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Kim Fouche

University of Cape Town, FCHKIM001@myuct.ac.za

Maureen Tanner

University of Cape Town, mc.tanner@uct.ac.za

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Fouche, Kim and Tanner, Maureen, "Factors Influencing the Retention of Millennial Software Developers in South African Companies" (2023). *African Conference on Information Systems and Technology*. 11. <https://digitalcommons.kennesaw.edu/acist/2023/presentations/11>

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# Factors Influencing the Retention of Millennial Software Developers in South African Companies

**Kim Fouche**  
University of Cape Town  
FCHKIM001@myuct.ac.za

**Maureen Tanner**  
University of Cape Town  
mc.tanner@uct.ac.za

## ABSTRACT

South Africa has an Information Technology skills shortage leading to high turnover of Information Technology professionals. Not only do companies face significant costs in replacing software developers, but high mobility also affects staff morale. Millennials are known to be more loyal to their own needs and do not tend to stay at companies for long, increasing the complexities of retention. This study explores the factors that influence the retention of millennial software developers in South African companies. A qualitative study was carried out using online semi-structured interviews. The study found that work environment, lifestyle, and management style, play a key role in the retention of millennial developers in South Africa. Key findings include the influence of racial/cultural team diversity, competitive compensation, a digital nomadic lifestyle as well as purpose and recognition towards retention. Recommendations are also made on how companies can retain millennial software developers.

## Keywords (Required)

Software Developers, Retention, Turnover, Millennials, South Africa.

## INTRODUCTION

Employees are recognised as one of the most valuable assets of companies, and their retention has been a challenge for several decades (Lee, et al., 2022). Retention of professionals is a vital endeavor as these skilled employees are essential to the survival of organisations in this competitive business landscape (Ramalu & Kalimuthu, 2022). This is evident in the software development industry sector where the demand for software developers (referred to as developers from here on) is estimated to be increasing by up to 17% per annum. However, while the demand for such positions increases, South Africa is experiencing a shortage of skilled Information and Communication Technology (ICT) workers (Tanner & Seymour, 2014). Despite measures being implemented by the government to mitigate this problem, the deficit continues to increase (Kirlidog, et al., 2018). This deficit is mainly due to difficulties in finding developers with relevant technical and social skills (Tockey, 2015).

As the demand for skilled developers increases, those who possess the right skillsets can easily leave a company should opportunities for better work conditions arise elsewhere (Muratbekova-Touron & Galindo, 2018). This ability to easily move from one job to another is known as mobility (Bussin & Toerien, 2015). It has therefore become difficult for companies to retain skilled developers. Replacing a developer can be a considerable overhead for a company. Not only are they faced with the cost of

replacing the resource, but they are also required to invest in training for the new resource (Scholtz, et al., 2019).

This study focuses on a specific generation of developers known as millennials. Millennials are individuals born between 1981 and late 1996 (Heggen & Myers, 2018). Millennials form a large portion of the South African workforce, accounting for 36% of the South African population, 49% of whom are employed (Statistics South Africa, 2018). Research has shown that regardless of companies offering competitive packages to millennials, their retention rate remains low. Rigoni and Adkins (2016) argue that millennials are more loyal to their own needs than to those of a company, thus increasing the complexities of retention. This difficulty is compounded by the fact that developers are difficult to retain (Muratbekova-Touron & Galindo, 2018).

Little is known about the retention of millennials whilst taking into consideration factors like leadership style, work-life balance etc. (Lee et al., 2022). More specifically, research is lacking on the retention of millennials developers in South Africa. It is important for companies to implement a strategy to retain staff, failing which turnover increases (Ishmael & Halawi, 2022). The aim of this study is to identify the factors that influence the retention of millennial developers to inform such a strategy. For that purpose, the following research question has been formulated: “What factors influence the retention of millennial developers in South African companies?”

The paper is organised as follows. First, a literature review on millennials and the factors influencing their retention as well as that of developers is presented. The conceptual framework guiding the data collection and analysis is then discussed, followed by insights into the methodology employed for the study. The findings are then presented and discussed in relation to the extant literature. The final section concludes the paper.

