Exploring Professional Rejuvenation for Land Surveying Theory and Praxis from a Critical Management Perspective

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Key words: Profession, Land surveying, Global challenges, Geoinformatics, Critical management studies, Post-structuralism, Geospatial science, Pedagogy.

SUMMARY

Land surveying (LS) and its allies, including geoinformatics and geospatial science, provide important solutions to global problems. However, from a professional perspective, uncertainties regarding how the current situation of LS tips its future relevance stimulates vital discussions, which critical management studies (CMS) can explore. This study is part of wider ongoing research that contributes to the vast body of knowledge, which aims at repositioning the LS profession against the odds of ageing and a lack of future in relation to the new frontiers of global challenges and their solutions. The study is conceptual and is based on a post-structural analysis of the underlying principles, hierarchies, historical and pedagogical parameters of the LS profession. Preliminary findings are subject to a lack of relevant discursive elements on LS and its allies. Evidence of ageing for the LS profession is circumstantial, but its fundamental principles are vital for sustaining the modern geospatial industry. A relevant faculty with sympathies for LS, while integrating its principles and pedagogy into the curriculum of instruction of geoinformatics and geospatial science, could buy the LS profession a long line of succession and relevance within the global cataloguing and manifest of environmental and socioeconomic challenges and solutions.

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1. INTRODUCTION

Land surveying (LS) as definitively understood, is "*the practice of determining the relative position of natural and man-made features on or under the earth's surface, the presentation of this information either graphically as plans or numerically as tables, and the setting out of measurements on the earth's surface. It usually involves measurement, calculations, the production of plans, and the determination of specific locations*" (Minchin, 2003, pg. 1). Based on this conceptualisation, LS is arguably a triumvirate of science, art, and professionalism. There must be a consistency and cohesiveness of systematic realism and theorising to shape the ontology of practice and knowledge construction, but the extent to which scholars can maintain this within LS, given the variations in time and contexts, is still an evolving area of academic inquiry (Cosgrove, 1985; Usery et al., 2018; Ebinne et al., 2022; Golob & Lisec, 2022). As an art, LS leverages the human creative skill and imagination to produce works that convey beauty, value, and aesthetics. Even today, apart from digital cartography and various innovations in geo-visualisation and modelling, there is a clear unexplored horizon and direction for research in LS as an art (Doxtater, 2022; Dueñas, 2022). By being a profession, LS is subject to ethics, service, and continuous learning. However, issues that bring forth queries concerning the appropriateness and sustainability of the founding laws, academic courses, and distinctive instructions that determine land surveyors as land specialists are: (1) ample evidence of critical issues existing in land management and environmental sustainability (Van der Molen, 2015; Van Der Molen & Mitchell, 2016), (2) land ownership dilemmas in various places (Burger, 2006; Lauterbach & Timo de Vries, 2022; van Oosterom et al., 2022), and (3) multiple hazards within the context of global climate change that affect people, economic assets, and the environment (Oliver & Morecroft, 2014; Tian et al., 2019; Bhunia & Shit, 2022; Mishra et al. 2022). While all these are land-related, they cast an aggregate of aspersions that instigate interrogations of all the positive thinking about the integrity of the past, present and future reality of the LS and the impacts research has made over the years. Hence, the critical question which should create a new framework for research is: are we in any way willing to challenge the epistemological hegemonies—rejecting or accepting the mainstream ideologies that lie at the foundation of LS and its allies, including geoinformatics and geospatial science?

This line of debate is crucial in charting the future direction of LS, especially now that global challenges are morphing into newer frontiers and characteristics. There has been secondary data and some flurry of primary episteme postulating that the LS profession is ageing (for example (Jeffress & Meyer, 2006; Jeffress & Barnes, 2010; Dumay & Rooney, 2011; Coutts & Strack, 2019; Admincivil, 2022), but there is still little research on those claims. Of course, there could be some perceptions—both subjective and unbiased—regarding the present performances of land surveyors in their field, and in multidisciplinary engagements, but the evidence, as of now,

