

**Pune Municipal Corporation**

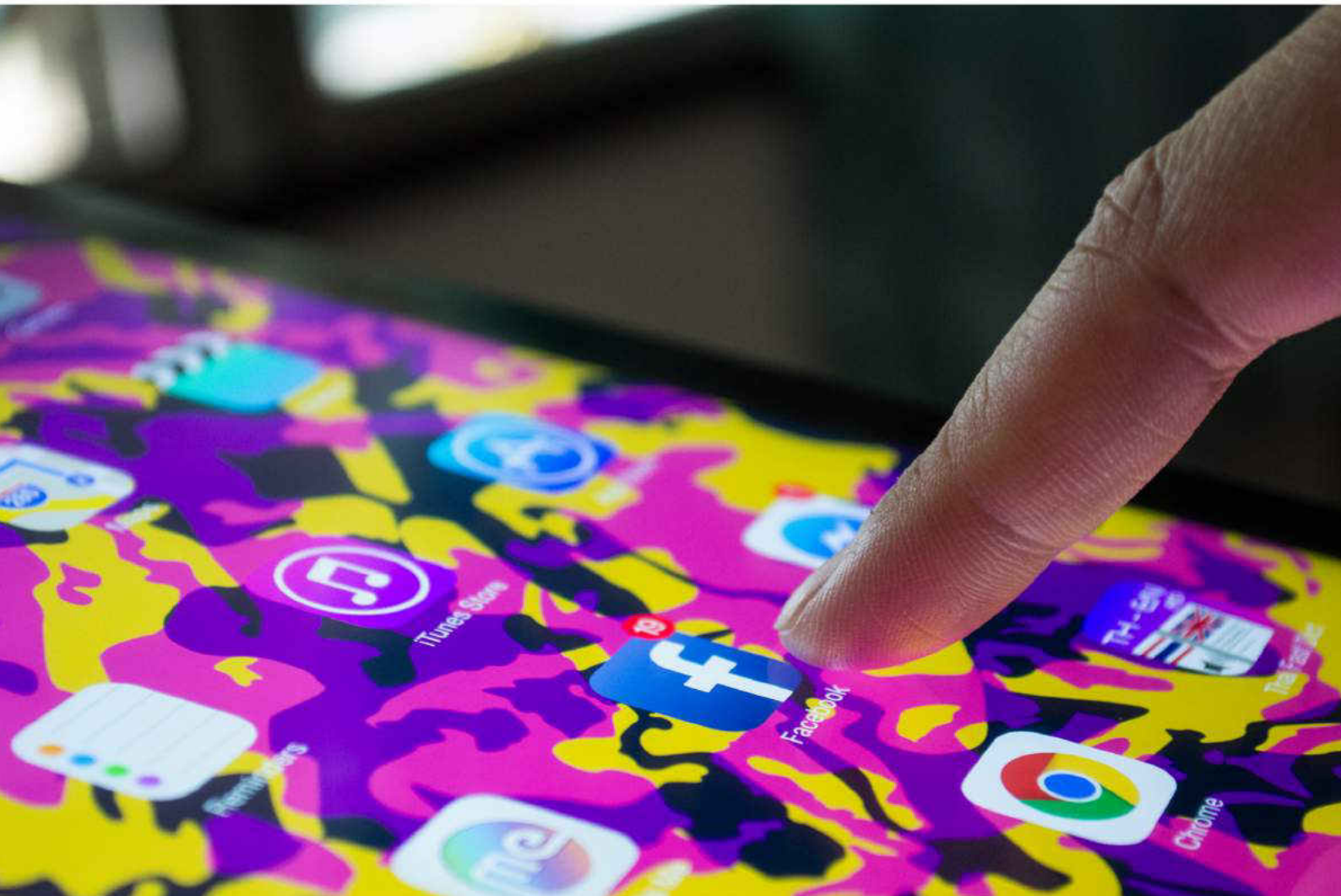


# **Rebooting Pune**

## **City Digital Strategy**

### **2018-2020**

**February 2018**











Devendra Fadnavis  
Chief Minister  
Maharashtra



Mantralaya  
Mumbai-400 032

Foreword: From the Desk of Hon. CM

The Digital Age provides newer opportunities to the Governments to serve citizens more effectively. Growing use of emerging digital technologies such as IoTs, Data Analytics, Artificial Intelligence, Virtual Reality, etc. also allows governments to understand citizen needs proactively and deliver responsive governance. Use of Social Media, coupled with these technologies, shall empower citizens to collaborate with governments for policy formulation, thereby strengthening participatory governance.

In our continued thrust to make Pune one of the most livable cities, globally, we realize the importance to embrace these emerging technologies. In this journey, it is imperative for Urban Bodies to chalk out holistic, integrated Digital Strategy to create enterprise-wide, sustainable ecosystem. I am delighted that Pune has emerged as a lighthouse amongst leading global cities by chalking out a futuristic **City Digital Strategy 2020**.

Pune's Digital Strategy 2020 provides a road map to transform the city into a digital economy and outlines set of crisp, ambitious goals to be achieved by 2020. It also showcases the way various digital interventions will impact Pune-kars in 2020.

I applaud the Pune City Corporation's commitment to the cause and successful implementation of multiple flagship projects like PMC CARE (Citizen Collaboration Platform), DBT, City Open Data, GIS, City Performance Dashboard; including seamless Integration of Citizen Services with State Government's Aaple Sarkar Portal. I extend my best wishes to all Pune-kars, the Pune Municipal Corporation and all stakeholders involved, in their future journey to implement City Digital Strategy 2020.

(Devendra Fadnavis)  
Chief Minister  
Government of Maharashtra





## Message from the IT Secretary Government of Maharashtra

The Digital age has influenced and caused a rapid change in the way services are delivered on daily basis. In view of this, cities should come up with meticulous and comprehensive ICT strategy involving latest technologies such as blockchain, Artificial Intelligence and IOT.

It is commendable initiative by Pune Municipal Corporation to create an IT roadmap for the city.

Being an IT Secretary of State, I congratulate team PMC and ensure full support in terms of vision and strategy as well a stakeholders' involvement at the state level.

A handwritten signature in black ink, consisting of a stylized 'S' followed by 'V.R.' and a horizontal line.

S.V.R. SRINIVAS, IAS  
IT Secretary  
Government of Maharashtra





## Message from the desk of Hon'ble Mayor

The acceleration of digital technologies continues to change the way we live, the choices we make, the connections we make, and the opportunities we have. New technologies will help us to protect the environment and strong economy while encouraging creativity and innovation in the process of serving the community.

The central and state governments are working actively towards accomplishment of mission Digital India. We in Pune, imbibe the same spirit and have tried to use digital technologies for people's empowerment.

This city digital strategy insist the best use of digital technologies to provide our community with consistent and sustainable benefits. We also believe in embracing the change and leveraging the technology for gain of everyone.

This strategy provides a framework for how we will approach the challenges and opportunities ahead in the governance. It outlines a balanced approach in ensuring that the needs of community are met, accountability goals are achieved. We enable the digital economy to be leveraged for the city of Pune.

I embrace the challenges and opportunities the digital age brings, and I look forward to working closely with the community in creating a city of immense scope and opportunities for the citizens of Pune.

**Mukta Tilak**

Mayor, Pune

## Message from the Commissioner Pune Municipal Corporation



Today, digital technology has become a necessity in citizens' life with internet access becoming as much as essential as water supply systems and road network. Digital channel is becoming the most prominent delivery mode for services accessed by businesses and households. Also, digital media has been fast shaping the opinion of people, increasing collaboration and enhancing engagement. Digital technologies have also been transforming the way businesses are run, making them more efficient and bringing in more transparency.

Based on the discussion and consultation with delegates/representatives from other smart cities like Tel Aviv, I am happy to present the Pune's Digital Strategy. The city digital strategy provides a three year action plan for Pune to become truly digital. The purpose of Digital Strategy is to set an agenda with clear goals before the city administration to provide digital ecosystem comprising Digital infrastructure, Digital services and cashless payment ecosystem, Digital platform for collaboration and Digital Enterprise to rank higher on reliability. It explores the ways in which technology can be used to innovate and find solutions to urban challenges faced by the city. It will equip both PMC and PuneKars with digital tools to enhance city governance and quality of life. Pune, being the center of IT, is well placed to gain benefits from this digital strategy.

With the leadership and support from its citizens, I am sure the strategy will help bring about digital transformation for the city of Pune. I would like to assure you that together with my leadership team, this will be given highest priority to make it a success.

Thank you for your support.

A handwritten signature in black ink, appearing to read 'Kunal Kumar'.

Kunal Kumar, IAS  
Commissioner  
Pune Municipal Corporation



## Message from Ex-Deputy Mayor, Barcelona

If the world is changing, and changing for the better, it is thanks to the cities. In the cities we grow as human beings and as fairer societies; we relate to each other, we work, we enjoy the leisure time we have with our family and friends ... we get older.

Cities we live in give to us opportunities, and are, or should be a source of hope. The digital revolution allows us, for the first time in human history, to provide the people we serve with the best possible social services, and the best tools of inter-communication to ensure that no one remains displaced, the best tools for everyone to enjoy the best life possible. This is what the city of Pune is doing right now, with a unique endeavor, hardly comparable to any other, globally speaking.

Pune's obsession, as you can read in the magnificent document that you have in your hands, is not in the screens and processes. Smart City, in Pune, is the synonym of Social, Fair and Trustable.

Pune's Smart obsession is that Neha lives better, that her mother and father live better. That the family she is about to form, lives in a healthier city. This is the soul of Pune's Digital Revolution and the spirit of its Smart City bet.

This Pune that ultimately becomes the city in which everyone can trust from the point of view of social services, education, health, traffic, air quality; the cleanness of the streets, the democratic quality of the institutions, the quality of public space, the connectivity for all ...

This is the digital revolution Pune is carrying over, thanks to the thrust of its political leaders, citizens and its public servants. Thanks also to the help of a lot of civic associations and companies that finally understand that partnering with the city, to be good, must be long term and must have a social character.

Pune is an essential part of the Smart transformation that India is pulling ahead, setting an example worldwide. It is an honor to be part of this adventure and social progress. I am excited to see this City Digital Strategy document of Pune. Pune Digital Strategy is ambitious guiding document which is a must do charter for city administration to meet the aspirations of its citizens. City Digital Strategy lays out a very ambitious but practical blueprint for upcoming three years 2018-20. I am impressed with the depth of digital strategy and its spread of projects which comprises of all key elements of true digital city. As I read this document, strategy looks crisp and fluid which also provides flexibility to align itself with changing needs, aspiration and ever changing technology. It is right step in right direction. Future looks promising for Pune-kars. Let's make it happen, altogether!

**Antoni Vives**

Ex-Deputy Mayor, Barcelona





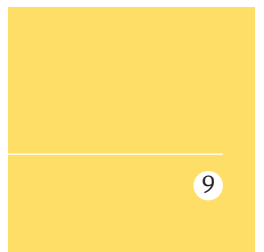
### Message from the CKO, Tel Aviv Municipality

Pune is working towards implementing its various Smart City Projects and has emerged as a lighthouse not only in India but around the globe. City Digital Strategy complements smart city projects and has been conceptualized at the right time. Strategy provides comprehensive integrated digital vision keeping citizen at the center of everything. This will change the way services are delivered, how government engages with its citizens, how cashless payments are made and how city government becomes citizen oriented in Pune.

I am impressed with the ambitious plan put together in terms of detailing and commitment in terms of roadmap for next three years which make it very professional and meaningful document. The document will enable city management to implement the Digital strategy and to understand what opportunities have opened up to Pune city in the wake of the digital revolution. Of course I would be very happy to continue working with you and see how this revolution come true.

All the very best Pune !!

**Zohar Sharon**  
CKO, Tel Aviv Municipality



# SPECIAL THANKS



**Hon. Mrs. Mukta Shailesh Tilak**  
Mayor, Pune



**Hon. Dr. Siddhartha Dhende**  
Deputy Mayor, Pune



**Hon. Yogesh Mulik**  
Chairman, Standing Committee



**Hon. Shrinath Bhimale**  
Leader



**Hon. Chetan Tupe**  
Opposition Party Leader



**Hon. Arvind Shinde**  
Party Leader, Congress



**Hon. Sanjay Bhosale**  
Party Leader, Shivsena



**Hon. Vasant More**  
Party Leader, Manase



**Hon. Mrs. Ashwini Landge**  
Party Leader, AIMIM



**Hon. Mrs. Sunita Wadekar**  
Party Leader, RPI



**Hon. Mahesh Ladkat**  
Chairman, City Development Committee



**Hon. Mrs. Rani Bhosale**  
Chairman, Women and Child Development Committee



**Hon. Adv. Gayatri Ratnadip**  
Khadke, Chairman, Law Committee



**Hon. Samrat Thorat**  
Chairman, Sports Committee



**Hon. Bapurao Karne (Guruji)**  
Chairman, Name Committee



**Hon. Mrs. Sheetal Ugale**  
Additional Municipal Commissioner (General)



**Hon. Rajendra Nimbalkar**  
Additional Municipal Commissioner (Special)





## HOW TO USE THIS REPORT

This is a visionary document which gives an integrated picture of the digital strategy of Pune city. The core objective of this report is to highlight the need and importance of digital strategy for Pune. Pune is undergoing complete digital transformation and is witnessing various national initiatives directed towards digital inclusion. The four pillars of digital strategy, city bench marking digital maturity, the project assessment and execution framework will assist the city administration in implementing the digital strategy. In addition, it will also enable citizens to understand the scope of implementation of various initiatives taken by the city administration.



In order to help understand the impact of digital projects, various scenarios are provided throughout the document to show how an average resident, Neha, can use digital technologies to achieve better outcomes.

Neha is a 32 year old working mother of two children aged 10 and 12 years. She works for an advertising firm. Her husband, Anil is engaged in electrical business. She is interested to learn how various digital projects will make her busy life easier.

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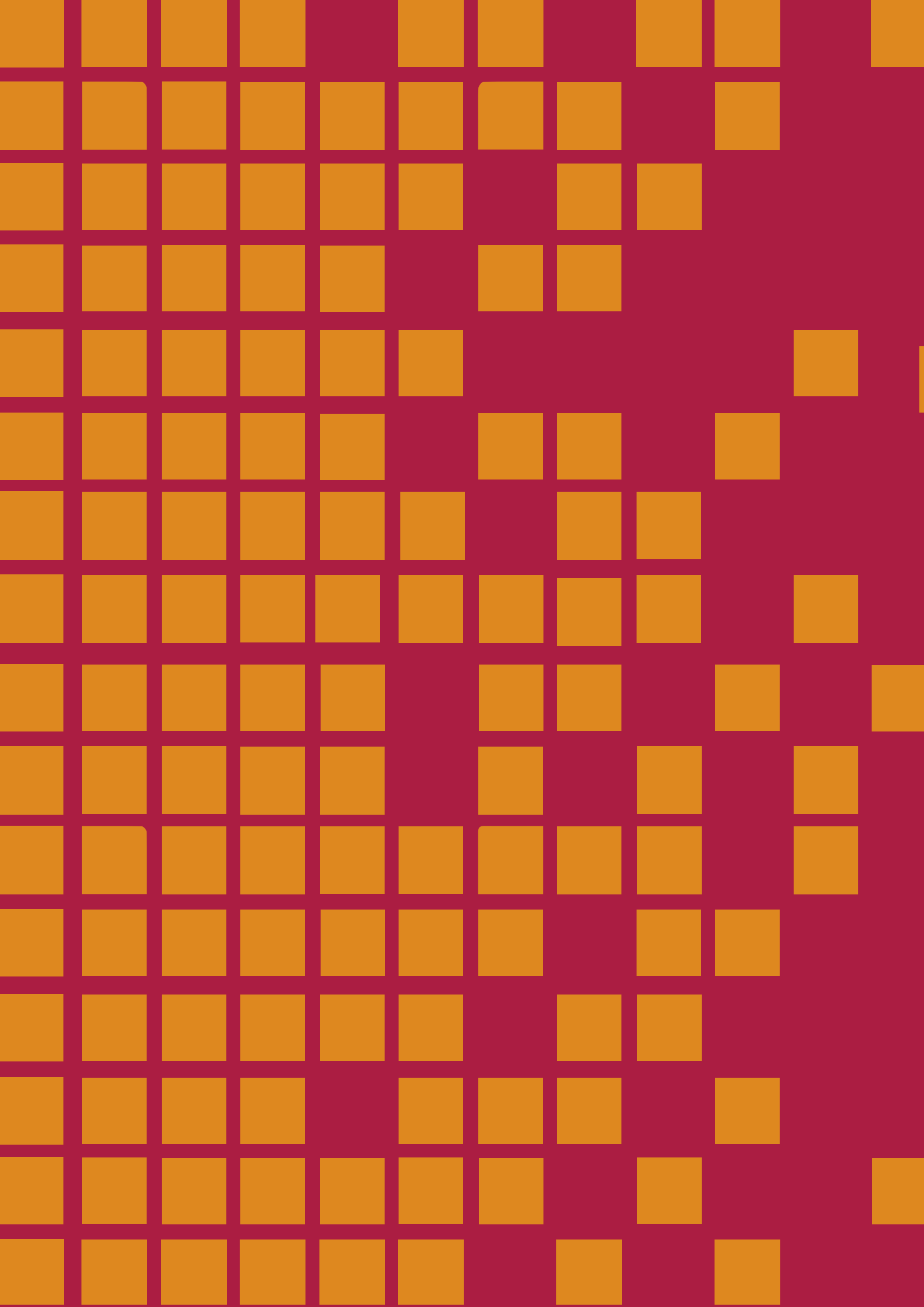
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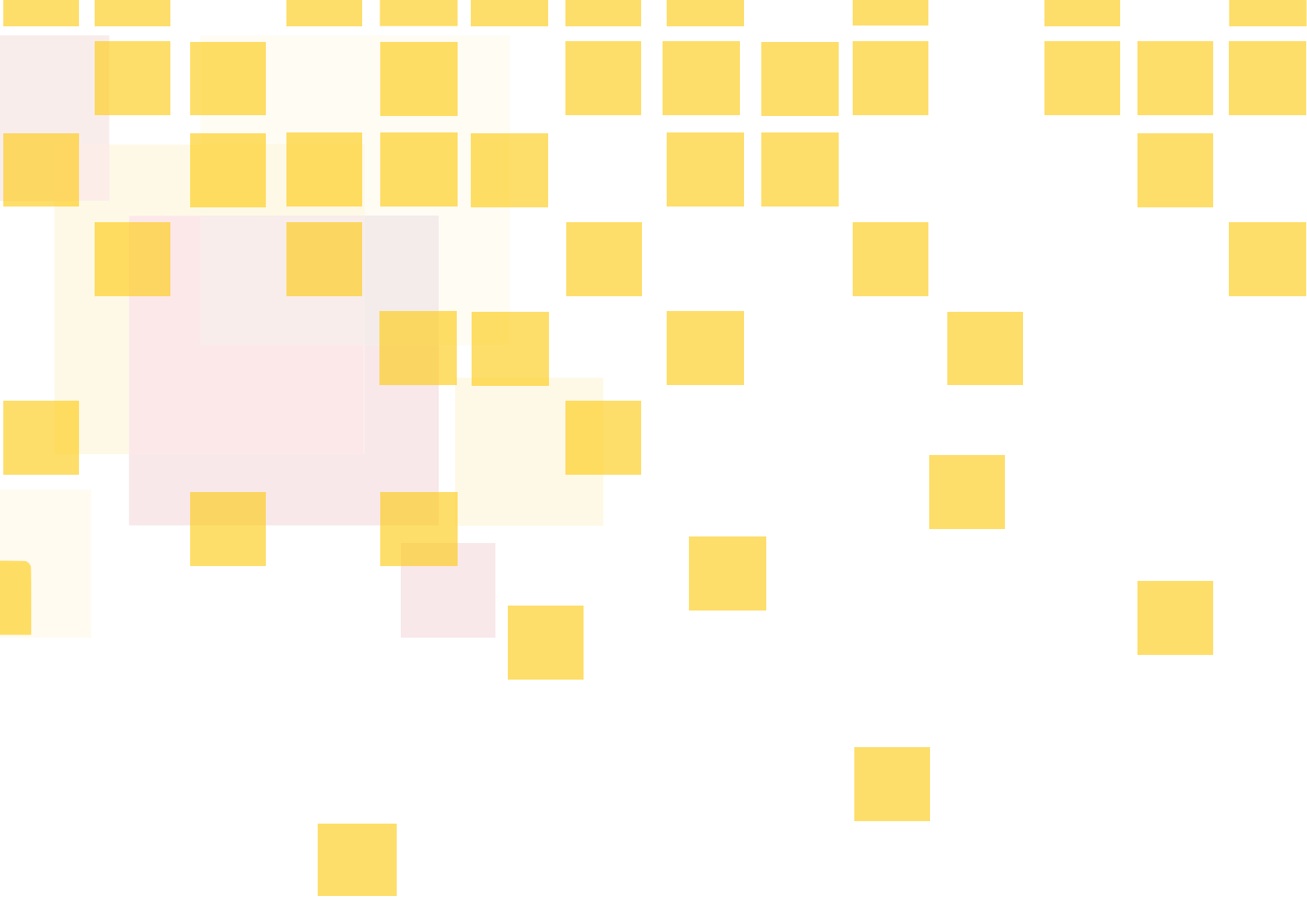






# **EXECUTIVE SUMMARY**





# EXECUTIVE SUMMARY

*This section summarizes the whole report and will give you an idea about the city digital strategy planned for the city of Pune*

The Digital strategy explores and outlines an adaptive digital strategy maturity framework for Pune city to be followed for the next three years(2018-2020) in order to emerge as true Digital City in the global landscape. Pune is on its way to become Smart City (under Smart City Mission of Government of India) and digital in order to cater the need, demand and aspirations of its current and future generations. Digital Strategy will act as a guiding document for city administration and its stakeholders.

