Telangana's

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ICT Policy

2021 -2026

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Shri KT Rama Rao
Minister of Information Technology Electronics and Communication

Foreword

Information technology has been a major success story in the first 7 years of Telangana. As part of ICT policy 2016-21, we had set a target of doubling the quantum of IT exports in 5 years, and we admirably succeeded in achieving it. Along the way, we set other benchmarks such as encouraging tech innovation and entrepreneurship, providing market-ready tech skills, bringing IT opportunities to Tier-II and Tier-III cities and towns, and delivering technology-led smart governance solutions for the benefits of our citizens.

After 5 years of successful implementation of the first ICT policy, this is a very opportune time to come up with an updated version that is also in tune with the realities we face today. The Covid-19 Pandemic that began in 2020 has brought unparalleled disruption in the world we live in. It is now very clear that post-Covid social and economic recovery will be aided greatly through the process of digitalization. Such a prognosis also provides a tremendous opportunity for the IT ecosystem of Telangana to take a leadership position in the world. Technology companies located in Telangana should become the front-runners with digital tools and solutions relevant to the economic recovery process. Students should have the skills that make them truly ready for the jobs of the future. Young innovators and entrepreneurs should come up with innovative solutions that address the precise pain points that have emerged in the new world order.

The Hon'ble Chief Minister, Mr K Chandrasekhar Rao has always believed that the real test of technology is whether or not it creates a strong public impact.

While the endeavor in the last 6 years has been to become citizen-centric in technology governance, the new policy will go many notches further to benefit the citizens directly through the fruits of technology. The digital divide has become a reality the world over, with those living in rural and remote areas, not having access to devices, and not having a mastery over the English language, repeatedly getting left out. The Covid-19 Pandemic has the potential to further exacerbate this divide. However, as a government, we are very conscious of our responsibility of making the technology world more inclusive. We will strive to ensure the rapid creation of digital infrastructure in every nook and corner of the state, promote digital literacy within every household, and roll out a range of technology interventions that improve the quality of life of every person. Eventually, the goal of the ICT Policy 2021-2026 will be to achieve digital empowerment of every citizen, meaning that every citizen is fully aware of digital opportunities for his needs, and has the wherewithal to access them.

In the past 6 years, Telangana has received many accolades for the adoption of technologies in newer spheres of the public interface and is today recognised as a pioneer in various domains of technology like AI, ML, Blockchain, Data Analytics, Cybersecurity, IMAGE (Animation, Gaming, VFX), Drones, etc. I am confident that we will build upon our successes and continue to be the role-model state for all our stakeholders.

Vision for
ITE & C Sector

The Government of Telangana has released the ICT policy of the state in April 2016. The ICT Policy of Telangana was considered as one of the best ICT policies across the country and it led to the launch of several focused sub-sector policies such as Data Center Policy, Open Data policy, AI framework and Electronics policy. The ICT policy has been the guiding document for most of the initiatives, organizations and activities planned by the ITE&C Department, Government of Telangana.

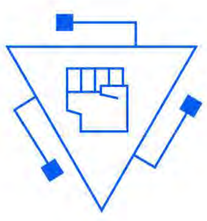
The technology space has transformed considerably over the past five years and even more so in the last year triggered primarily by the pandemic. Considering the below-mentioned factors, we at the ITE&C Department, Government of Telangana feel now is the right time to revamp and launch the new ICT policy.

- The Technology world is dynamic and is constantly evolving and a 5-year period is ideal for us to rejuvenate our goals and approach.

- The Covid-19 pandemic is the new "Y2K" and the digitalisation across sectors driven by the pandemic would accelerate the adoption of technology across sectors.

- The Government of India has launched several schemes and programs aimed at making the country digital and self-reliant. Telangana, as a progressive state, would like to align our efforts and support the nation with these initiatives.

- Benchmarking with the world's leading countries in ICT and adopting from their learnings to leapfrog ahead of competing economies in tech, innovation, and investment attraction.



Digitally Empowered Citizens

Year after year, Telangana has been adjudged as a leader in promoting tech adoption and providing citizens with the best of digital services. However, the Covid-19 pandemic has given us the opportunity to explore digital solutions to the most critical requirements that the citizens have. With the progress that the world is making on the digital front, it is imperative for the state to prepare citizens for this day and age. Equipping citizens with digital skills and supporting them with the required digital infrastructure is going to be the foundation stone for improving the lives of the citizens. The ITE&C department has strategized a multipronged approach to achieve it.

Digital Government

No government service that the citizens would intend to avail would mandate in-person presence unless a physical test or inspection is required. Telangana has set benchmarks for citizen services, leveraging technology to provide contactless, paperless and presenceless citizen services. The government will strive to make the digital transformation, and be more accessible, efficient, and accountable. Officials will be digitally upskilled and smart governance tools will be used to optimize the utilization of resources and enhance service delivery. An omnichannel feedback system will be in place to ensure the service delivery is citizen-centric and decision-making is completely data-driven.

Innovation & Entrepreneurship

Innovation and Entrepreneurship are the backbones for the development of a fast-growing economy like Telangana to increase self-reliability and propel employment generation. Telangana has established world-class infrastructure and organizations over the past 6 years, the prime focus going forward will be to strengthen the ecosystem, develop a skilled talent pool, improve market access, and facilitate a funding environment to make Telangana the hotbed of innovation and start-ups. Hence, Telangana will also have special focus on developing a strong ecosystem for public impact-based start-ups.

ICT as an Industry

Today, Telangana is one of the fastest-growing states in India in terms of GSDP and is a prime destination for IT and Electronics sector establishments. Going forward, Telangana aims to stay the top choice for IT and Electronics sector investments in the country and generate more jobs for the citizens. Developing IT clusters in Tier-II cities will be the key focus in a bid to decentralize development, create employment, and improve standards of living.

ICT For Development

We, at the Government of Telangana, believe that technology's most important impact is to solve the problems of society than being a mere enabler. The COVID-19 pandemic has opened up several opportunities and unmasked the ways in which technology can be used to enhance the living conditions of citizens. The state will leverage technology as a lever to address challenges and develop data-driven solutions in the space of social, environmental, health, education, and livelihood among others.