is still mostly circumstantial. We need more research in this line of discourse. That these issues are coming up when one would expect the LS profession and land surveyors to stay on top of events and be more proactive in leading other professionals in the war against global challenges makes it an urgent research goal. So, the question: "*is land surveying really ageing*?", still needs a variety of perspectives and rational thinking. With this question comes the peak of concerns about the future relevance of LS in view of the winding global challenges. So, this study is a cognitive attempt to address these issues. To put these issues into more logical premises and to create a forum for academic debate, the present research focuses on two key questions: (1) What is the state of LS in terms of the robustness of its workforce in delivering its mission? (2) Is the present LS theory and practice suitable for meeting the new frontiers of global challenges? This is conceivably the first study of its kind that takes such an eccentric approach to explore the theory, practice and the professionalism of the LS, and this is what we claim as this study's novelty. We hope that the findings from this discussion will inform policies, curriculum development and new forms of trainings and instrumentation for land surveyors.

2. STDY DESIGN, METHOD AND DATA

This study is conceptual in its design. The method adopted draws mainly from the critical management studies (CMS) to explore and interrogate these critically binary LS issues. CMS defines a group of theoretically bound critiques grounded on critical theories and intellectual traditions that challenge the legitimacy of neoliberalism, imperialism and mainstream ideologies underpinning organisations and social structures (Alvesson & Willmott, 1992). In so doing CMS reveals some 'hidden' truth and creates a new reality in terms of alternative forms theorising and sustaining an existing social structure (Watson, 2011) which exactly summarises the core aim of the present research. Adler et al. (2007) posit that the main motivation of CMS is to explore and address the wider systemic—involving the social, environmental, and economic—consequences of organisational and management failures. So, in the case of LS, a rational view of the current state of the profession can provide a valid framework to measure its importance against the new scope of global challenges. CMS may have had a more direct association with management and organisational studies because of its historicity, and the unique crop of scholars involved in its early development, but its tools and mode of scholarly applications get the attention of diverse disciplines and research themes, in which hierarchies, domination, binarism, mainstream ideologies, and conventional practices are the prevailing features of structures and superstructures (Wickert & Schaefer, 2015). These structures apparently align with the dominant ethics and frame conceptualisation of moral obligations and professionalism (Fournier & Grey, 2000; Adler et al., 2007).

It is almost impossible to envisage decoupling the foregoing identities and characteristics from LS, which has evolved through a tradition of feudal intellectuality with footprints of hierarchies and mainstream ideologies of the originating 'ancient worlds' entrenched throughout history (Price, 1955). This sheds a brighter light on why CMS is being used to fulfill the main aim of the present inquiry. Having an implicit interconnectivity with a range of industries and disciplines related to land: for examples planning, engineering, agriculture, architecture, urbanism, data science, and risk science, LS exemplifies a social structure, and an organisation

of extensive historical tradition, theories, principles, and practice. Another evidence to support the view that LS is a social structure can be drawn from Emigh et al. (2019) in their article which explores the influence of societies, states, and widespread social knowledge on the success of land surveys. So, with the developing proposition of ageing of LS, research must explore the original constituents of LS, provide critical views about any limitations in its historical principles and undertones, and through these explorations produce the truth '*a discursive truth*' and a new reality toward a more rational way forward. This is much like the biopsychosocial approach to nursing practice, especially when it reinforces the efficacy of palliative care (Galbadage et al., 2020).