## **LITERATURE REVIEW**

### **Millennials**

The generation of individuals born between 1981 and 1996 is referred to as 'Millennials' (Heggen & Myers, 2018). Millennials have been raised with technology and process information differently than any generation before them (Balda & Mora, 2011). They thrive when given the opportunity to make their own decisions; feel free to give their opinions (Heggen & Myers, 2018); are socially aware; and enjoy building strong relationships (Heggen & Myers, 2018). However, millennials also have a set of negative stereotypes associated with them. For instance, Nolan (2015) characterises millennials as being entitled, casual, disloyal, and needy. In the workplace, millennials have a reputation for being more loyal to their own wants and needs over their loyalty to a company (Rigoni & Adkins, 2016). Rigoni and Adkins (2016), refer to millennials as 'Job hoppers' and state that millennial turnover is up to three times higher than any other generation.

### **Retention factors of developers and millennials**

A systematic review and thematic analysis of literature have been conducted to gather insights from the literature on the factors affecting the retention of employees. To obtain a broad understanding of the concept of employee retention, the focus was primarily placed on employee retention in general, Information Technology (IT) employee retention, developer retention, and millennial retention. The systematic review and thematic analysis of literature resulted in the identification of themes, which were inductively regrouped into three categories of retention factors: Work Environment and Lifestyle. Each category and its corresponding theme are described below. The categories were further used to

formulate a conceptual framework that guided the data collection process.

### *Work environment*

**Leadership Style:** A manager's behaviour will influence the retention of developers (Thomas et al., 2015) and a manager's leadership style will positively influence employees' motivation (Lee et al., 2022). In particular, the higher the degree of servant leadership, the greater the IT employee's intention to stay in a company. Servant leadership requires a genuine interest to safeguard the needs and well-being of the employees (Ramalu & Kalimuthu, 2022). Some studies even found that management style plays a significant role based on employees' stages and careers in life (Gerhold & Whiting, 2020). When managing developers, managers should create an environment in which these employees feel that they are making a valuable contribution. Moreover, developers are more likely to remain with a company if they feel their manager listens to their ideas and creates opportunities for those ideas to be implemented (Westlund & Hannon, 2008).

In relation to millennials, the preferred management style seemingly relates to a preference for regular feedback, as well as a positive and regular communication style (Lee et al., 2022). They enjoy a supportive and encouraging approach to management (Nolan, 2015). Millennials need to know that they have been afforded the opportunity to grow, and in that regard, they need to feel that their manager is invested in their future and creates opportunities for them to learn (Rigoni & Adkins, 2016). Hence it is important for managers to adapt their management style to accommodate millennials. Millennials have been raised being told "what to do", "how to do it" and "when to do it". Hence, to get the best from a millennial, managers should set clear objectives and expected outcomes, as well as provide direction and personal feedback (Sharer, et al., 2016).

**Company image:** As a technical generation, millennials are attracted to companies that have a social media footprint. Hence, to attract and retain millennials, companies should increase their social media presence by making use of platforms like Twitter, YouTube, and LinkedIn (Barry, 2016). A company's branding is its identity and what sets that company apart from other companies (Sharer et al., 2016). Millennials are more likely to choose to work for companies with a good company brand (Sharer et al., 2016).

### *Lifestyle*

**Work-life balance:** Work-life balance (i.e., the ability to perform in one's job without causing conflict in the home environment) is important in the IT sector (Harris et al., 2018). This is particularly relevant to female professionals who often need to harmonise their professional and personal lives (Murthy & Sundar, 2021). Companies that offer ways of accommodating work-life balance are more likely to retain their IT staff (Thomas et al., 2015).

As with the developers, millennials also find a work-life balance to be important. Millennials thrive in an environment where their working hours are flexible and where they can work from home (Barry, 2016). Such a flexible work environment helps with employee retention and further promotes happiness whilst reducing absenteeism (Ishmael & Halawi, 2022). This is because, while their career is important to millennials, it is also important that they spend time perusing their interests and share quality time with family and friends (Nolan, 2015).

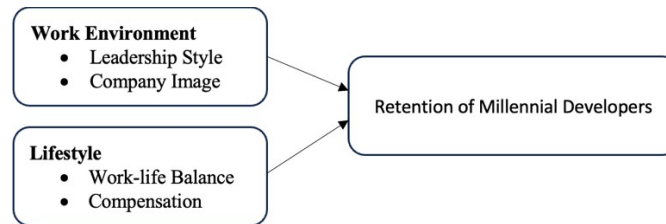
**Compensation:** Compensation is the most important factor in the retention of IT professionals (Thomas et al., 2015). Employees may even compare their compensation and incentives to that of their peers and perceived equitable compensation contributes to retention (Murthy & Sunday, 2021). In the context of IT staff retention, relevant incentive mechanisms could include monetary and non-monetary rewards, as well as recognition (Dixon, 2016). Inadequate compensation results in a higher turnover of IT professionals (Harris et al., 2018). Companies should therefore consider compensation as a key strategy in the retention of IT professionals (Thomas et al., 2015). In the context of South Africa, it is recommended that companies implement a 'total reward' method of remuneration (i.e., the inclusion of medical aid, retirement contributions, etc.) (Bussin & Toerien, 2015).

