

## Article

# Sustainability in a Digitized Era Analyzing the Moderation Effect of Social Strata and Digital Capital Dependence on Digital Divide

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**Abstract:** Although we have evolved digitally and technologically in the 21st century, disparities still exist in society. The research problem cited for the study is the need to assess the impact of the digital divide in the formation of digital capital, where the already stratified society based on variables such as age, gender, education, and region (rural–urban) will act as moderators to mitigate the digital inequalities for a sustainable world. The research objectives are to explore the underpinning reasons for the digital divide in reinforcing social inequalities, quantify the impact of the digital divide on digital capital statistically, and to evaluate the moderating effect of social strata variables comparatively. The idea of digital capital culminates into five hypotheses for this study as the digital divide impacts digital capital, as well as the assessment of moderating effects of age, education, and region. Statistical tools, specifically frequency, percentage, reliability, ANOVA, correlation, and regression, have been used to test the hypothesis and proposed conceptual model. The social strata dimension in the study revealed a higher variance of opinion. Digital capital is taken as the dependent variable and the digital divide is the independent variable, which shows Beta as 0.591 and B as 0.585, indicating a good relationship of 59.1% and an effect of 58.5%. Finally, the research reveals that there exists a digital divide and, hence, digital inequalities in India need to be addressed for attaining various Sustainable Development Goals. The study has significant implications for the leaders and policymakers to work towards inclusivity by bridging the digital divide and eliminating digital inequalities in India.

**Keywords:** ANOVA; digital capital; digital divide; digital inequalities; social strata; sustainable

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## 1. Introduction

It was in the 1970s that the first sustainability-related issues were brought into the public domain. But it was not until 2015 that 193 nations endorsed the Seventeen (17) Sustainable Development Goals (SDGs) that the UN had put forward. The concept of sustainability has emerged as one of the leading ideas for social change [1]. When used to describe a society, the word “sustainable” denotes continuity through time; hence, a society is sustainable if the design and other factors enable it to endure in the long run [2]. The idea of sustainability has taken on many different forms and has been employed to advance rather divergent societal goals. Although sustainability is unquestionably one of the phenomena that is expanding the fastest, it is still an area of application for technology or the digital divide is not fully known [3].

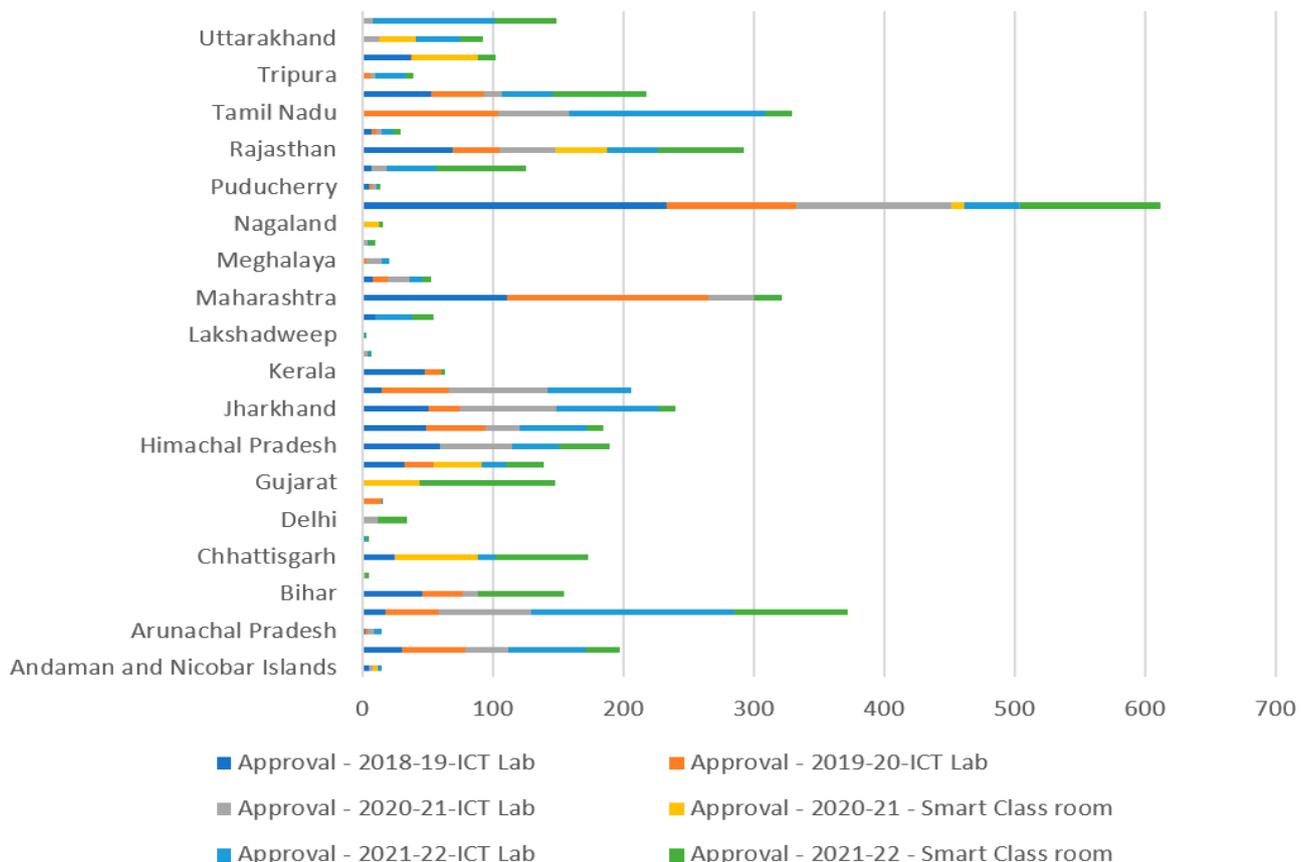
The term digital divide refers to the existing disparity among different sections of society with regard to access and use of information and communication technology (ICT) [4]. The definition of the digital divide has evolved since the adoption of the term where, initially, the difference was seen only in terms of access to certain digital devices [5]. The evolution of the concept goes beyond the binary of access or the categorization into

“haves” and “have-nots” and delves into other aspects that create inequality in usage as well as access [6–8].

The disparity is not simply technological, but also social. The idea of digital inequality has developed beyond the issues of “access” or “no access” and is more about the degree of access and is now related to the “questions of who, with which attributes, connects how to what kind of ICT” [9]. There is also a distinction between the first and second order of the digital divide, where the first order denotes the differences in access and utilization of ICT and the second order signifies the skill disparity among those who have the access to technology [6].