City Digital Strategy is focused around four pillars:

- Digital infrastructure**-To provide state of the art digital infrastructure to facilitate seamless digital experience.
- Digital services and payments**-To re-engineer business processes to simplify civic services and to facilitate digital payments through cashless ecosystem/channels.
- Digital engagement and collaboration**-To use various communication and engagement channels effectively to communicate with local communities and gauge the community sentiments over these platforms.
- Digital Enterprise**-To increase the internal efficiencies of local civic bodies and to make better policy-making decisions by utilizing improved data analytics.

Report also showcases benchmarking of Pune city against various developed cities around the globe by comparing

digital capabilities in four aspects - online, mobile, social Infrastructure and Data.

Digital Strategy also covers Complexity-Impact assessment of projects on two dimensions, namely complexity and impact of the project. **Complexity Assessment framework** considers various factors (Input Cost factor, Operational complexity factor and technological complexity factor) to gauge the complexity score of the given project. Also **Impact Assessment Factors** consider Economic impact factor, Social Impact factor and Environmental Impact Factor to gauge the impact score of given project. This assessment helps in understanding the potential benefits and future commitment of resources of the given project. Apart from impact-assessment framework, City Digital Strategy will evaluate the overall strategy using Digital Maturity Assessment framework .

For each project, the strategy identifies the concerned stakeholders, current status and expected timeline for completion.

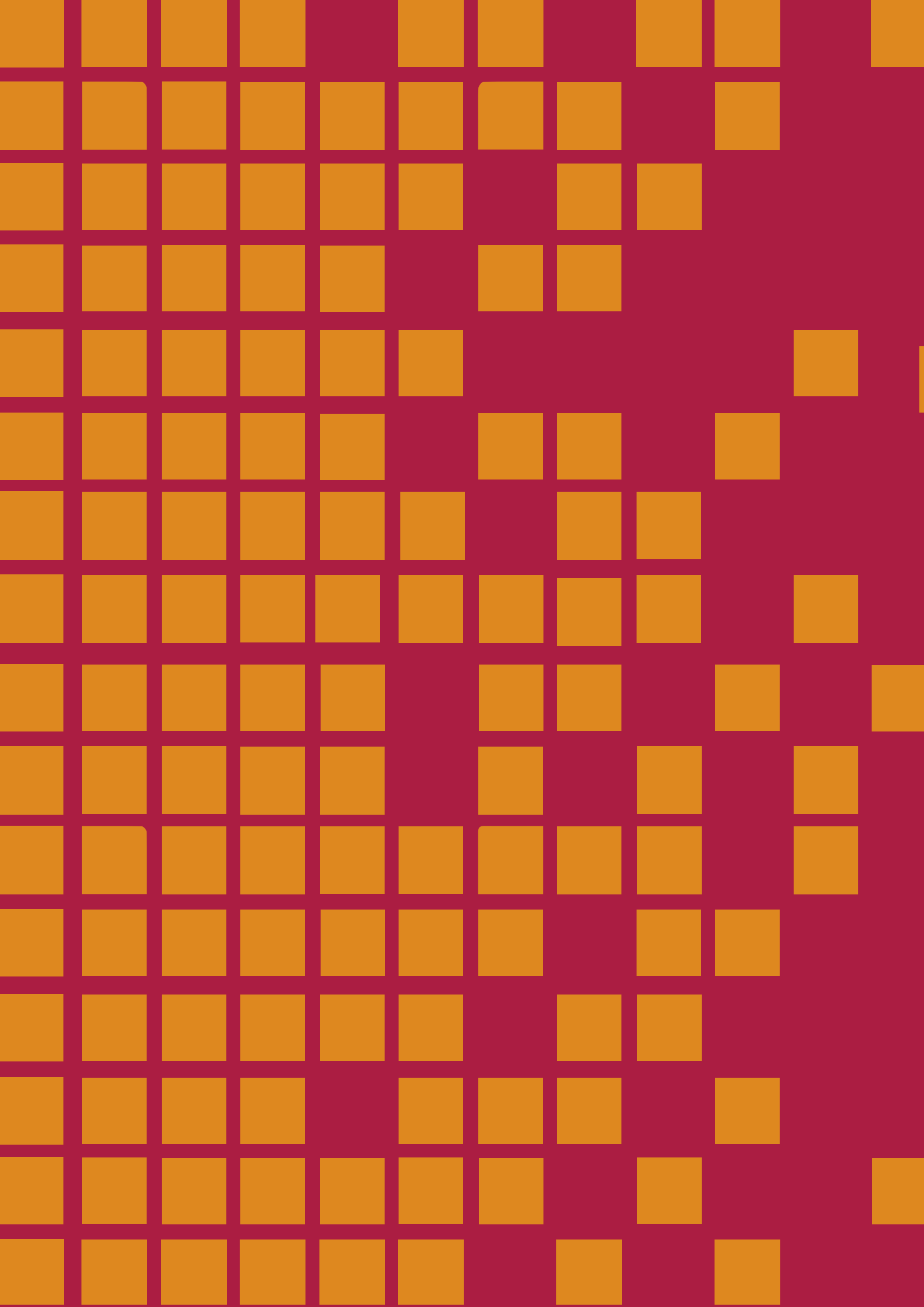
The stakeholder strategy includes the execution framework by identifying the stakeholders and their role in realizing the potential of all the digital projects. The stakeholders include a Steering committee whose functions include planning, organizing (capacity building programs), monitoring, reviewing and suggesting corrective actions in the conduct of various project activities.

Digital Strategy outlines set of well defined goals to be achieved by 2020.



Figure 1: Flagship Projects under Four Pillars of Digital Strategy





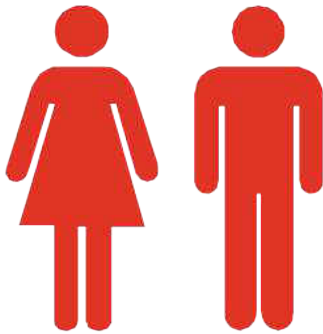


# 1. PUNE OVERVIEW



**TOTAL AREA**  
**332.17(Km)<sup>2</sup>**

**POPULATION DENSITY**  
**11304 per (Km)<sup>2</sup>**



**TOTAL POPULATION**  
**33.71 Lakh**

**GDP (INR)**  
**1,71,636 crore**



**Population growth rate**  
(AEGR, 2001-2011)  
**2.08%**



**Per Capita**  
(2004-05)  
**INR 88,341**



**Literacy rate**  
**89.56%**



**Working population**  
**67.24%**

*In the next section, we have attempted to define the digital strategy, and the aim of developing it. We will also introduce to you the key pillars of digital strategy and its complexity and impact assessment framework. Finally, we will compare the digital strategies of various cities around the globe.*

*Note : Total Area and Total Population includes 11 villages added to Pune Municipal Corporation in 2017*



# 1. PUNE OVERVIEW

*This section gives an introduction of Pune. It covers the important details about the history, demographics, economy and the governing body of the city*

## 1.1 City Overview

Globally, Pune is considered as a thriving, vibrant metropolis, a center of academia and business. It is the 9<sup>th</sup> most populous city of India and the 2<sup>nd</sup> largest in the state of Maharashtra, it is also one of the fastest growing cities in the Asia-Pacific region.

Today, Pune has emerged as a top IT and startup hub in India with more than 400 startups like Pubmatic, Firstcry.com, Storypick.com, TastyKhana.com and Swipe. Pune's software exports is around Rs 29,589 crore (2012-13). 32% of Pune citizens are involved in secondary sectors while tertiary sector-services comprise about 64% of Pune citizens. Approximately, 3 lakh citizens are directly dependent on IT sector for livelihood. The 'Mercer 2017 Quality of Living rankings' evaluated local living conditions in more than 440 cities around the world where Pune ranked at 145, second in India after Hyderabad (144). It also highlights Pune among evolving business centers and emerging nine cities around the world.

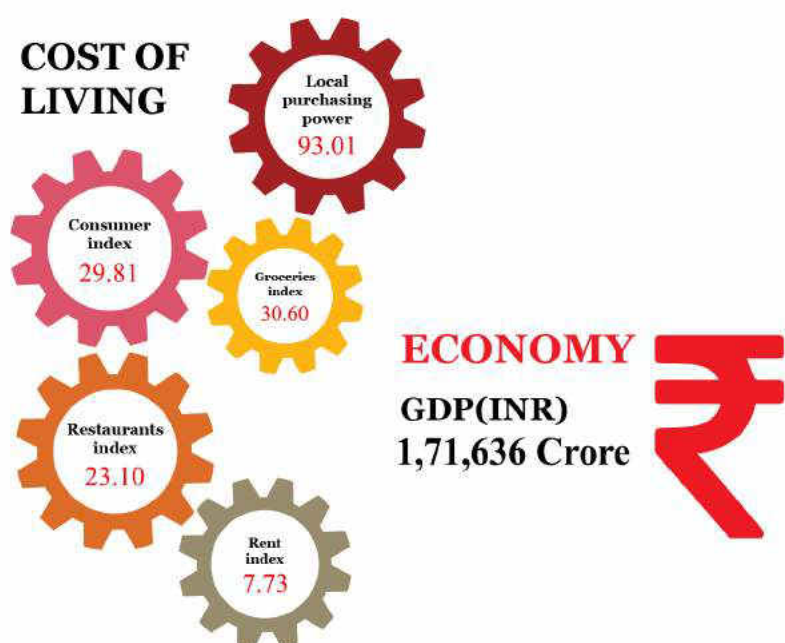
With 811 colleges, Pune is often referred to as the "Oxford

of the East". This has resulted in more than 30% graduate workforce, making it an ideal city to emerge as most vibrant city in India. The educated and qualified citizens of Pune have been instrumental in driving participative governance.

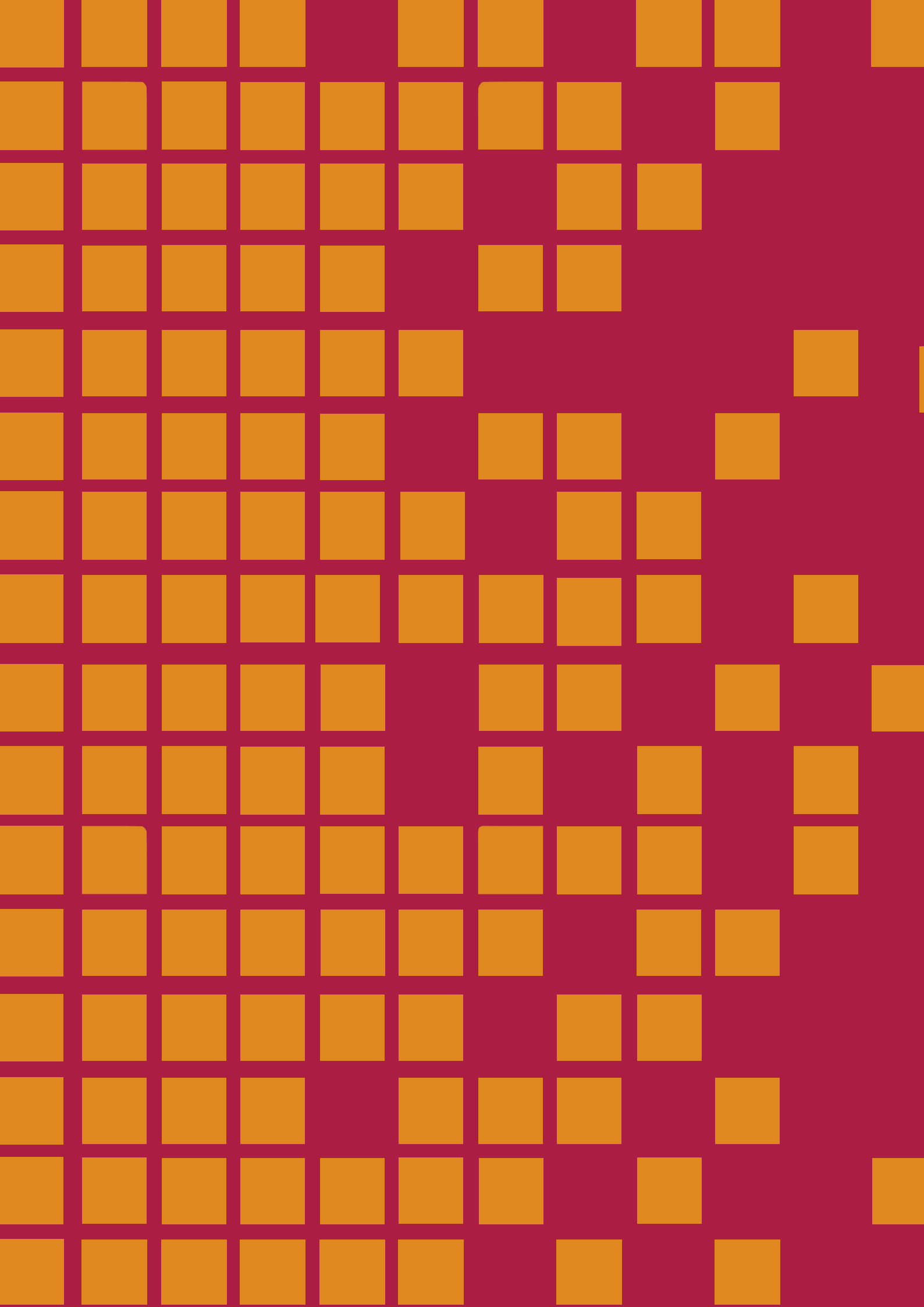
Pune Municipal Corporation, the civic body of Pune city, stood second in the Smart Cities Challenge launched by Ministry of Urban Development, Govt. of India in 2015. PMC is committed for making governance citizen-friendly and cost effective by delivering services electronically to ensure accountability and transparency. In 2016, Pune city won three awards for Smart City project in a competition organized by Business-World.

In 2017 Pune city was identified and ranked 13th among 134 major cities worldwide from America, Europe, Asia Pacific, Middle East and Africa by JLL city Momentum index 2017 where Pune ranked 7th in Asia Pacific and 3rd in India.

Below is a quick snapshot about the city.



[https://www.numbeo.com/cost-of-living/rankings\\_current.jsp](https://www.numbeo.com/cost-of-living/rankings_current.jsp)





## **2. DIGITAL STRATEGY**





# 2. DIGITAL STRATEGY

*This section gives an overview of the Digital Strategy and introduces to you the pillars of Digital Strategy. It will also cover the complexity and assessment framework and comparison of digital strategy of various cities*

## 2.1 City Overview

Pune's Digital Strategy is formulated to ensure the emergence of Pune as a digital city with top quality services and living standards. It sets out the city's vision to achieve a smart digital future and aims to leverage newer technologies to improve internal efficiencies. It aims to transform the way PMC as city administration serves its citizens, by improving the citizen engagement to promote co-creation and collaboration in civic and social affairs. It complements Pune's vision of being the most livable city by creating more economic opportunities and by offering quality of life over various parameters.

The strategy is more than simply putting technology in everything. It is about rethinking the processes and linking technology to ensure effective delivery of services to citizens by keeping citizens aspirations and needs at the center.

### Need for Pune Digital Strategy?

Pune has been witnessing rapid growth in population, migration and registration of business, exports under IT services and Auto sector. Statistics given below act as drivers for the city administration to chalk out a robust city digital strategy :

- 18.51% of population is young (15-25 age-group).
- Literacy rate is around 89.56%.
- Working age group is 67.24% of the total population
- 22% of Pune households have access to Laptop/ Computer with internet connection (compared to 11% of urban Maharashtra)
- 64% of Pune households have access to mobile phones.

Pune aspires to be "smart" and innovative in its civic service delivery; with better resource utilization, low-carbon footprint and an inclusive community. With an aim to create a more Inclusive society, Pune wishes to emerge as a city where citizens enjoy balanced social and economic opportunities.

Pune currently attracts the best talent from around the world and to remain competitive globally. The idea is not just to attract multinational companies but supporting our existing small-to-medium businesses to create economic opportunities across all sections of society for inclusive growth.

The aim is to become self-reliant and innovative in solving the key city challenges like solid waste, traffic, parking, water supply, etc. City aims to leverage co-creation and crowd sourcing to answer these key challenges by democratising the data through its digital platform.

For this to happen, every citizen should have access to the state of the art **Digital Infrastructure**. In addition to resilient infrastructure a key requirement is investment in physical ICT assets like city command control center, sensors, cameras, etc.

In order to address the disruption in the labour market, skills training and support for the people losing out from the digital transition is required in future.

Clearly, there is a growing segment of population which expects on-demand information and round the clock services. In order to align its services and effectively serve its citizens, Pune needs a well-defined Digital strategy to address these issues and present an integrated view of various initiatives under Pune Municipal Corporation and Smart City Mission.

The city digital strategy of Pune aims at providing the integrated Digital ecosystem. To achieve this objective, it has certain Design Principles, such as:

-  **Adaptive** :The strategy is fluid in nature and is adaptive to accommodate policy and technology change
-  **Practical and Achievable** : Strategy outlines goals which are practical and achievable
-  **Multi Stakeholder Approach** : It incorporates views of multiple stakeholders and gives a holistic approach, keeping in mind every stakeholder's needs and aspiration.
-  **Integrated Approach** : It follows an integrated enterprise approach .
-  **Open Architecture** : It has an open technology architecture and follows data-centric approach, allowing the decision makers to take decisions based on data and not on perception.

- To fully integrate the City ICT infrastructure with command control center to break silos in city government .
- Align and implement flagship projects (National Digital Literacy Mission, Sugam Bharat, India Stack based on Aadhaar ecosystem,Direct Benefit Transfer, Cloud etc.) under Digital India through our City Digital Strategy.
- In order to avoid reinventing the wheel by designing new policies and programs, City administration will align itself with all policies and framework designed by Government of India and Government of Maharashtra.For ex: In 2016 ,City endorsed National Open Data Policy published by GoI (data.gov.in) rather than designing new policy separately.
- To simplify and deliver the services through single window platform and streamline the citizen experience
- To make use of newer communication channels and platforms(social media) in order to promote citizen collaboration with city government
- To make better policy-making decisions by utilizing improved data analytics

## Convergence under Digital Strategy

### Alignment with National Initiatives

#### I. Smart City Mission

As a part of its Smart City Proposal, Pune aims to solve its core infrastructure issues by using low-cost Information-Communication & Technology (ICT) based solutions. Flagship solutions include Vehicle health monitoring system, Smart water solution, Adaptive Traffic Management Solution, Network of Smart Elements etc. Digital strategy, which will make use of emerging technologies, will increase the reach of these projects, thereby creating a larger impact on the city. **City Digital Strategy** aims to compliment the smart city initiatives leading to faster achievement of goals formulated under Smart City Proposal.

#### II. Digital India Mission

Digital India is an initiative by Government of India, aimed at transforming the entire country into a digitally empowered society and knowledge based economy. The slew of measures taken by GoI includes e-governance, e-marketplace, and cashless payment channels,etc. In order to effectively implement these initiatives, a robust digital strategy is needed which can help achieve the benefits of the Digital India mission. City Digital Strategy will try achieve the following :

#### III. IT Policy Government of Maharashtra

City Digital Strategy is aligned with state IT policy and encourages use of existing policy and processes defined under Maharashtra State IT Policy.

## Our Philosophy of City Digital Strategy

The main reason for developing this strategy is to be able to provide reliable, accessible, affordable and secure services to the citizens.

**Accessible** : Digital Strategy will focus on making civic services more accessible to all section of society to overcome the Digital divide. In order to overcome information asymmetry in our society,we aim to provide digital infrastructure along with skill set required to exploit the digital space by imparting digital literacy in Pune under National Digital Literacy Mission to 2.8 L HH by 2020. Accessibility is the key here. Every citizen with or without digital know-how should be able to access the government schemes with full confidence. Government has endorsed approach in line with Sugam Bharat Mission to ensure that all our websites,systems and apps are made accessible for specially/differently abled citizens by 2020.

**Reliable** : Reliability of digital infrastructure and services is the key aspect of our city digital strategy. Today

governments need to be more inclusive, transparent, receptive and efficient.

**Affordable** : In order to bridge the digital divide, the affordable aspect of digital strategy ensures that digitally excluded citizens are given affordable channels to avail services to come online and avail digital services. This will increase economic opportunities.

Under City Digital Strategy we will ensure that civic services are delivered on time as per defined citizen charter (SLA) with minimum paper work by providing various channels for service delivery and payments. PMC has launched innovative doorstep service in 2017 to allow citizens to obtain licenses/certificates and make tax payments at the doorstep. Also City has chalked our cashless Strategy to provide various payments options to citizens for payment of taxes/fees. Today 48% of official transactions are done online and city aims to reach 90% digital transactions by 2020.

**Secure** : PMC is trying to gain trust of its citizens through initiatives under 4 pillars mainly- creation of digital infrastructure – e.g. city Wi-Fi , enabling the digital economy via integrated payments and services, driving citizen connect and incorporating their feedback

via quick redressal forums, and by bridging internal gaps between the departments.

