DEFINING DIGITAL LEADERSHIP (DL) –AN EXAMINATION OF ITS CRITICAL PARAMETERS WITH REFERENCE TO HIGHER EDUCATIONAL INSTITUTIONS (HEI) IN INDIA

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ABSTRACT

The purpose of the study is to explore the concept of Digital Leadership, hereinafter referred to as DL and define it in the context of Digital Transformation of HEI. In order to address the issue of the fuzzy definition of DL and provide a comprehensive definition of the same, the methodology adopted was a dual approach to analysis. This included the analysis of literature on Digital Leadership (2000-2022) in different contexts based on commonalities and a meta analysis of definitions based on keywords by 3 different types of analysis was done to arrive at the critical parameters of DL. A series of in depth interviews with 10 institutional leaders from 4 HEI's ,based on the critical parameters of DL were conducted and were empirically validated based on evidence from 4 real life cases (HEI). Findings are in the form of seven propositions leading to a comprehensive definition of Digital leadership.

Keywords: Digital Leadership, Digital Transformation, Technology Adoption, Higher Educational Institutions, Case Studies.

INTRODUCTION

"Since the advent of digital technologies, the future of institutions is based on the strong pillars of Digital Transformation hereinafter referred to as DT and Digital Learning" (Msila Vuyisile, 2022). DT is defined "As the extended use of advanced IT such as analytics, smart embedded devices, mobile computing, social media, and the improved use of traditional technologies, such as enterprise resource planning (ERP), to enable major business improvements" (Chanias, 2017). Due to the Fourth Industrial Revolution (Industry 4.0), the leadership landscape is undergoing a profound transformation. This revolution which is reshaping industries, economies, and societies at an unprecedented pace, is characterized by the convergence of digital technologies, such as the Internet of Things (IoT), robotics, data analytics, artificial intelligence (AI) and machine learning. The role of leadership in organizations/institutions has come under intense scrutiny, due to the challenges and opportunities presented by this digital disruption (Abhinav and Shraddha, 2024). International Data Corporation (IDC) has forecasted that the worldwide spending on Digital Transformation will reach about $4 Trillion by 2027. According to Szillat and Breuer, (2019) "*The challenge to*

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digital transformation is not the availability of technology, but developing new leadership competencies". Institutions of higher learning are in the process of transformation with digital leaders at the helm of institutions who anticipate and initiate sustainable changes thus enabling their institutions adapt to a digitalized future. "Leaders of higher education institutions (HEI) understand the critical role of digital transformation plays and how it affects the performance of the HEI" (Msila Vuyisile, 2022). In education, "DL represents the incorporation of technologies such as Internet of Things (IoT), big data, and machine learning, artificial intelligence (AI), as well as e-platforms like social media and webinars" (Antonopoulou et al., 2020, Byström, 2021). "The COVID-19 pandemic has led to the acceleration of digital transformation in most institutions ,including business schools" (La Berge et al., 2020), therefore effective leadership of digital transformation efforts in HEI has become an emerging issue. COVID -19 has led to sudden increase in online education and the Indian edtech market size is expected to reach US$ 30 billion by 2031, from US$ 700-800 million in 2021 (ibef.org) According to KPMG, India has also become the second largest market for E-learning after the US. Hence the need to study DL in HEI. This research paper consists of the following sections: the next section is the Review of Literature which explores the existing definitions of digital leadership from past studies (30 defintions), conducted in this field from reputed journals the section after that explains the research methodology adopted in exploring the definition of DL by referring to 56 research articles on digital leadership in different contexts to explore the on selected commonalities and evidence from 4 HEI . After that is the analysis of literature by frequency analysis of keywords, longitudinal and context analysis of keywords to identfy critical parameters of DL, the next section is the validation of the critical parameters of DL by analysis of the 4 HEI's under consideration and cross–case analysis. The subsequent section is Propositions which includes 7 propositions based on the selected critical parameters of DL from ROL and justification from case and cross case analysis and the last section is the implication and conclusion, which gives the newly evolved comprehensive definition of DL and research and practical implications of the study undertaken.

REVIEW OF LITERATURE (ROL)

The definition of Digital Leadership from past research studies was examined by referring to 56 journals and it was observed that there was a multitude of definitions with some commonalities and but DL definition and determinants remain fuzzy,hence there was no comprehensive definition of DL. "Despite the high relevance of Digital Leadership (DL) in practitioner outlets, its definition and determinants remain fuzzy"(Eberl and Drews, 2021).Hence a meta-analysis of definitions on Digital leadership was done by looking at the existing literature on Digital leadership from the year 2000- 2022 .During the ROL, general databases and specialist sources focusing on pertinent journals on leadership and information systems were examined to understand the concept of DL with respect to overall leadership and information system research. Thus, the aim of the study is to give a comprehensive definition of DL from a functional perspective. There has been a lot of research on leadership especially in the educational sector. In the last decade, Leadership has been defined in terms of "transformational leadership (Leithwood, 1992), moral leadership (Sergiovanni, 1992) and relational leadership (Regan & Brooks, 1995)". Avolio (2000) elaborated on the concept of e-leadership, but the idea of DL independent of e-leadership was given by Fisk (2002), which states that "Digital leaders are visionary, motivators of change, capable of combining ideas within the business for projects,