CMS scholars use several tools and theories which have proven influence and reputations in deconstructing neoliberal and mainstream ideologies, but also in creating new realities and alternative forms of development. Of these tools (which this study does not intend to mention or discuss—readers can refer to Alvesson & Deetz, 1999; Hassard et al., 2001; Klikauer, 2015), post-structuralism fits sufficiently in fulfilling the expectation of this study. Post-structuralism analyses and tests the already established structures and hierarchies of knowledge, and Michel Foucault (1926-1984), with his multiple research pieces on the relationship between power and knowledge, provides a practical example of how this study can use post-structural analysis. In Foucault's model, the post-structuralist perceives nothing external to the words that create them. The entirety of his reality is subject to rendering and analyses of textual discourse. So, discourses are the building block of everything encapsulated in a social structure. With this epistemic view, the entirety of LS—mathematical, physical sciences, geography, statistics, languages, etc.—becomes the product of discourses and intertextuality. In the present research, our critical analyses and dialectical exercise based on the post-structural paradigm aim to explore everything that existed from the historical days of LS through the lenses of textual and discursive renderings and engage critically with them to extrapolate something new. In using the post-structural critical approach, we try to re-imagine LS, or assume that the whole ramifications of LS including the historical framings, the mathematical principles, theories, electromagnetic radiation and principles, legal and ethical instruments together with long-time of practice are mere discourses, and to review them, inquiring their relevance in situ and today (see figure1). We will limit our post-structural analyses to the rudiments and principles of working from whole to part, the principles that govern the operationalisation of LS instruments and the ethics that enable the surveyors' professional practice.

Using this technique, a major challenge that faces the present research is identifying and locating the sources of discourses. Unlike many other social structures, LS lacks discourses. As of now, in designing this study, authors are still seeking realistic ways to solve this problem. At this preliminary stage, the study takes a historical approach and reviews important historical coordinates of the ancient practice of LS. We have chosen the *Doomsday book* and the theodolite because of the key roles they have played and are still playing in the development of LS. This is not assuming that other tools and remote features of antiquity are not crucial, but it is arguable that the *Doomsday book* and the theodolite are relevant in this discourse for two exclusive reasons. First, when we conceive LS as a literal profession of land and all land matters, the *Doomsday book* signposts us to one of the first records of land and the thoroughness

in spatial data measurements and collection it required. Juxtaposing such properties into the present expectations of the natural and built world would raise a question regarding how to re-imagine such expertise in the present time and then raise questions bordering on the relevance of land surveyors today. Second, the theodolite is both literally and scientifically a model in the theory and praxis of LS. It is an exemplary representation of the total station and subsequent generations of angle and distance measuring tools in terms of accuracy. With such a feature, and its importance in land definitions, one understands the importance of LS and its future relevance.

We also reviewed the principle of working from whole to part, as a fundamental principle, in the pedagogy, and practice of land surveying. We contrasted LS theory and practice with the new frontiers of global challenges. There are issues arising from the structural analyses that we discussed.

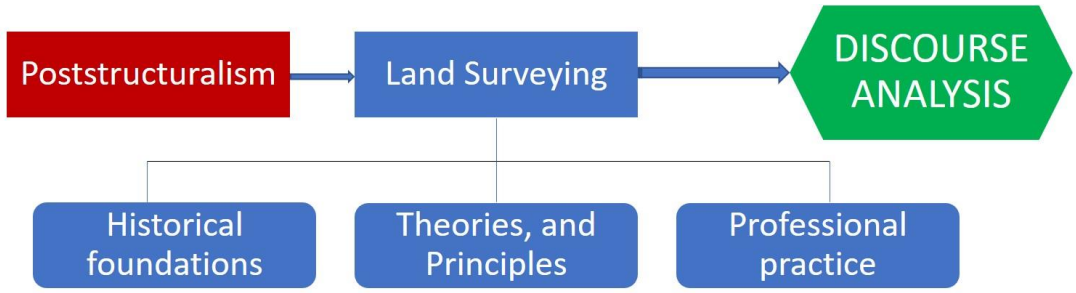

Figure 1: *A frameork for the present research in which the major constritutents of land surveying are perceived as discourses and reviewed postdtructurally.*

3. A REVIEW OF HISTORICAL DEVELOPMENT OF LAND SURVEYING

LS has existed for a very long time and is being mataphorised to be the second oldest profession in the world, only after 'prostitution' (Lerner, 1986; Gilfoyle, 1999). Notwithstanding, written evidence of LS's historicity is fragmented and focuses on individual geographies and practices. Price (1995) examines the origin of engineering surveying from existing artifacts, textual description of instruments and maps that created from surveying operations. De Graeve and Smith (2010) may have presented one of the most comprehensive accounts of the LS's historical sketch. Notwithstanding, their synopsis was heavily influenced by the works of the *Fédération Internationale des Géomètres* (FIG), which has existed for more than a century and a quarter ago since its establishment. This undermines an epistemological stance towards a logical perspective of LS's historicity. A flurry of documented records has shown that the origin of LS dates to ancient times in Egypt, Babylon, Greece, and Rome. Despite these records demonstrating how early human beings and those who followed them used a variety of indigenous maneuvers to identify the boundaries, distances, slopes and characteristics topographies of land for improvement and precise cadastral purposes, the inconsistencies of records of ancient land-related activities means that constructing a practical cycle of developmental stages and advances in LS would be difficult.