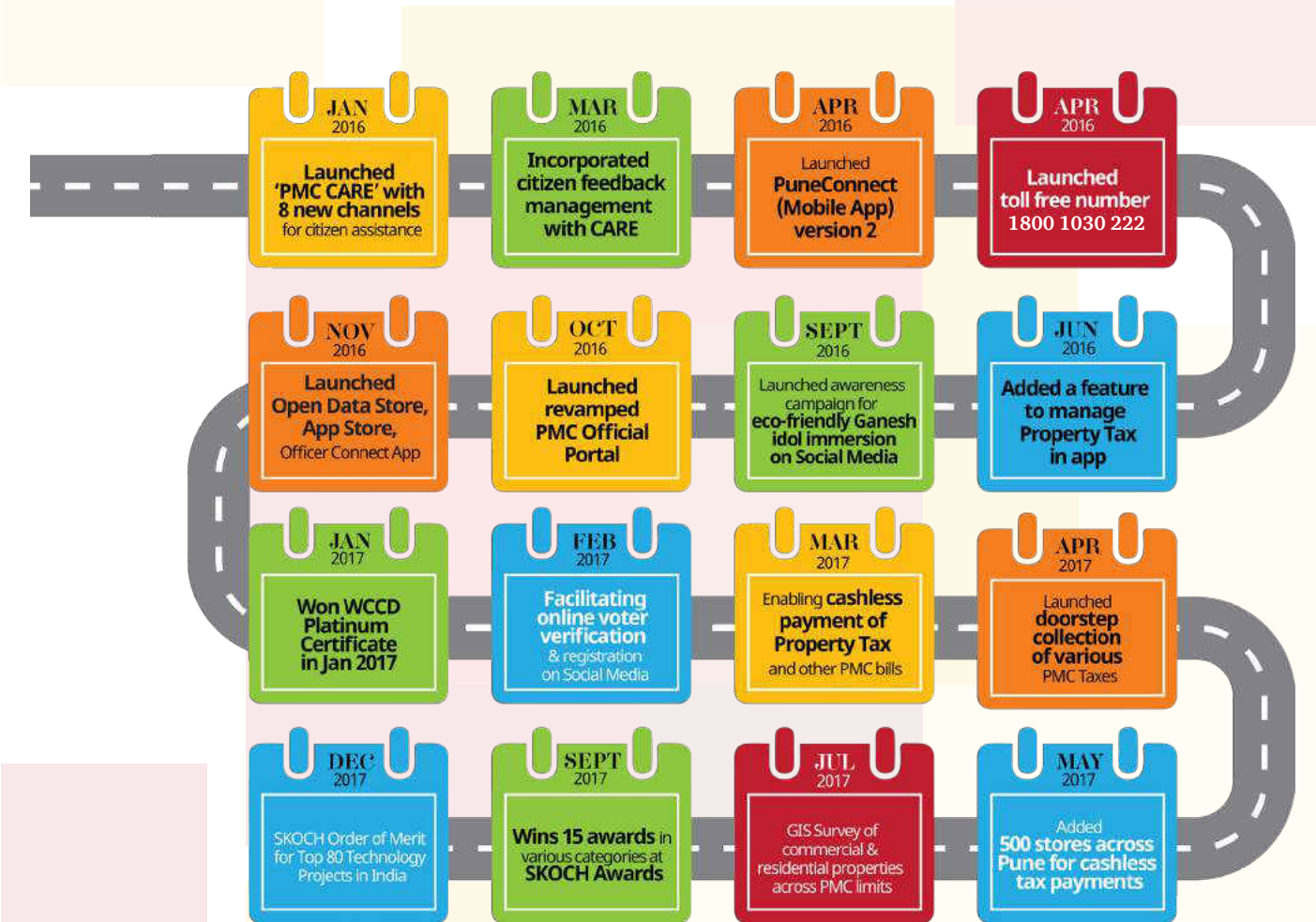
In an increasingly digital society, there is a need for citizens and businesses to feel confident and safe when submitting information to the civic body. Residents should get assurance that their personal data will be used for relevant purposes only. The secure aspect of digital strategy ensures that data protection will be incorporated into the design and development of PMC's IT solutions.

## Key Pillars of Digital Strategy

The strategy establishes focus on four pillars:

### 2.2 Pillar I: Digital Infrastructure

Digital infrastructure refers to an ecosystem of connected devices and network of sensors which facilitate the exchange of information. It includes installation of comprehensive wireless technology, network of sensors and broadband network to meet citizens' needs and deploying smart sensors and devices which gather city data in monitoring the city environment. Digital infrastructure is the main pillar as it provides a platform



Milestones Achieved



for digital services, payments, citizen engagement and communication to city. Objective is to reduce the information gaps in society and to ensure that city is equipped to cater the digital infra need in coming years. This would also play a major role in reducing the cost of transaction of services or payments thereby making it more affordable, accessible and available.

#### **Benefits of Digital Infrastructure:**

1. The city suffers from a digital divide with many Pune-kars not having access to digital platforms to access digital ecosystem like websites, portals, apps. By setting up of Digital literacy and experience centers, Pune aims to involve everyone from bottom of the pyramid to the top.
2. The digital infrastructure will help in improving the safety and security of citizens via Emergency kiosks, surveillance cameras.
3. It will help the administrative body to effectively communicate with the citizens and improve response in emergency situations.
4. It will facilitate in monitoring the environment in the city and disseminate information to take corrective actions immediately.
5. It will aid in gathering traffic information which

can help citizens in making informed travel choices and authorities in controlling vehicular traffic flow.

*Note: Projects under Digital Infrastructure are explained in section 4.1*

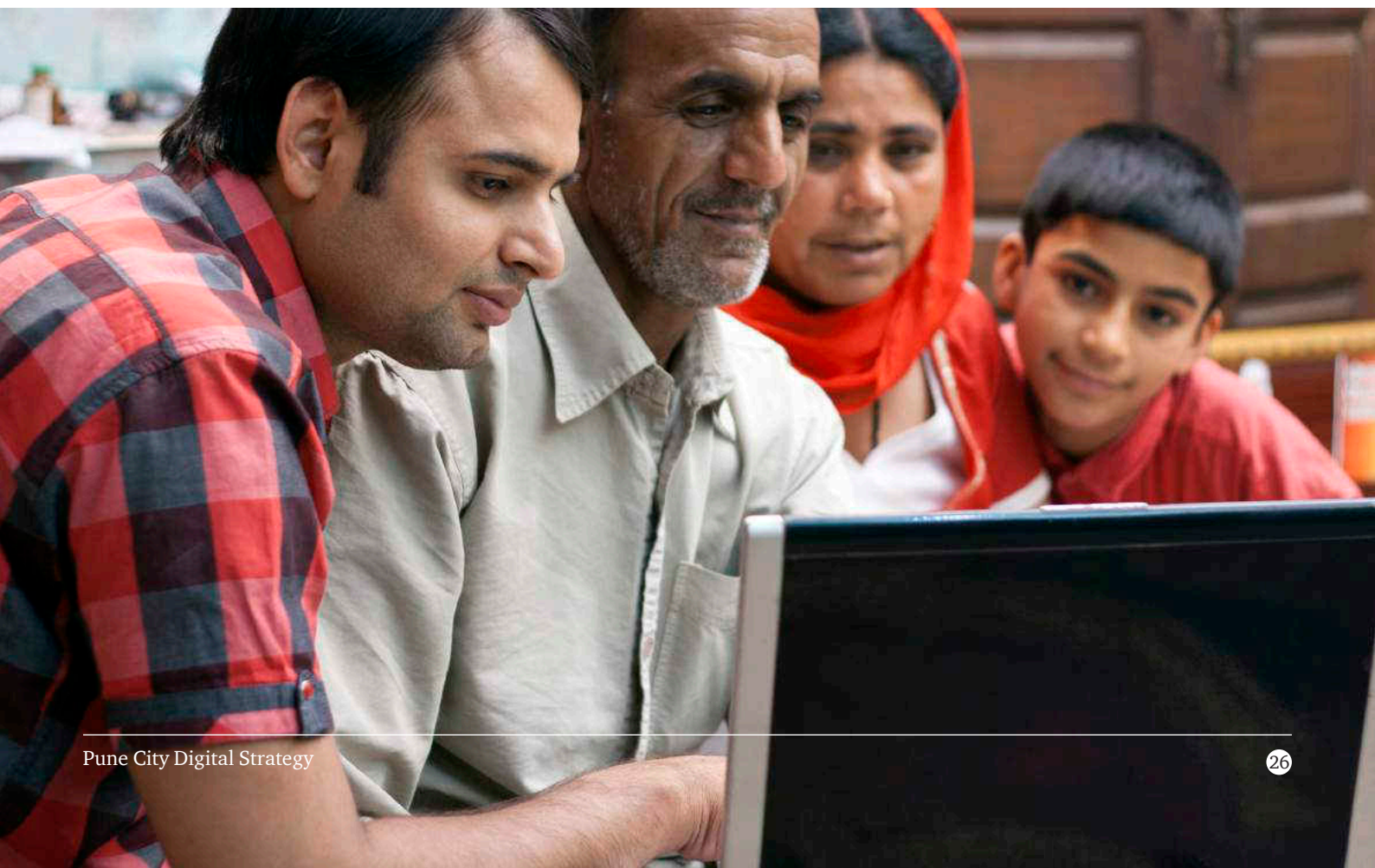
### **2.3 Pillar II: Digital Services & Payments**

This pillar emphasises on providing administrative services through digital channels (online or mobile) in a unified format, simplification of services to avoid touch points and transforming the way the payments are collected to provide more convenient, robust, interactive and user friendly platform to the citizens.

Pune Municipal Corporation is working towards simplifying of services through business process re-engineering and reimagining the way services could be delivered in innovative manner by integrating it with cashless channels (like Cards, Internet Banking, BHIM, NACH) or using Adhaar to authenticate beneficiaries etc.

The strategy will address the following challenges faced by PMC:

- Lack of awareness about online payment options
- Complexity of services with multiple touch points





Pune Municipal Corporation has defined Smart Governance Blueprint to setup critical components like Enterprise Infrastructure, Enterprise Business Engines to manage city operations, Payment Ecosystem, Service Delivery Channels, Enterprise Data Analytics to support Digital Enterprise to deliver reliable and secure services to its citizen.

- Cost-effectiveness – No additional travel cost for customers due to availability of online channels
- Ease of access – Accessible at multiple physical online locations convenient to Pune citizens

*Note: Projects under Digital Services and Payments are explained in section 4.2*

**Benefits for City Administration:**

1. Time efficiency – Timely delivery of services to citizens due to reduction in the manual interventions.
2. Increased transparency – Direct benefit transfer to beneficiaries account without middlemen involvement.
3. Cost effectiveness – Opportunity cost savings resulting from reduction in settlement timelines.
4. Operational efficiencies – Reduction in queues at PMC locations

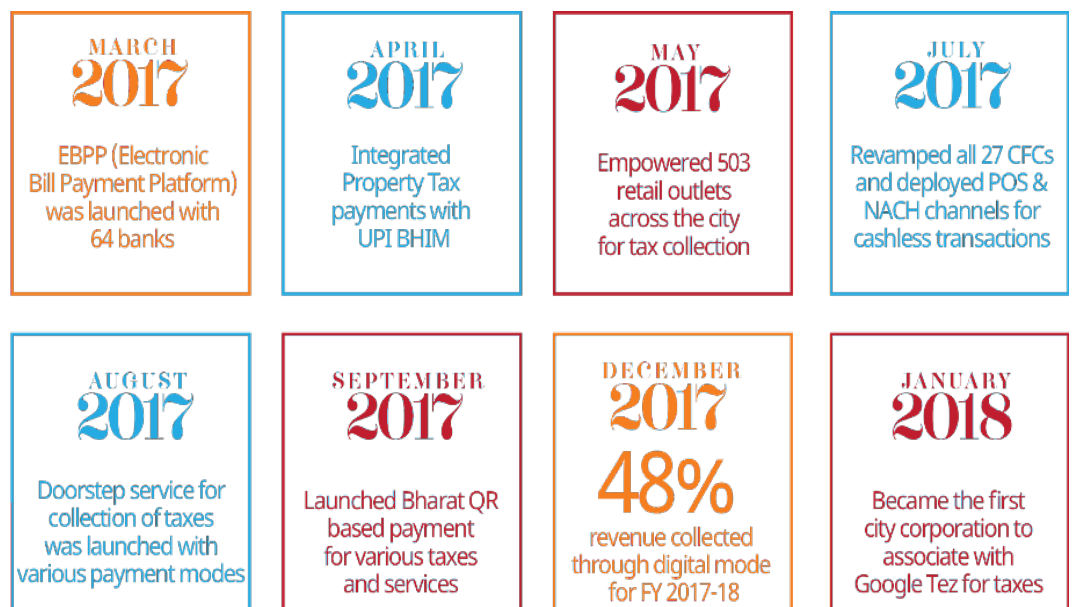


**Benefits for Citizens:**

- Seamless experience – Uniform customer experience through various departments and different channels.

**Cashless initiatives**

Staying true to the Digital India initiative of the Government of India, PMC laid special emphasis on incorporating digital payments for payments collection.



## 2.4 Pillar III: Digital Engagement and Collaboration

The Pune Municipal Corporation (PMC) has a dedicated social media cell to drive citizen engagement through digital channels and expanding its reach. Through digital engagement, it helps PMC to transform public perception, improve the service and customer experience, and gain citizen's trust through transparency.

The plan of action for PMC includes reaching out to influencers and tagging celebrities associated with PMC initiatives to get more exposure and outreach. Engaging celebrities is a way to piggyback on their popularity and attract some traffic towards PMC website.

Along with engaging celebrities, there are other formal channels such as Facebook, advertising and Google ad words 'search engine optimization' is a great way to feature in the top searches by users and helps in more engagement.

The need of the hour is to design and setup a **Government Citizen Collaboration platform (GCCP)** for Pune city. GCCP is an integrated internet based platform which enables citizens across geographies to participate in the governance process and contribute to the democratic process of ideation, feedback and engagement in policy formulation and execution.

GCCP is unique in the sense that it is a one-stop shop for all citizen interaction with the Government transforming

the governance landscape in today's world. GCCP does thorough user profiling, and makes decisions based on Sentiment, causal, contextual, and quantitative analytics. It also provides a mobile app for easy access.

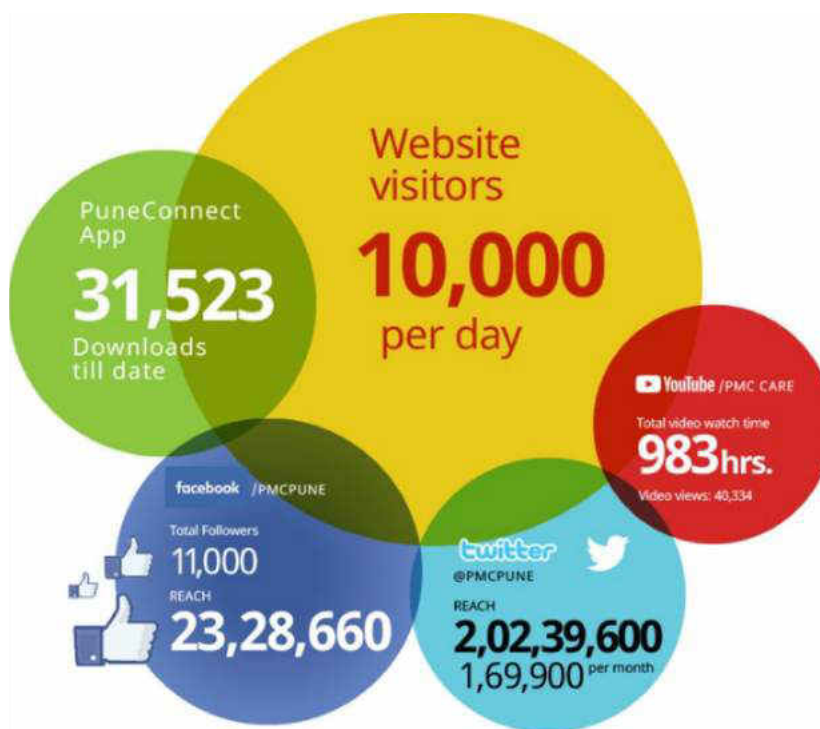
It is important to consider the aspect of digital literacy here. Transformation in a city happens when each citizen leads the way to progress. Hence, the digital literacy level of the citizens of Pune is a critical aspect here and will ensure the success of the projects under this pillar. The digital literacy and the projects undertaken for it are further explained in detail in Section 4.1.10.

*Note: Projects under Digital Engagement and Collaboration are explained in section 4.3*

## 2.5 Pillar IV: Digital Enterprise

A city's digital strategy has a broad mandate which impacts citizens, businesses, employees and government. Therefore, it is important to identify a dedicated cross-department digital services team, assign accountabilities and responsibilities for key digital initiatives and identify digital skills training needed for staff.

The **Pune Smart City Development Corporation (PSCDCL)** aims to incorporate all these steps by providing the digital platform to city administration for effective service delivery to its citizens and to optimally manage its operations centrally through **Smart City Operations Centre**. The Operation Centre encompasses layers like:



PMC's Social media presence

- Sensor layer
- Communication layer
- Smart city Platform layer
- City operation Control layer
- Service Delivery layer

The smart city operation center will focus on integration of various systems under projects like traffic, safety, environment, utilities, solid waste, water supply, civic operations, Disaster management and transport. It will address challenges like decision making in silos, redundancy of infrastructure and human efforts and fragmented approach in system implementation. It will improve governance, operational effectiveness, organisational productivity and quality of life of citizens in the long run.

To implement such a robust system, organisational digital maturity is also required. Therefore, along with working for enterprise portal, it is also important to develop the city's digital workforce and make government employees digitally empowered. Only then, The whole idea of digital organisation can only be achieved through implementation of these things.

The smart city operations centre enables the government to plan for the entire city because the entire city can be accessed through one platform. It also helps in making data-centric decisions and an overall assessment of the city's digital strategy.

Pune Municipal Corporation has set up critical infrastructure in line with Central and State IT Policy like Enterprise Cloud, Enterprise GIS, Data Analytics Platform, Open Data Platform to provide state of the art infrastructure so that city department can focus on solving city challenges by leveraging these platforms.

This is basically a decision support system which will help the government in business and administration decision making process easily and more effectively. A decision support system may present information graphically. But, there is a need to implement artificial intelligence for analysis of the information. Installation of artificial intelligence in the decision support system will help the government in effectively making complex policy decisions.

Another aspect of smart city operations is traffic management through video analytics. Currently, the traffic management centre stores hundreds of video feeds. The need of the hour is to install Advanced Traffic Management software through video analytics to have proactive traffic management. This will improve incident detection and responses time and automate traffic monitoring.

Ultimately, working towards an enterprise portal and developing the city's digital workforce leads to organisational digital maturity.

*Note: Projects under Digital Engagement and Collaboration are explained in section 4.4*



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# City Digital Strategy : Goals

Digital Strategy also defines clear goals which are to be achieved by 2020 in order to make our city Digital. Key performance Indicators are also defined to measure the progress by city leadership.

01

## Goal 1 : Connected Pune

PMC aims to setup robust city wide network infrastructure to provide connectivity for citizens, businesses / start-ups, government offices, schools and hospitals, and other key public institutions.

## Performance Indicator 1: Connected Pune

- Set up 500+ Wi-Fi Hotspots by 2020
- Lay 2500 kms of fiber with connectivity by 2020

02

## Goal 2 : City Digital Literacy Mission

PMC aims to achieve 100% digital literacy goal by making atleast one person digitally literate from every household in Pune.

## Performance Indicator 2: Digital Literacy Mission

At-least one person from 2.8 Lakhs households to be certified digital literate by 2020

03

## Goal 3 : Cashless Pune

PMC aims to collect 90% of PMC payments through digital channels. PMC will transfer the benefits to beneficiaries of welfare schemes directly to bank accounts through DBT Portal.

## Performance Indicator 3: Cashless Pune

- 90% of PMC transactions to go cashless by 2020

04

## Goal 4 : Ease of Doing Business

PMC aims to adopt single window approach to deliver majority Citizen services like NoC, Licenses and permits in time-bound manner through digital channels for guaranteed service delivery.

## Performance Indicator 4: Ease of Doing Business

- Setup Dedicated Business Desk to assist citizens
- All Licenses to be linked with Digital Locker

05

## Goal 5 : eHealth

PMC aims to set up 25 eHealth Centers across the city to cater 40% primary care patients (3L) through eHealth centers. E-Health Centers will provide 29 tests free of cost.

## Performance Indicator 5: eHealth

25 eHealth Centre to be setup across city to deliver 29 diagnostic tests.

06

## Goal 6 : eLearning

PMC aims to equip its 300 PMC schools with advanced eLearning solution to deliver 2D /3D content to 1 L students.

## Performance Indicator 6: eLearning

- 300 PMC Schools to be equipped with eLearning
- Deliver digital content to 1 L students



07

**Goal 7 : Citizen Engagement**

PMC aims to set up citizen engagement platform with advanced sentiment analytics to facilitate collaboration between citizens and city administration. Platform will also get integrated with smart elements to send targeted notifications.

**Performance Indicator 7: Citizen Engagement**

Set up City collaboration platform to facilitate citizen engagement by onboarding 2.5 L households

08

**Goal 8 : Command Control Centre**

PMC intends to set up state of art City Command Control Center integrating its core systems to manage its operations effectively through standard operating procedures.

**Performance Indicator 8: Cashless Pune**

- Integrate all PMC operations systems under PMC with City Operations Center.

09

**Goal 9 : Accessible Pune**

PMC will make all its websites, mobile app accessible for specially-abled population of the city by 2020.

**Performance Indicator 9: Accessible Pune**

- PMC Official Websites (3) and Mobile Apps (5) to be made accessible as per WCAG compliant

10

**Goal 10 : Open Data & Co-Creation**

PMC intends to publish critical data sets on its open data portal and allow co-creation through hackathons.

