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Assessing Accessibility and Inclusivity in Digital India Services: A Citizen's Perspective

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ABSTRACT

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Keywords: citizen, digital India services, awareness,

Digital India is an initiative taken for the citizens to access the government services in a digital forum. The government is trying to confirm the vision and pillars of digital India program by investigating the citizen's perspective on digital services. This current study aims to investigate the citizen awareness, explore the citizen opinion on digital India services and to determine citizen opinion on features associated with digital India services. This research is based on descriptive research design and target populations are the Citizens of Tamil Nadu. The sampling method used in this research is non-probability convenience sampling with a sample size of 505 participants. Structured questionnaires using Likert 5-Point scale was used to collect data. The findings exposed that the awareness and perception of digital India services towards digital India initiative at Tamilnadu was highly valued and they recognized that the Citizens are aware about digital India service features and advantages having the optimistic view on digital India initiative. This research study suggests that keeping citizens involved with the digital India services is the most significant aspect and it leads them to feel selfconfident and self-reliant towards better results. The future study would be to pre-determine categories like usage, adoption, loyalty and satisfaction and citizen empowerment through digital India services.

1. INTRODUCTION

empowerment, opinion

Digital India initiative is a campaign taken for the citizens in order to utilize the services provided by the government in the online platforms. The honourable Prime Minister of India started the initiative on 1st July 2015 [1, 2]. The government is taking huge efforts towards maximising the economic value and transparency in the country thereby uplifting the citizens and driving them towards a better society [3]. Digital India Services minimise the usage of paper work and aids in sharing electronic documents and guarantees individuals genuineness in accessing their documents online [4, 5]. According to the Annual report 2022-23 of the Ministry of Electronics & Information Technology Government of India, the following are the objectives of the digital India initiative [6].

- To ensure the delivery of e-services through einfrastructure.
- To enhance the manufacturing industry of electronics hardware and IT-ITeS industry.
- Implementation of Research and Development Framework.
- To form a secure cyberspace in India and support individuals to develop digital Skills and network of Knowledge.
- To enhance Indian participation in the Worldwide Platforms of Internet Governance.

The digital India visions are segregated into three parts [7,

- 8]:
- **Digital Infrastructure**
- Governance and services on demand
- Digital Empowerment of Citizen

The key aspect of digital India comprises of pillars of digital India programme, they are [9].

- **Broadband Highways**
- Universal access to phones
- Public Internet Access Program
- Reforming Government through Technology
- E-Kranti (Electronic Delivery of Services)
- Information for all
- Make in India (Electronics + Software)
- IT for Jobs (Skills)
- Early Harvest Programmes

To ascertain visions and pillars in this Initiative, Indian administration engaged with numerous plans in terms of improving online infrastructure, connecting high speed internet network in the rural areas, increasing internet and mobile connectivity in townships, establishment of common post offices and service centres, maximising online offices, restoring delivery of service through electronics, contributing to MyGov, promising zero import, preparing citizens in BPO as well as generating safe Emails & SMS alerts [10]. The adoption of Digital forums and technologies have been rapidly blooming in India with internet access expanding to over 760 million citizens thereby striving to be one of the many countries with the largest Internet users with the minimal tariff. India ranks to be the third largest digitalised country in the world preceding the United States and China in the first and Second Place [11]. Therefore, the key strength of the digital India initiative is to create a digital platform for the entire nation in all the sectors and departments [12]. The administration is clear about this plan in the country with the possibilities of revamping India and providing services in an effective approach [13, 14]. Government is encouraging novel scientific innovation which benefits the citizens and different organisations towards establishing a match with fairness and participation for all [15, 16].

Digital India is the prerequisite in modern era paradigm, whether it is digital services for users [17] or E-governance or Common Service Centres for technology evolving and changing the way people, groups and societies connect towards learning, working, and governing [18-21]. This initiative is focused on helping users to gain better knowledge with the aid of government services in the background coupled with benefits of the marginalized community [22]. Citizen participation, involvement, attitude, engagement and utilization of the services provided by the government websites are the prerequisites and they fulfilled the requirement of regional languages based on behavioral intention [23, 24]. Most importantly, digital progress also supports and increases digital access which explore more deeply into the usage of internet access [25, 26].

It is important to use technology in the field of education, provide needed information about current technology in rural areas, thereby enabling everybody to recognise developing technologies [27]. The government is actively disseminating information to individuals in places such as colleges, schools, communal halls etc. Several individuals know about digital India programme however they are unaware of the digital India services [28]. The implementation of digital India initiative will create pleasing results by generating new openings for citizens [29].

1.1 Statement of the problem

Digital India is the initial phase for digital revolution. It is taking the current situation and outlining the digital India initiative through the performance of the country [28]. Few researchers have acknowledged that stakeholders like the Government and citizens have a major role in executing this initiative [30, 31]. But the presence of insufficient scientific evidence will help in examining people's understanding and their opinion about digital India service in the state of Tamil Nadu. This study is needed to assess and endorse the awareness of digital India service which would pave way to understand its importance and areas of improvement for future sustenance. The study also examines individuals' perceptions of the value of digital India services. The current study will help the authorities make quick decisions since it determines the link among the vision, pillars, features, and opinion significance of the Initiative. The necessity of this research is to determine whether the users have a positive approach towards actively partaking in the Digital India initiative which would eventually help India to be empowered in the domain of technology [27].

