A Proposed Framework to Adopt Mobile App in 'e-District' Projects to Move One Step Ahead for Successful Implementation

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Abstract Government of India (GI) have been driving the e-Governance projects rolling out program in India with serious note, keeping in mind to deliver Government services in real time at anywhere and at any time on the basis of citizen's needs. The primary focus of GI is to do proper transformation of Indian rural and urban society for adopting technology to facilitate Government services. GI is putting lot of effort and money for transferring India to Digital India considering the fact for shifting behaviors and expectation of common citizens on the matter of Government services. The reflections of changes among the Indian societies already have been accounted and it has been noticed that common citizens are showing tremendous interest to use e-Governance applications as front end interface for their daily Government interactions. In these initiatives, GI has deployed 'e-District' as one of the major project of Mission Mode Project (MMP) under National e-Governance plan of GI to offer citizens centric services which falls under district administration portfolio. The "e-District" project has been designed and build with based on three infrastructure pillars, the State Wide Area Network (SWAN) for communication, State Data Centre (SDC) for central data repository, and Common Service Centers (CSCs) for common citizens service counter. But, it has been observed that there is huge GAP in between Government expectations (services at door step) and its actual implementation of "e-District" projects. In the present implementation approach, essentially citizens have to attend KIOSK or Common Service Center (CSC) to avail Government services. Now-a-days, there is no way to deny that the acceptability of smart phone is growing and spreading and reaching to people very rapidly. Carrying this understanding, it could be anticipated that 'e-district' mobile apps could be solution to

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minimize this GAP and Government services can reach out at citizens door steps very easily. In this study, author's main objective is to propose a framework to introduce mobile app for brining Government services at common citizen's door steps. This improvement and enhancement of existing 'e-District' project is supposed to ensure sustainability of e-Governance because it will change attitude and mentality of society towards acceptance of e-Governance in case government services, thus it will transform our society in one steps a-head for accepting and implementing digital Governance in India.

1 Introduction

On 18th May 2006, Government of India (GI) has taken ample initiatives for implementing e-Governance projects across the country through National e-Governance plan (NeGP) [1, 2]. The main focus of NeGP plan was to deliver all Government services to the common peoples at the possible nearest location with the help of common service centers (CSC) and kiosks. The primary expectation of GI from these initiatives is to bring more efficiency, transparency and reliability on Government service delivery where common people will bear very minimum cost to avail Government services. In NeGP plan, GI had decided to roll out 27 mission mode projects (MMP) and 8 components for facilitating Government services to the common people. Among all MPPs project, the 'e-District' project has been identified as major project for providing more citizens centric services. The 'e-District' project has been designed to cater all the Government services provided by district magistrate administration. The 'e-District' project has automated most of the approval workflows, did huge process improvement through digitization, and integrated all related departments for quick communication, ensured data security through Sate Data center (SDC) data repository. This application is very much comprehensive and internet based web site that acts as digital interface for Government's services portfolio. On a present note, all state across the country started to implement 'e-District' project. Few of them have been rolled out in pilot phase, few have got fully operational and rest have been planned to roll out during the year of 2015–16. The response and acceptability of 'e-District' project from all stake holders, especially from common citizens are un-doubtfully very impressive.

The main background and reason of this huge popularity and acceptability of 'e-District' was due to certain limitations in the legacy manual system. The few of them have been summarized in below [3, 4]:

- Applications submission process is very complex and require to maintain long queue
- No proper guideline and helpline to do application form fill up

- Application processing time takes long time
- Duplicate information required to provide in different departments
- No proper channel to track application status
- Don't provides answer of common citizens quarries as and when require.

1.1 "e-District" Project Architecture

The technical architecture of 'e-District' project have been developed by considering the fact that underline network will be facilitated by State Wide Area Network (WBSWAN), citizens will get necessary first level assistance form Common Service Center (CSC), and Data will be stored safely in State Data Center (SDC). According to National e-Governance Plan, GI has implemented these three projects to set up infrastructure backbone for implementing all others MMPs project across the country. So, all Government offices are interconnected (Fig. 1).