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establishing connections through the creation of new opportunities for partnerships and other forms of collaboration". "DL in education is capable of determining the direction, influencing others, and initiating sustainable change through information gathering and networking in order to anticipate the necessary changes for the school's future success" (Sheninger, 2014). "DL is about leading and inspiring digital transformation, establishing and maintaining a digital learning culture, facilitating and improving professional growth based on technology, as well as providing and maintaining a digital organization" (Zhong, 2017). "DL in education refers to the integration of a portfolio of technologies, tools and instruments like: Internet of Things (IoT), e-platforms (webinars) social media, Artificial Intelligence, Big Data, and Machine Learning" (Antonopoulou et al. 2020). "Higher education is without doubt a type of organization that can be promoted by digitalization not only with the integration of new technologies but also by the transformation of traditional workplaces into digital workplaces" (Antonopoulou et al., 2020)."Competence that leaders need to possess in today's digital age" (Schiuma, 2021). "With a digital transformation mind set, one is able to recognize and take advantage of opportunities to make informed, timely leadership decisions to adjust strategy when risks are detected, making an important contribution to the optimal development of the organization"(Nyugen et al.,2021)."Leaders must have a primarily digital vision and approach when it comes to digital transformation" (McCarthy, 2021). "Digital leadership refers to the implementation and use of leadership approaches that are consistent with the digital age, including reliance on modern technology platforms" (AlAjmi, 2022). "Digital Leadership requires creating an open and collaborative climate" (AlAjmi, 2022).

RESEARCH METHODOLOGY

The methodology adopted a dual approach to analysis. The first was to explore the definition of digital leadership from past research studies by referring to 56 journals from the year 2000- 2022 , 30 important defintions of DL were selected and it was observed that there was a multitude of definitions with some commonalities, but DL definition and determinants still remain fuzzy. Hence a meta-analysis of the definitions based on keywords was done usuing frequency analysis, longitudinal and context analysis to arrive at the critical parameters of DL.

Secondly, the following critical parameters of DL which were selected based on the literature review ,which included the integration of a portfolio of new technologies (AI, ML, mobile, Cloud, ERP, Social media), possessing a digital Mind-set being a visionary, initiate and anticipate sustainable changes, digital competence, creativity & innovation, maintaining an open and collaborative climate and digital learning culture were emphirically validated based on evidence from 4 real life cases (HEI) .The scale used for evaluation was rated from 1-5 where 1 is very low, 2 is Low , 3 is moderate, 4 is high , 5 is very high. A cross– case analysis was done based on the critical parameters of DL. The output was in the form of seven propositions. Purposive sampling method (Berg, 2001) was used to gather data from respondents, information-rich cases were selected from HEI's based in Tamil-Nadu and Karnataka. The case selection was done in such a way so as to represent a heterogeneous group from different academic disciplines, like arts /science/management institutions/ law /engineering to have a wider perspective on understanding the concept of Digital leadership in an HEI. All the HEI were UGC approved institutions with NAAC accreditation –A/A+ grade. In depth interviews were conducted with 10 institutional leaders form 4 HEI's like Directors /Vice Chancellor/Deans/HOD/ principals/ vice – principals ,based on the critical parmeters of DL indentified from ROL using an interview guide.

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The interviews were semistructured and conducted in the face-to-face mode with open-ended questions (Creswell, 1998). Each interview session lasted approximately 60 minutes providing the participants sufficient time to share their insights and experiences. These leaders were specifically chosen because they had experience in implementing digital transformation initiatives .Data collection took place over a span of four months. Confidentiality of the participants was ensured to maintain privacy and protect their identities.

This article has been reviewed and approved by Xavier Instiutue of Management and Entreprenuership (XIME (B)) Institutional Research Ethics Committee and they have certified that this study meets the National and International guidelines and norms of conducting Data collection and analysis. The authors of this study also confirm that they have complied with the APA ethical principles regarding research with human participants.

Analysis of Literature to Identify the Critical Parameters of DL

After exploring the definition of digital leadership from past research studies by referring to 56 journals from the year 2000-2022, it was observed that there was a multitude of definitions with some commonalities from the 30 defintions which were identified, hence a meta analysis of definitions based on keywords was done by frequency analysis, longitudinal and context analysis to arrive at the critical parameters of DL.

