a perception that graduates are not necessarily effective in improving organization's digital skills profiles. 21% of organizations believe that hiring fresh IT graduates is either not sufficiently effective or not at all effective. The picture is worse for non-IT graduates, where 31% of organizations believe that hiring and training them is either not sufficiently effective or not at all effective.
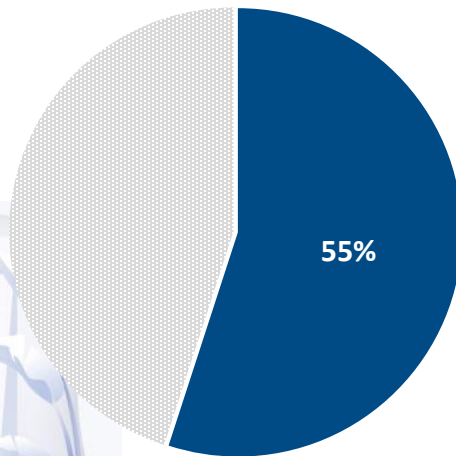
	■ (5) Extremely effective	■ (4)	□ (3) Neither	□ (2)	■ (1) Not at all effective	Mean Scores

	(5) Extremely effective	(4)	(3) Neither	(2)	(1) Not at all effective	Mean Scores
Hiring fresh IT graduates from universities/higher education	24%	18%	36%	9%	13%	3.32
Hiring other fresh graduates (non-IT) from universities/ higher education and providing them with digital skills training	10%	14%	45%	10%	21%	2.83
Hiring experienced people from other organizations within our industry	42%	27%	21%	6%	4%	3.97
Hiring experienced people from other industries	28%	32%	31%	5%	4%	3.76
Retraining/Upskilling existing staff	33%	30%	31%	1%	5%	3.85
Hiring external experienced contractors from third parties	31%	18%	33%	10%	8%	3.54

Base (RSA): 78

Q10. To what extent do you think the following approaches are effective or ineffective in acquiring employees with digital skills? Please use a 5-point scale on which 1 = a not effective at all and 5 = extremely effective.

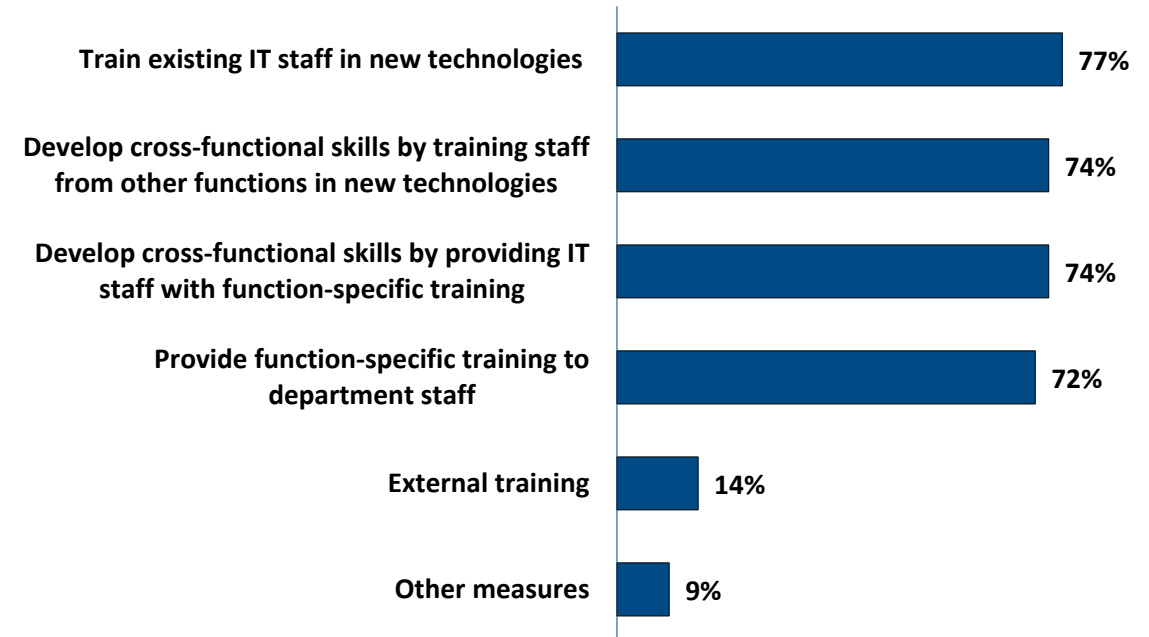# Effective Approaches to Acquire Digital Skills

- Given the difficulty in acquiring experienced staff, and the broad appeal of retraining internal staff as an effective measure to acquire digital skills, it is not surprising that 55% of organizations have retraining or reskilling programs. There is not broad agreement on the most effective approach to reskilling, with most organizations adopting a variety of approaches including training existing IT staff in new technologies (77%) and providing function-specific training to department staff (72%).