1.2 Purpose of the study

The purposes of this study are as follows:

- To determine the citizen awareness of digital India services in Tamil Nadu.
- To investigate the people's opinion for enhancing the digital services in Tamil Nadu.
- Explore citizen opinion and features associated with digital India services for digital transformation in Tamil Nadu.
- To evaluate the socioeconomic status of citizens in Tamil Nadu.

1.3 Literature review

1.3.1 Vision of digital India programme

The model of digital India is implied in all domains though in-depth studies are most uncommon in the existing knowledge pool. Most of the schemes and services are related to the vision of digital India [32]. It reveals existing literary mandates that digital India vision has key components that are prerequisites to be identified using digital mediums [33]. Earlier studies underlined digital India initiative as something beyond that, as digital India vision supports and transforms the effective use of digital services in a contemporary era [34, 35]. This aligns with the Saudi Arabia's Digital Vision to boost economic growth, improve public services, and raise quality of life. Key objectives of their initiative include digital infrastructure, artificial intelligence, e-government services, and data analytics [36]. Further it has been highlighted that the digitalization of the Indian Economy will have a positive impact on the rural areas of India [37]. A digitally linked India can improve people's social and economic conditions by promoting non-agricultural economic activity and facilitating access to education, health, and financial services [38].

1.3.2 Pillars of digital India Initiative

This initiative focused by the Indian Government significant step towards creating an empowered nation. It is an essential initiative for understanding and integrating services into multiple formats or one stop platform services for citizens [39]. However, the aim of Digital India has a long way because majority of the pillars, which is nine in total, are encountering concerns related to implementation [38]. If this plan is effective, it will undoubtedly alter India by providing citizens with access to multimedia information, content, and services. Hence, providing an empirical basis and prerequisites for better understanding of digital India pillars and knowledge relies on civic engagement and digital presence [40]. This program resonates with the Singapore government's Smart Nation initiative to become the first global smart city-state, but faces challenges like public imagination, private sector impact, and stakeholder interests [41]. The outcome of digital India pillars indicate that it is necessary to safeguard online users by providing a safe digital environment as an appropriate framework [42]. Access to the Internet and reading skills are essential for citizen-government engagement [43].

1.3.3 Features of digital India programme

Citizens engaging in the use of digital India are transformed by digital technology by ensuring easy accessibility, services at their fingertips etc. [44]. Though digital India features among the users is favourable, digital inclusion is more in the developing countries and it covers a variety of inequalities in access to internet and proximity to use digital India services [45]. In the United States on 23rd May 2012, a comprehensive Digital Government Strategy was announced with the goal of improving digital services for the American users. Another aspect of the digital strategy it aimed to attain efficacy, transparency, and novelty using adaptive source software [46]. Studies indicate that the youth is aware about the benefits and features of digital India [47]. They are much more aware and have a positive view about digital India. Moreover, a prerequisite to edify the merits of using the digital India initiative to the general community persists [48]. Digital infrastructure provides the basic services required for information technology and digital services across diverse nations, regions, and organisations. ICT tools, economic and corporate change, intercontinental cables, fibre optics, and wireless communication are all critical components of digital infrastructure. Software may also be considered a physical asset because it allows for multiple tasks [49].

1.3.4 Opinion about digital India programme

The Indian government is transitioning from a governmentcentered to a citizen-centered strategy, utilising ICT to enhance governance. The Digital India initiative and efforts have enhanced service delivery systems and reinforced governance by converting India into a digitally enabled country [50]. In this form of digital society, it is a prime challenge for the users who are digitally motivated to provide opinions about Digital India services because they find information to be overloaded in this digital world [51]. "Digital India" initiative is yet to be institutionalized and is fundamental in a robust manner that requires further diffusion and adaptation among the users [52]. The transformation of economies via the use of information and communication technology not only increases nations' competitiveness in the worldwide market, but also aids in the optimisation and improvement of corporate operations in the global business environment [53]. The effectiveness of Digital inclusion may be possible in the form of creating more awareness and adopting mobile technology in digital and life skills thereby enhancing potential and making it powerful in the rural regions [54]. A report highlighted Digital India's focus on digital empowerment, fostering economic growth, and positive changes in citizens' lives through efficient service access and government-citizen relationships [55]. The proposed impact of digital India will create a positive opinion about data-driven governance model in terms of social impact, digital inclusion, financial inclusion, economic impact and environmental impact [56, 57].

2. METHODOLOGY

2.1 Research framework



Figure 1. Research Model 1



Figure 2. Research Model 2

The research model for the study is shown (Figure 1 and Figure 2) where the independent variables are Vision of digital India and features of digital India. The Dependent variables are Opinion about digital India though they act as outcome factors. The research model 1 delves into understanding the association between features, vision and opinion about digital India whereas the research model 2 looks into features, pillars and opinion about digital India.

2.2 Research hypotheses

This research explores the citizen's opinion and features associated with digital India services for digital transformation in Tamil Nadu, and the relationship between these factors will support us to formulate the following hypotheses.

- H₀1: There is no significant difference between the gender and the features of digital India services
- H₀2: There is no significant difference between the area and the opinion about Digital India services
- H₀3: Features of digital India do not have direct influence on the opinion about digital India
- H₀4: Vision of digital India does not have direct influence on the features of digital India
- H₀5: Vision of digital India does not directly influence the opinion about digital India
- H₀6: Pillars of digital India does not have direct influence on the features of digital India
- H₀7: Pillars of digital India does not have direct influence on the opinion about digital India

2.3 Research methodology

2.3.1 Target population and sampling design

This study adopted a descriptive approach to determine the citizen view about digital India programme in Tamil Nadu.