An exploration of LS history can yield invaluable insight into how people correctly delineated cities, areas, and regions, and established land ownership through boundary documentation. The *Domesday Book*, being considered in this study, is a detailed record of what history and historians refer to as "the Great Survey" of much of England and parts of Wales, completed in 1086 at the behest of King William the Conqueror. Assuming this historical element represents a pivotal juncture in the evolutionary accounts of LS, then research has neglected to examine how contemporary LS practices take on the original objectives and views of the early surveying techniques. Although an understanding of these features will aid an inquiry into the recent discourse on the aging proposition of the profession, it remains critically unresearched. Lacking legacy discourse in the whole historical sketch, the professional nature of LS in the early days may have been an enigma, as major surveying practices aimed mostly at fostering a co-existence regardless of people's respective interests in land and land-related matters. This underpins LS as a heritage, a legacy operation for survival. The absence of a legacy discourse could be seen as a sign that LS operation splits between legacy operation and core profession. One stimulating question that should encourage critical analysis is the lack of correlation between the point of origin of a legacy operation, which people implemented to source a mutual advantage in land-related matters and that same task becoming a completely professionalised LS. In the views of Coutts & Strack (2019) which express a concern with the question: "*Is there still a (land) surveying profession?*", If we cannot locate this link, clarify the fundamental aspects of LS, and comprehend what it is like in the material world, we might still struggle to address issues relating to its ageing proposition.

With its origins in ancient times, how LS gains much of its epistemic relevance from artefacts, monuments, and features of immense historical significance that can be traced back to 5000 years ago is not common knowledge. The Stonehenge and the *Doomsday book* in England are tangible evidence of LS's extensive involvement in the delineation of the natural and constructed world. The Pyramids in Egypt, with their control marks, are a testament to early LS operations. One of the most stimulating things to learn about the LS is the list of famous people who were also land surveyors in their days. Notable among them are three presidents of the United States of America—George Washington, Thomas Jefferson, and Abraham Lincoln. It is also noteworthy to know that the man whose name gave the enduring moniker to the world's highest peak, Mount Everest, Sir George Everest, was a land surveyor. Captain James Cook, the renowned explorer, and a hero to the Australian navigational industry, who brought the first British ship to the eastern seaboard at Botany Bay, is a distinguished figure in the LS's pantheon of fame. His most significant work as a land surveyor was charting the coasts of Newfoundland and the mouth of the St Lawrence River. This compilation of enormous historical importance contains a variety of names, each one yielding a meaningful concept and depiction of the historical progress of LS. Driving an understanding of the historical context of these personalities, the environmental inspiration that drove them in LS, and the practices they employed and what their practices will leave for the future is an essential element of examining the history, the present, and the future of the field of land surveying.

3.1 Doomsday Book

Historical evidence from the Anglo-Saxon Chronicle revealed that in 1085 the King William I, known as William the Conqueror, sent his subjects to survey every shire in England, to list his holdings and dues owed to him. The outcome of the survey was the *Doomsday Book* (figure 2) which is an important historical coordinate in the global development of LS. King William wanted the book to be viewed as a manuscript of the "Great Survey" that was done in 1086, covering much of England and some areas of Wales. Compelling essays on England and various sections of the *Doomsday Book* are in Maitland (1987). The *Doomsday Book's* documentation of the fiscal rights of the king is an integral part of the post-structural examination of LS in this research because it reveals hierarchy, dominance and mainstream ideologies that founded the practice of LS. Primarily, these were the national land-tax, which was levied on an established assessment, miscellaneous fees, and the revenue from the royal estates. Winchester's royal treasury originally kept the manuscript known by the Latin name *Liber de Wintonia*, meaning "Book of Winchester". Clearly, there has been a tremendous and swift expansion of technology since William's *Domesday Book* endeavour. The role of the surveyor was likewise affected, with many scientific discoveries influencing the surveying industry. Whatever was the early purpose of LS as outlined by various scholars, it is important to realise that it still resonates with the present-day surveying and the increasing needs of both the natural and the built world. Concisely, the objectives and main drives of LS have not changed over the years. Hence, if the purpose of a profession is its main determination, why argue the profession is aging if its purpose is still being pursued?