Focus Areas for 2021-2026

01

IT/ ITeS, Product Development, Engineering and R&D

02

Electronics

03

Innovation & Entrepreneurship

04

Skilling, Upskilling & Reskilling

05

Contactless, Paperless and Presenceless Governance

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Beyond Digital Infrastructure

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Beyond Hyderabad

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Digitally Empowered Citizens

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Emerging Technologies

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Cloud-First Policy

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Technologies for urban living

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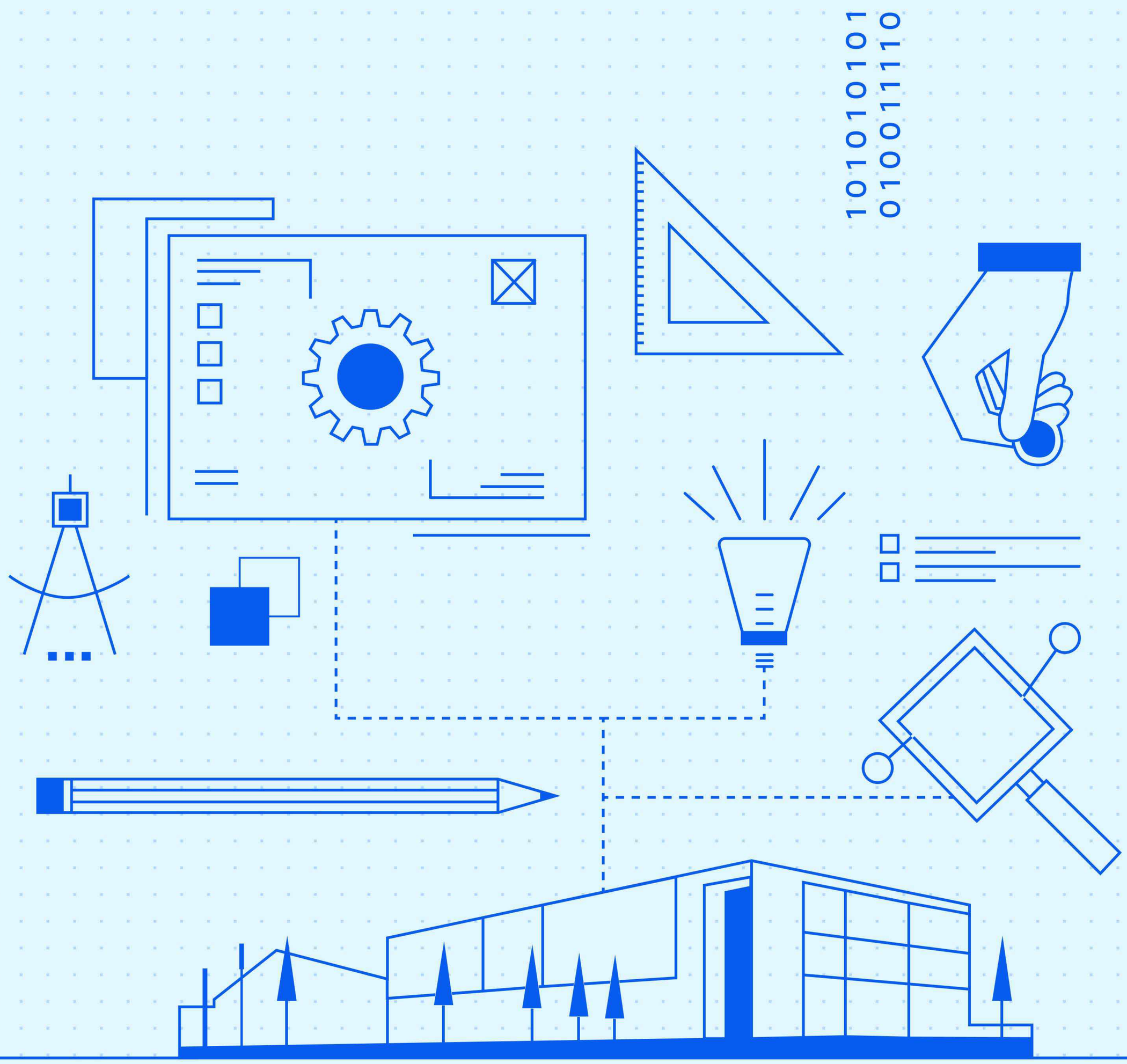
ITE&C Department as Tech Enabler

IT/ITES, PRODUCT DEVELOPMENT, ENGINEERING AND R&D

01



TARGETS

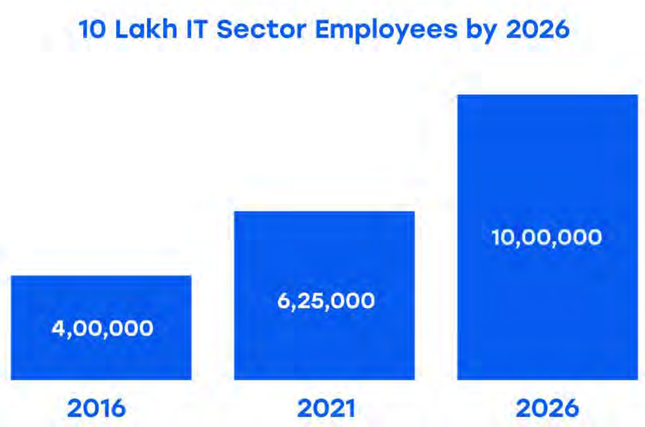
Establish Telangana as the global hub for Product Development, Engineering and R&D

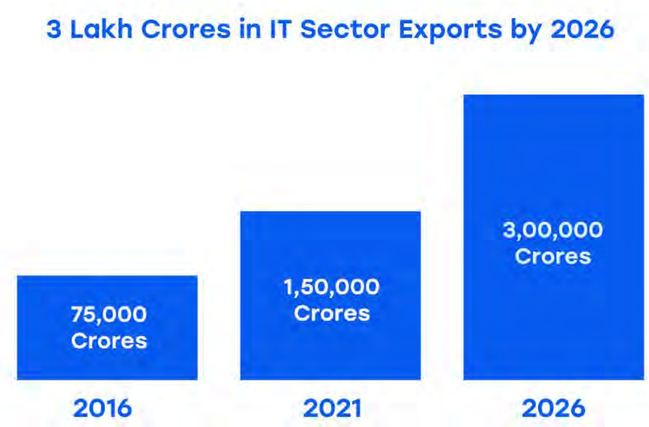
10 Lakh

Increase total direct employment to a 10 Lakh IT Sector jobs by 2026

2x

Double annual IT/ITeS Sector exports to ₹ 3 Lakh Cr. by 2026





Description of pillar

Telangana has evolved as a leader in IT Exports and has become a prime destination for IT/ITeS companies over the last five years. While the focus on the IT/ITeS remains steadfast, Telangana will aim to differentiate itself from competing states and grow as a global hub for Product Development, Engineering and R&D and sunrise sectors to drive the next phase of IT industry growth. Currently, India only hosts about 25% of the world's top 200 Engineering and R&D investors. Telangana currently holds about 12% of India's Product, Engineering and R&D activities, and we see a great opportunity for improvement. Focus on this sector will also enable the state to achieve a multiplier effect on the ICT Sector as the world moving towards a product-led IT economy.