Digital literacy and inclusion are two significant but mainly different fields of research that look at the connections between internet skills and involvement. Linking literacy and exclusion frameworks provides for a more comprehensive view of digital involvement. Certain groups lacked different abilities, which had an impact on how they used the internet [10]. The use of information and communications technology (ICT) has become an essential aspect of our lives today. The use of ICT enables the population to connect with each other, obtain more information and knowledge, as well as enhance trade relations. Therefore, access to ICT has contributed considerably to the economic and sustainable development of the nations. The information on ICT implementation in education in Indian states (Figure 1) provides the rationale behind the study [11].

### Implementation of ICT in Education in India



**Figure 1.** Implementation of ICT in education in India. Source: <https://data.gov.in/search?title=ICT> [11].

Only a small percentage of the world’s population has been affected by fast-moving technological transformations, essentially contributing to social exclusion based on access to different forms of resources, including digital ones. According to a World Bank report published in 2016, approximately two billion people have no access to digital technology and it is only 15% of the world’s population that has access to high-speed internet. ICT has

assumed an important role in contemporary times [12], especially during the COVID-19 times when everything suddenly became dependent on the internet. However, it is equally true that the existing economic and social disparities have created unequal access to these digital resources.

There is research that focuses on the rural–urban divide in terms of ICT access, as well as the impact of socio-economic status on the adoption of such technologies [13]. The accumulation of digital skills and proficiencies refers to the creation of digital capital. It can be viewed similarly to other forms of accumulation which reinforce and preserve the existing differentiation and inequalities in society. In Bourdieu’s terminology, we can refer to digital capital as “a set of internalized ability and aptitude”, i.e., digital competencies, along with “external resources”, which refers to digital technology accumulation that is transferrable as well.

It has been argued in the prominent research conducted in this field that the extent and degree of digital capital may influence the second level of the digital divide, which, in turn, can also influence social, political, and cultural capital, thereby, again, inducing the third level of digital divide [14]. It is observed that internet use based on the already accumulated capital, along with the digital capital, shape the user benefits and experiences. The previous research displays that the sustainable development and growth of new products and services for the upcoming digital economy heavily rely on the resources generated by digital capital [15,16].

There are a number of studies that have focused on the impact of social capital on the digital divide [17] and how it may aggravate social inequalities [18]. The present study is an attempt to socially contextualize the digital divide and digital inequalities that contribute to the formation of digital capital. The concept of digital capital reinforces the already existing social, economic, and cultural inequalities prevailing in society [19]. The major issues of contemporary societies both in developed and developing nations are to ensure inclusive education for all social groups in the society.

The social group includes minorities, women, [20,21], and other socio-economically [22] marginalized sections [23]. Today, during the pandemic, the importance and expanse of digital delivery of education have increased manifolds. The important issue of discussion here is whether this digital delivery of education can accommodate all sections of the society equally, i.e., it is important to understand the heterogeneous population and the kind of access, usage of the internet, and skills they require to take advantage of this digitally transformed education.

The current research is based on the concept of building digital capital. India is one of the fastest economies in the world, and the country is one of the largest suppliers of human resources to the world’s requirements. The human capital would be considered incompetent if they are not digitally skilled, which eventually makes the digital capital. This research is different from the earlier studies in the sense of incorporation of moderation effect, which leads to the research gap. It is here where the issue of the digital divide and digital capital comes to the fore and sheds light on the creation of barriers or exclusion [24] of certain sections of the population [25]. Therefore, this study focuses on different concepts, such as digital divide and digital capital, which are moderated by different social strata mentioned in the research problem below.

The bitter truth of today’s world is that no society exists without stratification. Every society is divided on some or another basis, such as class, caste, gender, race, religion, etc. [26]. Although we have evolved digitally and technologically in the 21st century, disparities still exist in society. It is a well-known fact now that, since the COVID-19 pandemic [27], digital skill has become a necessity rather than a luxury. With the coming of this urgency of dependence on digital devices and internet access, there is a new kind of divide which has made its place as a new stratum in society. Therefore, the research problem cited for the study is the need to assess the impact of the digital divide in the formation of digital capital, where the already stratified society based on variables such

as age, gender, education, and region (rural–urban) will act as moderator to mitigate the digital inequalities for the sustainability in the digitized era.

The resources and appropriation theory focuses on the four-phase access related to the digital divide, and it was developed as well as tested in several surveys during the last many years through different studies in this area; therefore, one of the research objectives for the study is to explore the underpinning reasons of the digital divide in reinforcing social inequalities. However, the available literature displays several qualitative studies on the digital divide and digital capital and helps to frame the second objective of the research, which is to quantify the impact of the digital divide on digital capital statistically. Today, various categories, i.e., social strata, play an important role in explaining digital inequality, specifically with possession of different social, cultural, and digital capital. Hence, the third objective of the research is to evaluate the moderating effect of social strata variables comparatively.

Since the beginning of the study, the research is conceptualized to measure the digital divide, digital capital, and the social strata into which different societies are divided [28]. This study has been implemented in Indian society among the common population, where the samples were chosen from the North Indian states of the country. The research process expanded over a span of five months (September 2021–January 2022). Further, the research is presented in six sections. The first section is the introduction, which elaborates on the concepts adopted for the study. The second section is about the formation of theoretical background with an extensive literature review. Section three is a detailed discussion of the applied methodological approach [29,30]. The fourth section is the data analysis and results of primary data with relevant statistical techniques. The fifth section elaborates on the discussion and conclusion of the study. The last part of the study is section six, which presents the limitations and future scope of the study.

## 2. Theoretical Background and Conceptualization

The study uses the theoretical framework developed by Pierre Bourdieu to examine the phenomena of digital capital [31]. Bourdieu distinguishes social capital from economic, cultural, and symbolic capital as a distinct type of capital that is built up through relationships and is based on existent and prospective possessions [32]. The literature on the relationships between social and digital capital focuses on the way the digital divide may exacerbate disparities in social capital ownership. To put it another way, social inequalities can help us understand digital inequality, as well as vice versa. Social stratification refers to society being hierarchically divided into different strata and groups [33].

These social strata can be based on class, gender, age, region, etc. Some studies have concluded that rural region, gender, and race play an important role in widening the digital divide [20]. Much other research [22,34] has also stated that factors that build the social structure, such as income and education, also influence the access and use of the internet. The existence of social stratification in combination with digital capital generates additional forms of inequality. It is to be noted that access or no access to ICTs is dependent on and induced by the pre-existing inequalities of society [19].