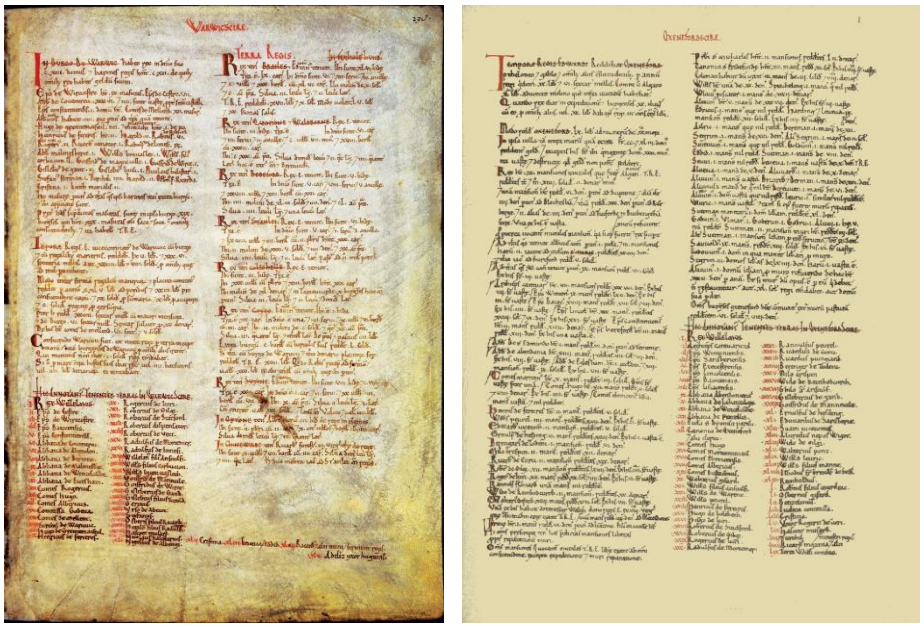

***Figure 2**: A page of the Doomsday Book highlighting the origina texts. Much of the pages are kept in Winchester book. This icture is onlie from Google images of Doomsday Book*

3.2 The theodolite

Theodolite is the most basic LS instrument, initially designed and developed by the English mathematician, Sir Leonard Digges in the 16th century. Historical records claim that the source of the theodolite is unknown, and its name suggesting both Greek and Latin origin. However, the theodolite is clearly an instrument of imperial influence – a background which could provide ample critical discourse, yet there is none that exists. Much of the empirical work on theodolite mainly concerned its operations (e.g. Allan, 1988), developments (Xia 2006), and optimisation (Zarikas et al., 2010). But from a post-structural perspective, we can identify two aspects as we have shown in figure 3– (1) historical tradition and (2) mainstream theories. The theodolite's telescope establishes the historical tradition since from the early days of LS practice, measurements of land using various techniques is fundamental. The level screws, and the bubble may be assumed to underpin the mainstream theories particularly in fundamental mathematics since accuracy, error propagation and management lie at the heart of all LS activities. All other aspects of LS including mapping, setting out, cadastre, etc., which also are part of the historical tradition, are secondary to outcomes of land measurements. When the theodolite is firmly placed on a tripod featuring adjustable legs, it can take exact angular measurements for traversing, triangulation, and trilateration, all of which are subject to any of cadastral and construction engineering purposes. The theodolite's capability to measure horizontal and vertical angles, which serves as a foundation for accurate coordination and spatial description of the environment and man-made world, makes the instrument profoundly vital in the geospatial industry since these influences the aggregation of data and advances the development of big data. The post-structural analyst would argue that if this has been a cornerstone of surveying throughout time and is still pertinent currently, then LS maintains its strength in data gathering.