**Performance Indicator 10: Open Data & Co-Creation**

- Publish 1000+ data sets on Open data Portal
- Co-Create at-least 15 solutions through crowdsourcing

11

**Goal 11 : Enterprise GIS and ERP**

PMC aims to set up enterprise backbone by implementing ERP modules. PMC will also integrate enterprise GIS with all public works undertaken by various departments /ward offices to track and monitor the public works

**Performance Indicator 11: Enterprise GIS and ERP**

- Successful Implementation of Finance, Inventory and Purchase module by 2020
- Successful Implementation of Enterprise GIS by 2020

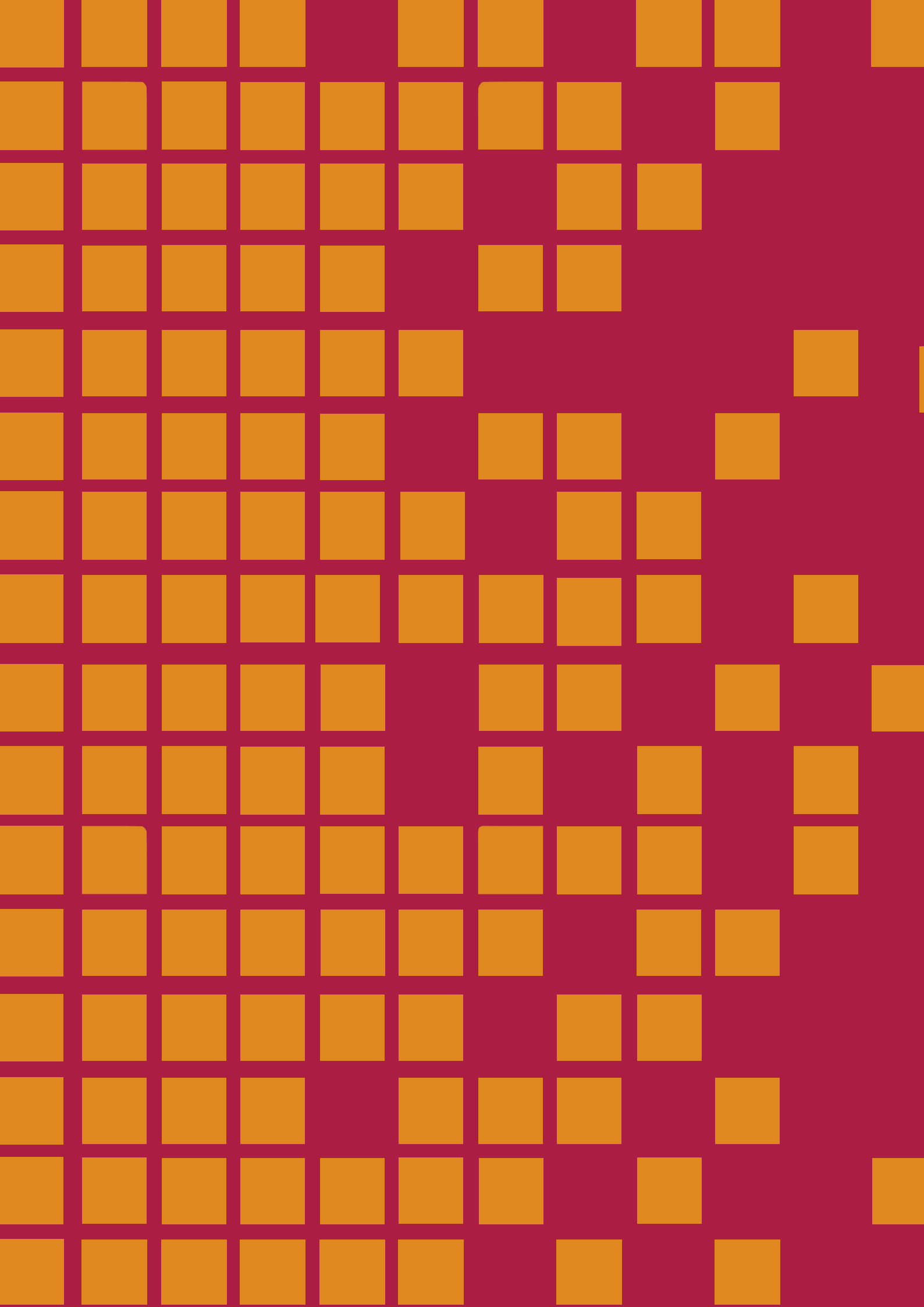
12

**Goal 12 : City Performance Dashboard**

PMC intends to implement city performance dashboard for its officials and citizens to monitor department performance as per agreed Key performance indicators.

**Performance Indicator 12: Performance dashboard**

Implement a comprehensive Performance Monitoring Dashboard for all the departments.





# **3. COMPLEXITY & IMPACT ASSESSMENT FRAMEWORK**







# 3. COMPLEXITY & IMPACT ASSESSMENT FRAMEWORK

## 3.1 Complexity and Impact Assessment Framework

With the advent of new technologies, there is an ever-growing list of digital projects under Pune Municipal Corporation and Pune Smart City Development Corporation. As the resources are limited and the need of the hour is to maximize the benefits from the projects, it becomes important for city administration (PMC and PSCDCL) to rationalize its decisions in terms of prioritization of various projects. Prioritization ensures timely achievement of digital strategic goals and objectives.

FACTOR	SCORE 1	SCORE 2	SCORE 3
IMPACT	LOW IMPACT	MEDIUM IMPACT	HIGH IMPACT
COMPLEXITY	LOW COMPLEXITY	MODERN COMPLEXITY	HIGH COMPLEXITY

Table 1 : Score Index

In order to score the projects, a structured and objective assessment approach is used which becomes helpful in achieving consensus and balancing the needs of both PMC and citizens. Following factors are used in evaluating and scoring the projects:

### 3.1.1 Impact Assessment

In order to measure the impact of identified projects under Digital Strategy following factors are considered to evaluate the impact on common citizens day-to-day life which are as follows :

- **Social Impact**

This factor assesses the social (engagement, collaboration) impact of the given project on community or society.

- **Economic Impact**

Economic impact will be in terms of increased productivity and reduction in opportunity costs due to the given project.

- **Environmental Impact**

This factor assesses the environmental (carbon footprint, reduction in fuel consumption etc.) impact of the given project on community or society.

- **Impact on City Operations**

This factor will focus on include improvement in internal efficiencies in the form of quick Turnaround Time, effective delivery of high quality services

### 3.1.2 Complexity Assessment

Projects are also scored based on complexity of the given project. Complexity assessment framework consider following factors to gauge the complexity score of the given project .These factor evaluates the intricacy/ complexity on three dimensions:

- **Technological Complexity**

Technology complexity factor assesses the maturity of technology used in the given project. Project will score high if given technology is relatively newer or unstable or is yet to be customised to fit Indian context.

- **Cost Complexity**

This factor assesses the complexity involved over project cost dimension. Cost intensive project will be rated high than low cost intensive project.

- **Execution/Operational Complexity**

Execution factor assesses the complexity of project execution involved in the given project. Project will be

rated high if it requires complex execution ecosystem like if it cuts across various departments or government for permission etc.

### 3.2 Digital Maturity Assessment Framework

Digital maturity is the level of use and assimilation of digital technologies in the government’s internal and external organizational processes, while working with all types of stakeholders – residents, businesses, visitors and others. It assists in asking the right questions such as:

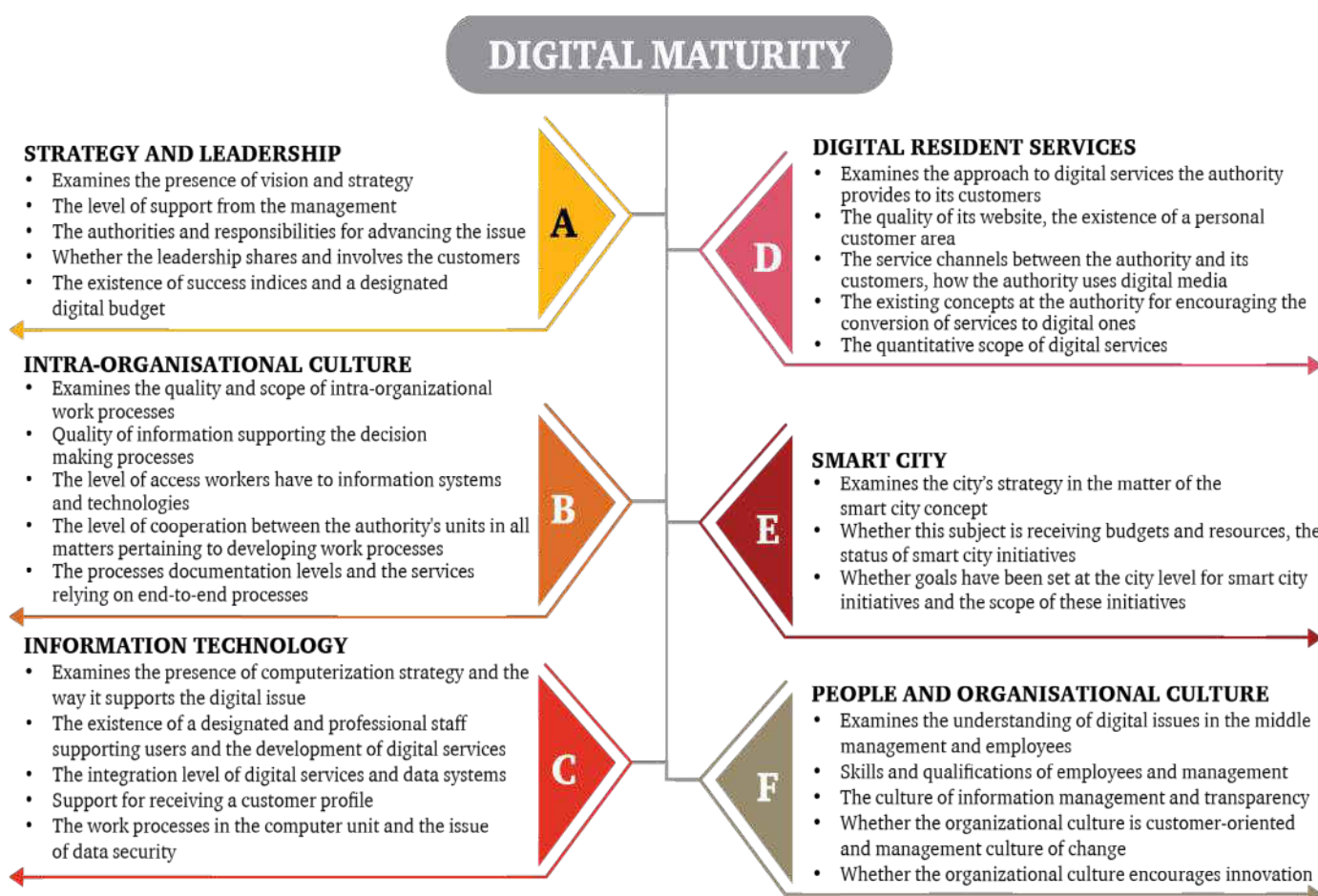
1. Are we mature enough about the major digital challenges?
2. Where do I stand in terms of use of technology, user experience and simplification of processes?
3. What are our strengths and weaknesses, and are we fully aware of them?
4. How can we position ourselves compared to others?

The assessment of digital maturity consists of six dimensions, through which we can analyze out digital maturity quotient. In other words, it helps us know how digitally capable and sound we are.

Earlier, we defined digital capability and used it to benchmark various cities around the globe. Here, we will map the digital capabilities of Pune with the six dimensions of digital maturity.

This mapping will give us an internal assessment of the digital capabilities under the purview of Pune and what is the level of maturity a particular capability component Pune has. Below is a matrix that has all the digital capability types mapped with level of digital maturity dimension for that capability.

To illustrate, the online digital capability of Pune, the strategy and leadership maturity quotient is medium. This means the presence of vision and strategy in the implementation of online capability projects in Pune is currently at medium level.



DIGITAL CAPABILITY	STRATEGY AND LEADERSHIP	INTRA-ORGANIZATIONAL CULTURE	INFORMATION TECHNOLOGY	DIGITAL RESIDENT SERVICES	SMART CITY	PEOPLE & ORGANIZATIONAL CULTURE
ONLINE	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	LOW
MOBILE	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW
SOCIAL	HIGH	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM
INFRA-STRUCTURE	HIGH	MEDIUM	MEDIUM	LOW	HIGH	MEDIUM

Table 2: Mapping Digital capabilities of Pune with digital maturity dimensions

### 3.3 Benchmarking: Comparison of Digital Capabilities

Below is the relative comparison of digital capabilities of various cities from across the globe. These have been divided into four major types: online, mobile, Social and Infrastructure & Data. The scope of these capabilities has also been defined as Absent, Exploring, Enabled and Connected. Using this benchmarking, we are attempting to classify the digital capabilities of different cities under their scope of implementation. It is an external assessment of the digital capabilities for the city of Pune compared to other global cities rated high if it requires complex execution ecosystem like if it cuts across various departments or government bodies for permission etc.

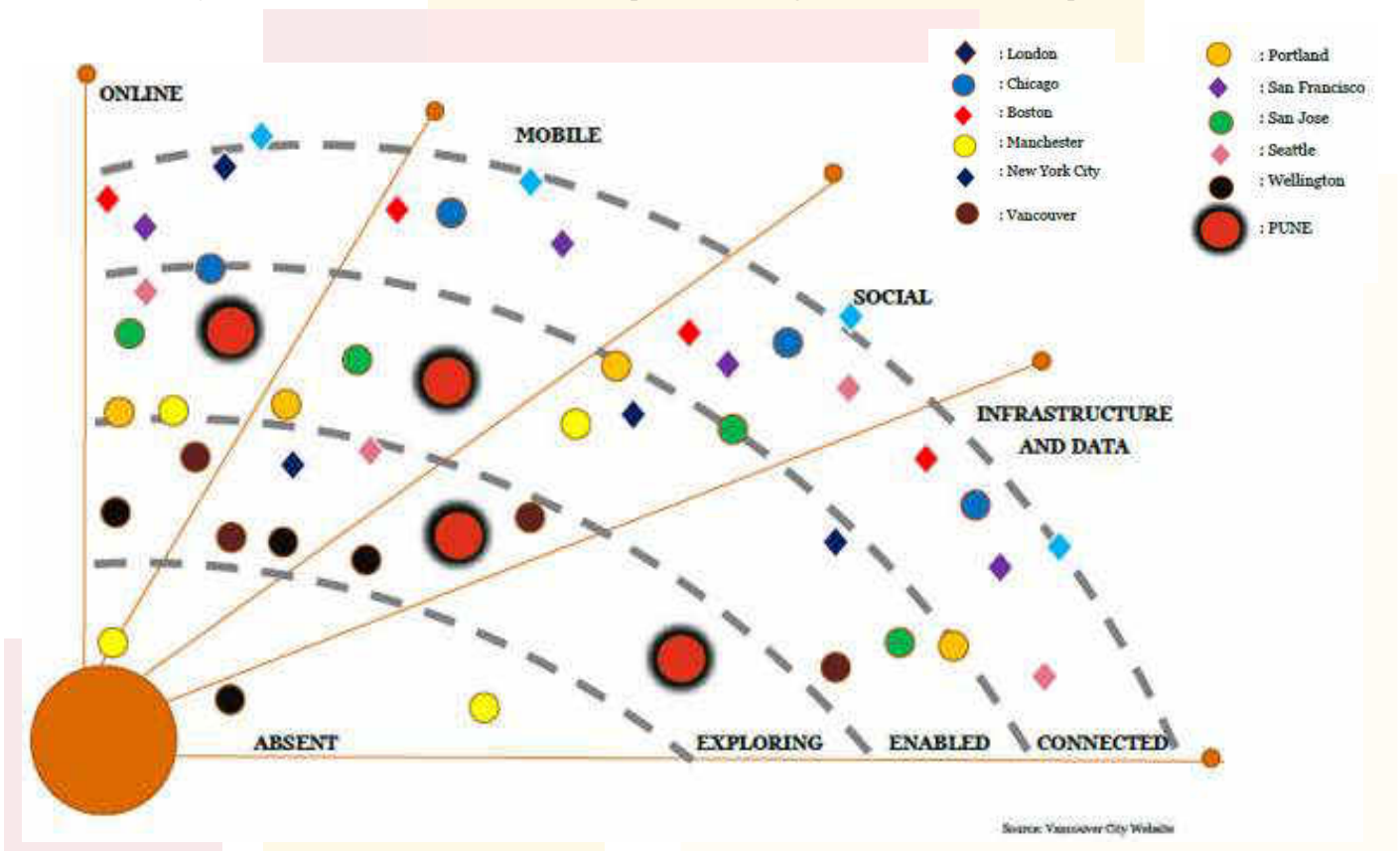


Figure 03 : A Relative Comparison of Digital Capabilities

Following image summarises the work done till date towards implementation of various initiatives taken by city administration of Pune and the timeline of these initiatives. The current status of the initiatives and the work done so far has helped us at arriving at the current assessment of the digital capability of Pune.

## Smart Governance 2016-17



Figure 04: Work done in 2016 under Digital



## Smart Governance 2017-18

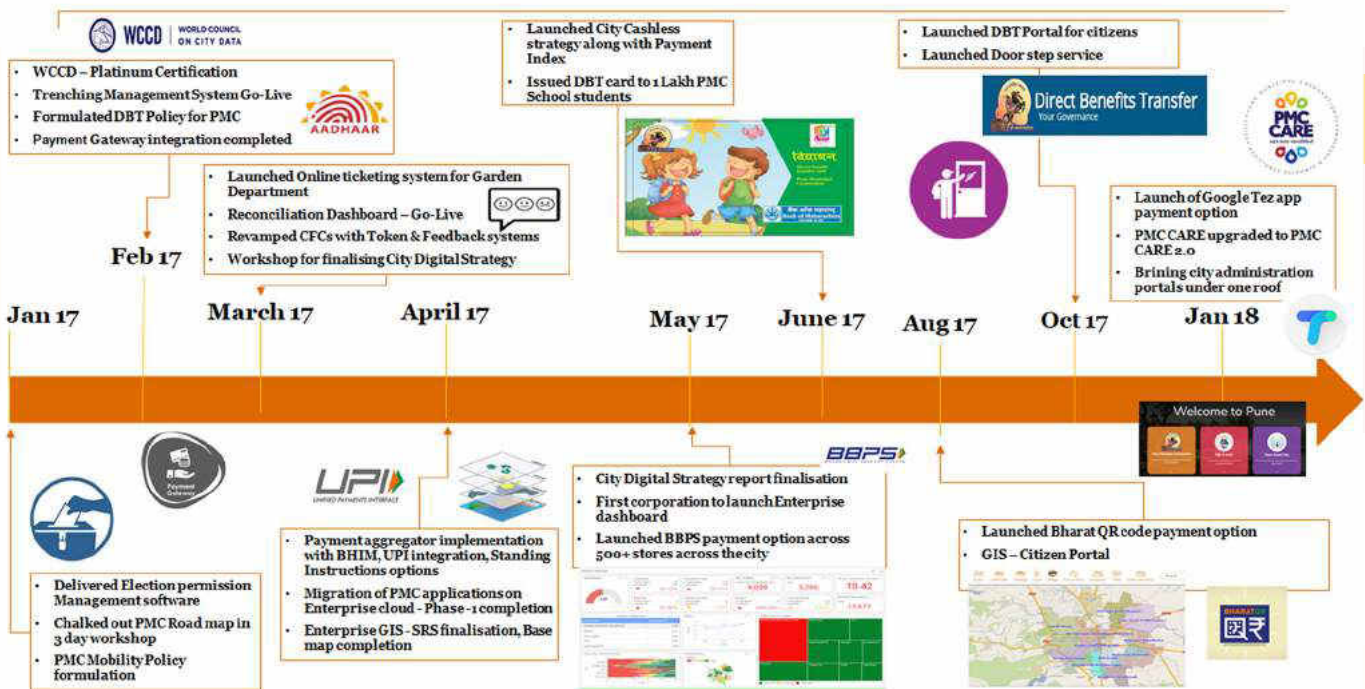
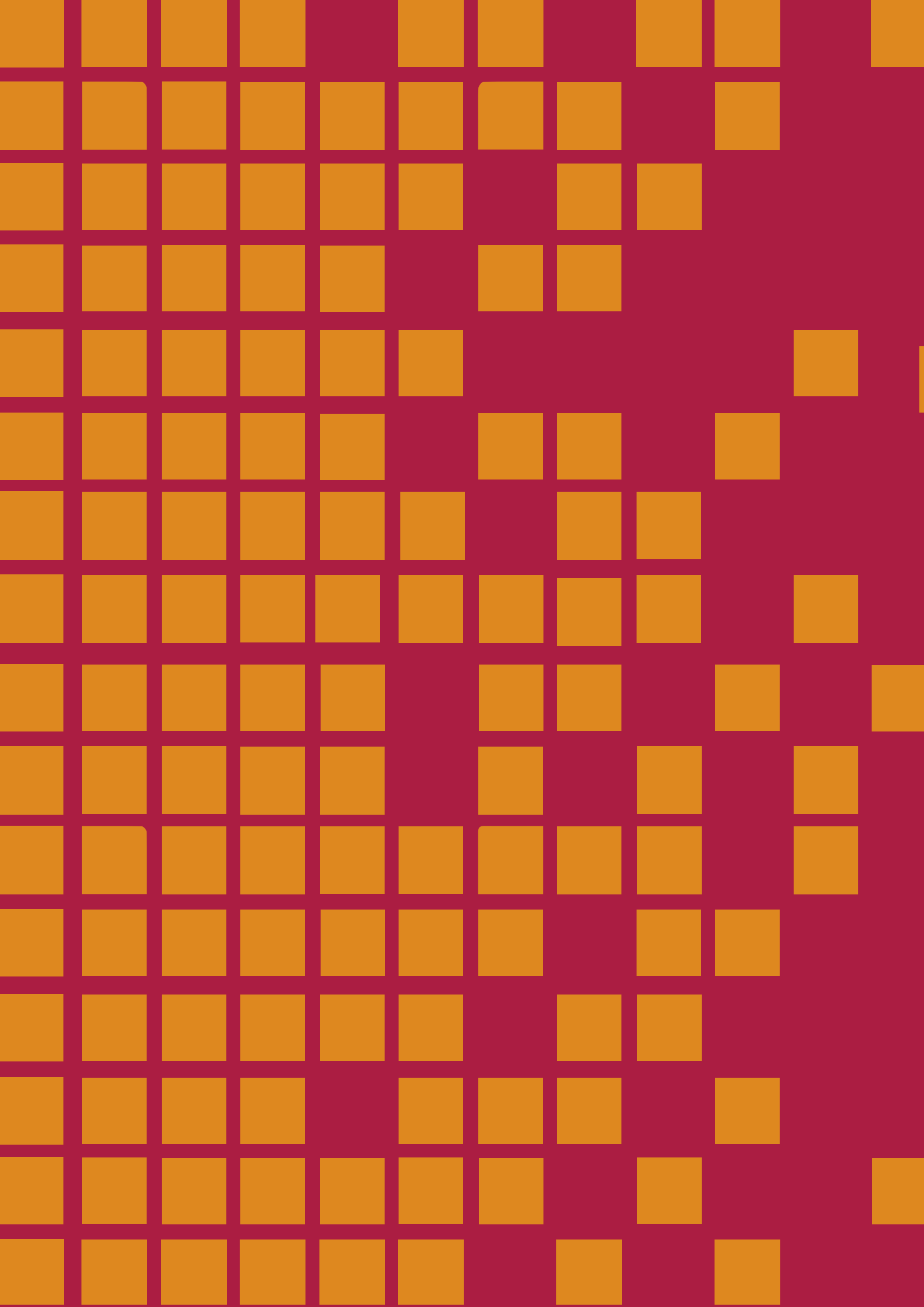


Figure 05: Work done in 2017 under Digital

*In the next section, we will cover the city digital strategy in detail, explain its four pillars and its different components. We will also give the complexity and the impact assessment scores to different heads of the digital strategy.*







## **4. CITY DIGITAL STRATEGY EXPLAINED**





# 4. CITY DIGITAL STRATEGY EXPLAINED

*This section gives you further insights into the City Digital Strategy and explains various projects in detail the four pillars of digital strategy.*

## 4.1 Digital Infrastructure

### 4.1.1 City Wi-Fi

To provide easily accessible, cost effective yet highly available Internet connectivity to all residents and visitors of Pune, around 200 Wi-Fi hotspots have been identified across the city. The plan is to integrate all public places on a single platform to aggregate Wi-Fi hotspots that will allow access with one-time authentication. City Wi-Fi Internet access shall be free at the proposed Wi-Fi hotspots, which are going to be places of high footfalls, major traffic junctions, gardens and areas of key tourist attractions.