It is an absolute truth that the use of the internet has made our work easier and faster by boosting the capacity to access the information available. It is also believed that the internet has sped up access to education, job opportunities, community connection, etc. Insofar as these statements are true, internet access is a valuable resource, and disparity in terms of access to internet is a major problem for social scientists studying inequality. It has been argued in previous research that the advancement and development of technologies if not carried out in a sustainable manner, to a certain extent, actually “deskill” the workers, thereby contributing to the exploitation of the workforce [35].

The assumptions of deskilling were further supported in some of the later research [36] as well. However, the “deskilling” hypothesis was confronted with contradictory findings in later studies that linked the development of new technologies with the expertise of the workers [37]. It was in 1995 that the studies related to unequal access to the internet started

first [38]. Initially, it was thought that the increased dissemination of the internet would boost access equality of information by bringing down the cost of gaining information.

However, the disparity in usage by certain sections as compared to others brought out another reality, that those who had greater access and a higher percentage of internet usage had better life chances. This is possible by gaining access to education, better employment opportunities, and other resources, which somehow broadened the already existing gap in society [23,39]. However, it was in the mid-1990s that the researchers observed the differences in the use of the internet as per the social categories.

Although explanations of access differ as per the study, the vast majority draw a binary differentiation between those who use the Web and other internet services (particularly e-mail) and those who do not. Initially, “access” meant whether or not a person had the ability to connect to the internet if she or he so desired [40]. Later, “access” was used interchangeably with “usage”, equating opportunity with choice. Inequality regarding access to culture and information has long been examined by sociologists [41]. Some studies have concentrated not only on formal schooling, which has long been a focus of social disparity research, but also knowledge of prominent cultural understanding [42], language and reasoning skills [43], as well as technology access [44].

The observations from such research provide support to the inequality studies related to internet use. Several other pieces of research have focused on the importance of differences in the possession of professional knowledge, technical know-how, and monetary resources. The research concerned with the impact of new technology that might contribute to aggravating inequality focused on the distinction between offline and online, which they termed the “digital divide” [45]. The concept of the digital divide has been perceived from different perspectives in a study conducted by [46], where they classify the concept into basic, dual, and the second digital divide.

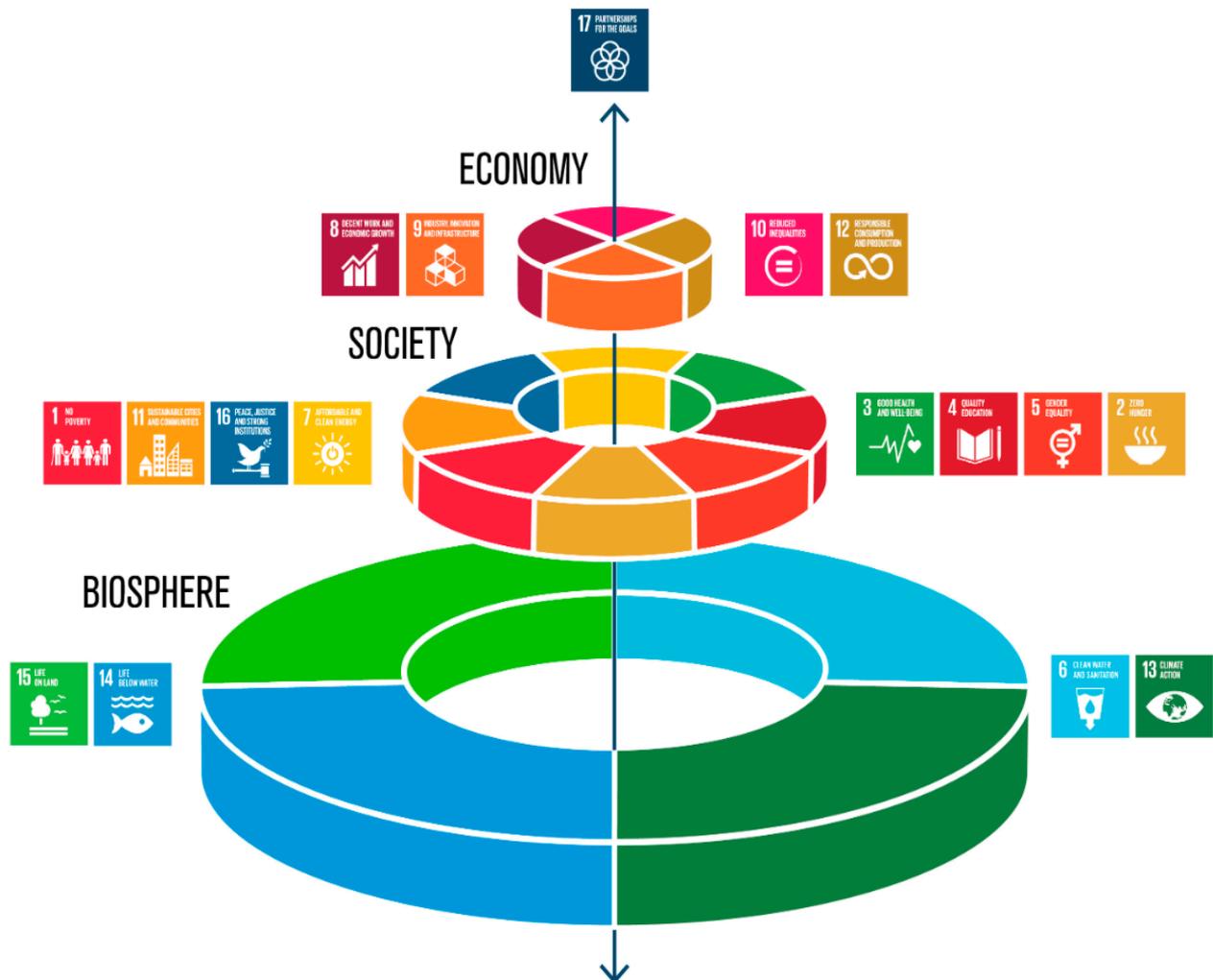
On one hand, the basic digital divide is defined as the variation between the users and nonusers related to ability, access, and usage; whereas, on the other hand, the dual digital divide is seen as the difference between users and nonusers but, at the same time, the existing hindrances are more than one. The study also talks about the second digital divide, where it is mentioned that there are disparities between the users and nonusers, between productive and consuming users, and between power and passive users. Much other research on the issue highlights that the digital divide is seen as an obstacle in the course of development and growth.

Therefore, it needs a deeper understanding of the concept and not simply in the context of access or internet usage, but also considering the differentiation already existing in society in the form of different strata [47]. In an important work by Lancker and Parolin, it is clearly stated that, during the COVID-19 pandemic, education was completely shifted to online mode and, due to the digital divide, several students coming from different social statuses could not participate equally in the learning process [48]. The researchers associated with the digital divide have taken into consideration the ideas of Bourdieu to establish a relationship between technology, capital, and exclusion [49].