### Conceptual Framework

The conceptual framework in Figure 1 illustrates how the combined retention factors for developers and millennials have been used as a basis to explore the retention of millennial developers in South Africa.

**Figure 1**

*Conceptual Framework*



### METHODOLOGY

This study was interpretive, qualitative, and exploratory, using semi-structured interviews. Data was collected using semi-structured interviews and participants were encouraged to elaborate on their personal accounts (Reja, et al., 2003). The high-level guide for the semi-structured interview questions was derived from the conceptual framework.

The sampling criteria consisted of millennial developers who have remained with a company and those who have left the company within a three-year period. Participants were identified using the LinkedIn platform and the final sample size comprised of seventeen millennial developers from South Africa. The participants’ demographics are depicted in Table 1.

**Table 1**

*Participants’ Demographics*

Participant Code	Retention Status	Age	Role	Participant Code	Retention Status	Age	Role
P1	Stayed	39	Senior Developer	P9	Stayed	31	Developer
P2	Left	27	Developer Analyst	P10	Stayed	22	Developer
P3	Left	32	Senior Systems Developer	P11	Stayed	26	Junior Developer
P4	Left	37	Senior Developer	P12	Left	30	Developer Analyst
P5	Left	35	Product Engineer	P13	Left	34	Senior Developer

P6	Stayed	23	Developer	P14	Stayed	23	Junior Developer
P7	Stayed	31	Developer	P15	Left	24	Junior Developer
P8	Left	30	Lead Developer	P16	Left	28	UI Developer
				P17	Stayed	35	Senior Developer

The interviews were conducted virtually using MS Teams between June and September 2020 and lasted between 45 minutes to 1 hour. With the permission of the participants, interviews were recorded and later transcribed. Field notes were also taken down during the interviews. Data collection and thematic analysis were conducted concurrently. Themes were identified and the initial themes were taken into consideration as we progressed with the remaining interviews.

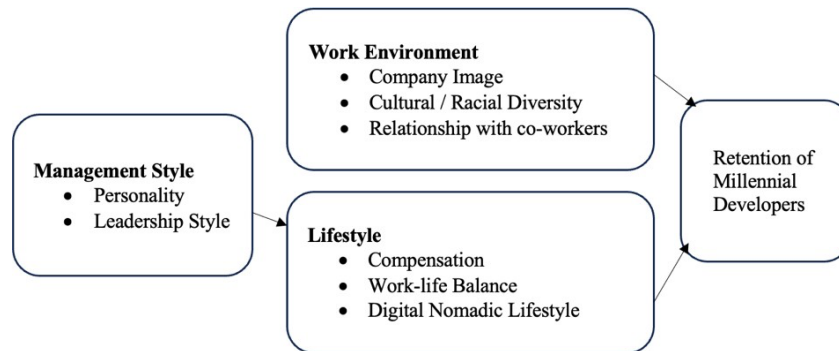
Before the study, ethical clearance was granted by the university. Organisational and individual consents were also obtained prior to the interviews. Participants were guaranteed confidentiality throughout the process, and informed of their right to withdraw from the research at any point without consequence. Issues around validity and reliability are central to qualitative studies and several strategies are available to ensure the credibility of a study’s findings. For this study, we employed the following verification strategies: selecting the appropriate sample (Morse et al., 2002), using ‘rich’ and ‘thick’ verbatim quotes from participants, and reflexivity (i.e., using field notes) (Noble & Smith, 2015).

## FINDINGS

This section provides insights into the empirical findings derived from this study. Based on the findings, a new framework is proposed to depict the factors that influence the retention of millennial developers in South Africa. Each construct depicted in Figure 2 are described in the following sub-sections.

**Figure 2**

*Factors influencing the retention of millennial developers in South Africa*



### Work Environment

Three sub-themes emerged in relation to the influence of the Work Environment on the retention of millennial software developers in South Africa: Company image and Cultural/Racial alignment with co-workers and Relationships with co-workers.