- Low levels of external training (14%) imply that organizations are either unable to afford (from a time or cost perspective) the training or that the training currently on offer in the market is not fit for purpose.

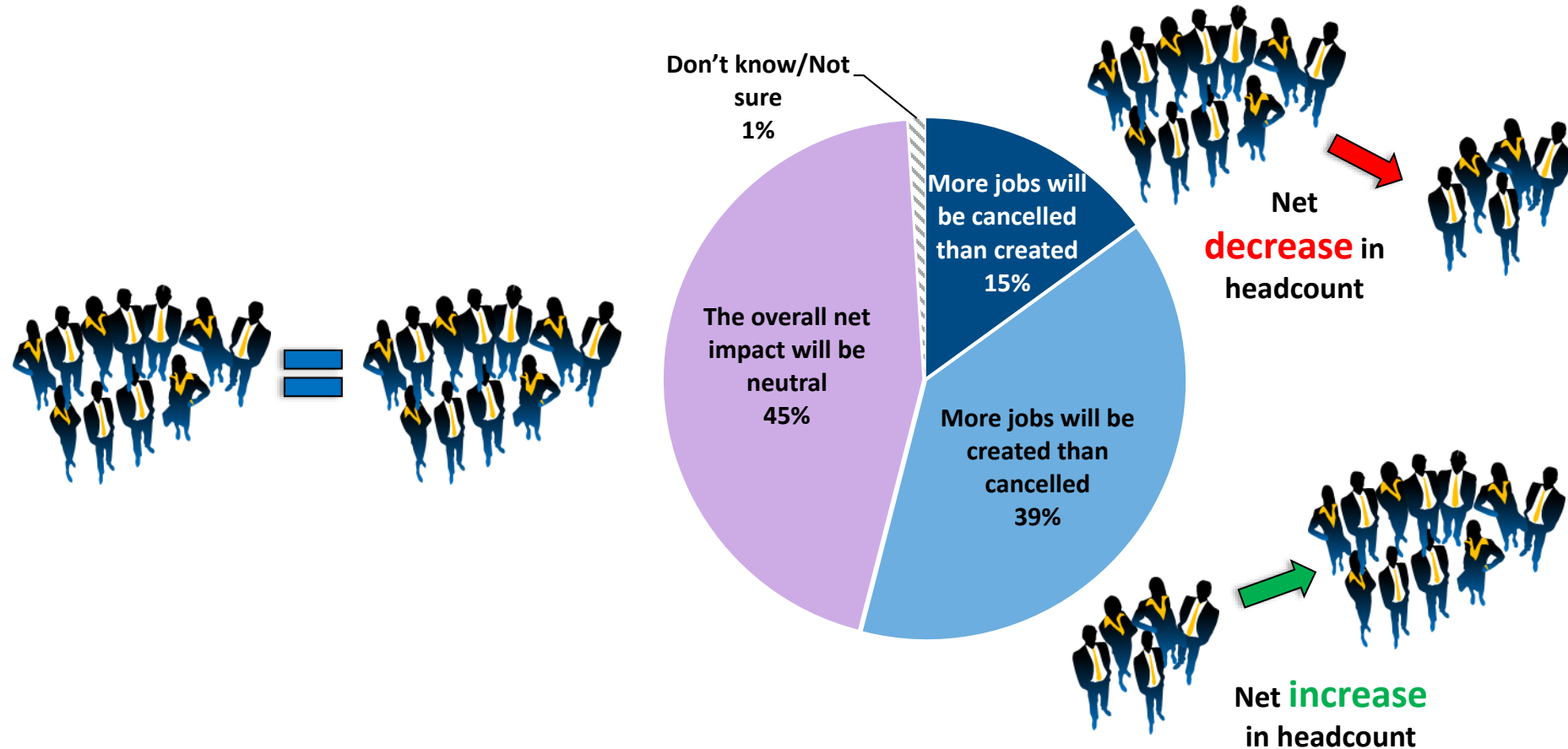## Organizations that Have Retraining/Reskilling Programs

55%

Base (RSA): 78

Methods of Retraining/Reskilling Existing Employees

Method	%
Train existing IT staff in new technologies	77%
Develop cross-functional skills by training staff from other functions in new technologies	74%
Develop cross-functional skills by providing IT staff with function-specific training	74%
Provide function-specific training to department staff	72%
External training	14%
Other measures	9%

Base (Companies that have retraining/reskilling programs): 43

Q11. Does your organization have any retraining or reskilling programs to help align lesser-skilled employees with the demands of digital transformation in this evolving digital age?
Q12. How does your organization retrain/reskill your existing employees?