Telangana will also focus on strengthening its Intellectual property output by focusing on strategic fields of study and facilitating research. SMEs will play an important part in the growth of the state's economy and Telangana will support SMEs with business and development.

Strategic Areas of Importance (SAI)

Product Development

Product innovation companies are high-productivity and high-value creators which are critical for any economy in the 21st century. India's product development market is still in a nascent stage despite the availability of low-cost infrastructure and manpower availability. Telangana seeks to be a leader in this space by facilitating IP generation and product development through the initiatives discussed as part of this policy.

Engineering and R&D

The state understands that there is huge potential in attracting investments and generating jobs through specific focus on the Engineering and R&D sectors. In order to make Telangana a leader in this space, the government shall embark on a journey to improve its competency in the necessary reform areas through policy intervention.

Global Capability Centers

Telangana has been an attractive destination for GCCs and has attracted several MNCs and domestic companies to set up their capability centres in the state. The government will focus on further increasing its share in the GCCs coming to India through strategically strengthening the ecosystem and easing the process of entry and doing business.

IT Services

Hyderabad currently has over 6.5 Lakh employees in the IT/ITeS sector, and we would like to sustain the existing base. IT Services is a key component of the existing base. The BPO/KPO segment approximately contributes to 20% of the employee base. While engineering, R&D, product development and GCCs are a focus on expanding the IT sector to new horizons, equal emphasis will be laid upon sustaining the existing base and the IT/ITeS services segment.

The government will facilitate the identified Strategic Areas of Importance through the following initiatives:

Talent Generation: The most important resource required for companies looking to invest in the Product, Engineering and R&D sector would be the availability of skilled talent. Telangana already has an immense pool of trained workforce and will now also focus on creating a research-oriented pool of talent working in the deep technology space. The government will continue collaborating with the industry and the top institutes to co-create the curriculum required for talent in Strategic Areas of Importance.

Financial Support and Visibility: Along with the availability of talent, the right environment and physical infrastructure is key to attract R&D establishments in the state. To facilitate this, the state will extend support to R&D centers through incentives being provided to IT/ITeS investors. Ecosystem support will also be provided through RICH to connect with academia and the organisations in the industry. Visibility of the R&D output in the state would also be enhanced through "Go and See Centres" or experience centers set up in collaboration with the industry.

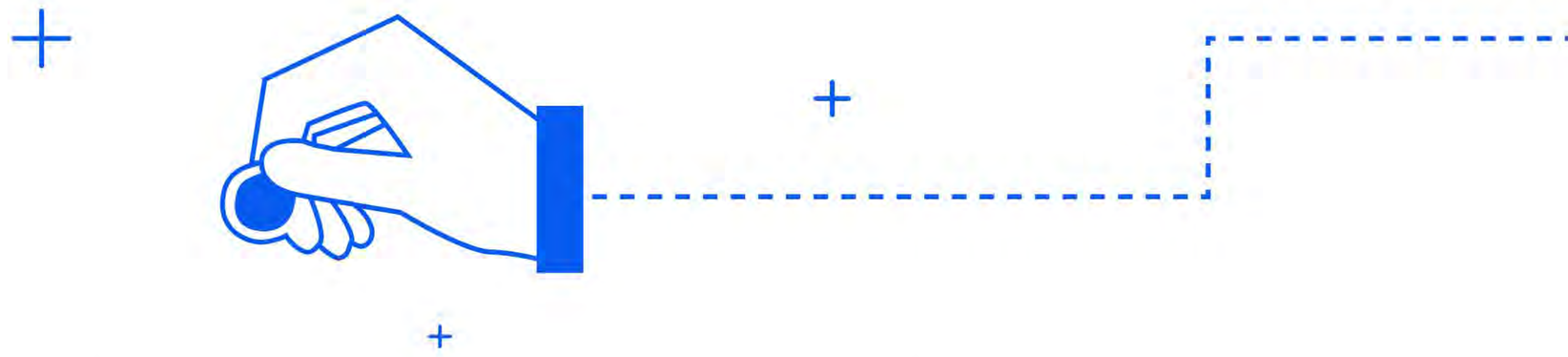
Promotion of Intellectual Property and Research Output: The state seeks to emerge as the top destination in India that promotes impactful research output that will help improve the lives of citizens in both the urban and rural areas of the state. Research and development in the areas of growing and impactful technologies shall be facilitated through the establishment of a Telangana Research and Innovation Fund.

Focus Sectors: While the state would be encouraging work across sectors in IT/ITeS, we have identified eight Focus Sectors that are expected to grow and adopt digital-based solutions at a rapid pace in the next 5 years. The eight Focus Sectors that would be adopting digital/technology-based solutions the most in the next 5 years are: Life Sciences and Healthcare, BFSI, Computing Systems, Automotive/Mobility, Semiconductors, Energy, Aerospace & Defence, Retail, and Telecom.

A conducive ecosystem for investors

Over the last 5 years, Telangana has established a strong network of organizations that would assist companies at various stages in setting up operations in the state. The organizations include the Investment promotion cell for any support during the investment process; TASK for skilling, upskilling and finding the right talent; T-Hub, WE Hub, and TSIC for fulfilling innovation-based requirements and RICH for connect with academia and R&D institutions.

Moving forward, the government will strengthen the infrastructure and ecosystem to produce a seamless landing and operating experience for the investors. The above mentioned ecosystem partners of TASK, RICH, T-HUB, WE-HUB, TSIC, CoEs in Emerging Technologies and the Investment Promotions Cell will work in harmony to improve ease of operations and investments in the state.



Investor Playbook

Telangana has always strived to simplify and smoothen the investment process for investors and as a result, several reputed IT companies have started operations in Telangana. To further ease the process of investment, the state will develop an Investor Playbook with the guiding principles on what the process of investment is and how the government can provide support. The Investment Playbook will be launched with the following details:

Process flow of all the steps involved as part of setting up an office space in Telangana
List of all the potential organizations that the company can collaborate with, the process of engagement, and their value propositions
Best practices identified as part of several investments over the last 5 years
A list of trusted and empanelled vendors that companies can choose for all the common infrastructure requirements

Single Point of Contact for Project Management

Under the ITE&C Department, the Chief Relations Officer will be the single point of contact for any IT/ ITeS entity that wants to establish or expand its presence in the state. The office of the CRO will handhold the investors from registering the company to raising an invoice. The investors will be supported will all the statutory processes and registrations with all the government regulatory bodies and choosing the right facility. The CRO office may provide a dedicated resource for a specific period depending on the complexity and size of the investment.