PSCDCL has awarded the contract to L&T, IBM, Rail-tel and Google. Under the contract, the companies Google, IBM, RailTel; will be utilizing their technology prowess to put together a city-wide Wi-Fi network. RailTel will provide last-mile fiber connectivity to enable Wi-Fi hotspots. L&T is the master system integrator for the Pune Smart City project and will help integrate all the elements together.

This will also focus on providing bandwidth to network sensors installed under various projects like Smart Lighting, Solid Waste, Water Meters, Adaptive Traffic, Emergency Kiosks, and Environment Sensors etc.



**Use case:** Neha and her family decide to explore the other parts of the city. They visit a busy marketplace and wish to dine at a South-Indian food joint. Lost in the crowded street of the market, Neha uses the City Wi-Fi network to search and locate nearby restaurants serving their favorite cuisine.

### 4.1.2 Emergency Kiosks

Emergency Kiosks will help improve the safety and security of citizens within the city where they can seek assistance from the Smart City Operations Center (Command & Control Center) by pressing a button near them. The emergency feature will also be available within the mobile app which will enable the user to initiate a bidirectional audio – video call with operation staff at PSCDCL, PMC Smart City Operations Center. The emergency box (or panic button) will enable citizens to establish a two way audio (microphone and speaker) & camera (video camera and a video screen) communication link with Police (or/and with PMC's Disaster Management Cell or Smart City operations Center) through a press of a button. Emergency box is proposed at 100+ separate locations in Pune City.



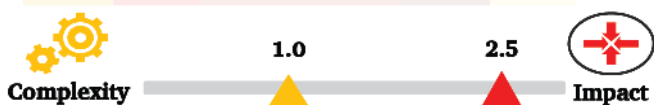
**Use Case:** Neha is working late in the office to meet the deadline. On her way back home she observes suspicious activity on the street. She approaches Emergency kiosks installed on Smart Pole near her. Neha presses the panic button and immediately gets police assistance through command control centre.

### 4.1.3 Visual Messaging Displays

VMD will enable PSCDCL and PMC to communicate effectively with the citizens and also improve response while dealing with emergency situations. These will also be used to regulate the traffic situations across the city by communicating right messages at the right time. VMD



will be installed at identified strategic locations. The location of VMDs will be on the key junctions (mostly on the roadsides without obstructing the traffic) and other strategic locations with large foot fall. The VMD software application will allow user to publish specific messages for managing traffic and also general informative messages. VMD is proposed at 100+ separate locations in Pune City.



**Use Case:** Neha’s husband, Anil, is on his way to work and is stuck at the traffic junction. Reading the message on the VMD, he learns that his chosen route will take more time to reach. Acting on this information, he changes his route to reduce waiting time.

#### 4.1.4 Public Address System

Administering a large city is an increasingly complex challenge. At the same time, the information and communication technologies that interconnect the systems required to manage an urban area are opening up new opportunities for public policymakers. A public address system (PA system) is an electronic sound amplification and distribution system with a microphone, amplifier and loudspeakers, used to allow a person to speak to a large public, for example for announcements of movements in public places in city. The proposed system shall contain an IP based announcing control connected to the Smart City Operations Center.

Public Address system shall be used at intersections, public places, market places or those critical locations as identified by PSCDCL to make important announcements for the public. It shall be able to broadcast messages across all PA systems or specific announcement could be made to a particular location supporting single or multi zone operations. The system shall also deliver pre-recorded messages to the loud speakers attached to them from CD, DVD Players & Pen drives for public announcements. It is proposed to be installed at 136 locations in city jurisdiction.



**Use Case:** It is the occasion of Ganesh utsav and a large number of people has gone to the nearby pond to witness Ganpati visarjan. Realizing that the crowd is getting out of control, the local authorities and police use the Public Address System to issue warning to citizens to stay away from the water body.

#### 4.1.5 Environment Sensors

Smart environment sensors will gather data about pollution, temperature, rains, levels of gases in the city (pollution) and any other events on a daily basis. It is for information of citizens and administration to further take appropriate actions during the daily course/cause of any event. Smart environment sensors will enable citizen to keep a check on their endeavors which impact environment and enable the city to take remedial action if required. These environmental sensors can also be connected via 3G or 4G wireless network. Sensors to be deployed at 50+ locations in city and 8 display boards will be installed in Pune City.



**Use Case:** Environment sensors sends a pre-emptive message to Neha about poor air quality. It helps her to take some preventive measure while going outside home.

#### 4.1.6 City Fibre

Internet data is growing exponentially across the world and having a high speed internet is becoming more of a necessity than a luxury. As more and more people are using the internet worldwide and as the applications become richer and video oriented, the need for data is likely to increase significantly. Studies suggest that Fibre is the only technology which can meet projected high traffic requirement for a city supported by wireless technologies like LTE, 5G for the end connectivity.

Also, key initiatives for Smart cities like City WiFi, Connected transport, Smart Lighting, Safety and Surveillance, Traffic management, Smart water distribution and Smart meters for utilities, and Waste management will need comprehensive fiber connectivity to roll out these programs ubiquitously across the cities.

In order to meet technological needs, many cities across the world have decided to create their own network backbone which spans across the city (e.g., Singapore, Stockholm etc.). PMC plans to create a similar network, however, in order to optimize the cost of creation of the infrastructure would be leveraging the excavations taking place in the cities for such infrastructure projects (e.g., water, metro, storm water etc.) to lay a 4 core optical fibre duct. Part of the duct would be monetized through sale or lease to various players such as telecom operators, tower companies, OTTs, MSO etc.

Such a strategy will not only reduce costs (given excavation and reinstatement cost is 70-80% of the overall cost) but will also reduce public inconvenience (as the excavation would go down) and ensure a high quality data service is available to the citizens of Pune .City aims to set up 2500 km fibre across the city with connectivity in next three years.



Complexity

2.25 2.3



Impact



**Use Case:** It is Wednesday morning. Neha is running late as it is raining heavily. Realizing that she might not be able to reach work on time, she decides to work from home. Due to strong connectivity from the City Fibre, she's able to connect with her team through video conferencing, thus reducing the opportunity cost.

### 4.1.7 City Adaptive Traffic

One of the primary objective of Pune Smart City mission is to develop Smart traffic management solutions which would provide greater information to the authorities to proactively manage the ongoing traffic situation and allow citizens to make informed travel choices. With Smart traffic management solutions, the overall burden of traffic on the roads will reduce and it will result in greater journey time reliability for the citizens and local businesses improving overall productivity levels.

Adaptive Traffic Management System initiatives include automated signal controls at 368 junctions, variable message sign and information boards at 50 locations and traffic monitoring systems such as e-challan and red light violations detection systems at 38 junctions in Pune city.



Complexity

2.0 3.0



Impact



**Use Case:** Neha is going to attend Parent Teacher meeting of her son, Rohit. Neha experienced reduced waiting time at the traffic junction sensing low congestion. Anil informs Neha that it is due to Adaptive Traffic System installed at 100+ junctions under Smart City Mission.

### 4.1.8 Smart Parking

The smart parking solution should enable PSCDCL and PMC to obtain real time situational awareness about the occupancy of parking lot.

The smart parking solution should enable PSCDCL and PMC or any other appointed third party to facilitate generation of parking receipts and tickets based on occupancy of parking lots. The smart parking solution would provide real time location based view to citizens about proximity of parking lots and availability of parking lots.



Complexity

1.5



3.0

Impact



**Use Case:** Neha and Anil are going to mall to buy monthly grocery. Using Smart Parking feature, the couple is able to get real time information regarding vacant parking lots near markets, thus saving time.

### 4.1.9 City Surveillance Infrastructure

Pune is one of the smart cities in the country to have high end closed circuit television camera (CCTV) surveillance with real-time face recognition system and automatic number plate recognition (ANPR) system.

The high-tech surveillance system can spot criminals in crowd, while stolen vehicles will also show up on screen at the central CCTV monitoring control room situated on the premises of Police Commissioner's office.



Complexity

1.75 2.0



Impact



**Use Case:** Neha is reading the local newspaper and is delighted to learn that the local police is using clippings from CCTV cameras to make city safer.

### 4.1.10 Digital Experience Center

DECs shall act as ICT enabled centers of experience where citizens can have an immersive experience with interactive technology solutions, such as touch screen kiosks, LED screens, and audio-visual experience. DECs shall also serve as service delivery centers for municipal as well as other services. Digital Experience Centre will be equipped with innovative solutions and gadgets to showcase the flagship projects under Pune Smart City. DEC will also help in showcasing the city government through engaging content and games to create interest in citizens towards participatory governance.



Complexity

1.0 1.0



Impact

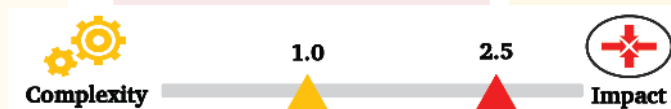


**Use Case:** Neha is taking her son, Rohit for a visit to the Digital Experience Center. Both mother and son are amazed by innovative solutions demonstrated through gamification at Digital Experience Centre.

### 4.1.11 City Digital Literacy Centers

Transformation in a city happens when each citizen leads the way to progress. The Digital world eliminates traditional limits of time and space, and enables linkages, connections, learning in real-time, resulting in empowered citizenship and rapid economic growth. The Digital Literacy Mission is a powerful social intervention because with one person in every household being

digitally literate, over 20% of Pune's population will have the ability to leverage the internet. 20% population distributed across households, constitutes an adequate inflexion point for the entire population of the city to be led into being digitally empowered citizens. This could transform the city's economic as well as social wellbeing. 100 Digital Literacy Mission (NDLM) centers are being set up in Pune to train the under-served communities on all digital devices, specifically, computers and smartphones. Once trained, the beneficiaries will be able to send e-mails, connect on social media, buy from e-commerce websites, and will even know how to use the Internet to avail of various government services such as registering for Aadhaar cards, ration cards, PAN cards, etc.



**Use Case:** Neha's maid is struggling to keep up with the digitized government systems like DBT, Aadhaar. She guides her to go to the nearest Digital literacy centers to get trained on digital platforms, cashless channels etc.

## 4.2 Digital Services and Payment

### 4.2.1 Websites & Portal

Our web portal act as a key delivery channels for extending static and dynamic content, interactive services, and transactions to its audience. Pune attracts international tourists, students, migratory working population every year. Online portal is accessible 24 hours a day, every day of the year. Citizens, customers and potential customers can visit website for support or information about citizen's information, services whenever it is convenient for them. Web Portal and websites are first touch point for external stakeholder like investors, tourists, students and citizens.

Web portals for various entities (Pune City, PMC, PSCDCL, Smart governance portal) will be launched and revamped by PMC, PSCDCL to address the information asymmetry by delivering relevant and consumable content to its citizens. It will focus more on providing citizen-centric content which can be customized depending upon the users' profile.

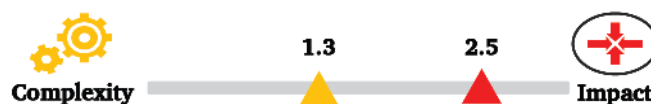
Pune City needs following portals:

- a) City Portal: To deliver city specific updates and information in consumable format and device.
- b) PMC Portal: To deliver information and services extended by city administration to its stakeholders
- c) Pune Smart City Portal: To disseminate updates and information about Smart City Projects under

implementation in Pune City.

Portals and website will offer various functionalities for various stakeholders. The functionalities are as follows:

- Information on government policies, flagship projects, detailed project reports and circulars etc.
- Online Services and Content
- Collaboration Platform for citizens and businesses
- Listing of upcoming events and happenings within city.



**Use Case:** Neha's colleague, Nupur has recently shifted to Pune. Since Nupur is unaware of PMC civic services offering, Neha introduces her to PMC's website, helping her to access all services at one stop.

### 4.2.2 Mobile Applications

Pune Municipal Corporation launched Android and iOS mobile app (PuneConnect) in Dec 2015 to allow citizens to log and track grievances, track services, pay and view property and water tax bills. PMC till date has collected more than 8 Cr of tax since 1st April 2017 through mobile app.

City also launched various mobile applications OfficerConnect, STP Mobile App, PMC CARE app and City app store in 2016. PMC officers are equipped with a mobile application which will help in tracking the grievances and ensure quick TAT.

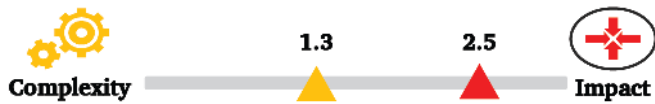
As a part of mGovernance strategy, a dedicated citizen mobile application (Pune Connect) will be developed which will provide quick access to all services (transactional, informational and grievance logging) and city updates.

City App will be able to push notifications to citizen based on his or her preference stored in CRM about traffic, transport, services, emergency etc. It will facilitate polling, suggestions and feedback of public works. App will also be integrated with Smart City Projects like Wi-Fi, Environment Sensors, ITMS, Adaptive Traffic, Bicycle Sharing etc.

Citizens will have an option to share information on social media channels (WhatsApp, Facebook and Twitter).

City App Store will endorse and host the mobile applications relevant to citizens to address the city needs and requirements.





infrastructure, providing quality teaching through remote education for students at PMC schools and co-creating an open learning environment by engaging course instructors and training providers.

Course content will be extended through studio class room, web-portal and mobile app through open system.



**Use Case:** Neha is delighted to know that her maid's son is finding interest in studies after she got him admitted to one of the schools having e-learning modules. She is happy to know that PMC is taking such fruitful initiatives.

**Use Case:** While on her way to drop her daughter to school, Neha witnesses a lot of pot holes due to incessant rains. She decides to lodge a grievance using Pune Connect app. After lodging the grievance, she gets an acknowledgement and is able to track the grievance at every step.

### 4.2.3 Services

Digital citizen services will be provided in the two functional areas:

#### a) Informational services

This would include dissemination of general information, emergency alerts and health & safety information.

#### b) Transactional services

Scope of these services will include payment of taxes (octroi and property tax), booking appointments for inspections, license and certificate requests.

These services will be extended through various delivery channels like web portals, mobile applications, kiosks, call center etc.

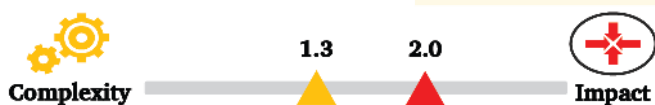
### 4.2.5 e-Health services

Pune Municipal Corporation is in charge of civic needs and infrastructure of Pune providing health services to Pune citizens through 1 general hospital, 1 infection specialty hospital, 16 maternity homes, 44 dispensaries and 3 mobile vans. The entire health service operations are based on manual paper-based operations from the point of admission to discharge, case transfers and monitoring of epidemic diseases. There is no clear medical data sharing procedure in place between government and private health service chains.

In order to streamline operations and ensuring real-time monitoring, digitization of current manual processes is crucial. Kamla Nehru Hospital has taken the initiative to implement NIC's HL7 compliant eHospital solution specifically meant for the hospitals in Government Sector on a pilot basis.

To manage entire value chain of healthcare services for PMC's and Pune city's healthcare network, the proposed HIMS e-Hospital is envisaged to work as an umbrella connecting both government and private hospitals, nursing homes using Mobile Allied services.

E-health services aim to digitize the current manual process in order to streamline operations and ensure real-time monitoring. Also, it will connect both government and private nursing homes using Mobile Allied services.



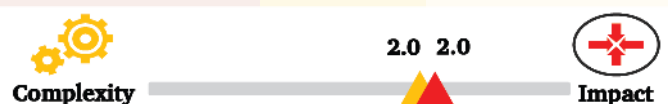
**Use Case:** Neha need not worry about standing in long queue to pay property taxes. She can pay them online via website or the app at her convenience.

### 4.2.4 e-Learning Solutions

An online platform will be created which will enable students, learners and citizens to enroll for courses online for free of cost.

PMC intends to provide digital learning experience and develop a comprehensive solution for modernizing the learning experience for students, citizens and any other enthusiastic learners. The use of technology in learning processes at schools shall greatly transform learning outcomes. In line with this, Tender has been floated for installation of 1 Virtual Classroom, 1 Digital Classroom and hosting of Adaptive Learning Management System at each of the PMC schools. The scope also includes designing, develop and deliver the educational content (both in 2D and 3D) for students from KG to class 10 in 300+ municipal schools.

This initiative is aimed at modernizing education



**Use Case:** One day, Neha witnesses an accident on her way back from office. An old woman was hit by an auto rickshaw. She quickly takes her to the nearest hospital for check-up. At the hospital, Neha finds the E-health card in the woman's wallet. Using that card, the doctors are able to get her entire medical history that helps them to give her the right treatment.



## 4.2.6 Citizen Relationship Management

PMC CARE, a CRM initiative, will be extended through various delivery channels (call centre, mobile App, website, social media) to provide assistance to citizens. CRM will provide a customer centric approach to citizens for every interaction or transactions through various channels for targeted service delivery. A dedicated department will be formed which will act as a co-ordination point between citizen touchpoints and PMC. This department will constantly monitor all PMC CARE touchpoints, help citizens in faster resolution of their problems and provide feedback to concerned departments.



**Use Case:** Over the past few days, there has been no maintenance of the smart bins in Neha's locality. She lodges a grievance on the Pune connect app and tags the PMC care team for expedited response. The team tracks the complaint on a fast-track basis

## 4.2.7 Cashless Payment Strategy & Payment Channels

Emphasis will be laid on creation of multiple cashless payment channels like PMC website, PuneConnect App, Electronic Bill Presentment and Payment system, Instapay service, UPI, BHIM, third party payment websites like paytm, BillDesk, nearby retail stores using MI card, agents based doorstep collection, missed call based payment system.

Focus will be on building up programs and campaigns around the cashless channels. This would include interactive chat options on the PMC website to provide personalized assistance and address citizen queries, interactive videos for its citizens to understand the transaction flow across various channels and how the upcoming payment instruments can be used, analytics based promotional campaigns across various social media channels, distribution of reference guides at physical centers to promote digital collection methods, social media usage to spread awareness through cashbacks, discounts and other promotional incentives, reminders regarding tax dues, penalty charges etc. on physical bill statements, SMS, online accounts and financial incentives to encourage citizens to use the digital payment options.



**Use Case:** In the wake of demonetization, Neha's maid Sheela wants to adopt digital currency and seeks help from Neha. She then logs in her Pune Connect app and checks for nearest centers for digital inclusion. At the center, she is fully guided and receives step-by-step instructions on how to facilitate digital payments.

## 4.2.8 City Dashboard

Various Smart City projects will lead to generation of massive operational data from different systems like Network of Smart Elements, IoT Sensors, Street Light, Water Supply, STP and Storm Water, Adaptive Traffic, Grievance Management, Solid Waste Management System on daily basis. In order to monitor the operations, city aims to use business intelligence to promote data centric decision.

Pune dashboard will be developed and deployed to provide insights to various stakeholders in city. It will have the capability to generate various quantitative and non-quantitative data analysis from the data captured through transactions, sensors and services.

Analytical dashboard will present insights from volume of data collected over time to facilitate real time decision and policy making. Operational dashboards will provide measurement of KPIs to monitor the performance of different departments.



**Use Case:** With City Dashboard, Neha is able to monitor the city operations through City Performance Dashboard. Neha is also able to compare her current locality over various indicators as she is also planning to move to different part of city.

## 4.2.9 Open Data & API Integration

Pune DataStore, an open data initiative, will provide citizens access to datasets under every PMC department in open format. The platform will also facilitate formation of communities around a domain of common interest like education, health to promote co-creation and innovation in city.

API Integration with Open Data portal will help city administration in exposing and monetizing the data feeds in real time.



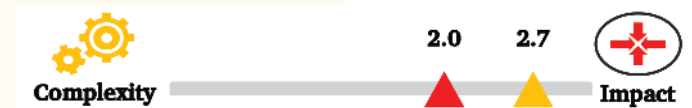


**Use Case:** Via open data Neha will know where her donation has been put to use making the donor-recipient system accountable for aid expenditures.