Writing in relation to education Selwyn gives a base for discerning technological capital, which reinforces the interfaces between individuals and different social structures. The capital built by technology would be epitomized by technological networks and contacts. The idea of digital capital as studied by Ragnedda and Ruiu elaborates on the subject matter of digital capital. It is not merely a sub-category of already existing capital (in Bourdieu’s terminology); rather, it is to be seen as a special category of capital accumulation, which would enable one to see the interlinkages of the relationship between digital and social inequalities [49].

The aim of the study is to analyze the moderating impact of social strata and digital capital dependence on the digital divide. It is to be seen through the available literature that one of the key factors for achieving the SDGs depends on building the digital skills required to use technology effectively (Figure 2). The human well-being attained from digital commodities, according to Amartya Sen’s Human Capabilities Approach, depends

not only on the ownership and the accessibility, but also on what may be achieved with them. In order for society to ensure that everyone can access education (SDG No. 4), employment (SDG No. 9), health (SDG No. 3), wealth (SDG No. 1), and security (SDG No. 16), both digital goods and the digital competencies required to profit from the technology revolution must be made available [50].



**Figure 2.** Ecosystem services flow of SDG. Source: <https://ecoacsa.com/en/sdg/> [51].

Sustainable Development Goals (SDGs) are eye-openers for the world to look at human life through the lens of sustainability [51]. The sustainability of the human race and humanity is under observation, which needs to be nourished through education. Though the reach of education is higher yet, in the digitized era, the impact is doubtful. Learning is a time-consuming process, which can be reflected after years of investment into a certain type of learning. To sketch a sustainable society, countries must come together with peace and sharing [52].

Bourdieu focused on the ways through which the privileged groups possessing cultural capital but with lesser financial resources tend to build different forms of cultural distinctions as compared to traditional categories of business elites [53]. It is an established fact that no society practices absolute equality and every society in this world is divided in some aspects into different strata. There are different perspectives on the idea of social stratification, where Davis and Moore elaborate that social stratification is functional, universal, and essential to maintaining the division of labor in every society [54], therefore, reiterating the fact that no society is unstratified. Different sociologists have studied differ-

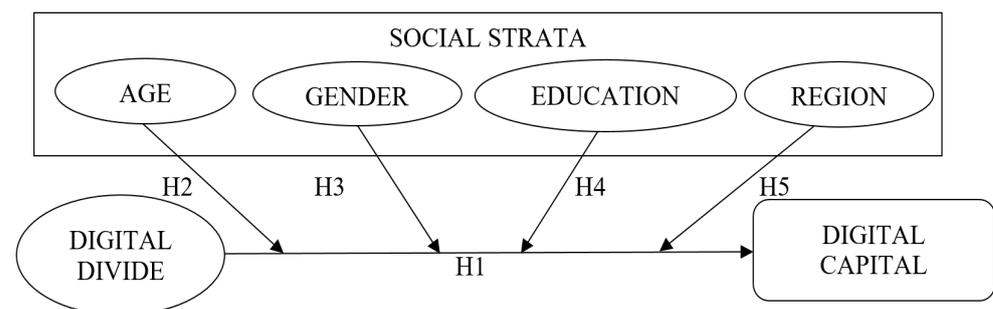
ent dimensions of stratification, where Crompton and Rossides speak at length about the stratification of society based on different social classes [55,56].

Social class is an achieved status and the possibility of mobility from one social class to another is also discussed in their study. Yet another dimension of stratification, i.e., gender, is studied by Reay, where it is clearly elaborated that, apart from social class, gender and race also decide the level of strata in which an individual or group will be placed in the social hierarchy [57]. The modern stratification of society cannot be studied without acknowledging the role of education.

The educational system plays an important role in the selection and elimination of individuals for their future roles in every society. The inequality in terms of educational opportunity is also researched by previous research that concludes that such disparity in educational opportunities is a consequence of social stratification [33]. Therefore, social inequality is at the core of social stratification that manifests in various forms, such as income, status, privileges, etc. Further, there are a number of associations between education and social stratification in society.

The conceptual model for the study is developed based on the sociological theory of Bourdieu, who states that society is divided based on the accumulation of different forms of social, cultural, and economic capital [58]. The concept of digital capital is an addition to these existing forms of “capital”, where the society is now divided based on the access, skills, and use of technology [59]. The current situation of society is the struggle for an inclusive society. The proposed model statistically evaluates the feasibility of the concept for practical implementation.

To address the research objectives of the study, the conceptual model (Figure 3) was developed based on an extensive review of the relevant literature. The social strata are composed of various aspects, as the society is differentiated on various levels, such as age, gender, education, region, etc., whose moderating effect is to be assessed through this research. The digital divide is one of the most unexpected outcomes of the digital revolution. It has a detrimental impact on all aspects of society and exacerbates existing socio-economic injustices. It is equally true that the formation of digital capital is the result of existing social and cultural capitals, as well as different forms of inequalities in society [60].



**Figure 3.** Proposed conceptual model. Source: Author’s self-proposed. Reliability Analysis.

### 3. Methodological Approach

The study adopts the quantitative approach to validate the concept with the hand-picked data. For this purpose, the descriptive research design is chosen to implement the cross-sectional study [61]. The source of data collection was both secondary for concept framing and primary for concept validation. The primary source was the survey, which was conducted through a structured survey questionnaire divided into 3 sections, where 4 items were for demography—age, gender, education, and region, 13 items [62] assessed the digital divide, and 25 items [63] assessed the digital capital based on a 5-point Likert scale. The sample was selected from the northern part of India and the sample, chosen based on the simple random sampling technique of probability sampling, collected 628 valid responses used [64] after filtering from 746 responses collected. The main reason

behind choosing northern India is the deprivation of education and poor accessibility to the internet. Nevertheless, the high population and poverty are the foremost reasons for the creation of such a divide. The data collection was from September 2021 to the end of October 2021. Digital capital having 25 items and digital divide having 13 items are compressed as two dimensions, digital divide as independent and digital capital as dependent. The multidimensionality is reduced in two dimensions based on computing a variable function of SPSS 25, which is basically the arithmetic average of values. This is a widely used process where the items are already proven for a specific dimension.