The Advisory Committee for ICT Policy and Investments in Telangana

The Advisory Committee for ICT Policy and Investments in Telangana has been created to oversee the Development of Engineering, R&D, IT and ITeS development across all thrust areas/ focus sectors.

- Global leaders and senior executives from reputed firms across the various sectors have been chosen to be members of the committee.
- The committee will act as the Business Advisory Committee and will enable the growth of ecosystems in each of the focus sectors that the state will promote.
- A Focus group will be created for each of the verticals under focus.
- The Advisory and Focus groups will also assist CCITI in monitoring and administering the incentive requests from investors.

Special focus on IT SME Sector support

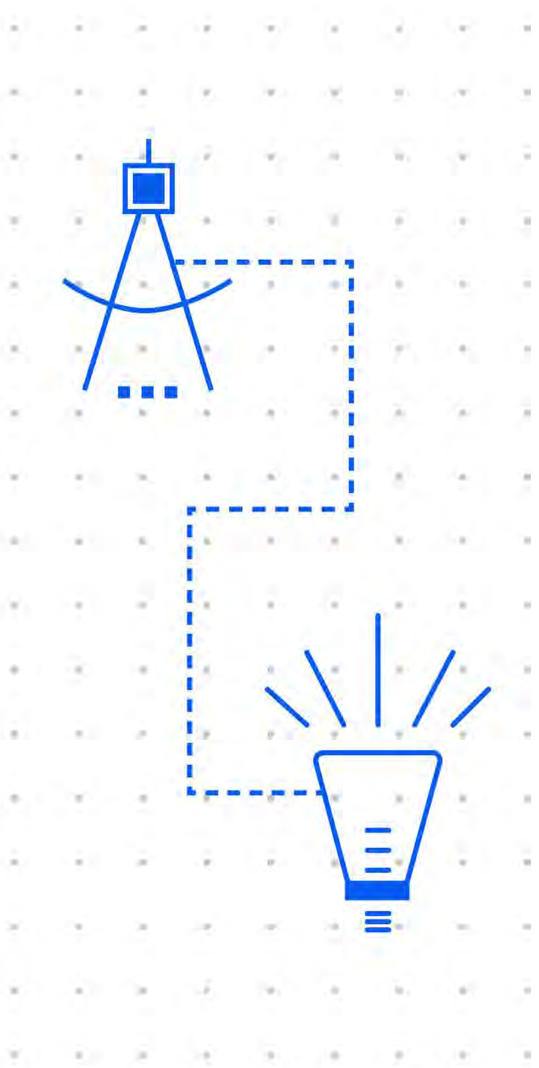
While the IT/ITeS Sector in Telangana has over 6,25,000 employees, it is estimated that over 50% of this employment has been generated by SMEs in the state. Given that SMEs are the backbone for the IT/ITeS sector, it is of paramount importance for us to facilitate their operations.

With the onset of the Covid-19 Pandemic, the SME establishments across the world have taken a major hit. Telangana has provided support for these SMEs to survive the pandemic has also developed mechanisms to keep the support sustained.

1. **Cost Savings:** In order to keep SMEs afloat during the crisis, the government provided financial support to SMEs through rental and talent acquisition subsidies. Space was given in Tier-II and Tier-III cities at no cost for several businesses.
2. **Upskilling Support**: Employees working at SMEs were provided with free upskilling support though TASK during the pandemic to develop the core competencies to improve revenue generation in their sectors.
3. **Government Projects**: Over 20 earmarked Government projects were offered exclusively to SMEs in order to give more business during the dire period when most businesses started facing losses.
4. Global Connect: The Government facilitated the process of finding new customer by connecting SMEs with international trade organisation and embassies. The sector of software exports has especially seen good output in this area.
5. **Digitalisation**: Over a span of a week, more than 1000 kirana stores and SMEs were digitalized in the aspects of internal operations, customer acquisition, payment methodologies and e-commerce capabilities, as an attempt to showcase new opportunities for digitalization.

To guide and coordinate MSME promotion activities in the state, the government of Telangana has already appointed an Advisory Committee on Telangana State IT MSME Promotion with representation from the ITE&C Department and the industry.

The Government has constituted an Advisory Committee on Telangana IT MSME Promotion that will enable experts in the industry to create the required reforms and policy outputs to promote the IT Mimes in the state. The committee will help the growth of Mimes through the following mechanisms:



1. Modify domestic preference guidelines to ensure a majority of the IT projects awarded by the Telangana Government go to Mimes registered in TS. In the case of Large Projects which require multi competency or proportionate financial strength, SME consortiums shall be encouraged to participate.
2. Relax qualification norms around experience, yearly turnover requirement, Ernest Money Deposits (EMD), Performance guarantee etc., and offer suitable Payment Terms for SMEs to promote a level playing field.
3. Create opportunities to increase the visibility of all IT Projects undertaken by the Telangana Government and the SMEs executing them through a dashboard.
4. Improving the government connection with SMEs and enabling proactive solution offerings by SMEs around new technologies like AI-ML/IoT/Cloud/Cyber Security/Computer Vision/AR-VR/ BlockChain & any other latest technologies for the Government departments.

The government will continue to provide support to SMEs through the above-mentioned initiatives along with the utilisation of the Model RFP to increase the service procurement by the Government. The government will also support SMEs and start-ups with the ability to go digital. Access would be given to end-to-end digital solutions created by the government or private organizations. The solutions provided will include back-office operations like finance systems, human resource tracking, accounting, and new-age digital requirements like digital marketing, customer relations management, and cybersecurity.

IT Park Norms

1. Landowners and developers will be able to get IT Park status for land parcels for the following 4 categories after producing the required documentation:

    a. A company that has been offered land by the Government

    b. Real estate developers that have bought land through government auctions or private networks

    c. Individual landowners that wish to promote IT sector activity

    d. Third-party developers who wish to apply on behalf of the owner

2. For Industrial Parks converting into IT Parks, a ratio of 60:40 needs to be maintained for IT vs non-IT implementation. For lands allotted by the Government, the ratio of 60:40 holds good for IT vs non-IT unless there are different terms specified in the allotment MOU. In the GRID Corridors, the ratio is 50:50. For private lands, converting into IT Parks, a minimum of 25% needs to be allotted to IT purposes.

3. The parking requirement in the IT Parks for the state currently stands at 66% of built-up space. Going forward, the new parking requirement will be 40% (+4% for guests) of built-up space. This is done to ensure reduced traffic and congestion in the IT Corridors.

