



*Reclaiming Africa's Intellectual Futures*

## **Shadow Information Technology in the Advent of Open Educational Resources**

**Dr Siphamandla Mncube**

**UbuntuNet Connect 2023**

**Date: 26-27 October 2023**

**Define tomorrow.**

**UNISA**



# Presentation overview

- Introduction and background
- Shadow IT
- Open educational resources
- Why this research?
- Research context
- Theoretical underpinning
- Research methodology
- Findings
- Discussion and propositions
- Conclusion and recommendation

# Introduction and background

- Since the arrival of open educational resources (OER) in the education sphere, shadow information technology (shadow IT) has been **partially denied**.
- Academicians and students subconsciously or consciously use shadow IT when appropriating OER for teaching and learning.
- In higher education institutions, academics or students turn to rely on digital technologies and ICT, because they want to improve the decision-making process for tuition businesses

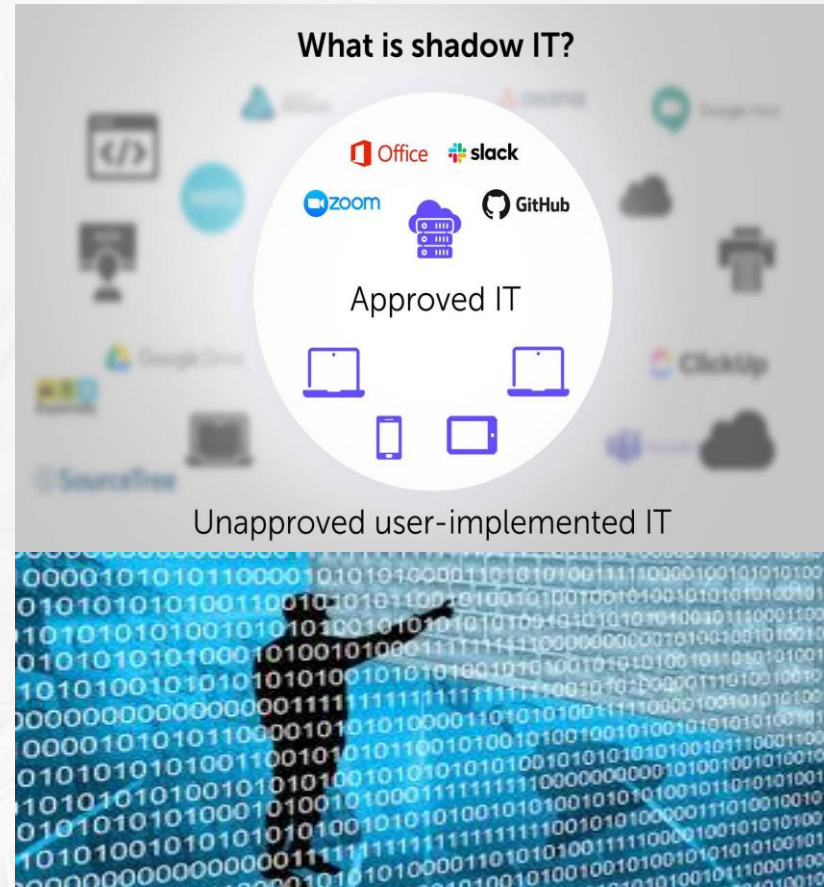
(Dincă, et al. 2019).

- In the current era of the Fourth Industrial Revolution (4IR), academic institutions exemplify the circumstances supporting the growth of shadow IT.
- Including extensive technological proficiency, financial independence, an open learning environment, high levels of collaboration

(Gomez Orr, et al. 2022).

# Shadow IT

- *Shadow IT* is defined as supplemental systems installed by users to the nominally supported systems provided by the organization (Lund-Jensen, Azaria, Permien, Sawari & Bækgaard, 2016).
- Alternatively, shadow IT is the software or hardware present in a computer system or network that lies outside the typical review process of the responsible IT Department (Gomez Orr, et al. 2022).
- Shadow IT has been associated with potential risks and vulnerabilities involved in unauthorized access, loss of data and services.



# Open Educational resources

- OER are teaching and learning resources that are copyright embodied and accessible in the digital platforms including the shadow.
- These resources are considered as Internet-enabled; particularly because of the emergence of open courseware, OER and open educational practices (Mishra, 2017).
- OER can be appropriated in online learning through the use of technology, such as Internet access through the use of different devices.
- In the current era, these resources are intensely used and different digital or virtual platforms for global collaboration.