### 4.2.10 Direct Benefit Transfer

Payments under different citizen benefit schemes like educational scholarships, pensions and welfare benefits will be facilitated to citizens by utilization of Aadhaar database for personal identification and authentication for targeted delivery. This will reduce the administrative overheads and eliminate the need to carry physical documents for verification.

PMC intends to implement Direct Benefit Transfer delivery system to reduce the human touch points involved in benefit delivery process for all direct cash transfers and also In-kind benefit transfers. There are a total of 105 schemes identified out of which 22 schemes will be part of Phase 1 project and shall be implemented by 1st week of June. All the remaining schemes will be implemented by in a phase by phase manner.



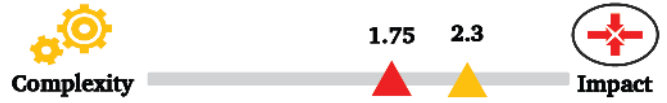
**Use Case:** Neha's grandfather will not have to stand in long lines for his health cover. With DBT, the money will find its way into the bank account at the end of every year, saving on time and improving transparency.

### 4.2.11 City MI card

PMC will introduce a city MI card which will be issued through both online and offline channels. This card can be used by the citizens for the following purposes:

1. PMC and PMPML staff for secure access (entry and exit) to the organization's premises and receiving financial benefits such as pension, performance incentives etc.
2. Pune citizens for making cashless payments towards municipal taxes (property and water) and availing services like social benefits under the schemes launched by PMC, building permission, issuance of health licenses, birth, death, marriage certificates, parking facility, entry into public parks, zoological parks and metro stations.
3. Electronic purse for general public to buy grocery and subsidized items like kerosene oil, sugar at Ration stores.

4. Electronic purse for students to transact for purchases like school uniforms, shoes, food at school cafeterias, nourishments and groceries from PMC designated grocery shops.



**Use Case:** Neha doesn't have to worry about collecting student benefits for her children. Their city card assures that she will receive school uniforms, shoes and other benefits on time.

### 4.2.12 Aadhaar Ecosystem

Digital Locker is aimed at minimizing the usage of physical documents and enable sharing of e-documents across agencies and departments. Pune Municipal Corporation integrated its Birth and Death Certificates with Digital Locker with objective of providing certificates online electronically and to minimize the use of physical documents. Digital Locker will reduce administrative overhead and paper work of PMC departments. IT Department has implemented it in-house with help of Digital Locker Team, GoI. Future plan is to bring more and more service under Aadhaar umbrella to provide hassle free services to its residents on the go.

e-Hastakshar initiative enables citizens, officers and stakeholders with valid Aadhaar ID and registered mobile number to carryout digital signing of their documents on-line. This is major step towards paperless processes and will integrate its major systems like Auto DCR, Property Tax, Licenses, NoC, Works Management System, etc. to provide mobile and paperless solution to its workforce by end of current financial year. It consumes service of Unique Identification Authority of India (UIDAI) for on-line e-authentication and Aadhaar eKYC Service. PMC intends to extend the eSign to all the departments under PMC to provide Aadhaar linked digital signature to boost ease of doing business.



**Use Case:** Earlier it was very tedious process to change banks for saving accounts with a large number of documents from birth certificate to marriage certificate required. But now with digi locker, the process has been simplified with just Aadhaar number linkage required.

## 4.3 Digital Engagement and Communication

### 4.3.1 Citizen Collaboration platform

Citizens' input is a critical resource for policy-making. Good decision-making requires the knowledge, experiences, views and values of the public. Implementation of difficult decisions depends on the citizens' consent and support. Unless citizens understand and are engaged in the decision themselves, trust is easily lost. (OECD, 2009).

People around the world consistently indicate that they are not content simply to engage with government through periodic elections. Good citizen engagement can support the effective functioning of democracy, the legitimacy of government, the successful implementation of policy and the achievement of social outcomes. Bad engagement practice can lead to poor decisions, and disengagement by citizens (Brodie et al, 2011).

Pune Municipal Corporation intends to strengthen the citizen engagement through collaboration platform to promote participatory governance for effective decision and policy making at all levels. Pune Municipal Corporation has taken various initiatives at different levels.

Pune Connect, an app launched under PMC CARE framework i.e. **Citizen Assistance Response and Engagement** to provide governance at the fingertips of citizens and its stake holders. Its features include services for Property tax, Water tax, Emergency services, Perception survey, Pune Directory and grievance management.

PMC currently uses web sites, social media channels to communicate or broadcast its policy to its citizens. PMC intends to set up collaboration platform (Government Citizen Collaboration Platform) for its citizens and communities to promote citizen collaboration over various policy matters, to solicit views and feedback over the proposed budget/policy etc. at ward level/zone level/city level.



**Use case:** Neha is part of the gardening community under PMC care initiative. One day, she gets a message that there is a special session on bonsai at a nearby nursery. Excited, she decides to attend the session and take along her own collection of bonsai plants.

### 4.3.2 Social Media Management

PMC has a dedicated cell for social media interactions, with 7100 followers on Facebook and 3591 followers on Twitter. Apart from Facebook and Twitter, PMC is present over various social media channels like Instagram, Google+ and provides support to citizens through WhatsApp, SMS, Email and Call Centre.

Social Media team as per social media and engagement policy of PMC manage its various channels for communicating various initiatives, projects and programs. Co-Creation and Co-innovations have also been tried in past through social media cell.

PMC intends to take it to next level through various tools like Social Media Analytics, Sentiments Analysis, and Internet Communication cum marketing campaign. There is need of more focused and professional citizen engagement through PMC social media team. Focus has to be on outreach of communication and citizen engagement KPIs

These are organic ways to increase your outreach and have citizen engagement. It is important to know what citizens are trying to say indirectly through their likes and comments on the social media websites and gauge their behavior. It is possible to extrapolate user's demands through their behavior analysis and then cater to them. Using such analysis will help PMC to target the correct set of people and provide them relevant services. Key here is localization and customization as per citizen needs.



**Use case:** One day, on her Facebook news feed, Neha sees a video of a Marathi actress promoting the use of smart bins and asking citizens to do away with harmful plastic bags and use smart garbage bins. Motivated, she decides to locate the smart bin near her house and decides to use it from then onwards.

### 4.3.3 Content Management

The core idea behind content management for a city digital strategy is to enable citizens with relevant content. At present, there is too much information asymmetry for the citizens as per their life style. The aim of content management is to deliver people-centric meaningful data to the citizens according to their life-style. Content management will also take care of data sharing across departments, citizens and communities.

Content management for a city digital strategy falls under two categories:



1. Pushing relevant content to the targeted citizens
2. Updating relevant content on the website/mobile app. Displaying the content relevant to the stakeholder is important because it increases the efficiency of the information disposal. It also helps in identifying the right content for the right stakeholder and increases collaboration between them. The PMC care mobile app is also a great way to engage users and pass on relevant content to them. It already has a huge database of citizens and further data can be extracted through integrating it with other services. The database can be leveraged to get insights about the need of the users and provide relevant information.

Various Websites and web portals would require specific and very mature content in local language to address the content requirement regarding information and services extended through various channels. Also good content leads to effective citizen engagement and facilitates the citizen collaboration.



**Use case:** Shalini, Neha's friend arrives in Pune from abroad. She is in Pune to begin work on her startup. When she connects her mobile with the high speed city wifi, the home page asks her purpose to visit Pune for efficient delivery of content. As she is here for a startup, she gets updates about the incubation cells in the city and the seminars and workshops being organized in the city. Further, she gets information about office space she can rent in the city for the startup.

### 4.3.4 City Branding

Branding can help turn a city into a place where people are excited to live, work and visit. A strong integrated identity is essential to attract tourist and business or as in this case communicating the relaunching of an area after a regeneration initiative say smart city initiatives.

Global Smart Cities like New York, Berlin and Tel Aviv have incorporated a non-profit branding company for effective marketing and communication at global level. Also at local level branding helps people in associating it with various programs, projects and policies of city government.

At this very moment, Pune is working on various programs and project focused towards 'Smart city'. With a dearth of projects ICT or otherwise undertaken it becomes important to make them a part of single narrative. From branding of department dashboards to the various applications being launched- officer connect or PMC CARE; they all need to follow the branding rules.

Now more than ever it's important for PMC to develop its brand identity. Having got the citizens attention with Smart city goals it would be easier for PMC to establish a brand image if executed properly.

The key components of city branding are:

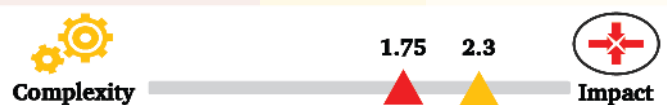
- Strategy
- Brand value
- Brand recognition
- Brand elements

Following strategy can be followed for Pune City:

- a) Understand the city DNA, current brand image and target audience –Understand the pulse of the city and citizens. Define the target audience for concentrated efforts.
- b) Set aspirational brand identity - Take steps and initiative towards developing the aspirational brand image. Communicate those values. Try to shrug off the negative perceptions.
- c) Improve Real Performance on Key Metrics – Identify pain points of target group and start resolving the core issues contributing to majority of civic complaints.



**Use case:** Recently, the theme 'Queen of Deccan' is on the push by the city administration of Pune. On her way to office, Neha has started observing a common theme on the roads, signboards, government buildings, signals, schools that promotes the same theme & gives an impression about the city's vibe.



### 4.3.5 City MI card

MI card will be issued to the citizens enabling them to become member of the MI card community. The cardholders will be provided with following benefits based on residents' personal interests and inquiries:

- Live updates about events (art, music, health, lifestyle, sports) happening in the city.
- Discounts at PMC's facilities like parking lots and community centers.





**Use case:** Neha likes to watch Marathi theatre at the Maharashtra Cultural Centre in Pune. However, the parking space is limited near the cultural center and parking is expensive outside the premises. But Neha is a holder of MI card and gets periodic discounts on designated parking space by PMC, which makes her life easier.

### 4.3.6 Call Centre (1800 1030 222)

Millions of citizens still don't have access to smart phones and internet in Pune. In order to address the information asymmetry and digital divide various systems are incorporated to provide free of cost access to information about services, schemes and benefits to all section of society. Also absorption of smart phone and internet is not consistent across the city demography and aged or differently abled population still trust traditional mechanisms like physical visit to offices for availing or accessing information or for payment of taxes due to various trust related issues. Toll free City Call Centre was launched to address the information asymmetry among physically and economically challenged set of population in Pune City.

Setting up a Call Centre is one of the key initiative taken under PMC CARE where Citizen Assistance, Response and Engagement is achieved. PMC has its own Call Centre with a toll free number running from morning 7 AM to 11 PM. Call center acts as a platform where citizens can raise their concerns and grievances, further grievances are assigned to PMC employees and resolved as per the defined SLAs. PMC Call Centre is supported by various IT systems to provide information requested by citizens like grievance management system, eFAQ system, websites and web portal etc. PMC Call center also engage citizens by collecting feedback on behalf of citizens.

Pune City Call Centre intends to expand and upgrade its services in future.

A strategic branding of city is not necessarily about connecting with the consumer emotionally. It is mainly a collection of factual statement that makes a community special, why it matters and to whom. Emotional connections will be made later through the use of creativity including graphic design, communications. A well-conceived strategic brand platform should remain viable and relevant for decades, whereas the creativity used to manifest that platform will change with the times.



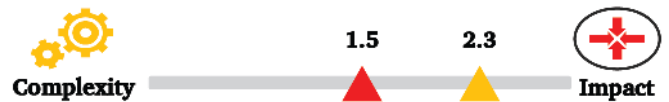
**Use case:** Neha's mother, Mrs. Savitri is more than 70 yrs. old and is not tech-savvy. She wishes to know the nearest eye hospital to get appointment for her cataract. Using the toll-free call-center services, she gets the list of all eye hospitals and clinics around her home. In

addition, she also gets to know the packages offered by these hospitals and insurance plans offered.

## 4.4 Digital Organisation

### 4.4.1 Command Control Centre

Smart City Operations Center (SCOC) is to have an integrated view of all the smart initiatives undertaken by PMC, PSCDCL and other City organizations, with the focus to serve as a decision support engine for city administrators in day to day operations or during emergency situations. This dynamic response to situations, both pre-active and re-active will truly make the city operations "SMART". Smart City Operations Center (SCOC) involves leveraging on the information provided by various departments and providing a comprehensive response mechanism for the day-to-day challenges across the city. SCOC shall be a fully integrated, web-based solution that provides seamless incident – response management, collaboration and geo-spatial display. SCOC shall facilitate the viewing and controlling mechanism for the selected field locations in a fully automated environment for optimized monitoring, regulation and enforcement of services. The smart city operations center shall be accessible by operators and concerned authorized entities with necessary authentication credentials.



**Use case:** There is a water leakage near Neha's home that is leading to overflowing of streets. She lodges a complaint using Pune Connect app. The Smart City Operations Centre personnel receives the complaint and uses the integrated platform to check the exact location of the leakage. Further, they also use the platform to know the possible effects of water leakage and stops it from further causing any damage.

### 4.4.2 Enterprise Architecture

PMC has designed a robust and scalable Enterprise Architecture [EA] for the implementation of various ICT initiatives as a part of smart governance and smart city projects. The enterprise architecture proposed by PMC is an open platform architecture supported through API and micro services framework. PMC EA aligns the IT Strategy and roadmap with Vision and objectives of PMC. PMC IT Department has established a dedicated team of nodal officers and cells (GIS Cell, UID Cell, etc.) for the roll-out of respective IT systems. It has implemented enterprise level approach for all the applications for ERP, Enterprise cloud, Enterprise GIS, Enterprise Dashboard, RTS and Non-RTS Services along with its integration with other PMC applications. PMC has developed the service portfolio through all the possible service delivery

channels including web, mobile, kiosks and social media channels. PMC has developed a robust open data platform to embark upon co-creation with assistance from citizens. Going forward, all PMC applications will be utilizing the enterprise GIS platform and PMC cloud for the services and applications. All PMC applications data and processes will be integrated to provide seamless data access to the CxO dashboard and Smart City Operations Centres (SCOC).



### 4.4.3 Enterprise Dashboard

Objective of Enterprise Dashboard at Pune Municipal Corporation is to transform the City Government decision making to a more data oriented decision making in real time. Dashboards will help Pune Municipal Corporation in transforming government data into meaningful visuals for decision oriented policy formulation and to enable participatory governance to its citizens. Pune Municipal Corporation has already initiated open data initiative to democratize the data and next logical step is to extend the dashboards through the data generated from various systems, applications, businesses to its officials. Dashboard will provide the real time customized dashboard.

In order to implement the dashboard, Pune Municipal Corporation will identify Key Performance Indicators for each department, Project, Program and map it with baseline to formulate scorecard of each department, PMO and officers under Pune Municipal Corporation. Scorecard customized summary will be extended to various officials through Dashboard for decision making and measuring performance. Objective is to address the challenges during strategic planning.

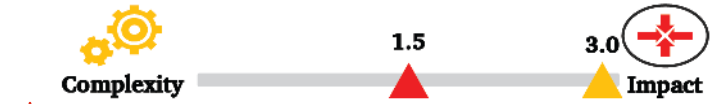
The Smart City project will also lead to generation of data streams for citizen’s consumption and city administration real time decision making. Dashboard will lead to quick assessment of the Municipal Corporation performance in key areas including: economic strength; health and education; and public safety. Pune Municipal Corporation will implement the project in two phases and will be delivered by June 2017 end.



### 4.4.4 Enterprise GIS

PMC is taking up GIS initiatives to improve efficiency, transparency and accountability in their functioning

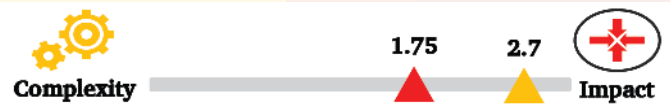
while enhancing the quality of citizen services it offers. Currently, some of the departments that have streamlined their operations using GIS cutting edge technologies are: Property Tax department, Garden department, and Solid Waste Department. Considering the trade of & long term benefits PMC IT department has decided to build a strong & robust GIS backbone to support its existing departments & their operations in the future.



**Use case:** Neha is delighted to know the current progress of the ongoing projects. She can also see which projects are undergoing in which part of the city because all the projects are geo-linked to one digital platform.

### 4.4.5 E.R.P

Enterprise Resource Planning (ERP) will be implemented to help PMC modernize its way of working by end-to-end computerization of the Corporation working. It will implement Document Management System which will automate most of the department processes, inventory management system which will generate accurate reports of stock in hand to help tracking items and improve utilization of the same.



**Use case:** Using ERP, all the departments are linked together. So, the next time Neha calls customer care to pay a bill in any of the department, the customer executive can see all her details flashing on the screen. The front desk is also connected to the back end billing desk, so they are able to instantly fetch her billing details using enterprise messaging service. Thus, there is seamless flow of information across the network.

### 4.4.6 Enterprise Cloud

PMC wanted to deliver applications and services at speed and scale greater than ever. The deployment of cloud based provisioning would integrate the required components to create an automated, easily managed platform that embraces all applications, for fast deployment across PMC environment. With such cloud solution at PMC, a predefined list of services would be available to users and additional services can be created instantly upon request by any department of PMC, while still enabling IT Department, to control and secure these services.

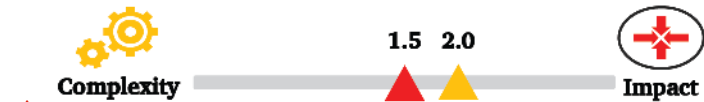
**Use Case:** Neha’s friend, Tushar is planning to work on a tech-startup. He requires to host his websites on the cloud

but is unable to get affordable hosts privately. However, he is happy because he gets the PMC cloud service at a discounted rate to host his websites.



#### 4.4.7 Enterprise Wi-Fi and Network Upgradation

Enterprise Wi-Fi and network connectivity will be implemented at PMC's Head office and ward offices in order to provide wireless and wired access of internet to PMC employees, guests and visitors. The access will be role based for employees and an authenticated access will be given to visitors and guests. Also, the corporation's network infrastructure will be upgraded and a dedicated Network Operations Centre (NOC) will be set up to monitor the performance of the entire network by deploying resources that ensure smooth running of the network.



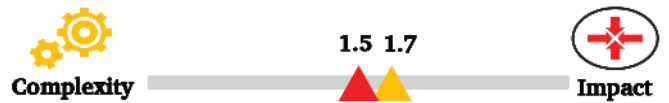
**Use Case:** Neha's husband Anil wants to renew the license for his business and requires to visit PMC office. He is delighted to know that he gets free access to high-speed wifi internet as soon as he enters PMC office.

#### 4.4.8 Internal Knowledge Management

PMC wants to promote a knowledge sharing culture by breaking down the barriers between different departments which operate in silos. In order to address this issue, a dedicated knowledge management team headed by Chief Knowledge Officer (CKO) will be formed. This team will be responsible for creating

an infrastructure (platform) where all departments (Health, solid waste management, IT) will share information in a unified format. The team will also be responsible for establishing policy for gathering updated information. The platform will include department specific information like Standard Operating Procedures, work guidelines and standardized formats for various forms. The development of this management system will facilitate in building the internal database, thus helping PMC to get a unified vision of citizens' needs and also create a collaborative environment within.

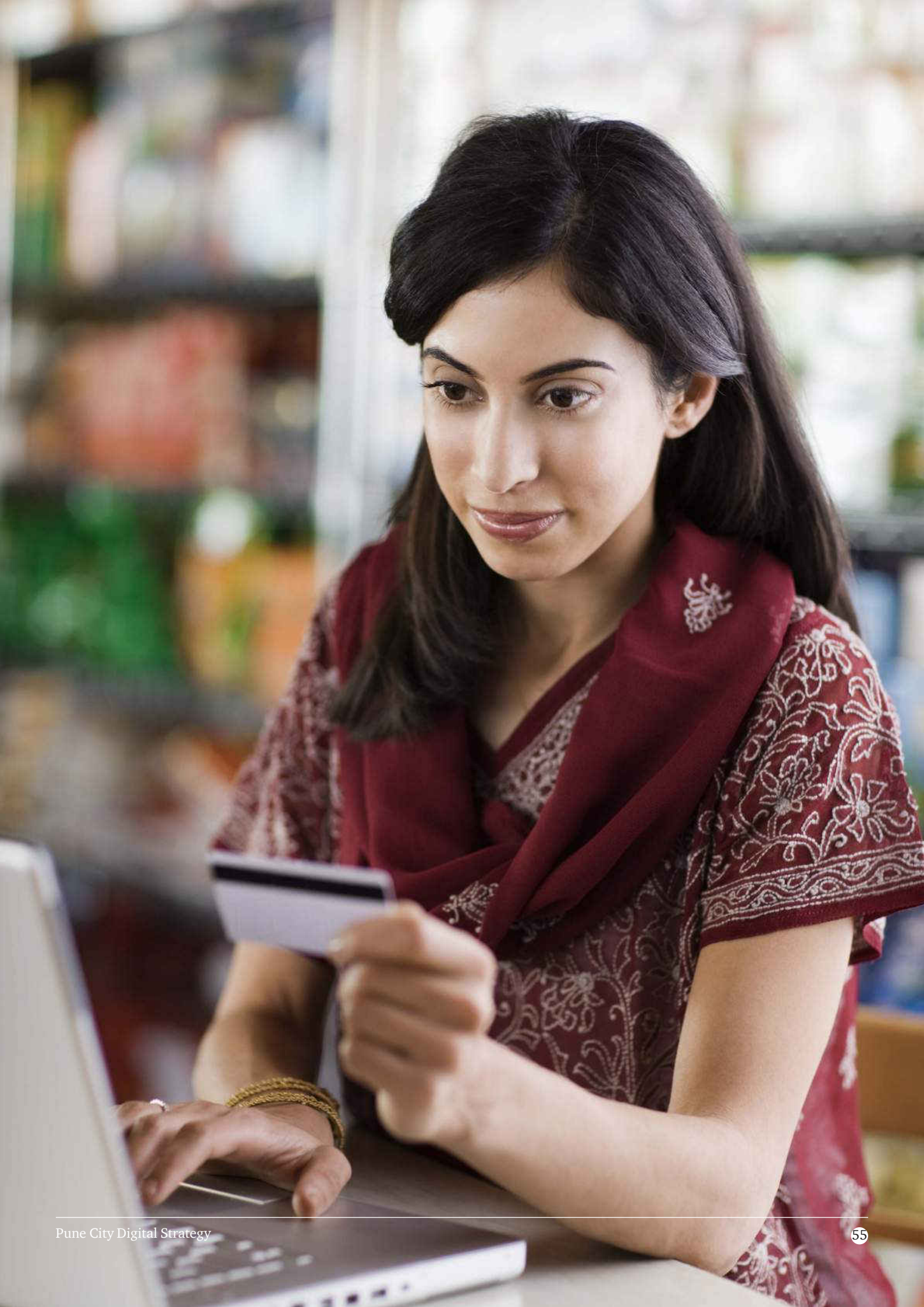
A leading case in point is Tel Aviv city, which in Year 2005 had set up a steering committee to examine the issue of knowledge management. The outcome of this committee was the formation of a new organizational unit - Municipal Knowledge Administration and appointment of Municipal Knowledge Officer. The vision of this unit was to provide employees an access to internal knowledge, they needed for their work, thus improving the municipality's customer service. By 2006, this department was able to create department-specific work environments which documented department's knowledge. It was because of its achievement of objectives, that the department was able to help other departments in revamping the municipal website to make it citizen-friendly and conversion of walk-in services to digital ones.