Further details on the regulations will be made available through the Operational Guidelines to be released.

Incentives Provided to IT/ITeS Companies

Moving forward, the state will provide incentives to all the companies investing in the state along the incentive categories listed in the following table. Specifically for organizations engaging in product development, ER&D and cutting-edge innovation and for investments in the GRID Locations, additional incentives will be provided over and above the following incentive schemes.

Incentive Categories	
Allotment of Government Land	Power
Declaration of IT Park Status	Patent Filing Costs/ Copyright/ Trademark
Quality Certification	Recruitment Assistance
Exhibition Rental Refund	Subsidy on Investments is Solar Power
R & D Grants	Subsidy to Anchor Units
Subsidy on Capital Investments	Stamp Duty, Transfer Duty and Registration Fee
Training Subsidy	Interest Rate Subsidy
Subsidy on Lease Rentals	Rebate on Land Cost
Reimbursement of SD and Cost of Tender Document	

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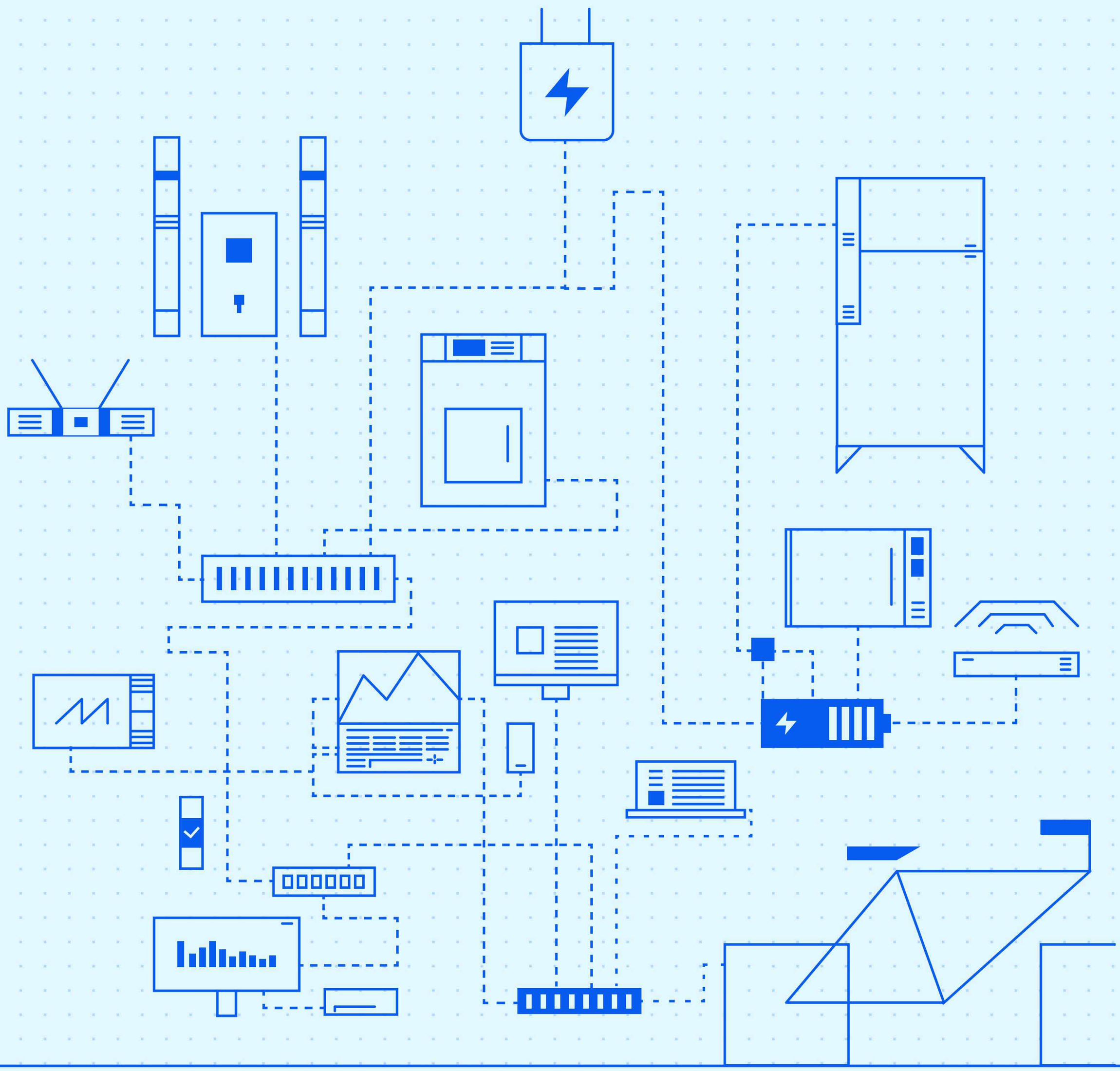
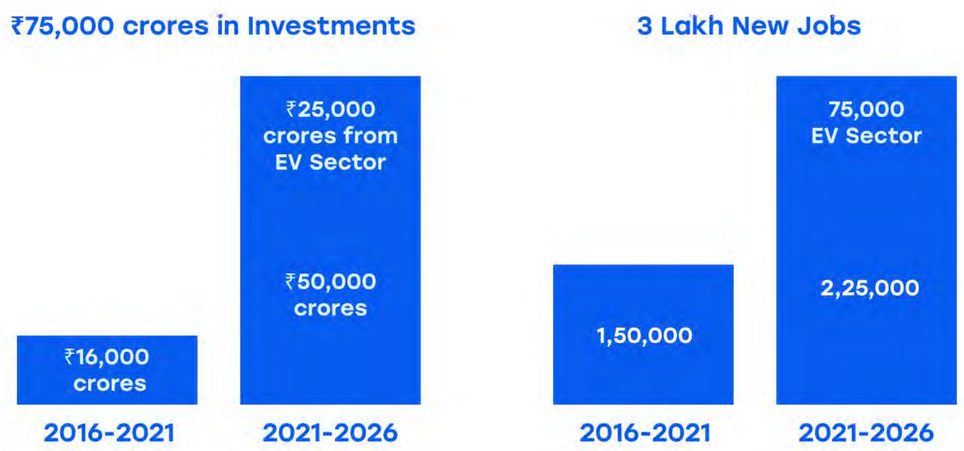
ELECTRONICS