The theodolite, in its simplest and most current configuration, comprises a telescope that can rotate in a horizontal and vertical plane. The spirit level which enables levelling, and the crosshairs in the telescope which allow the theodolite to make an exact alignment with the object being sighted. These characteristics hint at exactness and accuracy, which are entwined in the concept of working from whole to parts, but also a prominent expectation in the geospatial industry. Reviewing the theodolite and how it has revolutionised the technological aspects of LS is important to draw a logical conclusion on the uncertainties and realities of a future for the LS profession. The new frontiers of global problems require big data, which are quick and easily accessible, and sharable. Contingent upon the main ideologies, objectives, and theories of the theodolite, a variety of inventions – including the various types and complexities of total stations, drones, unmanned aerial vehicles, and space-borne satellites which can collect data using electromagnetic waves beyond the visible spectrum can meet the challenges of global problems. These are signs of progress in the key discussion of LS.

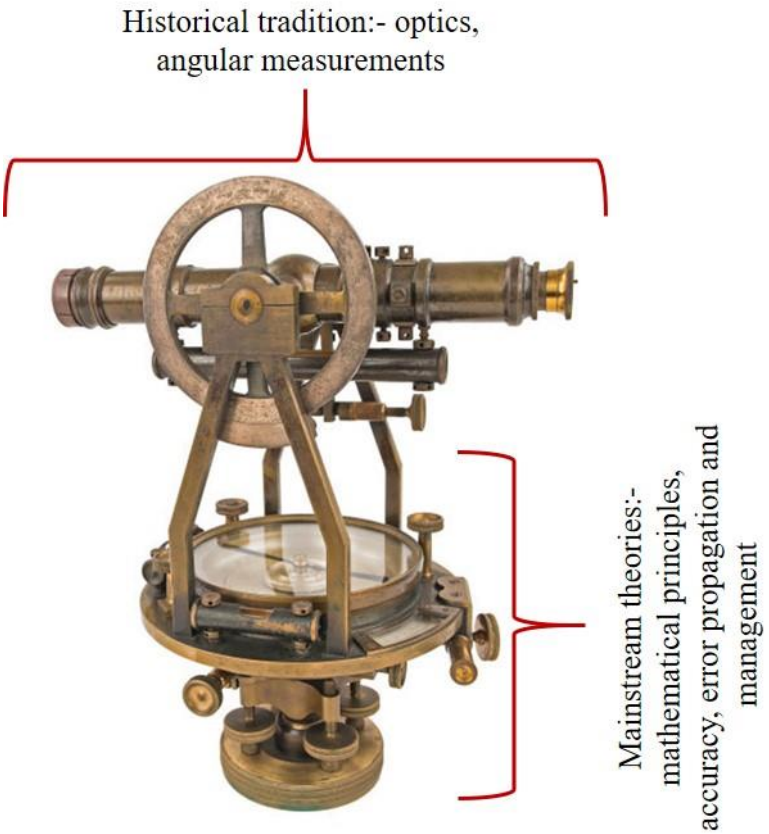

***Figure 3**: One of the eralirst Theodolites, showng its main featres - the telescope, the leve screws, the compass. This icture is onlie from Google images of Doomsday Book*