The main accelerator of e-district projects are [3]

- Common citizens are getting services at KIOKS and CSC where people have opportunity to get service outside of office time window
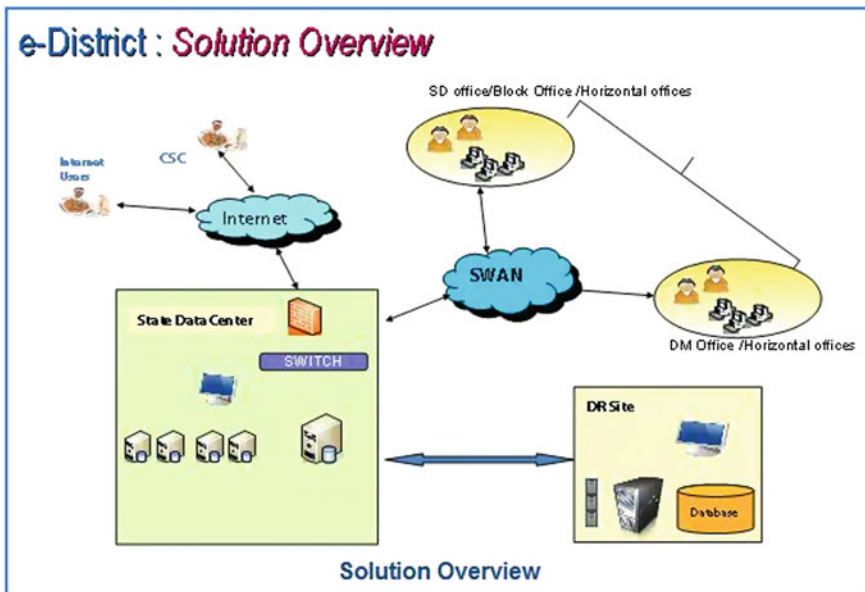- Transparency have been improved with responsiveness and accountability

Fig. 1 e-District architecture

Sl.No.	Service Categories	Services
1	Certificates	Income
		Caste
		Domicile
2	RTI services & Grievance Redressal	RTI
		Grievance Redressal
3	Licenses	Blasting License
		Fatka / Fire Cracker License
		Fire Arm License
4	Industry Service	Issuance of EM-1
		Issuance of EM-2
		Credit Assistance under PMEGP
		EC Cum RC
		Subsidy
5	Pension	Old Age
6	Social Welfare	Integrated Child Development Scheme (ICDS)

Fig. 2 e-District services

- Common citizens can track the status without any limitation
- District administration have been automated like workflow have been implemented thus total lead time have been reduced
- All the related department have been integrated.

The major services which are delivering by 'e-District' project are shown in the Fig. 2 [3]

For issuing different certificates from 'e-District' web portal are following the below sequence of steps to facilitate services:

Step 1 Common citizens are required to attend at CSC or KIOSK with relevant required documents for submitting application towards availing Government services.
By the proposal of design, CSC and KISOK will be at nearest of citizen's residential location for easy accessibility.

Step 2 CSC or KIOSK operator will upload the relevant documents and will filled the necessary information in online application form on behalf of applicants.

Step 3 On successful submission of form, it will be routed to Government officers for review and approval. This application form may be routed to multiple officers where multi-level approvals are required in approval process.

Step 4 The application may be return back to CSC or KISOK operator if modification is required or get rejected.

Step 5 If everything get pass successfully then CSC or KIOSK operator will get download link for printing the certificates.

1.2 New Ideas in e-District Project Architecture

From the survey and literature, it has been pointed out very distinctly that 'e-District' project don't have any options to get/initiate the services from home which is adverse from objective of GI. GI want to reach out to all Indian citizens' door steps to provide Government services when it is rapidly advancing the technology space. With the growing population and increasing Smartphone penetration, India is going smart, mobile and digital.