The target population of this research is the citizens living in the state of Tamil Nadu. The sample size consists of 505 Citizens in Tamil Nadu [23]. Secondly, sampling design used is non-probability convenience for the target population [52, 58]. The size of the sample size was determined by using the following formula:

$$N = (z^{2*}p^*q) / S.E^2$$
(1)

In this study 95% confidence interval is chosen,

- Z indicates the relevant confidence interval which is chosen as 1.96
- P indicates the likelihood of an event (50%) is unknown, but is estimated to be 0.5

- q reflects the likelihood that the event will not occur (Q = 100 - P)
- S.E. is the desired margin of error (acceptable sample error) as +/- 5 percent of the true value

Thereby the sample size was calculated to be, N = (1.96 * 1.96 * 0.5 * 0.5) / (0.05 * 0.05) = 384.16

A sample size of nearly 385 was desired for the study. For a statistically sound research the researcher collected data from 505 participants which was used for further analysis. The target population contains of the citizens residing in Tamil Nadu.

2.3.2 Tool developed

In this study, the data was collected with the help of a structured questionnaire using 5-Point Likert scale [58, 59]. This questionnaire has 27 questions divided to 3 divisions (Demographics profile, Statement related to vision, pillars & features as well as opinion of digital India Initiative) which was framed by the researcher using the information procured from official government websites and reports. A hypothetical model was framed for which fit indices were acquired to ensure a good model fit.

2.3.3 Data analysis

The data was analyzed using IBM SPSS statistical package [60]. Descriptive as well as inferential analysis was conducted using the collected data to draw valid inferences on digital India accessibility and inclusivity.

3. RESULTS

Table 1 showcases the descriptive data that comprises of mean, standard deviation, skewness and kurtosis. The demographic profile has been collected from a few variables including gender, age, education, income level and Area. The findings show that out of 505 respondents 53.5% were males and 46.5% of the respondents were females. The Respondents' age varies with 17% being 18-25 years, and 46.9% belonging to the age group of 26-35 years and 28.9% participants within the age limit of 36-45 years and 7.2% were older than 46 years

of age. In order to determine the education level of respondents, 66.3% & 21.4% of respondents are studying in college education (UG & PG), 8.1% of respondents are studying in school education and the remaining 4.2% of them are having professional degrees. In terms of area of study, 62% were urban areas and 38% of respondents belonged to rural areas.

Table 2 highlights the ranks of the different pillars of digital India initiative, as per citizens it was clearly found that first they prefer Universal access to phones / Mobiles, followed by Public Internet Access Programs, Information for all, E-Kranti and so on. The least preference is given to the early harvest programme. The most prominent thing is that citizens are witnessing the major reforms that are being brought about through mobile governance and digital governance throughout the nation.

Table 3 shows that the mean average of the Digital India vision and Digital Infrastructure outperforms Governance, ondemand services, and digital empowerment. Citizens highly prefer Digital Infrastructure for their effective use of services and followed by Digital Empowerment that holds the second most preferable choice for citizen's point of view. The last choice is Governance and services on demand trying to bring services at doorstep.

Table 4 showed that the mean value of the male group is 19.53 percentage whereas 19.42 percentage of the participants were females. This infers that the Easy access of services, Availability of needed services, Government services on finger tips, User friendly and Dedicated Citizen support is greater among the Male participants when compared to the Female participants of the study. This difference can pertain to the gender divide that persists globally with data collected in 2022 showcasing that 62% of the men availing internet services compared with only 57% women accessing internet worldwide [61]. Data from 41 countries analysed by UNICEF shows that female youth are 30 percent less likely to have a mobile phone when compared to the male youth coming from the same household [62]. It is also shown that the p value is lesser than the Significant Value (0.01 and 0.05) in all the 5 cases. As the overall mean score (0.001) is also lesser than the significant value, Null Hypothesis is rejected.

 Table 1. Descriptive analysis

	Ν	Mean	/Iean Std. Dev		ewness	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Gender	505	1.47	.499	.139	.109	-1.988	.217
Age	505	2.27	.834	.335	.109	178	.217
Education	505	2.22	.645	.701	.109	.980	.217
Income	505	2.17	.932	.521	.109	528	.217
Area	505	2.25	.712	.296	.109	156	.217
Valid N	505						

Table 2. Mean analysis - pillars of digital India initiative

Criterion	SA	Α	Ν	DA	SDA	Mean	SD	Rank
1. Broadband Highways	110	251	110	21	13	3.84	0.900	VII
2. Universal access to phones / Mobiles	164	207	99	20	15	3.96	0.973	Ι
3. Public Internet Access Program	135	254	83	24	09	3.95	0.884	II
4. E-Governance	130	233	106	25	11	3.88	0.922	V
5. E-Kranti (Electronic Delivery of Services)	126	243	103	28	05	3.90	0.870	IV
6. Information for all	125	241	112	16	11	3.91	0.885	III
7. Make in India (Electronics + Software)	117	243	107	24	14	3.83	0.927	VIII
8. IT for Jobs (Skills)	121	234	108	36	06	3.85	0.908	VI
9. Early Harvest Programmes	122	228	112	36	07	3.82	0.921	IX

Table 3. Mean analysis - vision of digital India initiative

Criterion	SA	Α	Ν	DA	SDA	Mean	SD	Rank
1. Digital Infrastructure	121	240	110	29	05	3.88	0.873	Ι
2. Governance and services on demand	102	240	116	38	09	3.77	0.917	III
3. Digital Empowerment	121	235	102	31	16	3.82	0.970	II