4. FUNDAMENTAL PRINCIPLES, PEDAGOGY, AND PRACTICE OF LAND SURVEYING

The principle of 'working from whole to part' stands out as the core of LS praxis and helps to control errors that propagate through linear and angular measurements. LS developed principally from the modes of data collection, processing, and interpretation. The ancient man always wanted to know the extent of his land and its demarcations, and he has used various traditional approaches to do this. To properly assess LS, we must consider how the propagation of error its correction has changed throughout the history of LS theory and practice. This will not reject the principle but will provide a more radical way to engage with the mainstream ideologies that undergird error analyses in mathematics and how those theories still hold true today. That way, we can be critical to fine-tune the error control in practice. One bitter truth with mainstream theories is that they create hierarchies, hegemonies and structures that polarise

power and knowledge and make them a property of a 'select group'. For instance, the Pythagorean theorem, which has been used to solve triangles for a long time, is still very relevant in other areas of mathematics and physical science, and research has not disproved these accepted beliefs. However, Kalanov (2013) undertook a critical of the age-long theorem and came off with findings suggesting that the Pythagorean theorem contradicted formal logics and rational dialectics. This may startle many of the theorem's scholars and devotees, but could something other than Pythagorean have solved the mathematical and Euclidean triangles, and if so, what could it have been?

These are the logical questions this study raises. Why has no one critiqued the theory and create the platform to discover other ways of providing realistic solutions to triangles? Could it be possible that by following the tenets of the principles of whole to part, we are following the same rule of colonisation and knowledge annexation? If the argument that the LS profession is ageing only holds because we are probably lacking professionals who are up to date with current knowledge and use that in innovating friendlier and smarter ways of solving human and environmental challenges. Could this have anything to do with the principles upon which the LS is built? Along with its instrumentation, could ancient mathematical theories have any links with the changing needs of our constructed and natural world? A rational view of this undergirds the importance of post-structural analysis. For example, when we analyse this fundamental principle of LS post-structurally, based on Norton & Morgan (2012), we could be both impulsive and reflexive in critiquing the prevailing assumptions regarding the sources and nature of the principle and what could there be other elemental, rational and disciplinary subjects other than the LS. Based on Foucault (1980) we could also engage critically with the LS's principle's boundary conditions and epistemic foundations, particularly regarding its purported and absolute objectivity and universal applicability. Using Derrida (1978) and Sarup (1993), our post-structural analysis could critique and reject the representational capacities of the LS's fundamental principle as developed from complex expressions that foreground mathematical and logical intertextuality.

5. DISCUSSIONS

Current debates surrounding modern definition and actualisation of LS is replete with questions and postulations about its relevance and suitability to meeting the winding landscapes and new frontiers of global challenges (Jeffress & Meyer, 2006; Jeffress & Barnes, 2010; Coutts, & Strack 2019; Admincivil, 2022; Lauterbach, & Timo de Vries, 2022). Most of these discussions are still peripheral with no conclusive findings. One key recent discussion that tips the scale was by Ebinne et al. (2022) which analysed the slow-paced adoption of terrestrial laser scanning technology for land surveying operations in Nigeria's geoinformation industry. The study used primary quantitative data sourced from 81 practicing land surveyors in Enugu Nigeria that touched on strong empirical findings. The results of the study provided statistically significant evidence to support the notion of slow adoption of terrestrial laser scanning equipment in the study area. The dominant LS operations being practiced, which often require basic indigenous logistics to implement, are key evidence of the slow adoption of terrestrial laser scanners. This

is being compounded by the lack of funds, poor technical capacity, and the shrinking value and scope of work exclusive to traditional LS. These findings were corroborated with evidence of LS experience in other developing countries and critical issues which resonate with the conflict of an ageing profession against the new frontiers of global challenges emerged. Firstly, the practice of LS in developing countries dawdles with respect to the global expectations of professionalism, and globally, the sustainability LS faces immense uncertainties. Secondly, application of modern techniques and ideologies in dealing with land and land-related issues within the global sphere is now at its prime. Finally, terrestrial laser scanning technology can aid a strategic development in the present LS theory and practice if land surveyors can adequately embrace the technology.

The foregoing discussion is arguably fundamental to exploring LS in a cognitive manner against the backdrop of global challenges. With post-structural analysis, a discursive element will spur epistemic thesis of repetitive attempt at formal logic and rational dialectics around LS, geospatial science and the new frontiers of global challenges. Formal logic because since the entirety of geospatial science is hinged around LS theory and practice and geospatial science is the proven solution to global challenges, so, it goes to say that the new frontiers of global problems can be met by LS theory and practice. In rational dialectics, the situation is that with LS theory and practice can be met but with immense uncertainties. This is a post-structural challenge to epistemic groundings, structures and superstructures that may constrain radical changes within the LS profession.