In the **Frequency Analysis**, keywords were obtained from the selected 30 definitions of DL from these keywords with the highest frequency were identified and selected as the critical parameters for DL, Ex: Sustainable changes at the highest frequency as per the frequency analysis of keywords. In the Longitudinal Analysis of keywords, it was seen that in the early phase (2000-2015), when access to technology and the cost of data were relatively high, the concept of digital leadership primarily revolved around modifying the behavior of leaders. In the middle phase (2016-2019) since there was easy access to technonolgy and reduction in the cost of data, DL shifted its focus to developing a digital mindset, formulating digital strategies, fostering a learning culture, promoting collaboration, and investing in the professional development of employees to succeed in the digital age. In the current phase (2020-2023), COVID-19 was an accelerator in technology adoption and the easy access to technology and data led to the effective DT of HEI and a integration of a portfolio of new technologies .This has led to the emergence of several key focus areas in DL: digital competence, collaboration, innovation, vision, creativity and a digital mind set.

Context Analysis was done in the context of HEI, Systematic Literature Review, Service sector and other organisations, Some of the key parameters identified in the HEI context were open and, collaborative climate, integration of a portfolio of technologies, transformation of workplaces, digital technology,sustainable changes, digital learning culture, tech based professional development and strategic mind-set.

The Seven Identified Critical Parameters of DL are as Listed Below

Integration of a Portfolio of new Technologies: DL in Education is defined, "As the integration of a portfolio of new technologies, like the Internet of Things (IoT), artificial intelligence ,social media, machine learning, e-platforms (webinars), ERP and also leveraging latest technologies"(Antonopoulou et al. 2020).

Digital Mind-set : "DL consist of a dynamic composition of digital skills, mind-sets and

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behaviours that lead to establishing direction, influencing others, and initiating sustainable changes through the strategic and advanced use of the latest technology" (Sheninger, 2014). "With a DT mind set, one is able to recognize and take advantage of opportunities to make informed timely leadership decisions, to adjust strategy when risks are detected, thus making important contributions leading to the optimal development of the organization" (Nyugen et al.,2021).

Open and Collaborative Climate: According to Al Jami 2022, "DL creates an open and collaborative climate in which mistakes are opportunities for growth and conflicts can be managed". "Digital leaders use social media platforms to engage with all stakeholders like customers, employees and partners thereby acting as a collaborator with other institutions" (Katanic, 2021).

Visionary, Anticipate and Initiate Sustainable Changes: According to McCarthy (2021), "A vision should be holistic, sustainable, convincing , inspiring and primarily consist of clearly formulated digital vision and approach when it comes to DT by setting clear objectives regarding the desired DT processes". According to Sheninger (2014), "The abilities and characteristics required for digital leadership are generally change-related and refer to manager's and organization's transition and digital preparedness to initiate sustainable change through access to information and to anticipate changes necessary for success of the organisation".

Maintaining a Digital Learning Culture: According to Zhong (2017), "DL in education involves accepting, adopting and applying new technologies in order to transform institutions into digital-age places of learning". According to Buchholz et al., (2020), "educators need to introduce and maintain technology as a major learning resource ,providing opportunities for learning, training, and fostering a growth mindset ".

Digital Competence: "The abilities required to comprehend digital technologies, to handle them effortlessly, and to employ them sensibly" (Hensellek, 2020). Digital competence involves the process of acquiring digital skills and implementing the resulting measures within the framework of the DT.

Creativity & Innovation: Creativity is defined "As the act of turning new and imaginative ideas into reality" (Naiman and Naiman, 2017). "In this new digital age, creativity and innovation play an important role in creating value for businesses" (Sousa and Rocha, 2019). Tanniru (2018) has explained that "one can create a culture of continuous innovation by leveraging the latest technologies within the business architecture

Analysis of Cases

Information-rich cases were selected from 4 HEI's based in Tamil-Nadu and Karnataka. The case selection was done in such a way so as to represent a heterogeneous group from different academic disciplines, like arts /science/management institutions/ law /engineering to have a wider perspective on understanding the concept of DL in an HEI.The first HEI (Case 1) was an Engineering institution recognised as an institute of eminence by the Government of India ,the second HEI (Case 2) is ranked as 80th best institute in India and is a B-school ,the third HEI (Case3) is the first full-fledged sui generis Law University in India,located in Tamil – Nadu and the fourth HEI,is a institution of repute for women and it is rated as the 37th best institution in India running arts,science and global business management courses. These four HEI cases were analysed on the selected crititcal parameters of digital leadership as mentioned in the previous section.

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Table 1
CROSS- CASE ANALYSIS

DL Parameters	Significance			
	Case 1	**Case 2**	**Case 3**	**Case 4**
Integration of a Portfolio of new technologies (AI, ML, Mobile, Cloud, ERP and Social Media).	Very High	High	Moderate	High
Digital Mind-set	Very high	High	High	Very high
Open and Collaborative Climate	High	High	High	High
Visionary, Initiate and Anticipate Sustainable Changes	High	High	Moderate	High
Maintaining a Digital Learning culture	Very High	High	High	Very High
Digital Competence	Very High	High	Moderate	High
Creativity & Innovation	Very High	High	High	Moderate
Effectiveness of DT	Very High	High	Moderate	High

(Scale: 1-5 : 1-Very low , 2-Low ,3 –Moderate, 4- High , 5-Very high).