Figure 3 is showing the mobile penetration in India [5]. The availability of low-price Smartphone and cut-throat price competition in internet tariffs are helping the huge population to become tech and net-savvy both form urban and rural India. Smartphone users find handy to use various mobile applications to execute various online transactions like Banking, online shopping, paying utility bills. A recent study says that the apps downloads in India is likely to increase from 1.56 billion in 2012 to 9 billion by 2015. The joint-study by Industry of India and Deloitte and the Associated Chambers of Commerce concluded that it would be a CAGR (Compound Annual Growth Rate) of around 75 %. It is also observed that the majority of apps are downloaded by the people between 16 and 30 years of age.

In this research paper, authors have proposed a solution framework for mobile apps for e-District application. Common citizens can use this mobile app to avail Government services.
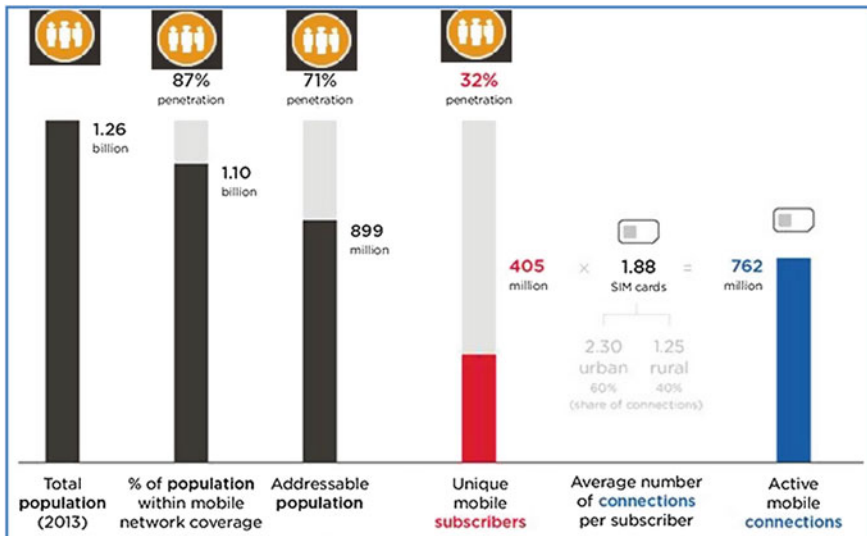

Fig. 3 Mobile penetration in India

2 Literature Review

GI has made IT strategy plan on 2006 to the interest of implementing ICT across the country for delivering Governance services under National eGovernance Plan (NeGP) The main moto of NeGP program is to "Make all Government Services accessible to the common people in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man". The 'e-District' project is one of the key citizens centric project among all others MMP's project and components of NeGP plan [2, 4, 6].

In a research book, Bagga and Gupta Piyush [7] have explained different best practices for implementing e-Governance project in India. In this Book, authors have done brainstorming for measuring different critical issues, findings proper capacity planning method, Users training and awareness, finding e-Governance projects challenges. According to authors, the most serious issues in Indian e-Governance implementation are (1) Building capacity for implementation, (2) Management of the complete project life cycle, (3) Enterprise architecture model, integration and interoperability, (4) Socio-political implementation of e-Governance.

As per GSM intelligence, 87 % of Indian Population is now within mobile coverage. Such a strong subscriber base along with one-to-one relationship of mobile device with subscriber allows Government and Government agencies to exploit this communication medium to provide innovative targeted services to its citizens. Mobile Marketing Association (MMA) has defined a set of guidelines and best practices that can be adhered to use the services of mobile operation for better Governance, especially in a developing country like India where other information channels have not grown that far [8]. Mobile communication and device can be extremely useful in bringing Government services closer to people and making communication more personalized. Innovation has no end and it is all about creativity and innovation to use this channel for effective use. Mobile services can be used to provide essential services to rural population with little investment. This channel can also be used to provide sophisticated services and application to urban subscribers [9].

Authors have explored different GI official sites and found that GI already has made framework for mobile Governance. To this endeavors, GI has launched Government official APP store intending to upload all the Government APPs in centralized repository. Already, lots of APPs have been uploaded for a common person downloads [10, 11]. The mobile framework is aimed to enable easy and round-the-clock access to the Government services by creating unique infrastructure including application development ecosystem for m-Governance in the country.