Perceived Effect of Digital Transformation on Headcount

- In line with the outcomes seen in the demand for positions in the near future, most organizations (84%) do not believe that digital transformation will have a decrease in headcount. Indeed, the perceived effect of DX is seen to be neutral by most organizations (45%).

- However, as highlighted earlier, most organizations believe that new jobs created will require at least some basic level of digital skill to fulfil. Therefore, while new jobs will emerge to replace old, and while this effect is seen to have a neutral of even positive effect on headcount, the new jobs will not be able to be fulfilled by the same skills as the old. Organizations will need to adapt to this change quickly in order to meet their DX priorities.
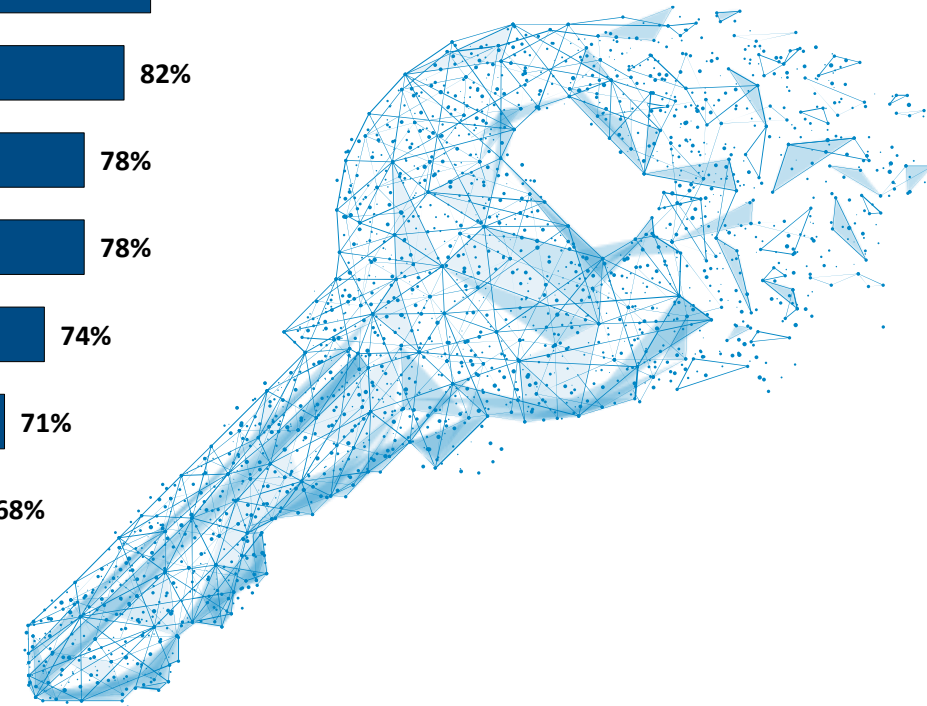

Don't know/Not sure 1%

More jobs will be cancelled than created 15%

The overall net impact will be neutral 45%

More jobs will be created than cancelled 39%

Net **decrease** in headcount

Net **increase** in headcount

Base (RSA): 78

Q13. In your opinion, what impact will digital transformation have on headcount in your company in the near future?

13

Benefits From Improved Digital Skills

- As digital skills are key enablers for DX, that improved customer experiences (86%) and greater operational and business process effectiveness (85%) are the leading benefits of these skills is to be expected. These two key benefits are seen by many organizations in South Africa to be the paths towards greater revenue (78%), profitability (78%) and ultimately, increased competitiveness (82%).