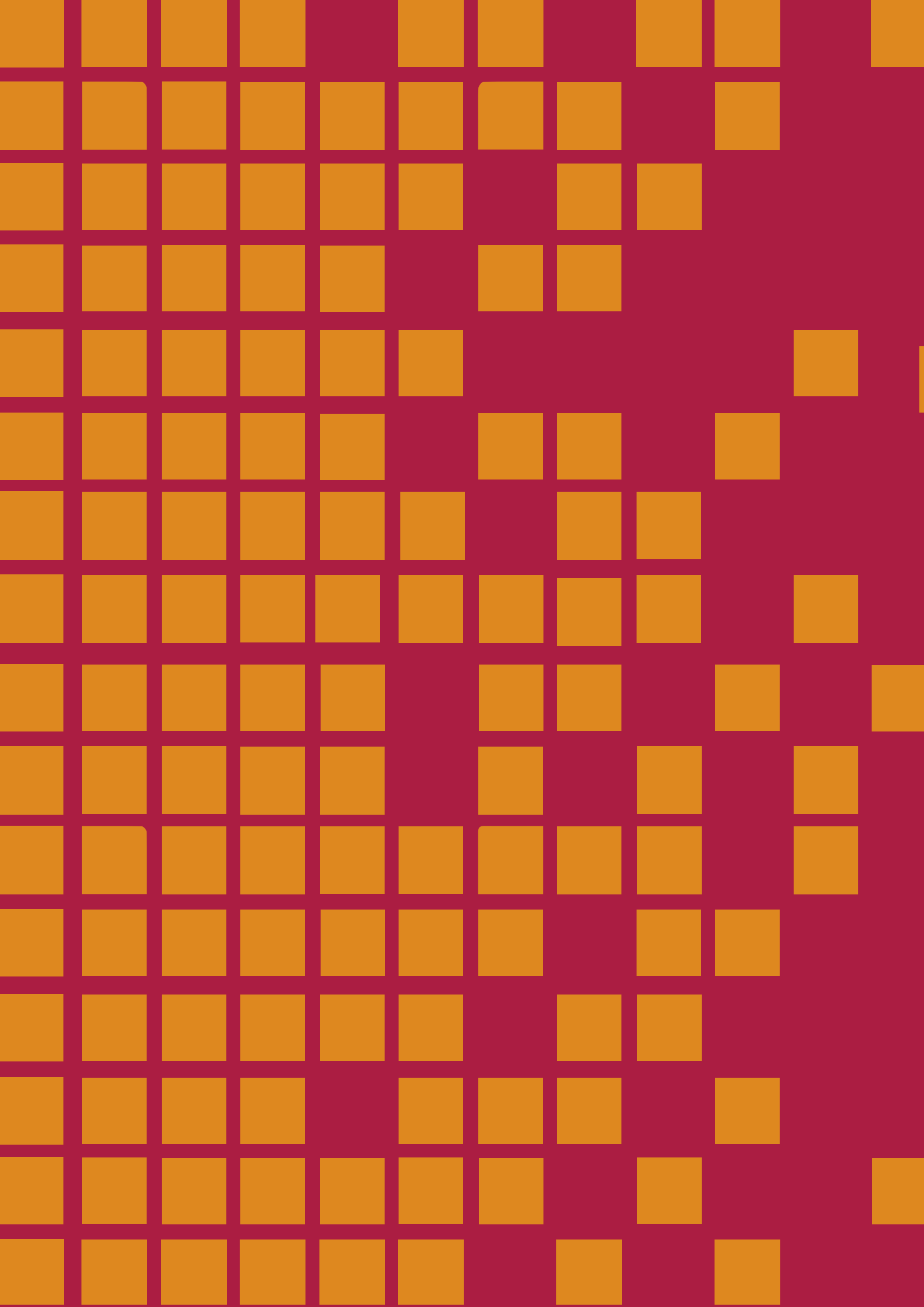
**Use Case:** All the departments which used to work as silos are now covered on a single platform using knowledge management. This means when Neha steps into a PMC office or ward, she will be able to get information on a single window. Also, there will be constant communication within the departments. Therefore, details once updated in one department will be instantaneously shared among other departments as well.

*In the next section, we will list down the steps intended to be taken for the implementation of the city digital strategy and its framework. We will also explain the concept of digital maturity and how we intend to measure it.*











## **5. ROAD-MAP EXPLAINED**





# 5. ROAD-MAP EXPLAINED

*This section gives you the steps intended to be taken for the implementation of the city digital strategy and the framework for the same.*

## 5.1 Stakeholder analysis

Pune city is setting a precedence in the country in smart governance with its various projects. As the projects include integration and active collaboration between different departments it becomes a necessity to clearly identify all the stakeholders for a project. To enhance effectiveness of the digital infrastructure the PMC has identified the following stakeholders: citizens, PSCDCL, GoM, GoI, Vendors and the various departments under PMC.

Below is a snap shot of the involved stakeholders:

- 1 Central Government
- 2 State Government
- 3 City Administration –City Police
- 4 City Administration-Traffic Police
- 5 HoDs
- 6 IT Department
- 7 Citizens
- 8 Communities
- 9 Businesses

For formulating implementation and execution strategy a steering committee has been set up. To include the citizens in the process a feedback channel via PMC Care has been established. To educate and recognize good practices special capacity building programs and incentives have been started.

## 5.2 Digital Strategy Steering Committee

Steering Committee has a responsibility to realize the digital potential of various projects. In parallel with organization Smart City Cell or IT department efforts, there are sector-specific digitization projects and strategies, for example GIS or DBT strategy. This approach to city digital strategy provides a good balance between common strategic targets and local adaptation and priorities.

Digital Strategy Steering Committee stakeholders needs to understand the complexity and impact of each project on city. Stakeholders needs to represent the domain or interest group to support the project in the long run. Stakeholder in steering committee must have broad understanding of Smart City, Administration working and management.

Digital Strategy Steering Committee would be responsible for recommending and revising the investment against the proposed initiatives. Digital Strategy would also review the progress of Implementation of city Digital Strategy quarterly under the chairmanship of appointed chairperson.

Responsibilities of Steering Committee

- Ensuring the project's objectives and outcomes meet the requirements.
- Monitoring and reviewing the project at regular meetings.
- Helping balance conflicting priorities and resources.
- Suggesting actions required for the successful implementation of the project.
- Reviewing the work of sub-committees or working groups as well as the project management for conformity.
- Participating in the planning considering feasibility of the project, ideas and issues raised.



- Suggesting corrective actions in the case of delays in the implementation of the project activities.
- Reviewing the project scope as unexpected issues force changes to be considered.
- Providing policy direction to the project.
- Fostering positive communication regarding progress and outcomes.

Below the details about the steering committee and PMC Care have been showcased.

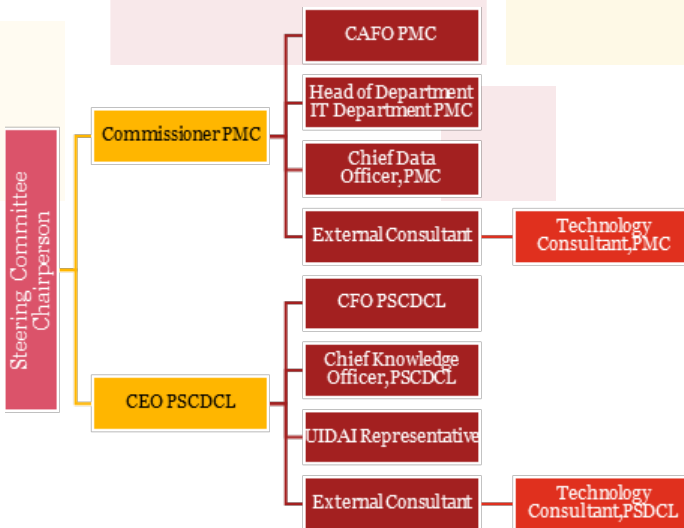


Figure 6: Structure of Steering Committee

### 5.3 PMC CARE: Citizen Assistance Response and Engagement

Pune Municipal Corporation intends to set up dedicated department for effective service delivery to PuneKars. Department will act as interface between PMC departments and Citizens. PMC CARE will focus on citizen engagement and relationship management through assistance of professional agencies.

PMC CARE would be responsible for the following:

- Enterprise Knowledge Management
- Branding and Communication
- Social Media and Call Centre Management
- Grievance Management
- Doorstep Delivery
- Collaboration Platform
- Citizen Facilitation Centre

- Crowd Sourcing and Co-Creation
- Citizen Feedback Management

#### Responsibilities:

1. Ensuring the project’s objectives and outcomes meet the requirements.
2. Monitoring and reviewing the project at regular meetings.
3. Helping balance conflicting priorities and resources.
4. Suggesting actions required for the successful implementation of the project.
5. Reviewing the work of sub-committees or working groups as well as the project management for conformity.
6. Participating in the planning considering feasibility of the project, ideas and issues raised.
7. Suggesting corrective actions in the case of delays in the implementation of the project activities.
8. Reviewing the project scope as unexpected issues force changes to be considered.
9. Providing policy direction to the project.
10. Fostering positive communication regarding progress and outcomes.

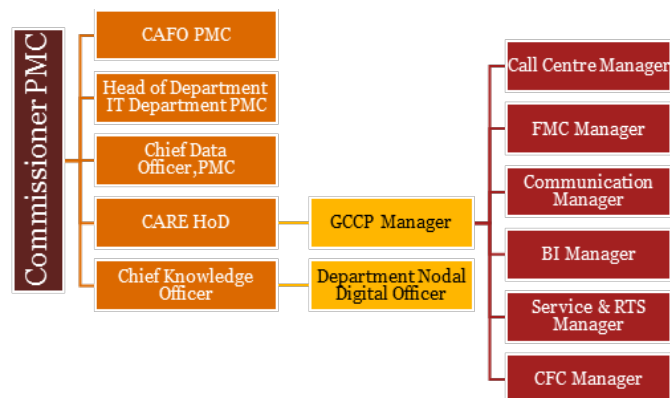


Figure 7: Structure of PMC CARE

### 5.4 Capacity Building

A Digital Literacy Centre has been constructed at Ghole Road Ward Office where employees can be trained as a part of capacity building initiative at PMC.

The training goals are:

- To communicate the objectives of project and change in the role of employees.

- To develop IT skills, relationship building and collaborative skills amongst the employees for implementation of Smart Governance.
- To create ownership amongst the employees for driving the change.
- To spread awareness about new technologies @ PMC – GIS, BBPS and Payment Aggregator
- To give inter-departmental training as there are often inter department transfers.
- To provide Complaint Portal Training.
- To provide training on Mobile application.
- To provide IT Training Level -1.

To provide this training the digital center was equipped with 25 computers, projector and white board facility provided.

Over 1500 of training hours on basic IT skills was delivered to PMC employees at this center. Capacity building has turned out to be a successful initiative providing empowering the officials to use the new

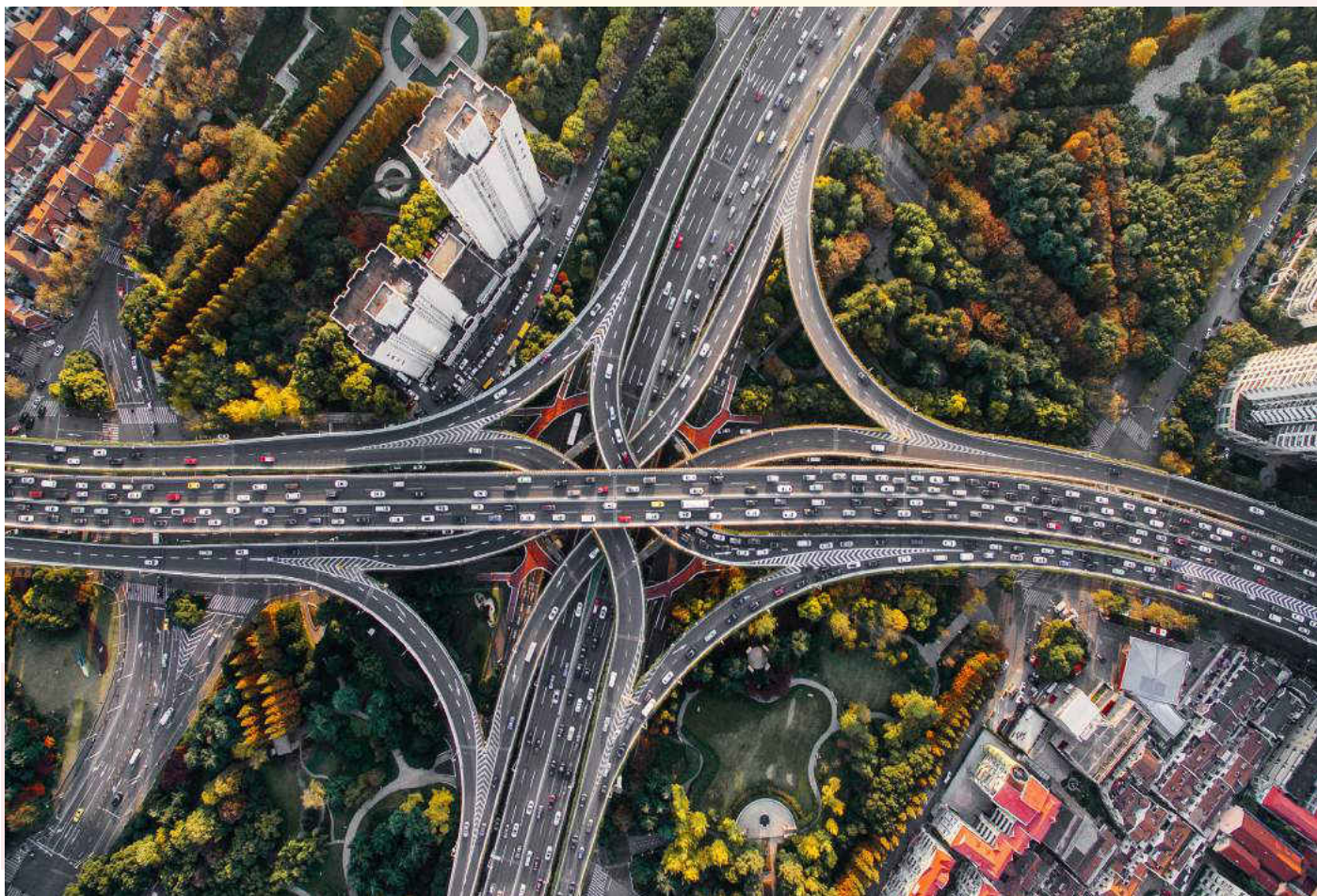
technology solutions.

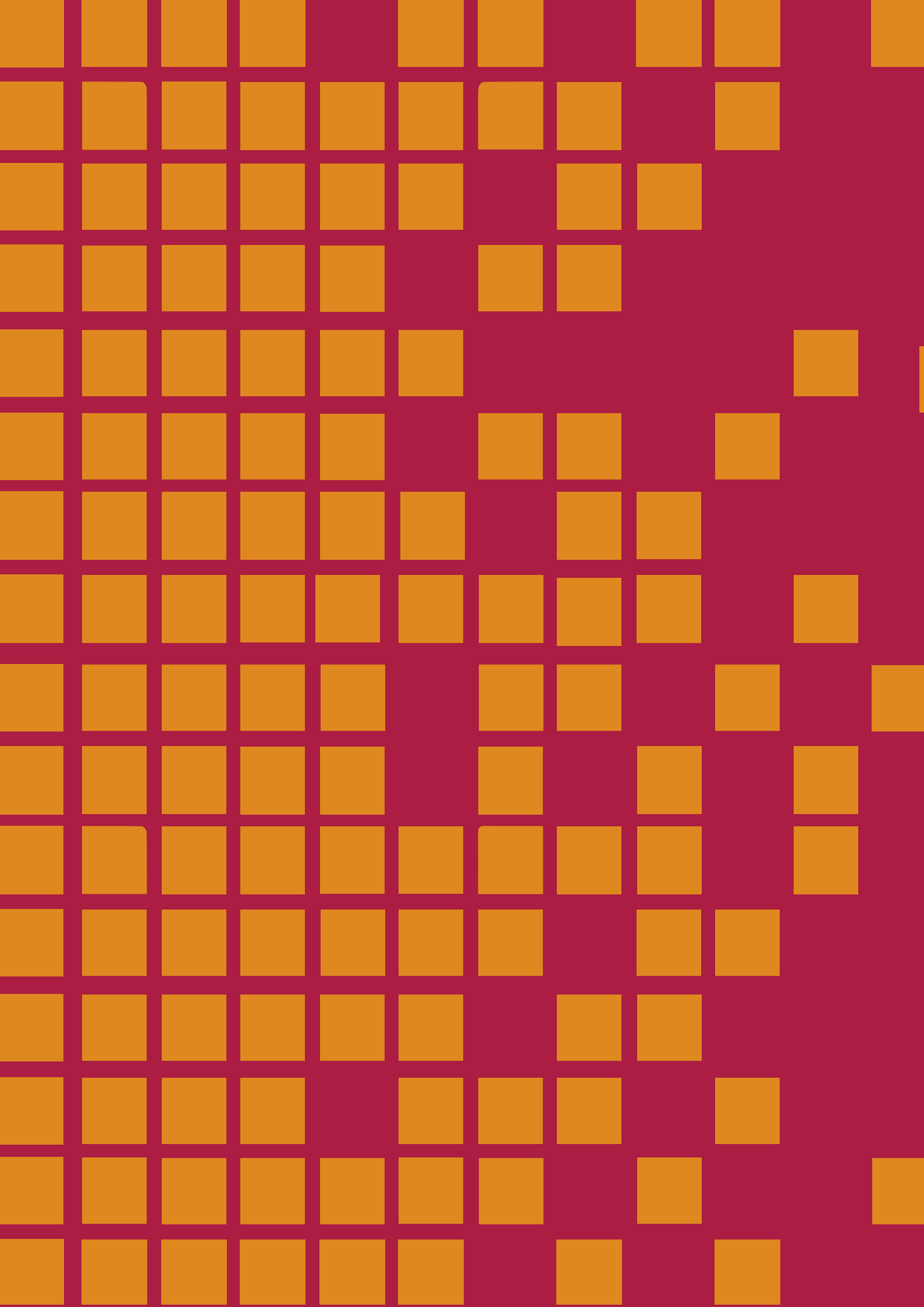
Training has also been provided to teachers from PMC schools which makes them proficient in upcoming digital style of teaching

## 5.5 Recognition and Incentives

PMC CARE is one of the flagship initiative by Pune Municipal Corporation as a part of citizen assistance, response and engagement. Under the same umbrella multiple platforms have been created for citizen to reach out to PMC with minimum efforts and maximum impact.

To further strengthen the same initiative and boost morale of PMC employees working towards providing best services to PuneKars PMC had organized a small award ceremony. PMC provided certificates to officers for their achievements bases on citizen feedback. All the valuable feedbacks which citizens provide for every complaint resolved is recorded and evaluated to score the employees for their performances. Based on the ratings obtained for closed complaints in the month of January, three PMC officers, one ward and one department were awarded as the best performers.







## **6. CONCLUSION**







# 6. CONCLUSION

*This section concludes the whole report and also gives us an indication of how the digital strategy is going to change the lives of citizens*

Pune is a leader in digital civic engagement. However, more needs to be done from both the government and the citizen front to strengthen the position. This city digital strategy report outlines a path to realize this goal and make Pune as the leading city in India to implement a well-rounded digital strategy for the entire city.

Digital technology enables transparency, innovation, access, public input and participation in the democratic process. By connecting all the stake holders viz, government, citizens and business through a common platform and enhancing the digital resources, the city of Pune will pursue a holistic digital strategy and by doing so, will become a leading city in India.