3 Research Methodology

This main backbone of this research tropic is to deliver new idea for enhancing the existing 'e-District' project in order to bring more usability and acceptability of the application. Authors have proposed to implement 'm-District' app for existing 'e-District' project through implementation and technical architectural design.

The main brainstorming of the research has been conducted by doing extensive past literature exploration and survey among IT Company's and CSC, KIOSK operators. CSC and KIOSK operators have helped to know the common citizen demands. Existing industrial project knowledge helped to get idea for designing the new mobile apps architecture in e-District project.

Android and Windows both kind of platform compatibility have been proposed for building two different APPS with the same functionality to support all category smart phone. HTML 5 using responsive UI will be as front end designing technology. JAVA, JQuery, JavaScript, Microsoft API and languages may be used to implement underline logic.

4 Mobile Application (m-District) for e-District

With the rapid expansion of 2G, 3G and now 4G mobile networks in India, mobile apps are getting popularity and are being implemented to deliver existing web based applications through user mobile devices for greater interest of user. Recently, the development of Mobile apps has got extra focus to transform our society to network society and this initiative is getting supported by evolution in network technology and mobile handsets both. Almost in every year, new generation network technology is get launched in market like 2G, 3G, 4G etc., on the other hand rapid changes is happening in mobile devices. Modern mobile devices have good display with high resolution, high capable in-build processor and high capacity memory including internal and external.

In this section, authors have provided an insight to develop mobile apps named 'm-District' to provide essential Government services as e-District is providing to both rural and urban population with little investment.

Figure 4 shows the solution overview of m-District. Considering the deep penetration of mobile and smartphones among Indian citizens, m-District will be a useful app to avail the e-District services on anytime and anywhere basis. This mobile application can be downloaded from Mobile Seva Appstore (https://apps.mgov.gov.in/index.jsp), hosted by ministry of Communication and Information Technology, GI. GI has hosted a number of useful mobile apps like mKrishan, mSwashtha, Sanskriti in Mobile Seva Appstore. Common citizens need to download these mobile application freely from Mobile Seva Appstore.
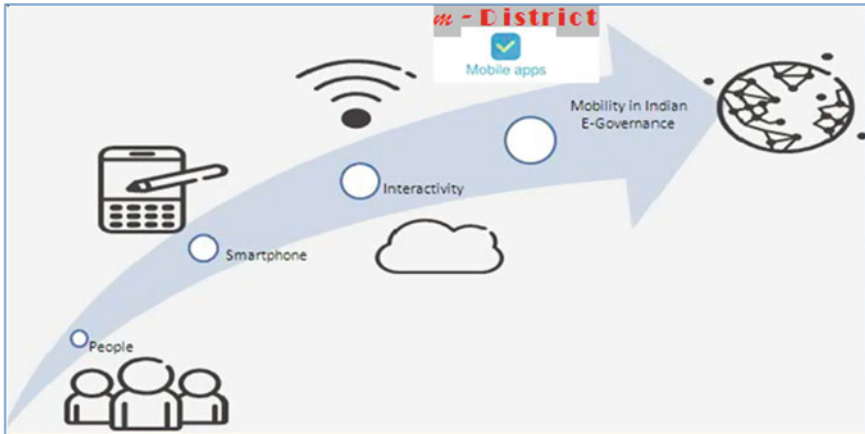
Fig. 4 Mobile apps (m-District) solution overview

Common citizens don't have to come to CSC or KIOSK or administrative offices to avail governance services. In the next section authors have detailed the Development and Implementation framework or step by step process for 'm-District'. It is a blend of well-known software development models like waterfall model, spiral model and prototyping models. In the Fig. 5, it has been outlines the step by step development and implantation framework. It is started with Apps Identification Phase which covers findings and planning of the idea to prepare functional and technical specification. The main objective of this phase is to brainstorm among a group of people and come up with new ideas related to 'm-District', a mobile apps, to provide services of e-District. We have conducted some brainstorming sessions among e-District experts, IT experts and Government representatives to gather the new ideas in details. The new ideas along with the each of the required functionalities minutely and handed over to the design team.