# Why this research?

- The OER phenomenon has been widely researched in different higher education contexts.
- However, studies on the appropriation of OER through shadow IT are less reported.
- The emerging literature relates to shadow education (Lu, Tuo, Pan, Zhou, Zhang & Hu, 2023).
- and shadow economy (Dincă, Dima & Rozsa, 2019).
- Therefore, there exists a gap in the knowledge field.

*The study sought to investigate the use of shadow IT in the emergence of OER in an e-learning institution.*

# Research context

- Information System research is characteristically situated in a particular context.
- It is necessary for researcher / authors, editors and reviewers to help ensure that both the research context and scope of validity are adequately communicated and understood (Davison & Martinsons, 2016)




# ODL



# ODeL



# CODeL

Year	2001-2010	2011-2020	2021-202...
Identity	ODL	ODeL	CODeL
Leadership	Prof Barney Pityana	Prof Mandla Makhanya	Prof Puleng LenkaBula
			
Characteristics	<ul style="list-style-type: none"><li>• Distance learning, including in-person instruction,</li><li>• online media, discussion courses,</li><li>• tutorials, and</li><li>• other blended forms of instruction</li></ul>	<ul style="list-style-type: none"><li>• Business model,</li><li>• E-learning</li><li>• Fully online,</li><li>• electronic technologies,</li><li>• digital resources,</li><li>• technology-enhanced</li></ul>	<ul style="list-style-type: none"><li>• Focuses on removing barriers to accessing learning,</li><li>• student-centeredness, supporting students,</li><li>• constructing learning</li><li>• Open and distance,</li><li>• flexible,</li><li>• technology-enhanced,</li><li>• e-Learning practices,</li></ul>

# Theoretical underpinning

- To engage more deeply in the research, the theoretical underpinning involved Rogers's (2003) innovation diffusion phases, such as: knowledge (**awareness**), persuasion (**interest and perceptions**), decision (evaluation/benefit), implementation (**trial**) and confirmation (**adoption**).
- Opting for such a framework helped to obtain the relevant results on shadow IT in the appropriation of OER.
- The study considered this conceptual framework as a fundamental model when acquiring knowledge of the appropriation of artifacts in the Information Science domain.
- Additionally, this enabled the understanding of the processes of how humans interact with, make sense of and appropriate the functions of an IT system in the context of the social practices of an organisation (Rohde, Brödner, Stevens, Betz & Wulf, 2017).

# Research Methodology

- This study employed a constructivist research methodology and a qualitative approach, with the case study (the CODEL institution) as the chosen research design.
- The initial participants were chosen from a diverse institution with eight colleges, 18 schools and 70 departments, snowball sampling was used.
- The first step in reaching potential volunteers was to obtain ethical approval and permission to conduct the research.
- A different ranks of academics (42) – consisting of Junior Lecturers (JL), Lecturers (L), Senior Lecturers (SL), and Professors (P) participated in the semi-structured interviews.
- The interviews lasted for 25–60 minutes.
- One of the ways for collecting data in this study was the document analysis.
- NVIVO for data management. After data being made anonymous, the transcripts were coded in NVivo and analysed.
- After re-reading the interviews and the codes, NVIVO memos were created on various topics by returning to the individual interviews and further analysing the data.

# Findings

- **Knowledge and perceptions of OER**

- Although academic participants were knowledgeable and held various opinions about OER, the minority of the participants were not entirely certain about OER artifacts, which clarified some people's idea about adopting OER.
- Not all academics were comfortable with the use of online resources, OER are Internet-based resources that generate course anxiety.
- Some academics expressed concern that not all teaching resources downloaded from the Internet were reliable and subjected to peer review.
- The lack of subject-specific OER was viewed as a challenge.
- Academics recognize any electronic or online resource that is pertinent for educational purposes as an OER.
- Several academics indicated that OER are educational resources that are accessible online and can be found in journal articles, digital textbooks, blogs, open sources, databases and library portals.
- These resources are helpful in meeting the demands of teaching and learning.
- The CODEL academia also hinted at OER being easily available online resources that may be accessed at any time and from any location.

# Findings conti...

## Implementation of OER

- Academics participated in the development of OER and chose various OER implementation strategies.
- Academics began with basic responsibilities by creating their own programmes that may be used on smart devices that many students own.
- Mobile apps, podcasts and other platforms that made it simple to access OER were some of the specially created platforms.
- The developed platforms or apps were recognized as being easily accessible via smartphones, which was mentioned as a benefit, given how common smart device ownership was among academics and students.