Table 4. Independent sample t-test for significant difference between the genders and the features of digital India services

Criterion	M: (N=	ale 270)	Fema (N=2	ale 35)	T – Value	P – Value
	Mean	S.D	Mean	S.D		
1. Easy to access	3.81	.985	3.78	.984	0.84	0.000**
2. Availability at need	3.74	1.013	3.83	.960	0.28	0.000**
3. Government services on finger tips	4.02	.924	3.83	.913	0.34	0.041*
4. User friendly	4.06	.931	3.98	.913	0.53	0.048*
5. Dedicated Citizen support	3.90	.936	4.00	.824	0.746	0.023*
Total	19.53		19.42			

Table 5. Independent sample t-test for significant difference between the area and the opinion about digital India services

Criterion	Urb (N=3	oan 813)	Rur (N=1	al 92)	T – Value	P – Value
	Mean	S.D	Mean	S.D		
1. Citizen Support	3.93	.837	4.03	.847	0.324	0.000**
2. Business Enablement	3.82	.975	3.79	.955	0.117	0.024*
3. Agricultural Edge	3.88	.890	3.83	.953	0.006	0.042*
4. Healthcare Access	3.91	.951	3.85	.971	0.058	0.042*
5. Education Spread	3.89	.967	3.88	.876	0.311	0.000**
6. Financial Inclusion	4.03	.879	3.93	.954	0.722	0.000**
Total	23.46		23.31			

From the above Table 5, it is observed that the mean value of individuals in the urban area is 23.46 against 23.31 for the participants belonging to the rural area. This infers that the Citizen Support, Business Enablement, Agricultural Edge, Healthcare Access, Education Spread and Financial Inclusion are more for the urban area respondents than the rural area respondents. It is also seen that the p value is lesser than the Significant Value (0.01 and 0.05) in all the 6 cases. As the overall mean score (0.001) is also lesser than the significant value, Null Hypothesis is rejected. This might be due to the challenges faced by the government in ensuring infrastructure development in the rural areas encountered by difficulties such as geographical and logistical constraints [63].

3.1 Measuring the structure and measurement of model

This study was applied to test the model fit through Smart PLS software via structural equation modeling (SEM) utilizing convergent and Discriminant validity [64]. Smart PLS technique supports researchers to quantify the structural equation modelling via managing complex models and multiple relationships without data normality assumptions [65-68].

structured questionnaire are adopted from the previous studies. Our research is informative because the indicators' validity and reliability tests are analysed, which are obtained by squaring all exterior loadings [69]. The measuring model's construct validity was assessed using the values of standardised factor loadings, composite reliability, and average variance extracted (AVE). As seen in previous [67], the standardized factor loadings are above the minimum recommended level of 0.6. Similarly, few authors suggested the following two conditions justified to examine the convergent validity in PLS SEM. The first criteria are, composite reliability value which is less than 0.7 is not acceptable for performing explanatory research and the values of composite reliability in the present study are clearly acceptable. The second criteria are, the values of AVE of all the constructs are above the recommended level of 0.05 [68, 70, 71].

examine the hypothesised research model. The items of the

Table 6 and 7 determines the convergent validity of our proposed Model 1 and Model 2 by Smart PLS version.

Based on the output values (Table 6 and 7), thus the convergent validity two conditions were fulfilled based on CR value is more than 0.7 and AVE values are more than 0.5 it can be said that there is adequate validity in the present research study.

3.1.1 Convergent validity

The study employed SEM technique using Smart-PLS to

Table 6. Convergent validi	ty for Model 1
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		Valio	lity Test		Reliability Te	est
Variables	Indicator	Loading Factor	Conclusion	AVE>0.5	CR>0.7	Conclusion
	F1	0.658	Valid			
Features of	F2	0.662	Valid	0.522	0.945	Daliahla
Digital India	F3	0.764	Valid	0.325	0.845	Reliable
	F4	0.791	Valid			

	F5	0.731	Valid				
	O1	0.725	Valid				
	O2	0.708	Valid				
Opinion shout Digital India	O3	0.696	Valid	0.510	0.917	Daliable	
Opinion about Digital india	O4	0.753	Valid	0.319	0.817	Reliable	
	O5	0.726	Valid				
	O6	0.716	Valid				
Vision of	V1	0.828	Valid				
VISION OI	V2	0.845	Valid	0.719	0.885	Reliable	
Digital India	V3	0.87	Valid				

		Valio	lity Test		Reliability To	est
Variables	Indicator	Loading Factor	Conclusion	AVE>0.5	CR>0.7	Conclusion
	F1	0.694	Valid			
Factures of	F2	0.691	Valid			
Digital India	F3	0.757	Valid	0.525	0.847	Reliable
Digital India	F4	0.771	Valid			
	F5	0.707	Valid			
	01	0.723	Valid			
Opinion about Digital India	O2	0.706	Valid			
	O3	0.698	Valid	0.519	0.966	Daliable
	O4	0.751	Valid		0.800	Reliable
	O5	0.728	Valid			
	O6	0.717	Valid			
	P1	0.698	Valid			
	P2	0.7	Valid			
	P3	0.743	Valid			
D'11 (P4	0.809	Valid			
Pillars of	P5	0.778	Valid	0.582	0.926	Reliable
Digital India	P6	0.78	Valid			
	P7	0.811	Valid			
	P8	0.766	Valid			
	P9	0.771	Valid			

Table 7. Convergent validity for Model 2

3.1.2 Discriminant validity

In discriminant validity, "the square root of AVE of each latent variable ought to be than the relationship among the idle factors, that is known as Fornell-Lacker" [72]. Tables 8 and 9 considering the Fornell-Lacker rule proving discriminant validity, the basic examination of square root of AVE values is higher than the other correlation values.