TARGETS

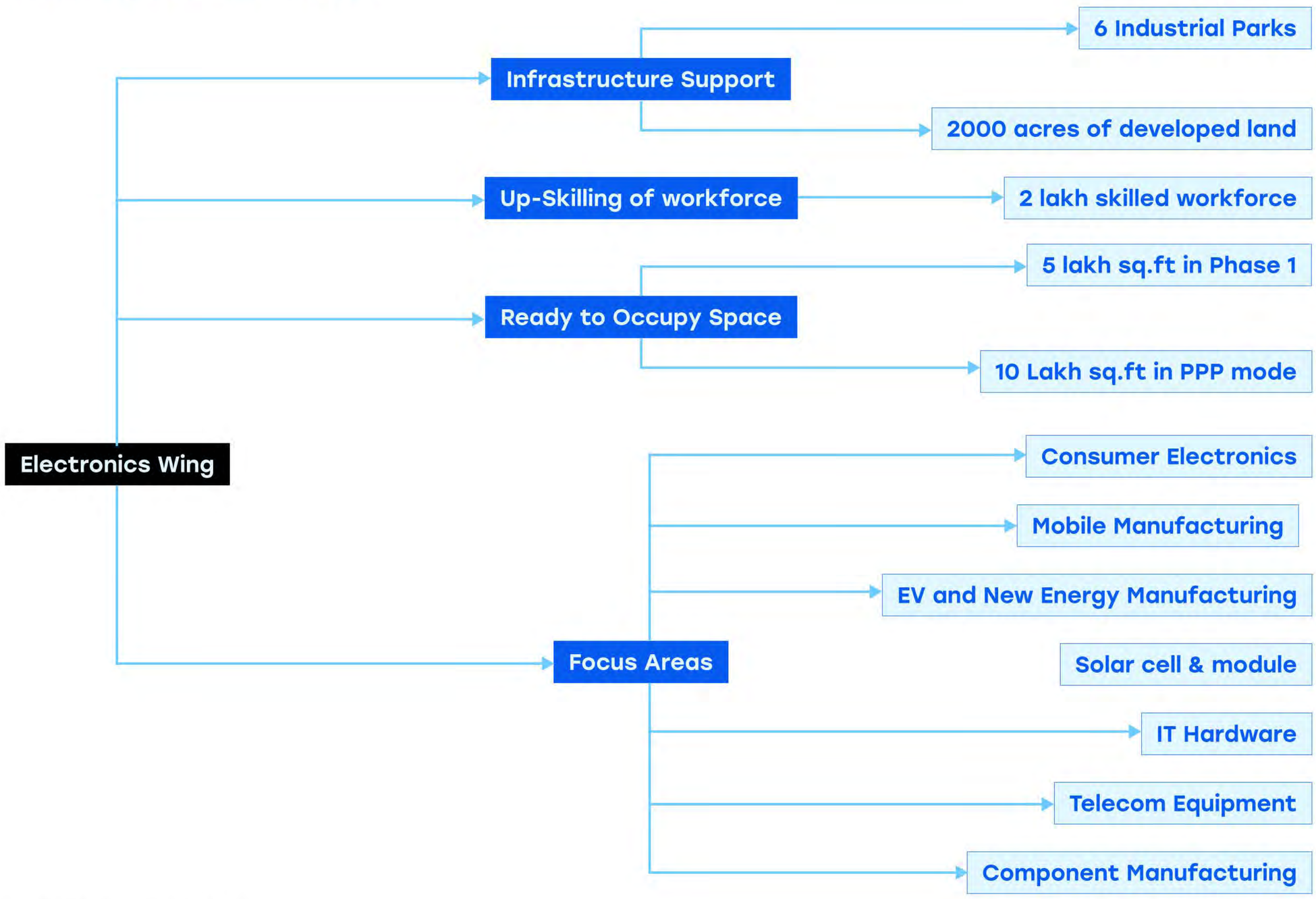
To generate employment of 3 Lakhs by 2026 in the Electronics sector, out of which 75,000 is targeted to be from the EV & ESS sector

To attract ₹75,000 Cr. of total investments in the Electronics sector, of which ₹25,000 Cr. is targeted from the EV & ESS sector



The Government will focus on making the state a top destination for the Electronics sector globally by developing a comprehensive ecosystem which has access to infrastructure, skilled workforce, and effective industry partnerships. The Electronics policy will include the incentives offered to the companies in the Electronics and Allied Sub-sectors.

Overview of Initiatives



Industrial Parks

Land, basic infrastructure, and market connect remain the most critical requirements for Electronics companies, and towards this, the State has established 5 Industrial Clusters catering to Electronics and allied sectors. The State is in the process of establishing additional clusters to cater to the increasing demand in Electronics, EV and New Energy sectors. Telangana has two existing Electronics Manufacturing Clusters, covering an extent of 912 acres, situated at close proximity to the International Airport, Outer Ring Road and Hyderabad City.

The State has established three new clusters at Chandanvelli, Divitipally and Shiv Nagar to cater to investments in Electric Vehicles, New Energy Manufacturing and LED Products which would cumulatively span over 1800 acres. The State is in the process of setting up another park exclusively for Consumer Electronics in an extent of 425 acres.

The industrial parks are equipped with all the necessary common infrastructure for Electronics companies such as Power, Water, Roads, etc and Common Effluent Treatment Plants are being established.

Plug and Play Space for Electronics companies

In order to facilitate small- and large-scale investments and to reduce the time to set up operations, the government has developed plug-and-play spaces in the Industrial Clusters.

The Government has already established 1,80,000 sq. ft. ready to occupy built-up space in E-City EMC and is in the process of establishing a Common Facilities Centre. Additionally, the state targets to create 5 lakh sq. ft. of plug-and-play space in the first phase and an additional 10 lakh sq. ft. of facilities shall be developed through a PPP model. The plug-and-play spaces will have access to all the necessary infrastructure for Electronics companies.

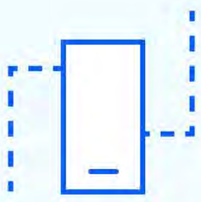
Skill Development

Telangana Academy of Skill and Knowledge (TASK) will provide skilled workforce for the Industry on a no-cost basis. TASK has trained and deployed over 1,80,000 skilled workforce in the Electronics Industry so far. TASK will develop customised training programs and courses with a focus on emerging sectors, in consultation with the industry and educational institutions.

New focus areas for development

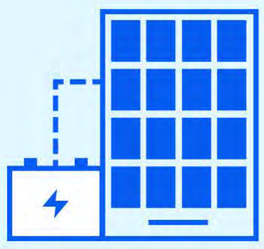
Going forward, the key focus in Electronics would be the following sub sectors

1. **Consumer Electronics:** Consumer Electronics market size was valued at USD 1 Trillion in 2019 and is estimated to grow at a CAGR of over 7% from 2020 to 2026. Large investments in R&D and Manufacturing space for new consumer electronic products such as home appliances, smartphones & smart wearables will drive the growth in this sector.