# Findings conti...

## Shadow IT for the adoption of OER

- In the adoption of OER, academics used a variety of technologies and apps, some of which were part of shadow IT.
- OER were largely accepted by academics, rather than being developed. YouTube, other academic institution websites and Open Educational Resources Universitas (OER Universitas) were the most commonly adopted platforms.
- The OER Foundation, an autonomous, non-profit organization that coordinates OERU, provides free online courses to students and academics all around the world (OER Universitas, nd).
- Academics mentioned that the purpose of OERU is to increase access and reduce the cost of tertiary education for students around the globe – particularly those who do not qualify or who are excluded from enrolling at HEIs

# Findings conti...

## Shadow IT for dissemination of OER

- Shadow IT offers potential growth in the dissemination of OER.
- Academia used both official IT and shadow IT.
- The most used systems for the dissemination of OER are social media, interactive platforms, and cloud storage.

# Institutional relevant policy

Policy	Descriptions
ODeL Policy, 2020	<i>“ODeL [institution] will make effective use of educational and social technologies in learning programmes in appropriate and innovative ways that improve the quality of teaching and learning” .</i>
ICT Acceptable Use Policy, 2020	<i>“ICT systems, including but not limited to computing equipment, software, operating systems, storage media and network accounts that provide access to electronic mail (e-mail) and the internet, are the property of UNISA. These systems are to be used for business purposes in servicing the interests of UNISA and of our clients and customers during normal operations” .</i>
(ICT Policy, 2020	<i>“Proprietary software licensed to UNISA shall not be installed on UNISA employees’ and third parties’ personal computers”</i>
Unisa OER strategy, 2015	<i>(The OER movement’s aspiration to open access strongly resonates with our open distance learning model where spatial, geographical, economic and demographic boundaries must be</i>

# Discussion and propositions

In the current digital era, end-users (academics) have an expanding number of IT options and recent data suggest that these end-users are increasingly using shadow IT in support of their tuition (Hall Jr, 2019).

Proposition:

*In the advent of OER, the users' knowledge and perceptions are crucial in determining the status of engagement and utilisation of shadow IT at a higher education institutions*

# Discussion and propositions cont...

The actual implementation of OER takes place at a CODEL. Academics are innovative during the development of OER.

OER can be considered as shadow education, which is a private extracurricular activity outside of the traditional educational system, aiming at facilitating students' success and providing access to superior educational materials (Lu, Tuo, Pan, Zhou, Zhang & Hu, 2023).

In so doing, it requires academics to be ICT-skilled. As information technology advances, it is necessary to identify and use the right technologies, so that organizations may effectively compete in the market by utilizing accurate and real-time efficiency (Taherdoost, 2023).

Proposition:

*The innovative users contribute to the advancement of OER when shadow IT is appropriated and academics must not be limited to particular systems, instead, they deserve better recognition and acknowledgment.*

# Discussion and propositions cont...

Shadow IT was found to be useful in the dissemination of OER, although this raised the alarm in terms of a discrepancy between the ICT policy, tuition policy and the emergence of OER.

Most cited ICT and tuition policies do not articulate OER-related issues thoroughly, although there is an OER strategy that governs the adoption and development of OER. The strategy and policies seem to hinder innovation in the advancement and dissemination of OER.

Therefore, the study proposes that the revision and realignment of the institutional policies. This was confirmed by Mncube and Mthethwa (2022), who point out that the integration of dual virtual structure policies for education contributes to the elimination of the recurring OER problems in academia.

## Proposition:

*The institution requires to take cognisance of ICT and its usage policies and strategies to accommodate shadow IT for adoption and development of OER to be aligned with the institutional rules and regulations.*

# Conclusion and recommendation

- Knowledge and positive perceptions are the indicators that academics are involved in the utilisation of shadow IT than institutional IT when dealing with OER.
- The study established that, while developing, adopting and disseminating OER, academics primarily rely on shadow IT.
- **The major suggestion would be that institutions realign and revise their ICT and tuition policies and their OER strategies to include shadow IT in support of the ongoing growth and innovation of OER.**
- The research results of the study indicated that there are numerous gaps in the literature.
- This implies that future research may examine ICT, OER and tuition policies for all 26 public universities in South Africa, so as to learn about the current approaches of incorporating shadow IT in the age of the Fourth Industrial Revolution.



*Reclaiming Africa's Intellectual Futures*

*Thank you*

**Define tomorrow.**

**UNISA**





**Define tomorrow.**

**UNISA** |   
university  
of south africa