The Model 1 shows that the construct AVE of Features of Digital India, Opinion about Digital India and Vision of Digital India found to have square root of 0.723, 0.721 and 0.848 respectively and In the Model 2 construct AVE of Features of Digital India, Opinion about Digital India and Pillars of Digital India found to have square root of 0.725, 0.721 as well as 0.763 respectively, these values are higher than their values of correlation of their distinctive segments. This approach shows that the result validates the Discriminant validity is settled as seemed in Tables 8 and 9 (Figures 3 and 4).

 Table 8. Discriminant validity test (the Fornell-Lacker) for

 Model 1

	Features of Digital India	Opinion about Digital India	Vision of Digital India
Features of Digital India	0.723		
Opinion about Digital India	0.537	0.721	
Vision of Digital India	0.299	0.229	0.848



Figure 3. Proposed Model 1 using SEM



Figure 4. Proposed Model 2 using SEM

Table 9. Discriminant validity test (the Fornell-Lacker) forModel 2

	Features of Digital India	Opinion about Digital India	Pillars of Digital India
Features of Digital India	0.725		
Opinion about Digital India	0.524	0.721	
Pillars of Digital India	0.45	0.257	0.763

3.1.3 Test of hypothesis

The below Tables 10 and 11 indicates the results of SEM between the proposed constructs.

Using Structural Equation Model, hypothesis testing was done to analyse the proposed model.

According to Table 10, features of digital India having significant influence on opinion about digital India ($\beta = 0.466$,

t = 9.571, p = 0.001). Similarly, the results indicate that vision of digital India has significant influence on features of digital India (β = 0. 306, t = 4.67, p = 0.001). Lastly, vision of digital India does not have significant influence on opinion about digital India (β = 0. 086, t = 1.623, p = 0.105). From the above table, we can posit those hypotheses: H₀3 and H₀4 are rejected, whereas we fail to reject the H₀5.

According to Table 11, features of digital India having significant influence on opinion about digital India ($\beta = 0.512$, t = 8.832, p = 0.001). Similarly, the results indicate that pillars of digital India has a significant influence on features of digital India ($\beta = 0.450$, t = 8.44, p = 0.000). Pillars of digital India does not have significant influence on opinion about digital India ($\beta = 0.027$, t = 0.492, p = 0.623). From the above table, we can posit those hypotheses: H₀3 and H₀6 are rejected, while on the contrary H₀7 are statistically less significant and hence we fail to reject it.

 Table 10. Model 1 results of structural equation modelling for hypothesis testing

Hypothesis	Path	Τ (β)	T-Value	P-Value	Result
H_03	Features of Digital India -> Opinion about Digital India	0.466	9.571	0.001	Significant
H_04	Vision of Digital India -> Features of Digital India	0.306	4.67	0.001	Significant
H_05	Vision of Digital India -> Opinion about Digital India	0.086	1.623	0.105	Not Significant

Table 11. Model 2 results of structural equation modelling for hypothesis testing

Hypothesis	Path	Τ (β)	T-Value	P-Value	Result
H_03	Features of Digital India -> Opinion about Digital India	0.512	8.832	0.001	Significant
H_06	Pillars of Digital India -> Features of Digital India	0.450	8.44	0.001	Significant
H_07	Pillars of Digital India -> Opinion about Digital India	0.027	0.492	0.623	Not Significant

4. DISCUSSION

As a result of the Initiative, especially in the past few years, citizens are aware about digital India Programme and have a positive view and opinion about digital India vision. The findings revealed that the advantage of consuming digital India services is based on the data which is given by citizens and it will enable citizens to use services in digital forums. This study would aid the policy makers and stakeholders in the digital India programme. This study highlights the differences in the opinion about digital India services that exists among the urban and rural areas as well the different genders. Digital divide, lack of awareness and the socioeconomic factors can be some of the prevailing causes for the same. From the study, it was further highlighted that there are differences in the perception of the different pillars and vision. Universal access to phones / Mobiles and Digital Infrastructure was found to be the most prominent pillar and vision among the citizens. This therein shows the need for the government to focus on the other aspects of digital India and to promote it's prominence among the citizens. Though a positive outlook is present towards the vision and pillars of the digital India Initiative, it is the responsibility of the government to ensure that the advantages that come with digital services are available for all.

5. IMPLICATIONS

From the outcomes, some important implications can be

given in this regard. First, some citizens have positive opinion towards the digital India programme, the findings show the successful implementation of the digital India initiative thereby stating that the citizens should feel confident about using secure digital service systems. Secondly, citizens' support was another important aspect that should be taken care of as the adoption of digital India services requires that the citizens should have the required support. Thirdly, it is observed that the appropriate government should try to involve people with experience in digital technology to initiate successful implementation of the digital India services. The Government should take an assessment of the risks (lack of infrastructural & technological support, lack of citizen support, lack of coordination between departments, shortage of awareness about digital India services) and try to overcome these risks involved when smoothly implementing digital India services.

This study thus recommends that citizens are involved with the digital India services which are the significant aspect of digital India programme as it indicates them to feel selfassured and be self-reliant towards a better outcome. This initiative of the government being studied in the current study aligns with the sustainable development goal 9 on Industries, innovation and Infrastructure. This digital India initiative ensures that citizens are able to access information and services through digital platforms. The government further aids the SDG 9 by developing infrastructure and taking steps to reduce Digital Divide thereby promoting technological transformation and inclusion.