Based on cross-case analysis, in the above table it is seen that case no.1 was rated very high on all the critical parameters on DL hence it is inferred that the Effectiveness of DT is also very high ,case no.2 was also rated high on all the critical parameters on DL hence it is inferred that the effectiveness of DT is high, case no.3 was rated moderate-high on all the critical parameters on DL hence it is inferred that the effectiveness of DT is also moderate and case.No-4, rated mostly high –very high on most of the critical parameters of DL but was rated moderate on the crititcal parameter of creativity and innovation and hence it is inferred that the effectiveness of DT is also high.

Propositions

On the basis of the Meta-Analysis of definitions, analysis of keywords and validation from 4 cases as well as cross case analysis (Table 1), the following seven propositions are as listed below.

Proposition 1: Effective digital leadership involves integrating a portfolio of new technologies in driving the digital transformation process.

"DL in education refers to the integration of a portfolio of new technologies like the Internet of Things (IoT), Big Data, and Machine Learning, e-platforms (webinars) social media and Artificial Intelligence" (Antonopoulou,2020) . DL involves the integration of a portfolio of new technologies , where they have either designed their own integrated ERP and LMS (case 1) or have involved a ERP solution provider to design their integrated ERP (case 2&4) and the use of AI, ML, cloud and social media, reliance on modern technology platform (Al Ajmi, 2022), leveraging latest technologies (Tanniru,2018) which lead to effective digital transformation especially in case 1,2 and 4.

As per evidence from case1,case 2 and case 4, it was seen that these institutions used an integrated ERP to ensure all processes are accurate and efficient to integrate the day-to-day operations for effective digital transformation, which includes students admission management, attendance management, curriculum & timetable management, learning management system, online papers and assignment submission, ,placement management, fee management, exam management, hostel management system, campus management system ,reports management, user management ,certificate generation and a library management which is RFID enabled .The Learning Management System (LMS) includes interactive classroom systems like Google suite –

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Google classrooms, they have smart classrooms with bridge technology, remote teaching and learning and online classes delivery. The LMS is hosted on the website of the University and includes critical content, video lectures, articles and references. Cloud computing technology is used for resource sharing, wider access and ERP. Mobile apps and social media are used to launch the HEI's official pages .You tube, Facebook and Instagram, Linked in and instagram is used for publicizing various events happening on campus, news and alumni details. Study materials like videos and podcasts are uploaded on YouTube and Spotify etc. AI & ML are mostly used data science and computer sciences departments. AI is used for AI proctored exams, especially in the COVID times, AI & ML are used to analyse and judge student performance at exams (moderate the questions) ,mobile apps and social media like Facebook groups were created for the respective engineering streams (evidence from case 1).

As per evidence from Case 3: The university website hosts the LMS which has critical content,video lectures, articles and references. The mode of instruction was online during COVID times and they used power point presentations , zoom, WebEx, google meet, teams, swayam portal, videoconferencing was used to transmit lectures to other regions and library access to all journals/resources was online, examination and assessments were also conducted online. The University has no integrated ERP, hence the Integration of a Portfolio of new technologies (AI, ML, mobile, Cloud, ERP, Social media) was moderate and though the university was running efficiently during COVID times, the comparative effectiveness of Digital transformation was less.

Proposition 2: A Leader who plays a significant role in Enabling DT of an Institution should possess a Digital Mind-set.

With a digital transformation mind set, one is able to recognize and take advantage of opportunities to make informed, timely leadership decisions to adjust strategy when risks are detected, making an important contribution to the optimal development of the organization" (Nyugen et al., 2021). "DL consist of a dynamic composition of digital skills, mind-sets and behaviours that lead to establishing direction, influencing others, and initiating sustainable changes through the strategic and advanced use of the latest technology" (Sheninger, 2014).

As per evidence from Case 1 and case 4, it was observed that the leaders possessed an excellent digital mindset which enabled the effective DT of the institutions.

Evidence from case no.1**:** DT is existing since inception, the process and extent of digitalization is decided by a committee consisting of the ProVC, President and management who decides by benchmarking practices followed at IIT and the top 100 institutes in the world. It's a completely digital campus from online learning to assignments and exams (AI proctored), RFID tags in the library with checkout kiosks to issue books . This institution adapted to DT very fast during COVID times, adopted technology to avoid disruption in process and workflow with minimum human interaction .During COVID times they had remote laboratories where query's where handled by laboratory instructors and then transmitted to students by cloud and mobile apps, so that students don't miss out on laboratory's or practical's .The leaders are all digitally savy and have both the qualifications as well as experience in the processs of digital transformation .