#### Company Image

Participants understood company image as the way in which society views the company. The

participants who felt that the company image was important indicated that they wanted to be associated with a company that was innovative, allowing them to share in the glory of the company. They also felt that company image was a direct reflection of them as a person - they represented the company, and the company represented them. Moreover, working for a company with a good image was deemed as a professional advantage: *“I guess people want to be associated with certain brands. For example, if you got a job at a company like Google, Microsoft or Apple you'd be proud to be associated with those product companies. It also makes it look good in your CV” [P13]*

For some, while the public perception of a company was not important, the perception of previous employees was favoured as it informed the decision to leave or stay: *“A company's image could be affected by a few things such as its political views on something. If the company has made a mistake, then it would reflect directly on me because I think employees feel directly somewhat related to the company” [P12]*

The ethical reputation (e.g., financial reputation, corruption, etc.) of a company was also deemed important to retain employees. Some participants even felt that this reputation even reflected on their personal ethics as an individual: *“You see the reflection of your company like the reflection of your family. So, if the company is not doing very well or the company is caught in scandals, that reflects badly on you” [P12]*

### **Cultural/Racial Diversity**

Some participants felt that they would leave a company if they could not relate with their co-workers from a cultural or racial point of view. It was deemed important to have opportunities to make friends and fit in with the people at work. Race as well as common experiences and interests with their peers was considered a key retention factor: *“When I left \*\*\*, I went to a company called \*\*\* and I didn't realize it at the time, but I was the only person of colour that worked there. The conversations and experiences did not align with me. There were some cases of racism and things like that, and that is why I left that company because it was not something I could tolerate” [P3]*

### **Relationships with Co-Workers**

Participants felt that their relationships with their co-workers contributed to their job satisfaction. Such good relationships further generated greater job satisfaction, therefore enticing participants to stay at the company. Building relationships at work was deemed important given the amount of time participants spent at work: *“Relationships are very important. If you do not have a good relationship, you are not going to be happy. If you are not happy and anxious and worried all the time, you cannot deliver the best and you don't want to stay” [P15]*

Such relationships were particularly important for junior developers. Participants in a junior development role mentioned that they derived job satisfaction from having co-workers who could help, teach and guide them. The more junior developers liked the idea of having more senior developers with whom they could “bounce ideas off” and confirm they were on the right track. One junior developer mentioned that the ultimate job satisfaction was when a more senior developer asked him for help. Such a work context contributed to the retention of developers in South Africa: *“When being asked for help by someone higher, like when a senior developer comes to me for help, I feel appreciated” [P11]*

## Lifestyle

Three sub-themes emerged in relation to the influence of Lifestyle on the retention of millennials software developers in South Africa: Compensation, Work-life balance, and Digital nomadic lifestyle.

### Compensation

The findings indicate that compensation influences millennial developer's decisions to stay or leave a company in South Africa. Compensation specifically related to the net pay, other benefits such as pension fund, medical aid and lower interest rates as well as additional compensation when expected to work overtime. Participants felt that their managers had a direct influence on their compensation.

Participants found that the right compensation was essential for them to support their families in the best possible manner. As millennials, they felt that *"life was getting more expensive"* [P1] and that they could not be expected to work for free. Hence participants stressed the need to earn a market-relevant salary.

Three of the participants had even left previous jobs because they felt that they were not compensated fairly: *"Depending on the phase in your life, the flexibility and remuneration are very important. I suppose you know don't want to be underpaid for the job you doing. You at least want to be on the market relatable salary"* [P5]

Participants also highlighted that the way a company remunerates an employee reflects how much they value and appreciate that person. Unfair remuneration was deemed unethical. Moreover, participants found that it was not acceptable for companies to just give inflation-related increases.

### Work-Life Balance

The findings indicate that work-life balance influences millennial developers' decisions to leave or stay at a company. Participants valued work-life balance to avoid burnout due to over-working. They valued time to relax after a stressful day.