6. CONCLUSIONS

Digital India initiative is supporting all the types of citizens at different levels. In the current research outcomes, some key implications are considered. This research study is directed to understand the citizen opinion about digital India programmes in Tamil Nadu. No studies are presented without its own limitation. In this research study, the limitation is that a sampling method as convenience sampling to achieve the research goals. The results are confined to the geographic boundaries of Tamil Nadu. Future research could delve on to understand a bigger population with a better sampling method. The differences in the representation of the participants in the Urban and rural area needs to be addressed in future studies. Hence the results are determined by citizens having an optimistic view towards digital India services, but there can be further enriched results for better citizen upliftment and making it possible to change the face of the nation undoubtedly. This research directed only citizens' opinion about digital India services on Tamil Nadu for sampling, in forthcoming research there is an opportunity for conducting the in-depth study, so the entire nation can be targeted. Further studies can further delve into understanding the digital India initiative in the lens of Technology Acceptance Model. The future research could explore on predetermined variables like satisfaction, usage, loyalty and empowerment of citizens through digital India initiative.

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REFERENCES

- Aiswarya, V. (2019). Digital India A roadmap to sustainability. International Journal of Innovative Technology and Exploring Engineering, 8(5): 571-576.
- [2] Borkar, S. (2017). Awareness and usage of digital India programme: A study of bicholimtaluka. ZENITH International Journal of Multidisciplinary Research, 7(11): 270-284.
- [3] Chawla, S., Bakshi, K. (2016). Digital India: A reality check. International Journal of Business Management and Scientific Research, 5(1): 14-19.
- [4] Harjot, K., Daljit, K. (2015). E-commerce in India -Challenges and prospects. International Journal of Engineering and Techniques, 1(2): 36-40.
- [5] Anooja, A. (2015). Digital India with e-commerce revolution in rural India: Transform India digitally and economically. Engineering International, 3(2): 57-64.
- [6] Ministry of Electronics & Information Technology, Government of India. (2022). Annual Report 2022-23. https://www.meity.gov.in/, accessed on Jun. 16, 2024.
- [7] Midha, R. (2016). Digital India: Barriers & remedies. International Journal of Innovative Research in Science and Engineering, 2(8): 414-418.
- [8] Jinal, J., Tere, G. (2015). Digital India: A need of hours. International Journal of Advanced Research in Computer Science and Software Engineering, 5(8): 317-319.
- [9] Goswami, H. (2016). Opportunities and challenges of digital India programme. International Education and

Research Journal, 2(11): 78-79.

- [10] Sivakumar, B. (2022). Digital India Empowerment of citizen. Journal of Positive School Psychology, 6(2): 284-290.
- [11] Mishra, D., Kedia, M., Reddy, A., Ramnath, K., Mayank Manish. (2024). State of India's Digital Economy (SIDE) Report, 2024 (By Indian Council for Research on International Economic Relations (ICRIER)). https://icrier.org/pdf/State_of_India_Digital_Economy_ Report_2024.pdf, accessed on Jun. 16, 2024.
- [12] Rajkumari, S., Manjujohari, Neeta, G. (2016). Digital India programme and present educational system. International Journal of Current Research, 8(5): 32205-32208. Retrieved from: https://www.journalcra.com/article/digital-indiaprogramme-and-present-educational-system, accessed on Jun. 16, 2024.
- [13] Ritu, Khurana, A. (2018). Digital India Empowering Indian citizen through technology. Global Journal of Commerce & Management Perspective, 7(2): 14-18. https://doi.org/10.24105/gjcmp.7.2.1803
- [14] Ray, P.P. (2018). Digital India: Perspective, challenges and future direction. In 2018 International Conference on Power, Signals, Control and Computation (EPSCICON), Thrissur, India, pp. 1-8. https://doi.org/10.1109/EPSCICON.2018.8379594
- [15] Singhal, M. (2012). E-Commerce in India: A review. In National Conference on Communication Technologies & its impact on Next Generation Computing CTNGC 2012, Proceedings published by International Journal of Computer Applications® (IJCA), pp. 5-8.
- [16] Fernandes, J.W. (2018). Digitalization in India: Trends and challenges. International Journal on Recent Trends in Business and Tourism, 2(3): 45-47.
- [17] Reghunath, V. (2020). Digital India programme: A Constituent to E-Democracy in India. Journal of Critical Reviews, 7(13): 3933-3937.
- [18] Shewale, B.Y., Laturkar, V.N. (2019). Common service centers (Maha E-Seva Kendras): E-governance initiative in maharashtra under digital India. International Journal of Research in Social Sciences, 9(1): 541-554.
- [19] RamanaMurthy, D.V., Sastry, G.V.S.R.N.S.A. (2016). E-governance-reforming government through technology: A digital India initiative. International Journal of Innovative Research in Information Security, 9(3): 1-4.
- [20] Bhatia, A., Kiran, C. (2016). Rural development through E-Governance initiatives in India. IOSR Journal of Business and Management, 1(1): 61-69.
- [21] Kumar, M. (2014). Digital India: A vision of citizen empowerment and effective revolution in the field of egovernance. International Journal of IT-based Social Welfare Promotion and Management, 1(1): 1-8. http://doi.org/10.21742/ijswpm.2014.1.1.01
- [22] Kaikini, A.A., Mahalakshmi, C. (2017). Make in India, digital India and skill India: Awareness among graduate students-A study on Sagara Taluk. Anveshana Search for Knowledge, 7(1): 98-113. https://doi.org/10.23872/aj/2017/v7/i1/158414
- [23] Sneha, K.M., Babu, S.D. (2021). Citizen preference in digital India initiative: A study on communication strategy of Indian government web portals. Annals of the Romanian Society for Cell Biology, 25(6): 9401-9414.
- [24] Nandal, A.H., Singla, M.L. (2019). Investigating the

impact of metaphors on citizens' adoption of egovernance in developing countries: An empirical study. Transforming Government: People, Process and Policy, 13(1): 34-61. https://doi.org/10.1108/TG-04-2018-0026