As per evidence from Case 4: In this HEI Digital Transformation (DT) started in the year 2000, two faculty members who were responsible for the DT process were the principal and one of the vice principal's both had good experience and knowledge about DT .The Computer department started the use of computer assisted exams in the year 2000. One of the pioneering colleges to use software to conduct tests/exams in maths and zoology departments. MathCAD

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software was used in the year 2000, use of Photoshop, Dreamweaver to make 3D movies, used in classroom instructions, use of Research methodology Tools, Math Lab +LATEX. The Library is automated and uses e-BLIS software, RFID library management system and hosts DSpace, a digital repository. It has Self-Kiosk machine for check-in and checkout. This institution shares the vision of Digital India, by implementing a digital transformation platform for their alumni/current students for online genuineness verification. By using VFS Docswallet to provide online service for genuineness verification and Digital WES for sharing documents and transcript request which is a seamless and paperless system. In order to ensure operational efficiency in the year 2022, the institute opted for a comprehensive campus management solution with Camu (digital transformation enabler) which helped in implementing a unified Student Information System (SIS), (LMS), and Controller of Examination (CoE).

As per Case No. 2**:** The principal of this HEI, has a good digital mind-set (experience in DT and setting up ERP in other institutes) and was instrumental in setting up the integrated ERP and institutional LMS. Assignment management and online quizzes are done through LMS google suite, zoom and microsoft teams are used, study materials like videos and podcasts are uploaded on YouTube and spotify. It has a robust ICT enabled system that caters to the diverse teaching learning needs of the staff and students.Student management software called SAC student connect and faculty management software called SAC faculty connect and HR connect are official android apps developed by this institution .This institution has a SAC Digital Campus and the use of digital databases and plagiarism tools are very prevalent . Different types of software like Adobe Premier Pro, Filmora and Black Magic Resolve for video editing practical, Chemsketch for chemistry practical, Adobe Audition, Audacity and CuBase for sound editing, SPSS for social science research, Zotero for annotation management, Virtual lab facility for sciences, Library automation usuing Koha which is a user friendly integrated library management system along with RFID technology enabled tools were used at this institute .

As per Case3: The Vice–Chancellor and his team were responsible for Digital Transformation at this institution.The institution has good IT facilities,Wi-Fi enabled campuses and smart classrooms with projectors. The ICT facilities are used in the university library (Integrated Library Management System), RFID Card based services to students,administrative office and the office of the controller of examinations. It has a separate digital library which contains software and equipment's for the differently abled students like intelligent self-service kiosks, instant text reading machine, jaws talking software and computer laboratory . For effective administration, the University also has an Internal Quality Assurance Cell. The university has a number of legal databases, and a total of 39 digital resources for research purposes and publishing resources are also available at this institution.

Proposition 3: Maintaining an Open and Collaborative Climate where Digital Leaders of Institutions engage with all Stakeholders is one of the key Parameters of Effective Digital Leadership.

Digital leadership requires creating an open and collaborative climate (Al Ajmi, 2021) . DL includes qualities of being a collaborator with other institutions (Katanic, 2021). Social media platforms are used by digital leaders to engage with all stakeholders like staff members, customers and partners. "Apart from strengthening internships, collaborative projects, research, talks by industry experts on campus, the institutions also explore fund raising from industry and technology partnerships to enable teaching and learning innovations" (Menon and Suresh , 2020). As per evidence from case studies,it was seen that all 4 HEI have a good interaction with the industry and have several MoUs with corporate sector , research institutions to ensure that

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the students get exposed to multiple learning experiences with the industry and academic partners. The institutions have MOUs with universities both India and abroad and are engaged in active collaboration under the study-abroad program and the Semester Abroad Program (SAP). The HEI's in order to develop a good rapport with other institutions, Research Bodies Industries and Civil Societies, collaborate with them by organising many programmes. Representatives of the industry are a part of the administrative bodies such as governing body and academic council of these institutions. Faculty Development Program with foreign universities and the number of faculty exchange programs have increased in the last couple of years. These institutions provide a clear consultancy framework for all stakeholders by promoting high quality consultancy activities with the industry, community in order to enhance faculty experience, update the existing curriculum and facilitate new research opportunities. Community Service Consultancy provides advice or service to the local community. School of Electronics Engineering (SENSE) has embarked on various technology fronts cooperating with various industry players and signed MoU's. MoU's are based on mutual cooperation or allied areas of interest in the form of technology supports internships, technical events, guest lectures and university educational programmes. The Industrial Forum in SENSE organizes weekly seminar/webinar on the thrust areas of the latest technologies (evidence from case1).