The hypothesis represents the relationship between and among different variables of the study (Figure 2). The digital divide created because of the existing disparities in society builds up digital capital. The disparities are visible in the form of different strata into which societies are divided and stratified. The idea of digital capital echoes Bourdieu's conceptualization as "a set of internalized abilities and aptitudes" that culminates into five hypotheses for this study:

**H1:** *Digital divide significantly impacts the digital capital.*

**H2:** *Age moderates the relationship and impact of digital divide and digital capital.*

**H3:** *Gender has a significant role in between digital divide and digital capital.*

**H4:** *Education modifies the relationship of digital divide and digital capital.*

**H5:** *Region manipulates the impact of digital divide on digital capital.*

The study has collected responses about demographic details as well as 38 items listed for the evaluation of the digital divide and digital capital. It is to be noted that, for the purpose of this study, the demographic details and the items are coded into different nomenclature. The coding is presented with D for demography followed by the first letter of words A—age, G—gender, E—education, and R—region, respectively, as DA (age), DG (gender), DE (education), and DR (region). The 13 items of digital divide [62] are coded as DD1 (the internet service is available all the time), DD2 (the cost of the internet connection is reasonable for my household), DD3 (the cost of reliable and high-speed internet is becoming expensive), DD4 (the internet enables me to accomplish my tasks more quickly), DD5 (the internet helps me to find new opportunities (e.g., employment, education, and business)), DD6 (the internet helps me to learn and develop new skills and knowledge), DD7 (the internet has a positive impact on my work performance), DD8 (the internet use has become an everyday part of my life), DD9 (the internet helps me co-ordinate activities with neighbors in my area (e.g., scheduling meetings regularly, visiting different places together, or participating in sports, social, or religious activities)), DD10 (because of the internet, it is easier to ask for, give, and receive help from neighbors), DD11 (the internet helps me to connect with community, social, or sporting groups), DD12 (the internet helps me maintain good communication with friends, family, and others), and DD13 (the internet use has made my professional activities much easier).

The 25 items of digital capital [65] are coded as DC1 (I receive access to a laptop/computer whenever I need it), DC2 (I receive access to the mobile phone/tab whenever I need it), DC3 (I receive the internet connectivity at my home), DC4 (I receive the internet connectivity at my study/work place), DC5 (I prefer to spend my time online), DC6 (I prefer to study/work online), DC7 (I had training for using internet), DC8 (in case of a problem with internet, I receive maintenance support), DC9 (I am confident in browsing, searching, and filtering data, information and digital content), DC10 (I regularly use cloud information storage services or external hard drives to save or store files or content), DC11 (I actively use a wide range of communication tools for online communication), DC12 (I know when and which information I should and should not share online), DC13 (I actively participate in online spaces and use several online platforms), DC14 (I have developed strategies to address cyberbullying and to identify inappropriate behaviors), DC15 (I can produce complex digital content in different formats (e.g., images, audio files, text, and

tables)), DC16 (I can apply advanced formatting functions of different tools to the content I or others have produced), DC17 (I respect copyright and license rules and I know how to apply them to digital information and content), DC18 (I am able to apply advanced settings to some software and programs), DC19 (I periodically check my privacy settings and update my security programs on the device(s) I use to access the internet), DC20 (I use different passwords to access equipment, devices, and digital services), DC21 (I am able to select safe and suitable digital media, which are efficient and cost-effective in comparison with others), DC22 (I am able to solve a technical problem or decide what to do when technology does not work), DC23 (I can use digital technologies (devices, applications, software, or services) to solve (nontechnical) problems), DC24 (I am able to use varied media to express myself creatively (text, images, audio, and video)), and DC25 (I frequently update my knowledge on the availability of digital tools).

The study has adopted well-tested and proven tools for quantitative data analysis using SPSS 25 software for statistical analysis. Though there are many tests applicable and that were also performed earlier in many studies, the tests applied in this study are basic tests, which are competent enough to provide the required outcome. Reliability testing of the instrument is performed, which shows a highly significant and accepted value of more than 0.75 for Cronbach Alpha [66]. The frequency, percentage, and reliability presentation are the justification for data distribution and acceptance of the instrument. The validated conceptual dimensions are created for the required analysis. Statistical tools, specifically ANOVA, correlation, and regression, have been used to test the hypothesis and proposed conceptual model [67].

#### 4. Data Analysis and Results

The empirical justification of the research is performed on data collected by applying statistical techniques. This specific section is one of the most important segments of the research, which provides the truth based on quantitative values. Sustainability in the digitized era is analyzed with various parameters, such as digital divide, digital capital, and strata, as independent, dependent, and moderating variables, respectively. Strata is constituted with age, gender, education, and the region as a sample representation for this specific study.

The reliability analysis is presented below for the acceptance of the survey questionnaire (Table 1). It is the measure of consistency in testing the instrument multiple times. The Cronbach's Alpha value for the digital divide is 0.817 for 13 items and 0.885 for 25 items of digital capital. Therefore, it is highly acceptable for further research. It is to be noted that the overall reliability is 0.909 for 38 items, which is also high and acceptable for the study. This shows that the current study has selected a justifiable sample, which has provided a trustworthy opinion over the items of the instrument [68,69].

**Table 1.** Reliability analysis.

Variable	Cronbach's Alpha	No. of Items
Digital Divide	0.817	13
Digital Capital	0.885	25
Overall	0.909	38

Source: SPSS 25 Outcome.

The frequency and percentage analysis of respondents' demography are presented (Table 2). The analysis displays the information about respondents' gender, age, education, and place in the region. The Table 2 shows that, out of 628 valid responses, 51% of the respondents were male and 49% were females. The highest percentage of the respondents, i.e., 75.8%, belonged to the age group of 16–25 years, followed by 16.6% from the age group of 26–35 years. It is also visible from the analysis presented above that 44.6% of respondents who participated in the study were graduates. The analysis also reveals that 58.6% of the respondents belonged to urban India [60,70].

**Table 2.** Demography frequency and percentage analysis.

Items Coded	Parameters	Frequency	Percentage
DG	Male	320	51.0
	Female	308	49.0
DA	16 years–25 years	476	75.8
	26 years–35 years	104	16.6
	36 years–45 years	40	6.4
	46 years–55 years	4	0.6
	56 years and more	4	0.6
DE	Intermediate	36	5.7
	Graduate	280	44.6
	Postgraduate	244	38.9
	PhD	68	10.8
DR	Urban	368	58.6
	Rural	260	41.4
Total		628	100

Source: SPSS 25 Outcome.

The frequency and percentage analysis for 13 items of the digital divide has been presented (Table 3) above. The 13 items are tested on a 5-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree). The analysis of the responses highlights that most of the respondents agreed (the highest percent is 62.4%) with the items listed in the survey questionnaire and the second highest response, i.e., 49.7%, was recorded as strongly agree. However, there are some items for which respondents disagreed and were even neutral in their opinions [71].