- [25] Thampi, A.M. (2019). Digital divide in India: An analysis of India's performance with special reference to digital India initiative. Think India Journal, 22(39): 49-58.
- [26] Kaur, J. (2017). e-Kranti: A new transformation of egovernance in the era of digital India. Indian Management Studies Journal, 21(1): 183-196.
- [27] Nayyar, S., Singh, J. (2017). A study on the awareness of digital India programme in college students (Special reference to Raipur city). International Journal of Research in Science & Engineering, 6(4): 54-59.
- [28] Vicky, Kaushik, R. (2018). Digital India: A Future Perspective. Asia Pacific Journal of Research, 6(1): 13-15.
- [29] Kedar, M.S. (2015). Digital India new way of innovating India digitally. International Research Journal of Multidisciplinary Studies, 1(4): 1-10.
- [30] Rekha, M., Shanthi, R. (2018). A study on people perspective of digital India. International Journal of Engineering and Technology, 7(4): 989-992. https://doi.org/10.14419/ijet.v7i4.39.27743
- [31] Alathur, S., Ilavarasan, P.V., Gupta, M.P. (2016). Determinants of e-participation in the citizens and the government initiatives: Insights from India. Socio-Economic Planning Sciences, 55(1): 25-35. https://doi.org/10.1016/j.seps.2016.04.005
- [32] Petare, P., Mohite, P., Joshi, M. (2015). Digilocker (Digital Locker-ambitious aspect of digital India programme). GE-International Journal of Management Research, 3(6): 299-308.
- [33] Sambrani, V.N., Jayadatta, S. (2020). An insight on transforming India into a knowledge economy with Digital India initiative. Gedrag & Organisatie Review, 33(2): 621-634.
- [34] Gupta, D.A. (2019). Making India digital: Transforming towards sustainable development. Cosmos Journal of Engineering & Technology, 9(2): 1-6.
- [35] Gaur, A.D., Padiya, J. (2016). A study impact of 'Digital India 'in 'Make in India' program in IT & BPM sector. In Fourteenth AIMS International Conference on Management, pp. 326-331.
- [36] JOH Partners. (2024). Saudi vision 2030: Embracing digital transformation - JOH partners, JOH partners specialist UAE and KSA recruitment agency in finance, B2B SaaS and logistics. https://johpartners.com/saudivision-2030-embracing-digital-transformation/, accessed on Jun. 16, 2024.
- [37] Gupta, N., Arora, K. (2015). Digital India- A roadmap for the development of rural India. International journal of Business Management, 2(2): 1-11.
- [38] Sharma, J. (2016). Digital India and its impact on the society. International Journal of Research in Humanities & Soc. Sciences, 4(4): 64-70.
- [39] Borah, B. (2020). Digital India: Challenges & prospects. European Journal of Molecular & Clinical Medicine, 7(3): 525-530.
- [40] Jain, A. (2019). Digital India-targeting overall growth: A critical analysis. International Journal of Advance and Innovative Research, 6(1): 343-347.
- [41] Sipahi, E.B., Saayi, Z. (2024). The world's first 'Smart

Nation' vision: The case of Singapore. Smart Cities and Regional Development (SCRD) Journal, 8(1): 41-58. https://doi.org/10.25019/dvm98x09

- [42] Vij, D. (2018). Digital India: A vision to empower rural India. Asian Journal of Multidimensional Research (AJMR), 7(9): 402-413.
- [43] Prasad, K. (2012). E-governance policy for modernizing government through digital democracy In India. Journal of Information Policy, 2(1): 183-203.
- [44] Rao, D. (2016). Citizen participation in digital India A study in Andhra Pradesh. American International Journal of Research in Humanities, Arts and Social Sciences, 16(1): 70-74.
- [45] Mukherjee, R. (2019). Jio sparks disruption 2.0: Infrastructural imaginaries and platform ecosystems in 'Digital India. Media, Culture & Society, 41(2): 175-195. https://doi.org/10.1177/0163443718818383
- [46] Digital Government Strategy United States Department of State. (2022). United States Department of State, Mar. 11, 2022. https://www.state.gov/digital-governmentstrategy/, accessed on Jun. 16, 2024.
- [47] Shetty, V. (2019). A study of awareness among youth about digital India initiative. Journal of Emerging Technologies and Innovative Research, 6(4): 8-21.
- [48] Kumar, S.A., Sheetal, M. (2017). A review of digital India programme and comparative study of e-governance initiatives around world. Asian Journal of Research in Business Economics and Management, 7(8): 1-15. https://doi.org/10.5958/2249-7307.2017.00125.6
- [49] Singh Heer, M., Sharda, A., Sharma, V. (2021). COVID-19 corona virus pandemic: Is Digital infrastructure a solution? Wesleyan Journal of Research, 14(7): 173-185.
- [50] Mittal, S., Damle, M. (2021). Digital India transformation: Moving India forward. Palarch's Journal of Archaeology of Egypt/Egyptology, 17(6): 4767-4783.
- [51] Mishra, P., Rajnish, R., Kumar, P. (2016). Sentiment analysis of Twitter data: Case study on digital India. In 2016 International Conference on Information Technology (InCITe)-The Next Generation IT Summit on the Theme-Internet of Things: Connect your Worlds, pp. 148-153.