When they are not working, millennial developers like to spend time with their family and friends, exercise, garden, gaming, read and work on personal IT projects. Without a good work-life balance, they would not have time to engage in such activities. The family was the highest priority in their work-life balance, and participants' felt that if there were no work-life balance, their family relationships would suffer: *"If work was becoming unbearable, I would not get time to spend time with my family. Then I would start looking around for another job"* [P6]

### Digital Nomadic Lifestyle

Some participants valued the possibility of having a digital nomadic lifestyle through their job. This played a key role in their decision to stay at a company. Millennial developers from the study felt that they should be allowed to relocate and work from a different province or even a different country. They felt that nowadays, people should be able to work remotely from anywhere. Three participants specifically mentioned that they had left their previous company because there was no opportunity for relocation: *"I think nowadays it's becoming more and more important for Millennials to not work at the office and to be able to work from multiple places"* [P5]

For some participants, a digital nomadic lifestyle was also associated with the possibility of working flexitime, anywhere. Not only did this aspect play a crucial role in participants' retention, but it also



improved their productivity and the quality of their work. Participants explained that their commitment to a company was dependent on their ability to work when and where it suited them: *“I feel that I do much more work wherever I like. I can log in at 9:00 o'clock at night and do some work”* [P7]

## Management Style

The findings indicate that management style plays a key role in the retention of millennial developers in South Africa. Moreover, management style also influences other retention factors namely Career Development and Lifestyle. Two sub-themes emerged for this construct: Personality traits of the manager, Leadership style.

### Personality

Participants felt that because you spend at least eight hours a day at work, it is important that you have a good relationship with your manager. A good relationship is important for honest and free communication between both parties. In that regard, they felt that a manager should be approachable: *“I believe that an approachable manager who is able to put the emotions aside and look at the working relationship goals that the team needs to achieve is quite important”* [P9]

### Leadership Style

Some participants indicated that the leadership style of managers also plays a key role in their decision to stay or leave a company. Managers were expected to be calm and keep their developers challenged, motivated, and stimulated. Participants also expressed a dislike for micromanagers and aggressive management styles: *“I think Micro-Management would make me leave because I don't want someone on my head 24/7. You know like you know, like constantly on me that will be irritated”* [P1]

Participants expected managers to provide them with opportunities for growth; moreover, these opportunities should also be aligned with the millennial developers' personal goals. Participants also valued managers who provide opportunities for training or supported them in their studies: *“I take the feedback from my manager quite seriously. I think it is a major driving factor for me”* [P11]

Lastly, the findings indicate that managers play a vital role in maintaining millennial developers' work-life balance. Managers were deemed responsible to allocate enough time to a task without someone having to work overtime. Moreover, it was expected that if someone had to work overtime, they should be compensated for that. Participants also expected their managers to allow for flexible work hours to compensate for school errands and emergency visits to the doctors: *“At \*\*\*, I value the flexibility of time. It allows me to be a mom. It allows me to do other things that I want to do because it is quite flexible, and this also takes us back to that management role and your relationship with your manager. I have a good relationship with my manager. Because of that closeness in the relationship that you build with your manager, it's easier to say ‘can I just jump there's a problem at home?’ or ‘can I go quickly and come back?’”* [P17]

## DISCUSSION

### Work Environment

Work environment plays a key role in the retention of millennial software developers in South Africa, especially in relation to company image and cultural/racial diversity in the workforce. In line with *The 9<sup>th</sup> African Conference on Information Systems and Technology 2023*

Sharer et al. (2016), the study found that company image contributes to a South African millennial developer's decision to stay at a company. However, the ethical (i.e., corruption, financial) reputation of a company is particularly relevant to the South African context. This finding is particularly important given the economic and political context of South Africa. Indeed, South Africa has been plagued with corruption cases and has a current corruption index of 44, with 100 being the worst degree of corruption (Transparency International, 2020). While it is known that corruption affects firm-level outcomes (Adamako et al., 2021), the study reveals that it can also play a role in the retention of a whole generation of much-needed talented experts (i.e., millennial software developers) in an industry that is already impacted by a lack of skilled labour (Tanner & Seymour, 2014). It is therefore important for South African businesses to pay particular attention to their reputation and to project an ethical and corruption-free image should they wish to attract and retain millennial software developers.

The studies also revealed that South African millennial software developers are inclined to leave a company when they cannot relate culturally and racially with their co-workers. In line with Turnbull (2002), they might also consider leaving when they do not have a good relationship with their co-workers. This finding is a consequence of the historical racial segregation (i.e., apartheid) that prevailed in South Africa before 1991, and whose repercussions are still felt in current society (Durrheim et al., 2011). Hence, companies should strive to employ a culturally and racially diverse workforce to promote an inclusive work environment to retain millennial software developers.