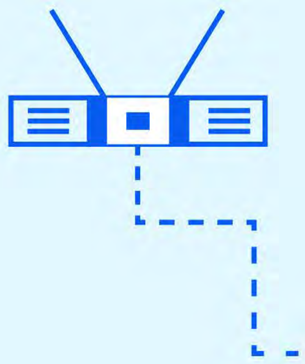


2. **Mobile Manufacturing:** Cellular mobile handset manufacturing has emerged as a flagship sector in India's electronics manufacturing space. India has emerged as the second-largest mobile phone manufacturer in the world with the establishment of more than 200 Mobile Phone Manufacturing units in the last 5 years. Government of India has also launched PLI scheme to promote Mobile Manufacturing with an outlay of ₹40,951 Cr.

3. **EV, New Energy & Energy Storage Systems:** The Indian battery market is expected to grow at a CAGR of more than 15% during 2020-2025. In order to bring down the cost of electric vehicles, local manufacturing of lithium-ion batteries in India is going to be very important, and a lot of companies are expected to start manufacturing units in this space.

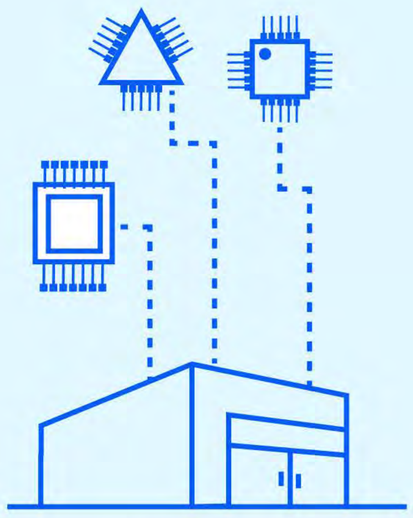


4. Solar PV Cell and Module Manufacturing: India has set an ambitious target of setting up 1,75,000 MW capacity of renewable energy by 2022 and 4,50,000 MW by 2030, of which over 60 percent will be catered through Solar Energy. Currently, domestic manufacturing industry has limited operational annual production capacities of around 2,500 MW for solar PV cells and 9,000-10,000 MW for solar PV modules and presents a huge opportunity for investments in the sector. Government of India has also launched PLI for High Efficiency Solar PV Modules to reduce the import dependence and build domestic capabilities.



5. IT Hardware: India's Digital Economy is currently valued at USD 200 billion and is slated to grow to USD 1 trillion by 2025. According to IDC, the market size for laptops in India was approximately 75 lakh (7.5 million) units in 2019-20 valued at ₹33,950 Cr. (USD 4.85 billion). Similarly, the market size for tablets was around 24 lakh (2.4 million) units, valued at ₹3,500 Cr. (USD 0.5 billion). The server market stood at 2 lakh (0.2 million) units valued at ₹9,100 Cr. (USD 1.3 billion). Currently, this demand in India is largely met through imports and provides a huge opportunity for attracting investments in this sector.

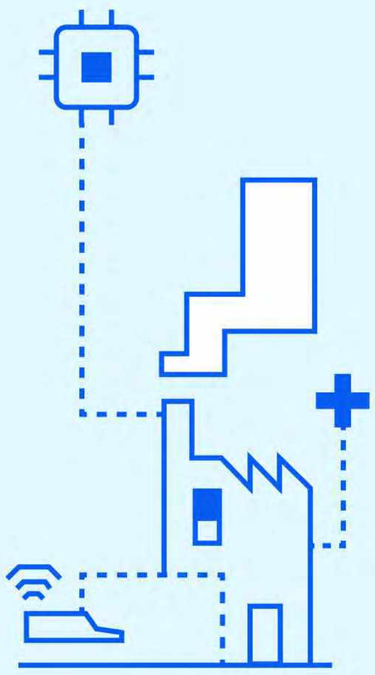
6. Telecom Equipment: Globally, Telecom and Networking Products' exports represent a USD 100 billion market opportunity. Currently, India imports 85% of its wireless Telecom equipment and with the support of PLI scheme by GOI, with a budgetary outlay of ₹12,195 Cr., the sector has a huge potential for attracting large investments from global players. Telangana is fast emerging as the Telecom and Networking hub with the presence of players across the manufacturing spectrum. The State is also implementing Telangana Fiber Grid initiative to provide High Speed Broadband connectivity to over 83 lakh households.



7. Semiconductor Fabrication/ Manufacturing: Telangana was among the first States in the Country to set up a dedicated park (FAB CITY) for Semiconductor Fabrication. "Photonics Valley", a leading photonics cluster, will be created under the Photonics Valley Corporation to promote the use of this technology within the state through a comprehensive ecosystem. Now, in line with the Government of India's focus for development of Semiconductor Manufacturing facilities in the Country, the Government of Telangana is taking up initiatives to nurture Semiconductor & Photonics FAB Unit Manufacturing in the State, with policy and infrastructure interventions. Hyderabad has a comprehensive R&D Ecosystem in this sector, with a huge talent pool of Engineers, due to the presence of Global firms and Institutes of Excellence catering to VLSI, Embedded Systems, Chip Design & Semiconductor industry. The State is in a power surplus and has abundant availability of water to meet the manufacturing needs of Semiconductor Industry.