https://doi.org/10.1109/INCITE.2016.7857607

- [52] Saxena, S. (2018). Perception of corruption in egovernment services post-launch of "Digital India": Role of demographic variables. Digital Policy, Regulation and Governance, 20(2): 163-177. https://doi.org/10.1108/DPRG-02-2017-0007
- [53] Bezrukova, N., Huk, L., Chmil, H., Verbivska, L., Komchatnykh, O., Kozlovskyi, Y. (2022). Digitalization as a trend of modern development of the world economy. WSEAS Transactions on Environment and Development, 18(1): 120-129. https://doi.org/10.37394/232015.2022.18.13.
- [54] Nedungadi, P.P., Menon, R., Gutjahr, G., Erickson, L., Raman, R. (2018). Towards an inclusive digital literacy framework for digital India. Education+ Training, 60(6): 516-528. https://doi.org/10.1108/ET-03-2018-0061
- [55] ASSOCHAM. (2015). E-governance and digital India empowering Indian citizens through technology. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/in/Doc uments/technology-media-telecommunications/intmtempowering-indian-citizens-through-technologynoexp.pdf, accessed on Jun. 16, 2024.

- [56] Kapoor, N.J., Maurya, A.P., Raman, R., Govind, K., Nedungadi, P. (2021). Digital India egovernance initiative for tribal empowerment: Performance dashboard of the ministry of tribal affairs'. In Information and Communication Technology for Competitive Strategies (ICTCS 2020). Lecture Notes in Networks and Systems. Springer, Singapore. https://doi.org/10.1007/978-981-16-0882-7_92
- [57] Sharma, J. (2016). Digital India and its impact on the society. International Journal of Research in Humanities & Soc. Sciences, 4(4): 64-70.
- [58] Sharma, P.B., Sarmah, R. (2020). Perception and awareness of youth towards digital India campaign. International Journal of Management, 11(6): 1381-1393. https://doi.org/10.34218/IJM.11.6.2020.127
- [59] Roy, S.G., Upadhyay, P. (2017). Does e-readiness of citizens ensure better adoption of government's digital initiatives? A case based study. Journal of Enterprise Information Management. 30(1): 65-81. https://doi.org/10.1108/JEIM-01-2016-0001
- [60] Kumar, S.S., Jeyaprabha, B. (2021). Citizen awareness and perception on digital India services in greater chennai corporation. Annals of the Romanian Society for Cell Biology, 25(4): 6541-6548.
- [61] Bridging the Gender Divide. (2023). ITU. https://www.itu.int/en/mediacentre/backgrounders/Page s/bridging-the-gender-divide.aspx, accessed on Jun. 16, 2024.
- [62] Avanesian, G., Pandolfelli, L., United Nations Children's Fund, Global Partnership for Education Knowledge and Innovation Exchange, & International Development Research Centre. (2023). Bridging the gender digital divide: Challenges and an urgent call for action for equitable digital skills development. United Nations Children's Fund (UNICEF).
- [63] Mubasher Hassan, M., Rather, G.M. (2020). Free space optics (FSO): A promising solution to first and last mile connectivity (FLMC) in the communication networks. International Journal of Wireless and Microwave Technologies (IJWMT), 10(4): 1-15.

https://doi.org/10.5815/ijwmt.2020.04.01

- [64] Ringle, C., Da Silva, D., Bido, D. (2015). Structural equation modeling with the SmartPLS. Brazilian Journal of Marketing, 13(2): 56-73. https://doi.org/10.5585/remark.v13i2.2717
- [65] Safeer, A.A., He, Y., Abrar, M. (2020). The influence of brand experience on brand authenticity and brand love: An empirical study from Asian consumers' perspective. Asia Pacific Journal of Marketing and Logistics, 33(5): 1123-1138. https://doi.org/10.1108/APJML02-2020-0123
- [66] Wong, K.K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. Marketing Bulletin, 24(1): 1-32.
- [67] Hair Joseph, F., Risher Jeffrey, J., Sarstedt, M., Ringle Christian, M. (2019). When to use and how to report the results of PLSSEM. European Business Review, 31(1): 2-24. https://doi.org/10.1108/EBR-11-2018-0203
- [68] Sarstedt, M., Ringle, C.M., Hair, J.F. (2017). Partial least squares structural equation modelling. Handbook of Market Research, 26(1): 1-40. https://doi.org/10.1007/978-3-319-05542-8_15-1
- [69] Gorla, N., Somers, T.M., Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. Journal of Strategic Information Systems, 19(3): 207-228. https://doi.org/10.1016/j.jsis.2010.05.001
- [70] Chin, W.W. (1998). The partial least squares approach to structural equation modelling. Modern Methods for Business Research, 295(2): 295-336.
- [71] Hair Jr, J.F., Hult, G.T.M., Ringle, C., Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 2nd Edition, Sage Publications Inc., Thousand Oaks, CA.
- [72] Ghadi, I., Alwi, N., Bakar, K.A., Talib, O. (2012). Construct validity examination of critical thinking dispositions for undergraduate students in University Putra Malaysia. Higher Education Studies, 2(2): 295-336. https://doi.org/10.5539/hes.v2n2p138