**Table 3.** Items frequency and percentage analysis for digital divide.

Items Coded	Parameters	Frequency	Percentage
DD1	Strongly disagree	48	7.6
	Disagree	72	11.5
	Neutral	136	21.7
	Agree	296	47.1
	Strongly agree	76	12.1
DD2	Strongly disagree	76	12.1
	Disagree	128	20.4
	Neutral	180	28.7
	Agree	220	35.0
	Strongly agree	24	3.8
DD3	Strongly disagree	24	3.8
	Disagree	28	4.5
	Neutral	40	6.4
	Agree	248	39.5
	Strongly agree	288	45.9

Table 3. Cont.

Items Coded	Parameters	Frequency	Percentage
DD4	Strongly disagree	12	1.9
	Disagree	8	1.3
	Neutral	80	12.7
	Agree	336	53.5
	Strongly agree	192	30.6
DD5	Strongly disagree	12	1.9
	Disagree	12	1.9
	Neutral	48	7.6
	Agree	348	55.4
	Strongly agree	208	33.1
DD6	Strongly disagree	8	1.3
	Disagree	8	1.3
	Neutral	52	8.3
	Agree	328	52.2
	Strongly agree	232	36.9
DD7	Strongly disagree	8	1.3
	Disagree	24	3.8
	Neutral	116	18.5
	Agree	360	57.3
	Strongly agree	120	19.1
DD8	Strongly disagree	8	1.3
	Disagree	16	2.5
	Neutral	20	3.2
	Agree	272	43.3
	Strongly agree	312	49.7
DD9	Strongly disagree	8	1.3
	Disagree	64	10.2
	Neutral	152	24.2
	Agree	308	49.0
	Strongly agree	96	15.3
DD10	Strongly disagree	4	0.6
	Disagree	88	14.0
	Neutral	120	19.1
	Agree	356	56.7
	Strongly agree	60	9.6
DD11	Strongly disagree	4	0.6
	Disagree	36	5.7
	Neutral	76	12.1
	Agree	392	62.4
	Strongly agree	120	19.1

**Table 3.** *Cont.*

Items Coded	Parameters	Frequency	Percentage
DD12	Strongly disagree	20	3.2
	Disagree	28	4.5
	Neutral	56	8.9
	Agree	348	55.4
	Strongly agree	176	28.0
DD13	Strongly disagree	8	1.3
	Disagree	16	2.5
	Neutral	88	14.0
	Agree	384	61.1
	Strongly agree	132	21.0

Source: SPSS 25 Outcome.

The frequency and percentage analysis for digital capital with 25 items have been presented above (Table 4). The 25 items were tested on a 5-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree). The analysis of the responses highlights that most of the respondents agreed (the highest percent is 63.1%) with the items listed in the survey questionnaire. However, there are some of the items for which respondents have strongly agreed, disagreed, and were even neutral in their opinions [72].

**Table 4.** Items frequency and percentage analysis for digital capital.

Items Coded	Parameters	Frequency	Percentage
DC1	Strongly disagree	8	1.3
	Disagree	112	17.8
	Neutral	144	22.9
	Agree	268	42.7
	Strongly agree	96	15.3
DC2	Strongly disagree	8	1.3
	Disagree	16	2.5
	Neutral	68	10.8
	Agree	372	59.2
	Strongly agree	164	26.1
DC3	Strongly disagree	12	1.9
	Disagree	76	12.1
	Neutral	84	13.4
	Agree	352	56.1
	Strongly agree	104	16.6
DC4	Strongly disagree	8	1.3
	Disagree	32	5.1
	Neutral	80	12.7
	Agree	404	64.3
	Strongly agree	104	16.6

Table 4. Cont.

Items Coded	Parameters	Frequency	Percentage
DC5	Strongly disagree	52	8.3
	Disagree	132	21.0
	Neutral	220	35.0
	Agree	168	26.8
	Strongly agree	56	8.9
DC6	Strongly disagree	80	12.7
	Disagree	108	17.2
	Neutral	156	24.8
	Agree	212	33.8
	Strongly agree	72	11.5
DC7	Strongly disagree	100	15.9
	Disagree	288	45.9
	Neutral	120	19.1
	Agree	100	15.9
	Strongly agree	20	3.2
DC8	Strongly disagree	84	13.4
	Disagree	184	29.3
	Neutral	152	24.2
	Agree	204	32.5
	Strongly agree	4	0.6
DC9	Strongly disagree	4	0.6
	Disagree	60	9.6
	Neutral	104	16.6
	Agree	328	52.2
	Strongly agree	132	21.0
DC10	Strongly disagree	20	3.2
	Disagree	140	22.3
	Neutral	152	24.2
	Agree	280	44.6
	Strongly agree	36	5.7
DC11	Strongly disagree	28	4.5
	Disagree	96	15.3
	Neutral	140	22.3
	Agree	332	52.9
	Strongly agree	32	5.1
DC12	Strongly disagree	4	0.6
	Disagree	40	6.4
	Neutral	60	9.6
	Agree	328	52.2
	Strongly agree	196	31.2

Table 4. Cont.

Items Coded	Parameters	Frequency	Percentage
DC13	Strongly disagree	16	2.5
	Disagree	84	13.4
	Neutral	176	28.0
	Agree	296	47.1
	Strongly agree	56	8.9
DC14	Strongly disagree	36	5.7
	Disagree	124	19.7
	Neutral	196	31.2
	Agree	236	37.6
	Strongly agree	36	5.7
DC15	Strongly disagree	16	2.5
	Disagree	76	12.1
	Neutral	120	19.1
	Agree	352	56.1
	Strongly agree	64	10.2
DC16	Strongly disagree	24	3.8
	Disagree	156	24.8
	Neutral	176	28.0
	Agree	248	39.5
	Strongly agree	24	3.8
DC17	Strongly disagree	4	0.6
	Disagree	56	8.9
	Neutral	132	21.0
	Agree	348	55.4
	Strongly agree	88	14.0
DC18	Strongly disagree	16	2.5
	Disagree	192	30.6
	Neutral	192	30.6
	Agree	200	31.8
	Strongly agree	28	4.5
DC19	Strongly disagree	24	3.8
	Disagree	48	7.6
	Neutral	120	19.1
	Agree	320	51.0
	Strongly agree	116	18.5
DC20	Strongly disagree	20	3.2
	Disagree	64	10.2
	Neutral	116	18.5
	Agree	312	49.7
	Strongly agree	116	18.5

Table 4. Cont.