The next phase is Application Design Phase where several design related activities like feasibilies of various functionalities, selection of application platforms (like Android, windows 8), and detailed plan of work etc. are executed by the Application design team. Several discussions among e-District experts, Government representatives and application design team are required to be conducted so that all minute points are addressed in details. The outcome of this phase is Functional and Technical specification documents.

In Apps Development Phase, application coding is completed depending on the Technical specifications. Initially Development team tries to identify the parallel tasks which can be assigned and completed simultaneously. In this phase, initial apps prototype is created complying with the technical specification document. This initial prototype is revived as per the feedback of the e-District experts and Government representatives. It may require repeating the exercise until stakeholders are getting convinced by the developed prototype.
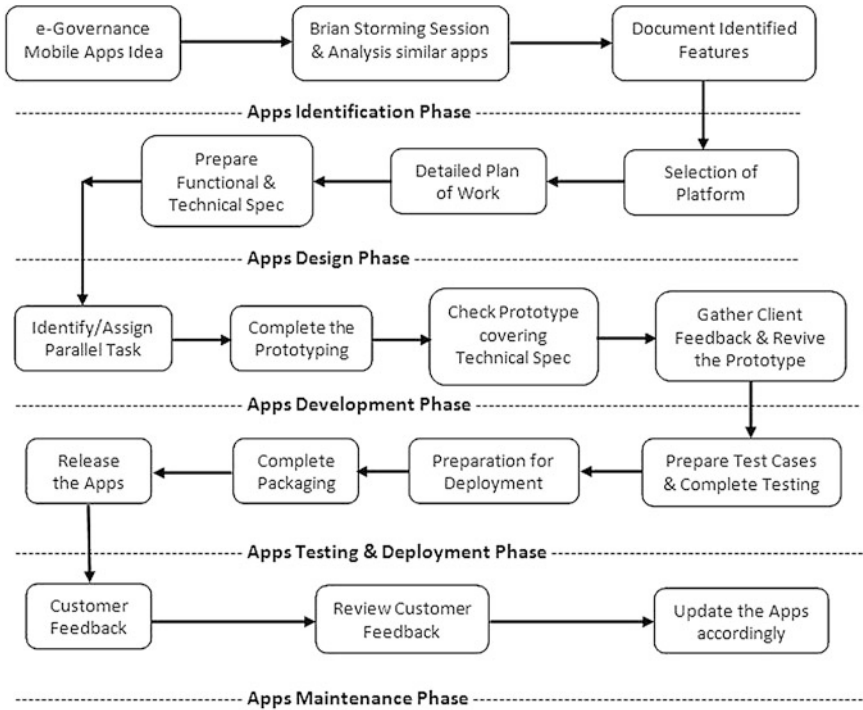
Fig. 5 Mobile apps (m-District) development and implementation framework

The next phase is Application Testing and Deployment Phase where the final prototype i.e. functionally robust application is tested and deployed for common users usage. All the functional test cases are prepared and tested minutely by the e-District experts before start deploying the system for the common users. For Deployment, there are some useful activities are required to complete like registering the application to Mobile Seva Appstore, checking rules and regulation for launching the application, refining the application by removing log files or comments, designing icons for the application etc.

The maintenance is a continuous process which continues with the use of the mobile application. User feedback should be collected time to time from common users and need to identify the required changes to be incorporated as change request (CR) or enhancement of existing functionalities. In this phase, continuous development and release deployment will be continued to introduce new functionalities, new user interfaces, performances tuning, security implementation etc.

5   Conclusion

In the era of network society, the acceptability of Mobile APPs and Smart Phone is growing rapidly among all rural and urban peoples due to enormous benefits. In this study, author have proposed a conceptual framework by utilizing Mobile APP and Smart Phone for delivering Government services at citizens' door step. By the implementation of proposed 'm-District' framework in India, GI will be able to minimize the GAP which found in between 'e-District' project service delivery model and real ground implementation. The 'm-District' will help to sustain 'e-District' project for long time because of better acceptability of the application to the common people. Also, it will help to grow network society in India and will ensure sustainability of e-Governance through transformation of our society in one steps a-head for accepting and implementing digital Governance in India.

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