This HEI has an International Centre for Research and International Programmes to foster the spirit of enquiry and excellence of international output across disciplines, global competiveness and collaborative learning as an empowering tool in higher education. They have over 100 strategic partnerships with high quality institutions, these partnerships aim at fostering collaborative academic research, deliver innovative programmes, provide exchange of information, sustainable academic cooperation ,progression, knowledge and mobility of students and faculty (evidence from case 4).

As per evidence from Case 3: This University collaborates with top International and Indian Universities to create an ecosystem for International students. The institution encourages faculty memebers to bring in funded projects which results in bringing out critical literature, which adds to the larger body of knowledge. Many intervention programmes are organised by the university for differently-abled and senior citizens, children, youth and women. In order to reach out to community and the people seeking legal remedies, permanent free legal aid clinics have been set up in the campuses, and camps are also organized in the outskirts of the cities where the university campuses are located.

Proposition 4: Effective Digital Leadership involves Creating and Maintaining a Digital Learning Culture. DL in education involves adopting, accepting and applying new technologies in order to transform institutions into digital-age places of learning" (Zhon, 2017). DL is a combination of digital learning culture and digital competence (Mihardjo, 2019). Buchholz et al., (2020), stated that "educators need to introduce and maintain technology as a major learning resource, providing opportunities for learning, training, and fostering a growth mindset". As per evidence from most cases it was seen that these institutions have an good - excellent digital learning culture from providing physical and digital infrastructure for conducting online and hybrid courses, robust ICT enabled Wi-Fi enabled separate classrooms and conference halls halls with high-end audio-visual equipment and video conferencing, sound systems, network apparatus and high-end LED screens and lecture record room producing web-based learning modules ,offering online education to aspiring learners and optimizing online collaborations with academic institutions and the industry across the globe.

The students subscribe to course era and NPTEL, all assignments are digital and all

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learning material is also digitally enabled as students prefer it to books. These HEI's have introduced LMS into the teaching-learning process and Moodle is the LMS that provides a e-learning platform through which courses are offered for students. Assignment management and online quizzes are through LMS Google suite and the institution has a long-term premium business account with zoom and Microsoft teams. Study materials like videos and podcasts are uploaded on YouTube and Spotify. Digital databases and plagiarism detection tool are available for use. More than 100 webinars, online workshops and 61 free online certificate courses were offered by this institution for more than 4,000 students and the general public during the Covid-19 pandemic. Student management software called student connect, can be used by the students. SAC repository has digitized many old and rare books available in the library dating back to the year 1618. The HEI has a RFID enabled library management system and virtual lab facility for the science courses (evidence from case 2).

As per Case 3: This university has a open distance learning system and its website hosts a separate LMS which includes video lectures, articles and references. The university has subscribed to a number of legal databases and also has 39 digital resources which include research and publishing resources. The university library has an Integrated Library Management System which provides RFID card based services to students and scholars. It has a separate digital library for the differently abled students and scholars which contains various equipment's and software like intelligent self-service kiosks, instant text reading machine and jaws talking software.

Proposition 5: An Effective Digital leader not only needs to be digital competent but also develop digital competence among all the stakeholders. An effective digital leader needs to possess digital competence,which is defined by Hensellek (2020),"As the abilities required to comprehend digital technologies, to handle them effortlessly, and to employ them sensibly". "Competence that leaders need to develop in today's digital age" (Shiuma, 2021). "Possessing a digital mind set and skill set" (El Sawy et al., 2016).

By analysis of 4 HEI under consideration it is seen that leaders of 3 of the HEI are reasonably digitally competent and makes sufficient effort to develop digital competence in all stakeholders. In case no.3, the level of digital competence of both staff and leaders are moderate. As per evidence from case1, case2 and case4: it was seen that the digital competence of students and faculty members were excellent (case1) and high (case 2 and 4). Faculty and leaders are also very qualified and digitally competent otherwise they are not selected (recruitment policies). The Computer science departments have in house IT team, who trained all faculties on the nuances of conducting online classes during COVID times. Online training programmes to enhance faculty development (digital skills), especially during COVID times and remote labs were conducted by lab instructors during COVID times which enhanced their digital competence. Faculty orientation programs are conducted for 1.5 months to improve faculty standards in pedagogy /learning and technical skills (Evidence from case1) .These HEI's encourage and foster teacher excellence by organising a number of capacity building programmes and FDP's to improve technology-based teaching and evaluation methods and train faculty in new and advanced versions of software.

Provides certificates in Teaching Excellence level 1 and level 2, which consists of a 30-hour course offered in the blended mode aiming at capacity building of staff (evidence from case4). All these HEI's have an Internal Quality Assurance Cell (IQAC) which is a core quality enhancing system, sustaining and internalising the quality culture within the institution, facilitating a learner-centric environment so that the appropriate knowledge and technology can

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be used in the teaching process. The level of digital competence of both staff and leader was moderate (evidence from Case3).