The supremacy of LS theory and practice is concerned with science, art and professionalism, and these are underpinned by structures and superstructures. So, post-structural analysis is about interrogating and problematising 'the normal' – which appears to exist in the mainstream ideologies – by raising critical question about the theories and discourses that represent these structures and superstructures. Hence, it becomes a potential way to evaluate the critical aspects of professionalism. It is arguable to think of post-structuralism in the field of LS as a method of inquiry and tool of analyses. This is particularly useful because, post-structuralism as covered in Foucault (1997), normally does not seek to 'suspend judgement'. So, the attempt in this study is not to suspend the propositions or apparent reality of ageing LS. Instead, through a critical engagement and analyses with texts and discursive elements, construing viewpoints that are endogenous to LS as a social structure, we can initiate and drive an understanding of the existing situation, then challenge the underlying foundation, and crates a new reality and episteme. This is an analysis that can create a new framework for research in LS and its sensitivity to the new frontiers of global challenges.

6. CONCLUSION

Land surveying (LS) has been fundamental to the wealth of delineation and representation of the natural and constructed world. Having existed in the prehistoric era and still continues to have a mention in today's geospatial industry, LS has an established presence with a tradition marked by historical milestones, rapid technological development, training, ethics cognitive

and professional threshold. It highlights a social structure and suprerstructure characterised by hierarchies, mainstream theories and ideologies that define the patterns of practices and theories and perhaps creating a binarism and polarity of old and young practitioners, male and female practitioners, and practicing and teaching surveyors, and now, *'future relevance and current frontiers of global challenges*'. While these influences prevail, there are uncertainties bordering on a slew of evidence that the profession is aging and so its relevance vis-à-vis the current frontiers of global problems has been to question. The essence of this study is to explore this through the lens of critical management studies (CMS), focusing peartucularising on how a post-structural analyst would agree or reject these claims of an ageing profession.

These ever-increasing and ever-transmuting global challenges are winding the pathways of professional development and probing the relevance of LS and its allies. Though these global challenges have spatial and temporal dimensions — analogous concepts that LS embodies — the amount and quality of requisite data, accuracy, routine, and swiftness of project execution for most global issues, and what the traditional LS praxis can take on are dialectical matters. The importance of improved theories, skill, methods, quality data, instrumentation, applicability, ethics, and competencies connected to professional practice in an era of unprecedented global challenges is boundless. But for the LS, this presents a new type of compulsory education that is difficult to accommodate. This charts a new direction of academic discourse but also enlightens us to look more critically at the LS profession through the lenses which explore the structures upon which the profession embedded originally. What were the unknown and unseen limitations? Was there a time frame, beyond which practitioners must recognise the need to renew the profession's capacity and to act courageously, so the profession and its professionals can leverage their dynamic techniques to contribute positively to solving the burgeoning world challenges? Surveyors, through the tenets of the LS profession and its allies, want to make a difference in the world, but these questions regarding ageing, future relevance, and the answer that they may compose stimulate vital discussions, which CMS explores and interrogates.

This study adds to the immense collection of knowledge that is intended to liberate the LS profession from the uncertainties of an aging social structure and a lack of prospects in the context of new frontiers of global challenges and their proposed solutions. This study is conceptual and is based on a post-structural analysis of the fundamental ideas, hierarchal structures, binary classification, and historical and socio-cultural aspects of the surveying profession and related fields. The absence of a pivotal discourse element hindered much of the work the authors proposed. Nevertheless, a preliminary discovery from a thorough inspection of the ancient features and the fundamental rule of LS discloses the expansive practical and theoretical tradition of LS. We proposed further empirical research for a more rational conclusion, even though the evidence of ageing is circumstantial. In the context of the global inventory of environmental and economic concerns, LS and the geospatial sector can confront the new horizons of global challenges through an adapted curriculum of instruction, and onboarding faculties with a concentration on the essential aspects of LS and geospatial sciences.

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