Items Coded	Parameters	Frequency	Percentage
DC21	Strongly disagree	12	1.9
	Disagree	56	8.9
	Neutral	100	15.9
	Agree	396	63.1
	Strongly agree	64	10.2
DC22	Strongly disagree	24	3.8
	Disagree	128	20.4
	Neutral	168	26.8
	Agree	256	40.8
	Strongly agree	52	8.3
DC23	Strongly disagree	8	1.3
	Disagree	104	16.6
	Neutral	148	23.6
	Agree	340	54.1
	Strongly agree	28	4.5
DC24	Strongly disagree	8	1.3
	Disagree	40	6.4
	Neutral	128	20.4
	Agree	384	61.1
	Strongly agree	68	10.8
DC25	Strongly disagree	8	1.3
	Disagree	52	8.3
	Neutral	96	15.3
	Agree	388	61.8
	Strongly agree	84	13.4

Source: SPSS 25 Outcome.

One-way ANOVA analysis presented above (Table 5) displays the variance in opinions of the respondents regarding 13 items of the digital divide. Table 5 displays the analysis based on the demographic variables of age, gender, education, and place of the region. It can be interpreted from the analysis that gender is insignificant for five out of thirteen items, whereas education and region are insignificant for seven items. However, age is insignificant only for one item. Therefore, it can be said that there is no variance of opinions only for the 13th item of the digital divide.

One-way ANOVA analysis presented above (Table 6) displays the variance in opinions of the respondents regarding 25 items of digital capital. Table 6 displays the analysis based on the demographic variables of age, gender, education, and place of the region. It can be interpreted from the analysis that there is no variance of opinions of the demographic variables only for the fifth and twenty-fourth items. Gender is insignificant for 22 items, whereas education is insignificant for 11 items and region for 14 items. However, age is insignificant only for six items of the instrument.

**Table 5.** One-way ANOVA for digital divide with age, gender, education, and region as factors.

Items Coded	Age	Gender	Education	Region	Remark (Insignificant)	
	* Significance level 0.05					
D	DD1	0.000 *	0.433	0.187	0.000 *	Gender and Education
I	DD2	0.000 *	0.311	0.002 *	0.001 *	Gender
G I	DD3	0.003 *	0.683	0.701	0.034	Gender, Education, and Region
T	DD4	0.000 *	0.008 *	0.316	0.001 *	Education
A	DD5	0.016	0.767	0.000 *	0.338	Age, Gender, and Region
L	DD6	0.000 *	0.004 *	0.124	0.000 *	Education
	DD7	0.000 *	0.001 *	0.000 *	0.228	Region
D	DD8	0.000 *	0.000 *	0.960	0.007	Education and Region
I V	DD9	0.000 *	0.375	0.135	0.103	Gender, Education, and Region
I	DD10	0.000 *	0.006 *	0.000 *	0.213	Region
D	DD11	0.001 *	0.000 *	0.000 *	0.041	Region
E	DD12	0.000 *	0.000 *	0.099	0.000 *	Education
	DD13	0.000 *	0.000 *	0.000 *	0.001 *	None

Source: SPSS 25 Outcome. (Note: \* Significance level 0.05.)

Correlation and regression analysis is the justification for sustainability with the measurement of relationship, which is represented by Beta, and the effect measured as B is accepted under the significance level of 0.05 (Table 7). Digital capital is taken as the dependent variable and the digital divide is the independent variable, which shows Beta as 0.591 and B as 0.585, a good relationship of 59.1%, and the effect of 58.5% is shown as Model 1. Further, it adds digital divide interaction with age, digital divide interaction with gender, digital divide interaction with education, and digital divide interaction with region in Model 2, Model 3, Model 4, and Model 5, respectively, in order to measure the moderating role of strata variables [69,73,74].

**Table 6.** One-way ANOVA for digital capital with age, gender, education, and region as factors.

Items Coded	Age	Gender	Education	Region	Remark (Insignificant)	
	* Significance level 0.05					
	DC1	0.000 *	0.291	0.000 *	0.000 *	Gender
	DC2	0.000 *	0.381	0.005 *	0.001 *	Gender
	DC3	0.002 *	0.119	0.000 *	0.000 *	Gender
	DC4	0.054	0.636	0.119	0.008	Gender, Education, and Region
	DC5	0.000 *	0.001 *	0.000 *	0.000 *	None
	DC6	0.000 *	0.560	0.000 *	0.171	Gender and Region
D	DC7	0.010	0.412	0.320	0.214	Age, Gender, Education, and Region
I	DC8	0.021	0.211	0.056	0.001 *	Age, Gender, and Education
G	DC9	0.493	0.929	0.001 *	0.001 *	Age and Gender
I	DC10	0.000 *	0.495	0.006	0.056	Gender, Education, and Region
T	DC11	0.003 *	0.330	0.000 *	0.075	Gender and Region

Table 6. Cont.

	Items Coded	Age	Gender	Education	Region	Remark (Insignificant)
		* Significance level 0.05				
A	DD12	0.000 *	0.097	0.001 *	0.328	Gender and Region
L	DC13	0.000 *	0.268	0.001 *	0.138	Gender and Region
	DC14	0.000 *	0.174	0.001 *	0.000 *	Gender
C	DC15	0.009	0.010	0.003 *	0.008	Age, Gender, and Region
A	DC16	0.000 *	0.368	0.000 *	0.000 *	Gender
P	DC17	0.339	0.001 *	0.012	0.001 *	Age and Education
I T	DC18	0.013	0.171	0.007	0.070	Age, Gender, Education, and Region
A	DC19	0.000 *	0.312	0.007	0.111	Gender, Education, and Region
L	DC20	0.000 *	0.734	0.004 *	0.257	Gender and Region
	DC21	0.001 *	0.176	0.490	0.713	Gender, Education, and Region
	DC22	0.000 *	0.037	0.065	0.989	Gender, Education, and Region
	DC23	0.162	0.023	0.019	0.591	Age, Gender, Education, and Region
	DC24	0.000 *	0.000 *	0.000 *	0.000 *	None
	DD25	0.000 *	0.653	0.041	0.003 *	Gender and Education

Source: SPSS 25 Outcome. (Note: \* Significance at the level of 0.05.)

Table 7. Correlation–regression analysis with dependent variable digital capital.