Proposition 6: An effective digital leader will envision the future, initiate and anticipate sustainable changes, ensuring digital readiness for the successful performance of a Higher Education Institution.

"Leaders must have a primarily digital vision and approach when it comes to digital transformation" (McCarthy, 2021). DL is defined in this study as "a leadership style that aims to implement and to enforce the digital transformation of the organization and to create a culture of sustainable change in the organization, in order to lead the organization in a wholly digital environment" Buyukbese et al ., (2022). " The abilities and characteristics required for digital leadership are generally change-related and refer to manager's and organization's transition and digital preparedness, initiating sustainable change through digital preparedness, access to information and to anticipating changes necessary for success" (Sheninger, 2014).

By evidence from the 4 HEI's it was seen that they introduced a Choice Based Credit System (CBCS) credit system much before University Grants Commision (UGC) and made it mandatory. These instituons easily adapted to online classes during COVID and introduced trending new courses, pedagogy, collaborative, hybrid mode, flipped classrooms, interdisciplinary courses and MOU with international and national universities. This HEI conducts various events like sharkthon (product innovation), Ideathon and Hackathon. First Indian institute to introduce home grown ERP (keep modifying it as per change in regulations) (case1).The principal was the key resource person for digital transformation and introduced new technology which enabled online and hybrid learning, ERP, free online courses (pandemic) and also developed a system to map learning outcomes (evidence from case 2) .

As per evidence from Case3: The university has a flexible credit system, much before UGC made it mandatory .Use of Learning AV aids. The leader was a visionary but it was seen that initiating sustainable changes through digital preparedness was at a moderate level.

Proposition 7: Digital leadership is most effective when it fosters a Culture of Constant Innovation using Creativity and adopting Cutting-edge Technologies in the Digital Transformation Process. Creativity is defined "As the act of turning new and imaginative ideas into reality" (Naiman and Naiman, 2017). "In this new digital age, creativity and innovation play an important role in creating value for businesses". (Sousa and Rocha, 2019). "One can create a culture of continuous innovation by leveraging latest technologies within the business architecture" (Tanniru, 2018). As per evidence from Case 1and Case 2 it was seen that these HEI's provide a eco- system for innovations which includes incubation centers which provides funding,institute infrastructure, research assistance consultancy, mentorship support for students ,faculty and early stage entrepreneurs enabling them to convert their start up ideas into start-ups. The Research and Innovation Cell in association with Entrepreneurship and Consultancy Cell organised Innovation Day - "Impetus 2021" on 6th July 2021 in the online mode. Students submit proposals for incubation and the projects are offered seed money to build a prototype for incubation .Seed money is also given to faculty and students for research. Student management software called SAC student connect, faculty management software called SAC faculty connect and HR connect are official android apps developed by this institution. This HEI also provides a vibrant eco system for innovations that include a patent in wet waste management by the zoology department, creating apps for the online certificate courses conducted by the college and attendance management by the computer science department. The Entrepreneurship and Consultancy Cell launched "Jaala Santhe" on 15th July 2020, which brought together hundreds

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of rural entrepreneurs and farmers in a What's App group which facilitated the buying and selling of these farmer's products. They established a counselling helpline during Covid-19. evidence from case 2. An IoT working committee was set up in 2016, which promotes the development of IoT technologies and imparts skills to the student community with the support of IoT Industries. This committee has conducted 7 Makeathon in the area of IoT fully sponsored by Industries. Outside Start-ups can also have their centres in this institution, who train the students. The institution also conducts various events like sharkthon (product innovation), Ideathon (ideas), Hackathon and metavererse (evidence from case1). This university collaborates with corporates, agencies, and other HEI's to impart legal knowledge and ensure placement of their students. It encourages faculty members to bring in funded projects, resulting in bringing out critical literature, which adds to the larger body of knowledge. Many intervention programmes are organised by the university for children, differently-abled, senior citizens, women and youth, and it also offers free legal assistance to needy people (evidence from Case 3). As per evidence from Case 4: It was seen that the Innovation level is moderate.

IMPLICATIONS

"Research in the field of DL is likely to continue as it has not entered it's maturity stage yet" (Ertz and Leblanc-Proulx, 2018); Soriano et al., (2018); Zeike et al., (2019); Tigre et al., 2022)."Despite the high relevance of digital leadership (DL) in practitioner outlets, its definition and determinants remain fuzzy" (Eberl and Drews, 2021). To fill this lacuna, we analysed 52 research articles to explore the concept of DL, shortlisted 30 definitions and analysed it based on keywords. We have attempted to provide a comprehensive definition of DL which is based on the results of the literature review and corroborated by evidence from case studies of 4 Higher Educational Institutions. "DL is a multifaceted concept that encompasses the Integration of a Portfolio of new Technologies such as AI, ML, mobile, cloud, ERP, and social media, having a digital mindset to effectively implement and drive the digital transformation of an organization. A digital leader needs to be a Visionary and foster a Culture of Sustainable Change by promoting digital preparedness for the successful performance of an HEI. Additionally, an Effective Digital leader needs to be Digital Competent and actively endeavours to democratize digital competence among all stakeholders; foster a culture of constant Innovation through the utilization of creativity and the adoption of cutting-edge technologies in the DT process of a HEI. DL also encompasses the proactive initiation and anticipation of technological advancements, Maintaining an Open and Collaborative Climate where digital leaders within institutions actively engage with all stakeholders and create and maintain a Digital Learning Culture within the institution by promoting an environment that embraces continuous learning and growth in the digital realm".