- However, the acquisition of digital skills is perceived to have enormous and broad impact on the organization as a whole – the smallest reported impact of digital skills was in higher retention of skilled employees, with 63% organizations anticipating that impact. Clearly, the acquisition of digital skills is seen to be enormously beneficial to those organizations that are able to effectively acquire them.
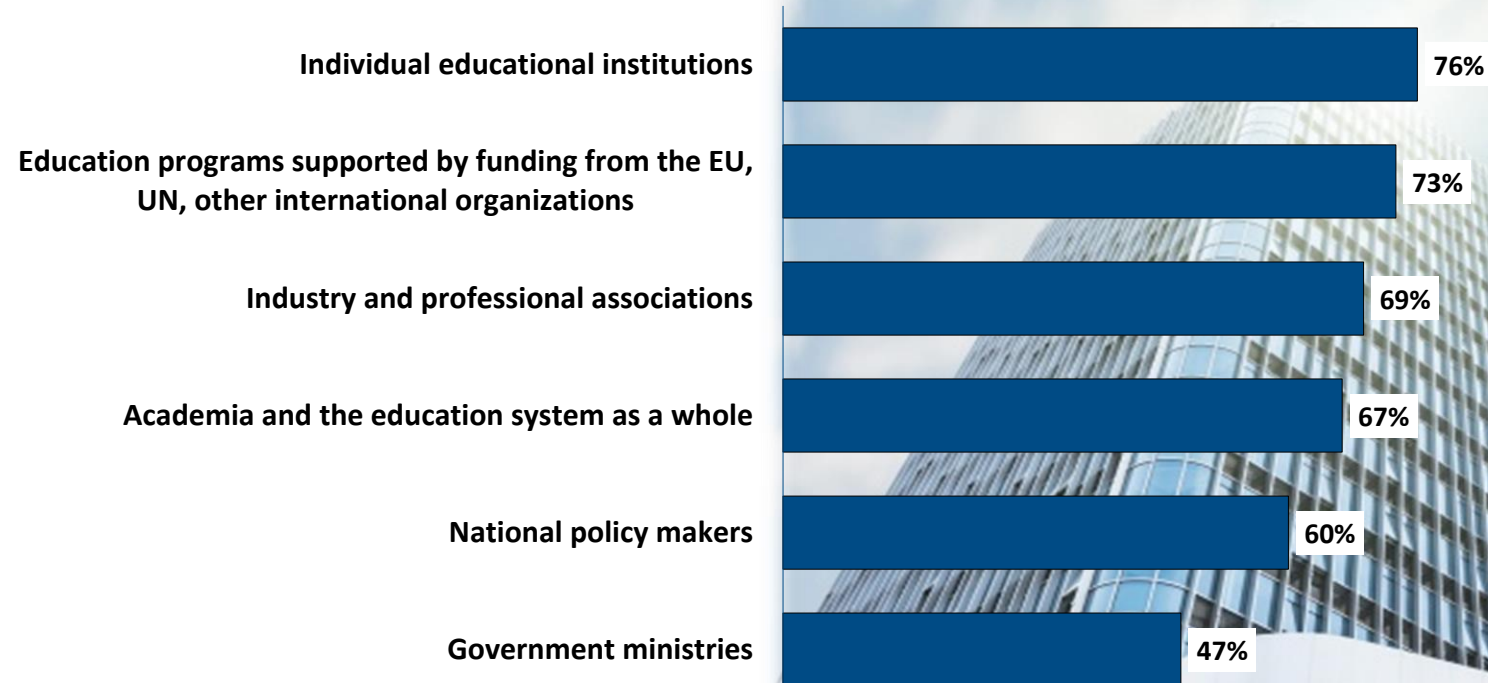
Benefit	%
Improved customer experience	86%
Greater effectiveness of operational and business processes	85%
Increased competitiveness	82%
Revenue growth	78%
More profitability	78%
An improved reputation	74%
New business opportunities	71%
Significant contribution to decision-making processes	68%
Higher retention level of skilled employees	63%

Base (RSA): 78

Q14. How do you think your company could benefit from the improved digital skills of your employees?

14

Organizations That Can Support with Digital Skills

- To achieve the benefits that digital skills can enable in an organization, leaders in those organizations are willing to work with a wide array of partners, including educational institutions (76%), international education programs funded by the UN and others (73%), and industry and professional associations (69%).

- While still willing to participate, leaders are somewhat less supportive of government-led initiatives, with government ministries and national policy makers attracting the lowest and second lowest amount of responses respectively (47% and 60%). This is likely a reflection on low levels of business confidence and poor perceptions of the effectiveness of government policy amongst South African businesses. However, again, this does not mean that these programs will not receive any support.

Individual educational institutions	76%
Education programs supported by funding from the EU, UN, other international organizations	73%
Industry and professional associations	69%
Academia and the education system as a whole	67%
National policy makers	60%
Government ministries	47%

Base (RSA): 78

Q15. Which of these organizations do you think should primarily work with companies to help them overcome their difficulties in recruiting digitally skilled employees?

15