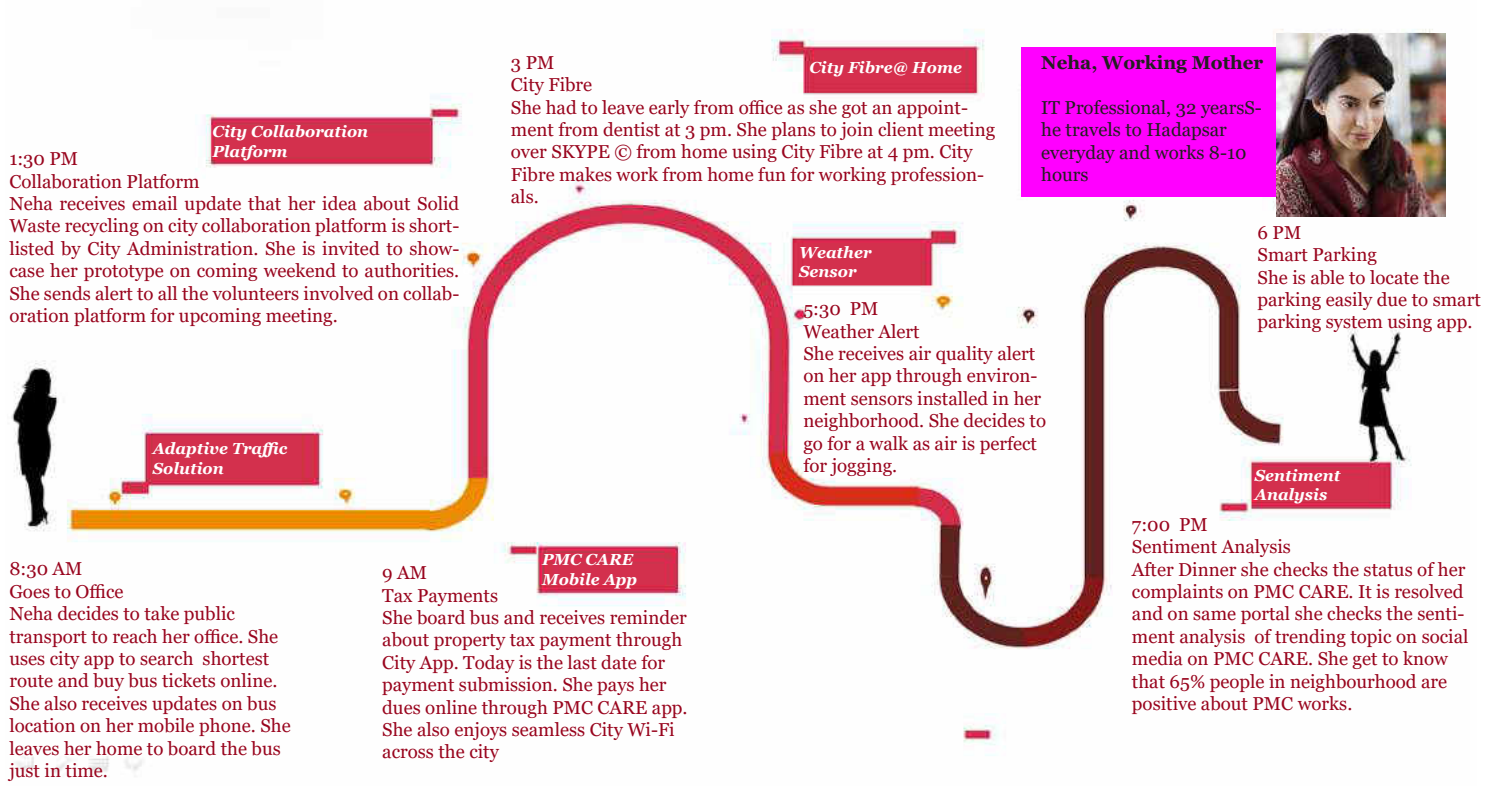
The whole process of implementing digital strategy will be open and collaborative and will reflect the nature of the medium itself. It will feature all the four pillars of digital strategy i.e. digital infrastructure, digital services and payments, digital engagement and communication and digital enterprise and create a holistic environment through the pillars. Each of the pillars has important

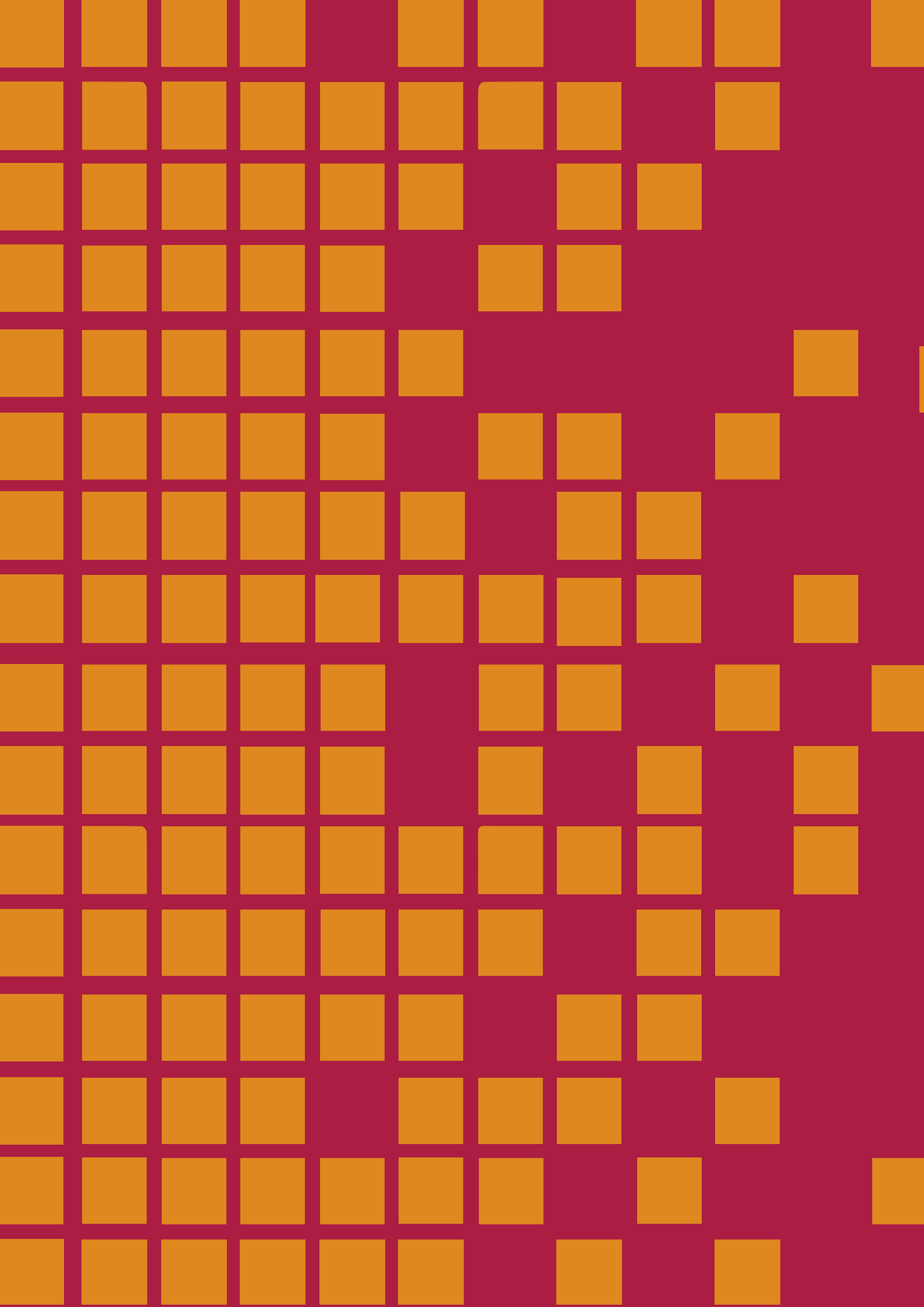
details and implementing the same will be critical for giving the well-rounded digital strategy. The presence of Pune connect app and officer's connect app under the PMC care initiative is a bold step forward and has given the much needed impetus towards developing a single collaboration platform to bring together the stakeholders of the city. Similar efforts need to be put forward under the city digital strategy to make Pune a true smart city.

To conclude, the city of Pune celebrates the contribution of its citizens and the government and looks forward to their participation in the pursuit of the digital future.

We are committed to deliver Digital Pune by achieving the goals outlined under Digital Strategy so that like Neha millions of Pune-kars can enjoy high quality of life city we all love "Pune" on all parameters.

In the next section, we will list out all the projects under the purview of city digital strategy of Pune and the impact and complexity assessment scoring. We will also show the expected completion date of all the projects.

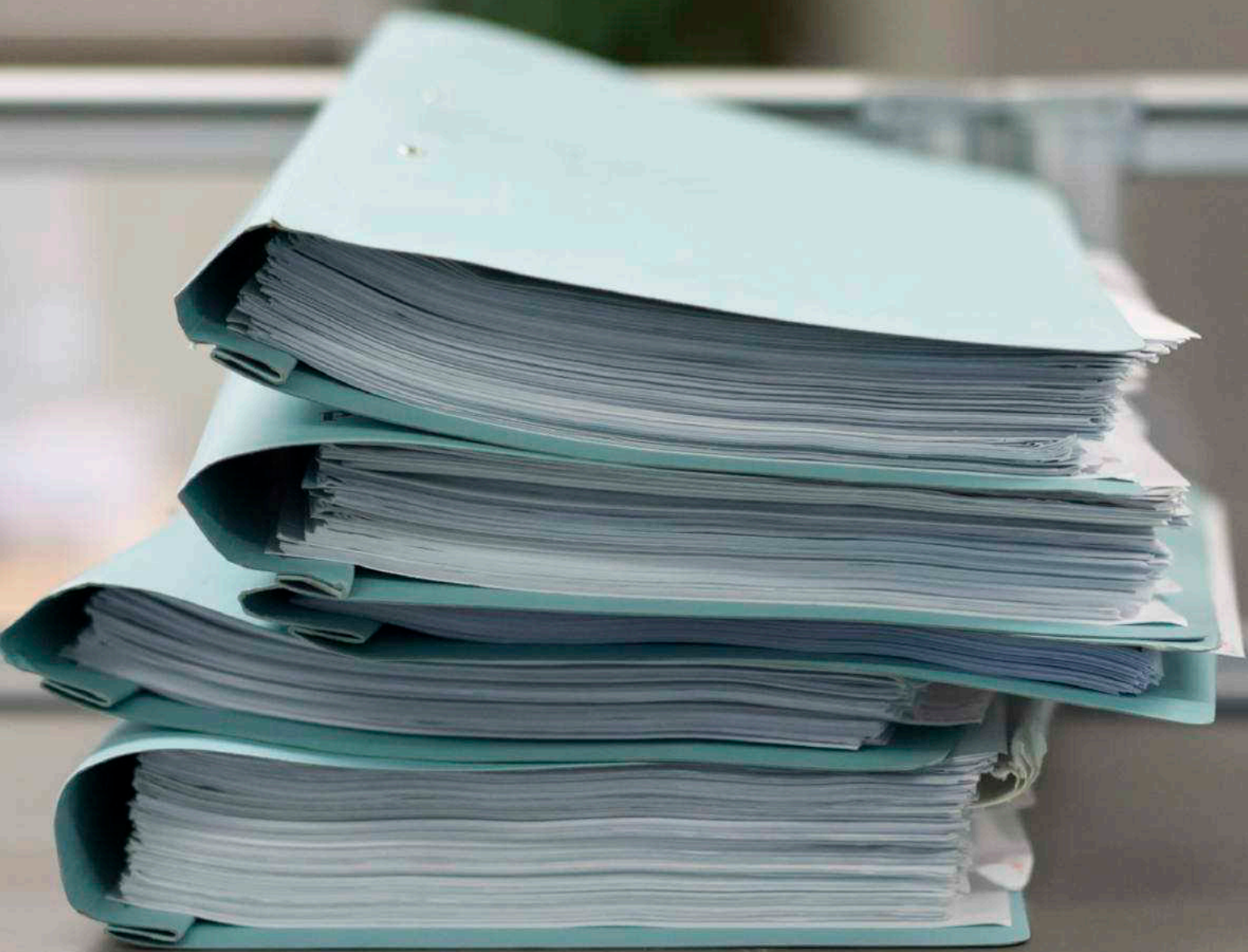






# **APPENDICES**














# Appendices
















## A.1. Appendix – Project Scoring
















Rating legends for Complexity scoring are shown below :

Input Cost		Technological complexity		Operational complexity	
 H	High score = 3	 H	High score = 3	 H	High score = 3
 M	Medium score = 2	 M	Medium score = 2	 M	Medium score = 2
 L	Low score = 1	 L	Low score = 1	 L	Low score = 1





































### I. Project Complexity Assessment Score

#### A. Projects under Digital Infrastructure Pillar

Project	Complexity Score			
	Input Cost	Technology	Operational	Complexity Score
City Adaptive Traffic	 H	 H	 H	3.0
City Wi-Fi	 H	 L	 L	1.7
Emergency Kiosks	 M	 L	 L	1.7
Visual Messaging Display	 L	 L	 L	1.0
Environment Sensors	 H	 H	 H	3.0



















	Complexity Score			
Project	Input Cost	Technology	Operational	Complexity Score
City Fibre	 H	 L	 H	2.3
Digital Experience Centre	 L	 L	 L	1.0
Smart Parking	 H	 H	 H	3.0
City Digital Literacy Center	 L	 L	 L	1.0
City Surveillance Infrastructure	 M	 L	 H	2.0

## B. Complexity Assessments of Projects under Digital Services and Payments

























Project	Complexity Score			
	Input Cost	Technology	Operational	Complexity Score
Portals & Website	 L	 M	 L	1.3
Services (Online Services)	 L	 M	 L	1.3
Mobile Applications (City App)	 L	 M	 L	1.3
Aadhaar Ecosystem (Digi Locker, eSign)	 M	 H	 M	2.3
Citizen Relationship Management	 L	 M	 L	1.3
Cashless Payments Strategy Channel	 M	 H	 M	2.3
eLearning Solution and Content	 M	 M	 M	2.0
eHealth Services	 M	 M	 M	2.0
Open Data and API Sharing	 H	 M	 H	2.7
City Dashboard	 L	 M	 M	1.7
Direct Benefit Transfer	 M	 H	 H	2.7
City MI Card	 M	 H	 M	2.3



## C. Complexity Assessments of Projects under Digital Engagement and Collaboration













Project	Complexity Score			
	Input Cost	Technology	Operational	Complexity Score
PMC CARE : Citizen Collaboration Platform	 M	 L	 M	1.7
Social Media Analytics & Sentiments Analysis	 H	 M	 M	2.3
Citizen Engagement & Collaborations Strategy	 H	 M	 H	2.7
Enterprise Content Management	 H	 H	 H	3.0
City Call Centre (1800 1030 222)	 L	 L	 L	1.0
City Branding	 H	 L	 H	2.3

## D. Complexity Assessments of Projects under Digital Enterprise

Project	Complexity Score			
	Input Cost	Technology	Operational	Complexity Score
Enterprise GIS	 H	 H	 H	3.0
Enterprise Dashboard	 M	 M	 H	2.3
ERP	 M	 H	 H	2.7
Enterprise Cloud	 M	 M	 H	2.3
Enterprise Knowledge Management System	 M	 M	 H	2.3
City Command Control Centre	 M	 M	 H	2.3
Office Wi-Fi and LAN Upgradation	 M	 M	 M	2.0
Enterprise Architecture Implementation	 M	 M	 M	2.0





















## II. Rating legends for Impact Assessment





















Rating legends for Complexity scoring are shown below :

Social Impact		Economic Impact		Environmental Impact		PMC Efficiency	
 H	High score = 3	 H	High score = 3	 H	High score = 3	 H	High score = 3
 M	Medium score = 2	 M	Medium score = 2	 M	Medium score = 2	 M	Medium score = 2
 L	Low score = 1	 L	Low score = 1	 L	Low score = 1	 L	Low score = 1

### I. Project Impact Assessment Score

















































#### A. Projects under Digital Infrastructure Pillar

Project	Impact Score					Impact Score
	Social	Economic	Environment	Efficiency		
City Adaptive Traffic	 L	 H	 H	 L		2
City Wi-Fi	 H	 H	 L	 M		2.25
Emergency Kiosks	 H	 L	 L	 L		1.5
Visual Messaging Display	 L	 H	 L	 H		2.5
Environment Sensors	 L	 H	 H	 H		2.5

























Project	Impact Score				Impact Score
	Social	Economic	Environment	Efficiency	
City Fibre	 H	 H	 L	 M	2.25
Digital Experience Centre	 L	 L	 L	 L	1
Smart Parking	 L	 L	 H	 L	1.5
City Digital Literacy Centers	 H	 H	 L	 H	2.5
City Surveillance Infrastructure	 H	 L	 L	 M	1.75



































## B. Impact Assessments of Projects under Digital Services and Payments

Project	Impact Score				
	Social	Economic	Environment	Efficiency	Impact Score
Portals & Website	 H	 H	 M	 M	2.5
Services (Online Services)	 L	 H	 M	 M	2
Mobile Applications (City App)	 H	 H	 M	 M	2.5
Aadhaar Ecosystem (Digi Locker, eSign)	 L	 H	 L	 H	2.5
Citizen Relationship Management	 H	 M	 L	 M	2
Cashless Payments Strategy Channel	 L	 H	 M	 M	2
eLearning Solution and Content	 H	 L	 L	 L	1.5
eHealth Services	 H	 L	 L	 H	2
Open Data and API Sharing	 H	 L	 L	 L	1.5
City Dashboard	 L	 L	 L	 H	1.5
Direct Benefit Transfer	 L	 H	 L	 H	2
City MI Card	 L	 H	 L	 M	1.75

## C. Impact Assessments of Projects under Digital Engagement and Collaboration

Project	Impact Score				
	Social	Economic	Environment	Efficiency	Impact Score
PMC CARE : Citizen Collaboration Platform	 H	 H	 L	 H	2.5
Social Media Analytics & Sentiments Analysis	 H	 L	 L	 M	1.75
Citizen Engagement & Collaborations Strategy	 H	 H	 L	 L	2
Enterprise Content Management	 M	 H	 L	 H	2.25
City Call Centre (1800 1030 222)	 H	 M	 L	 M	2
City Branding	 M	 L	 L	 M	1.5

## D. Impact Assessments of Projects under Digital Enterprise

Project	Impact Score				
	Social	Economic	Environment	Efficiency	Impact Score
Enterprise GIS	 L	 L	 L	 H	1.5
Enterprise Dashboard	 M	 H	 L	 H	2.25
ERP	 L	 M	 L	 H	1.75
Enterprise Cloud	 L	 L	 L	 H	1.5
Enterprise Knowledge Management System	 M	 L	 L	 H	1.75
City Command Control Centre	 L	 L	 L	 H	1.5
Office Wi-Fi and LAN Upgradation	 L	 L	 L	 H	1.5
Enterprise Architecture Implementation	 L	 M	 L	 H	1.75

## A.2. Appendix – Project Summary

Below is the list of projects undertaken and the owner agency and expected completion date.

PMC - Pune Municipal Corporation

PSCDCL - Pune Smart City Development Corporation Ltd.

	Project Name	Owner Agency	Project Status	Expected Completion
<b>Digital Infrastructure</b>				
1	City Adaptive Traffic	PSCDCL	Bid Management	TBA
2	City Wi-Fi	PSCDCL	Under Implementation	Q4 2017
3	Emergency Kiosks	PSCDCL	Under Implementation	Q3 2017
4	Visual Messaging Display	PSCDCL	Under Implementation	Q3 2017
5	Environment Sensors	PSCDCL	Under Implementation	Q3 2017
6	City Fibre	PSCDCL	Concept Stage	TBA
7	Digital Literacy Centre	PMC	Under Implementation	TBA
8	Smart Parking	PSCDCL	Concept Stage	TBA
9	City Digital Literacy Centre	PMC	Implemented	Q1 2018
10	City Surveillance Infrastructure	City Police	Implemented	Under Maintenance
<b>Digital Services &amp; Payments</b>				
1	Websites( City Websites, PMC Websites, Smart City Websites)	PMC & PSCDCL	Under Implementation	Under Maintenance
2	Services( Online Services)	PMC	Implemented	Q3 2018
3	Mobile Applications (City App)	PMC	Under Implementation	Q1 2018
4	Aadhaar Ecosystem (Digi Lockers, eSign)	PMC	Under Implementation	Q2 2019
5	Citizen Relationship Management	PMC	Concept Stage	Q2 2019
6	Cashless Payments Strategy Channel	PMC	Under Implementation	Q2 2018
7	eLearning Solution and Content	PMC	Bid Management	Q1 2019
8	eHealth Services	PMC	Concept Stage	Q4 2019
9	Open Data and API Sharing	PMC	Implemented	Q1 2017
10	CityDashboard	PMC	Under Implementation	Q3 2018
11	Direct Benefit Transfer	PMC	Under Implementation	Q2 2018



<b>Digital Engagement and Communication</b>				
1	PMC CARE: Citizen Collaboration Platform	PMC	Implemented	Q1 2018
2	Social Media Management( Analytics & Sentiments Analysis)	PMC	Implemented	Q1 2018
3	Citizen Enagement & Collaboration	PMC	Under Implementation	Q2 2018
4	Content Management	PMC	Implemented	Q4 2017
5	Call Centre (1800 1030 222)	PMC	Implemented	Q1 2016
6	City Branding	PMC & PSCDCL	Concept Stage	TBA
<b>Digital Enterprise : Digital Governance</b>				
1	Enterprise GIS	PMC	Under Implementation	Q3 2018
2	Enterprise Dashboard	PMC	Under Implementation	Q3 2108
3	ERP	PMC	Bid Management	Q2 2019
4	Enterprise Cloud	PMC	Under Implementation	Under Maintenance
5	Enterprise Knowledge Management System	PMC	Concept Stage	Q4 2019
6	City Command Control Centre	PMC & PSCDCL	Under Implementation	Q3 2018
7	Office Wi-Fi and LAN Upgradation	PMC	Bid Management	Q2 2018
8	Enterprise Architecture Implementation	PMC	Under Implementation	Q3 2018



### **A.3. Endnotes**

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# Notes



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