CONCLUSION

Additional research can be conducted to empirically validate these propositions using extensive datasets. Regarding the practical implications of the study, one could consider incorporating the seven critical parameters of digital leadership into the job descriptions for leadership positions within an institution or organization. By including these parameters, organizations can emphasize the importance of digital leadership skills when hiring individuals for leadership roles.

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REFERENCES

Abhinav & Shraddha. Leadership 4.0: Harnessing Technology and Humanity for Effective Management. *Journal of Informatics Education and Research. 4*(1).

AlAjmi, M.K. (2022). The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait. *International Journal of Educational Research*, *112*, 101928.

Antonopoulou, H., Halkiopoulos, C., Barlou, O., & Beligiannis, G.N. (2020). Leadership types and digital leadership in higher education: Behavioural data analysis from University of Patras in Greece. *International Journal of Learning, Teaching and Educational Research*, *19*(4), 110-129.

Avolio, B.J., Sosik, J.J., Kahai, S.S., & Baker, B. (2014). E-leadership: Re-examining transformations in leadership source and transmission. *The Leadership Quarterly*, *25*(1), 105-131.

Avolio, Kahai and Dodge (2000). E-leadership: Implications for Theory, Research, and Practice. *The Leadership Quarterly*, *11*(4), 615–668.

Chanias, S. (2017). Mastering digital transformation: the path of a financial services provider towards a digital transformation strategy.

Creswell, J.W., & Poth, C.N. (2016). Qualitative inquiry and research design: Choosing among five approaches. Sage publications.

Creswell, J.W. (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (4th ed.). Boston, MA: Pearson.

Eberl, J.K., & Drews, P. (2021). Digital Leadership–Mountain or molehill? A literature review. Innovation through information systems: Volume III: A collection of latest research on management issues, 223-237.

El Sawy, O. A., Kræmmergaard, P., Amsinck, H., & Vinther, A.L. (2020). How LEGO built the foundations and enterprise capabilities for digital leadership. In Strategic information management (pp. 174-201). Routledge.

Fisk, P. (2002). The making of a digital leader. *Business Strategy Review*, *13*(1), 43-50.

Katanic, S., & Council, F.A. (2021). Effective digital leadership is key to digital transformation. Forbes, July, 5-9

McCarthy, P., Sammon, D., & Alhassan, I. (2022). Digital transformation leadership characteristics: A literature analysis. *Journal of Decision Systems*, *32*(1), 79-109.

Mihardjo, Sasmoko, Alamsjah & Djap (2019). Digital Leadership Role in Developing Business Model Innovation and Customer Experience Orientation in Industry 4.0, *Management Science Letters. 9*(11), 749–1762.

Msila, V. (2022).Higher Education Leadership in a Time of Digital Technologies: A South African Case Study. *International Journal of Information and Education Technology. 12*. 1110-1117.

Naiman, L., & Naiman, L. (2017). What is creativity? (And why is it a crucial factor for business success?).

Schiuma, G., Schettini, E., Santarsiero, F., & Carlucci, D. (2022). The transformative leadership compass: six competencies for digital transformation entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, *28*(5), 1273-1291.

Sheninger, E. (2014). Digital Leadership: Changing Paradigms for Changing Times. Thousand Oaks, CA: Corwin Press.

Sousa and Rocha (2018). Skills for Disruptive Digital Business. *Journal of Business Research 94*, 257–263.

Szillat, Patrick and Breuer (2019). Leadership and Digitalization: Contemporary Approaches towards Leading in the Modern day Workplace, Research Gate.

Tanniru, M.R. (2018). Digital Leadership. In, Maria Pomffyova (Ed.), Management of Information Systems. IntechOpen. 93-109.

Tigre, F.B., Curado, C., & Henriques, P. L. (2023). Digital leadership: A bibliometric analysis. *Journal of leadership & organizational studies*, *30*(1), 40-70.

Van Wart, M., Roman, A., Wang, X., & Liu, C. (2017). Integrating ICT adoption issues into (e-) leadership theory. *Telematics and Informatics*, *34*(5), 527-537.

Zhong, L. (2017). Indicators of Digital Leadership in the Context of K-12 Education. *Journal of Educational Technology Development and Exchange, 10*(1), 27-40.

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