## **Lifestyle**

Millennial software developers value fair compensation in line with the amount and quality of work produced. Fair compensation plays an important role in their retention and is perceived as an indicator of how much they are valued by their employer. These findings are consistent with the findings of Harris et al. (2018) who found that compensation encourages employees to stay loyal to an organisation. In South Africa, compensation is particularly important because of the inflation rate (Projected at 4.2% in 2021) and the public debt is estimated to reach 90% of GDP in the medium term (African Development Bank Group, 2021). Fair compensation is therefore essential to a good quality of life. However, given its importance, compensation can also be used as a tool to attract skilled millennial software developers, by companies who can afford it. Given the skill gap in the IT sector in South Africa, such a recruitment strategy can be detrimental to smaller South African companies that might not be able to compete with the salary packages offered by larger corporates.

The study uncovered a new retention factor that is also linked to work-life balance, namely a digital nomadic lifestyle. Digital nomads are 'location-independent' and value a lifestyle supported by technology, and which allows them to travel domestically or internationally while being employed (Wood, 2019). More and more millennials aspire to be digital nomads (Wood, 2019) and South African millennial developers also demonstrate this preference. Furthermore, some will even consider leaving a company if the work setup does not allow for such a lifestyle. The software development industry lends itself to such a work setup through global virtual teams (Jarvenpaa & Leidner, 1999). Companies that offer such a degree of flexibility to millennial developers might experience a higher retention rate, thus avoiding the risk of losing a valuable and skilled workforce who need a more nomadic lifestyle.

## **Relationship with Manager**

Just like a good relationship with their co-workers is important, a good relationship with the managers

is also important. The leadership style and personality traits of the manager are instrumental in that regard. Thomas et al., (2015) also found that a manager's behaviour is likely to influence the retention of IT employees (Thomas et al., 2015). Moreover, the study found that not only does a good relationship with a manager influence the retention rate of millennial developers, but it also contributes to nurturing all other dimensions (work environment, lifestyle, job satisfaction, and career development) which are instrumental to retention. The relationship with the manager can therefore be seen as the underlying and fundamental factor in millennial developers' retention in South Africa. South African companies, therefore, need to ensure that managers provide millennial developers with opportunities for growth, challenging yet rewarding work, fair compensation as well as flexible working style (opportunities for digital nomadic lifestyle and flexible work hours/location).

## **CONCLUSION**

This paper investigated the factors that influence the retention of millennial developers in South African companies. The study found that work environment, lifestyle, job satisfaction and management style, play a vital role in the retention of millennial developers in South Africa. Moreover, management style also influences millennial developers' lifestyle and career development. One key finding specifically relates to the need for cultural/racial diversity as well as the ethical reputation of a company within the South African company landscape, given the political and economic context of the country. These findings have managerial implications for the marketing and recruitment strategies within South African companies. Another key finding relates to the role played by compensation in the retention of millennial developers in South Africa. The South African IT sector is highly competitive and in dire need of talented developers. Competitive packages can therefore be a relevant mechanism to target and attract millennial developers with the relevant skillsets. However, from a management perspective, this strategy might be detrimental to smaller companies that could find it difficult to navigate this economic landscape. The third key finding relates to the South African millennial developers' interest in a digital nomadic lifestyle. The managerial implication for South African companies is that they need to review their work environment, favouring a virtual team setup to accommodate such needs. The need for millennial developers to make a difference in the lives of their users is also a key finding. Hence, management should acknowledge this need for 'purpose' and ensure that developers regularly receive feedback and recognition from users for the work completed.

Considering the findings, the following recommendations, in line with the managerial implications, are put forward to companies seeking to retain millennial developers. These recommendations are valid for South African companies as well as other companies within the African contexts to contribute to the retention of millennial developers:

- Devising marketing strategies that project an ethical and corruption-free company image.
- Devising recruitment strategies that seek to create a racially/culturally diverse workforce with talented individuals.
- Devising flexible work environments (e.g., working from home or virtually) and support for a digital nomadic lifestyle.
- Management should promote recognition and flexible work environments.

For future research, a quantitative study can be conducted to test whether the contributing factors put forward in this study with a larger sample size. Such a study could be extended to other African countries to broaden the relevance of the findings. A multiple case study of large organizations could also be

conducted to test the proposed framework derived from this study. This would allow for rich contextual factors to be taken into consideration.

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