Model	Independent Variable	B	Beta	Sig.
1	(Constant)	1.197		0.000
	Digital Divide	0.585	0.591	0.000
2	(Constant)	1.101		0.000
	Digital Divide	0.643	0.649	0.000
	Digital Divide X Age	0.025	0.153	0.000
3	(Constant)	1.067		0.000
	Digital Divide	0.668	0.674	0.000
	Digital Divide X Age	0.025	0.156	0.000
	Digital Divide X Gender	0.010	0.047	0.000
4	(Constant)	1.076		0.000
	Digital Divide	0.644	0.651	0.000
	Digital Divide X Age	0.028	0.171	0.000
	Digital Divide X Gender	0.011	0.050	0.000
	Digital Divide X Education	0.006	0.046	0.000
5	(Constant)	1.115		0.000
	Digital Divide	0.697	0.704	0.000
	Digital Divide X Age	0.033	0.201	0.000
	Digital Divide X Gender	0.022	0.101	0.000
	Digital Divide X Education	0.008	0.063	0.000
	Digital Divide X Region	0.035	0.140	0.000

Source: SPSS 25 Outcome.

The correlation and regression analysis is conducted for the hypothesis testing. Hypothesis H1 is tested with direct measurement. Hypotheses H2, H3, H4, and H5 are tested with the interaction of the digital divide and age, gender, education, and region, respectively, as variables of social strata. Further, the stepwise regression is performed to measure the accurate impact of the digital divide separately and with interaction variables on digital capital, which is a dependent variable presented as equations below.

Thus, equations are framed as regression models, where models and equations are similarly numbered for each regression analysis. These equations are based on the analysis (Table 7) differentiated as the equation for a better understanding. It is clearly evident from these five equations that the demographical variables are moderating the effect. Moreover, every next equation is provided with an additional moderating variable, providing a comparative understanding of the effect of each moderating variable.

Model 1:

$$\text{Digital Capital} = 1.197 + (0.585 * \text{Digital Divide}), \quad (1)$$

Model 2:

$$\text{Digital Capital} = 1.101 + (0.643 * \text{Digital Divide}) + (0.025 * \text{Digital Divide X Age}), \quad (2)$$

Model 3:

$$\text{Digital Capital} = 1.067 + (0.668 * \text{Digital Divide}) + (0.025 * \text{Digital Divide X Age}) + (0.010 * \text{Digital Divide X Gender}), \quad (3)$$

Model 4:

$$\text{Digital Capital} = 1.076 + (0.644 * \text{Digital Divide}) + (0.028 * \text{Digital Divide X Age}) + (0.011 * \text{Digital Divide X Gender}) + (0.006 * \text{Digital Divide X Education}), \quad (4)$$

Model 5: Final regression equation

$$\text{Digital Capital} = 1.115 + (0.697 * \text{Digital Divide}) + (0.033 * \text{Digital Divide X Age}) + (0.022 * \text{Digital Divide X Gender}) + (0.008 * \text{Digital Divide X Education}) + (0.035 * \text{Digital Divide X Region}), \quad (5)$$

The study assessed the perception of the digital divide through 13 items [61] and 25 items [63] assessing the digital capital. ANOVA was conducted based on the demographic factors which are considered as the social strata dimension in the study, revealing a higher variance of opinion. The correlation and regression analysis is conducted for the hypothesis testing. Hypothesis H1 is tested with direct measurement. Hypotheses H2, H3, H4, and H5 are tested with the interaction of the digital divide and age, gender, education, and region, respectively, as variables of social strata. Further, the stepwise regression is performed to measure the accurate impact of the digital divide separately and with interaction variables on digital capital, which is a dependent variable (Table 7). Conceptually, all hypotheses were tested and there is a small moderating effect of strata impacting digital capital with digital divide.

## 5. Discussion and Conclusions

It is evident from the analysis that obstacles and barriers exist to hinder social and digital inclusion in India. Therefore, the data indicates toward the impact of the digital divide on the creation of digital capital, which is moderated by the different social strata, such as age, gender, education, and region (rural–urban) divide [75]. The analysis is in congruence with Pierre Bourdieu’s ideas on social, cultural, and economic capital, which is seen in the context of digital capital in this study. The findings based on the data analysis and tests reveal that there exists a digital divide and, hence, digital inequalities in India. The study reveals the need to address the digital inequalities and digital discrimination which exist in India. The study has significant implications for the leaders and policymakers to work towards inclusivity by bridging the digital divide and eliminating digital inequalities in India.

Modern Indian society should strive for inclusion, with no discrimination in terms of digital accessibility, reinforcing sustainability in society [76]. The study assessed the perception of the digital divide through 13 items [62] and 25 items [63] with demographic factors which are considered as the social strata dimension in the study, revealing a higher variance of opinion.

The research concludes by reaching the research objectives set at the beginning of the study, i.e., to explore the underpinning reasons for the digital divide in reinforcing social inequalities that are justified by ANOVA's analysis [68,77,78]. Another objective was to quantify the impact of the digital divide on digital capital statistically, as has been proven (Table 7). The third objective was to evaluate the moderating effect of social strata variables comparatively presented as five equations with a clear interaction and moderating effect of strata.

The study can have many implications for various beneficiaries. One of the most important benefits can be for the researchers, academicians, and, especially, for the students of sociology in India, where social science research has space to expand learning. The policymakers must evaluate their programs that can have inclusive growth and reduce the digital gap for higher sustainability [79]. The research can be an insight for global researchers about India and the research opportunity in India that can benefit society in a real sense.

## 6. Limitations and Future Study

The limitations of the study can be enumerated starting from the conceptualization itself. The previous research related to the concept is mostly qualitative in nature, and quantitative literature is rarely available for instrument formation. Therefore, one of the major challenges for the statistical assessment is instrument design. Yet another limitation is the geographical scope of the study, i.e., India is a vast country with huge socio-cultural and economic diversity. The study has taken sample respondents from North Indian states, which, itself, is a heterogeneous region and, therefore, the generalization cannot be made in terms of the pan-Indian context. It was difficult to obtain responses from remote areas of the country as, due to COVID-19 restrictions, physical interaction and collection of data were not feasible, which can impact the accuracy of data to a certain extent. However, the scope can be expanded considering these limitations prior to future research implementation.

Therefore, based on these limitations, there is a huge future scope of the study in terms of refinement in the quantitative studies related to the concept, as well as the opportunity to develop and test new instruments that can measure Indian society in a better and more accurate way [80–83]. Yet another future scope of the study can be the implementation of such study in different states of India, as well as across the globe, for defining and explaining the role of different social strata in society. There can be future scope by considering various other demographic variables that can be tested statistically, both for the Indian context as well as across the world. It is also true that the degree or extent of impact in a quantitative sense also can be further investigated in different scenarios and societies [84]. The present study can be taken as groundwork in the field and several other hypotheses and methodological approaches can be implemented for further such studies.

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