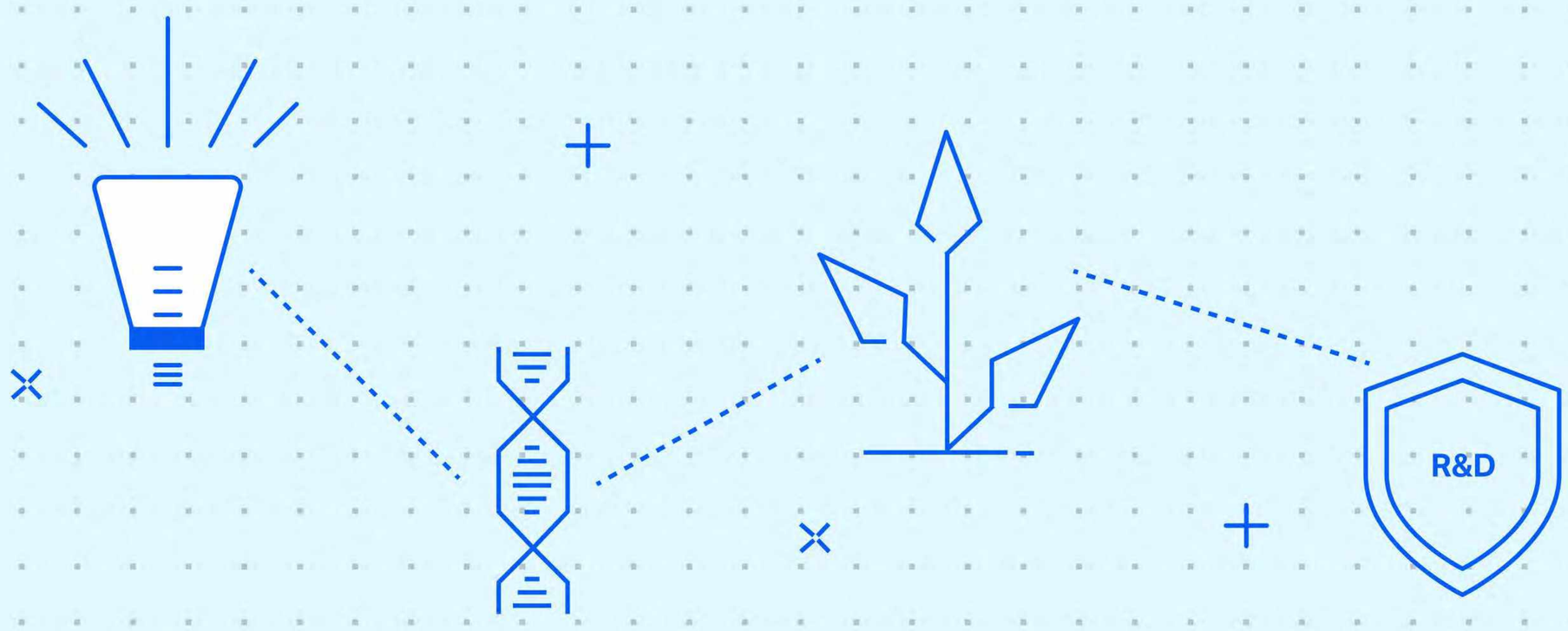
8. Allied Sectors & Component Manufacturing:

1. Medical Devices: India is among the top global markets for medical devices. While the global market is expected to reach USD 169 billion by 2025, the Indian market is expected to increase at a CAGR of 35.4% to reach USD 50 billion. The government of India has also launched PLIs and 100% FDI applicability for Medical Devices.



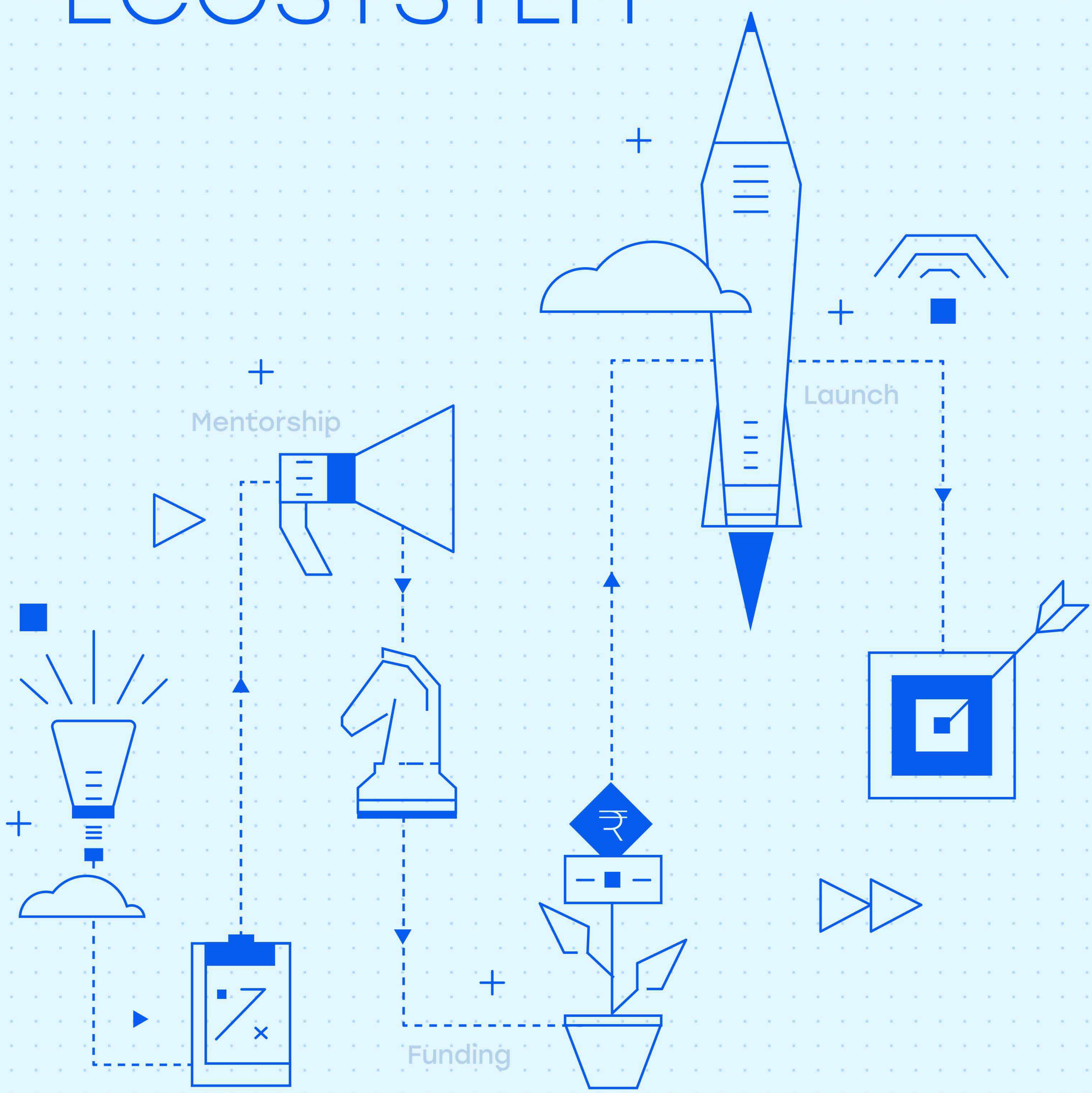
2. ***Automotive and Defence:*** The Global Defence Electronics market is set to reach USD 422 billion by 2032 and India's Ministry of Defence is likely to spend over USD 68 billion. in the same period on electronics. The global Automotive Electronics market is expected to reach USD 645 billion by 2030 with India's share being significant because of the central government mandate of ADAS Systems by 2022. This presents a huge opportunity for investments in this sector.

3. ***Component Manufacturing:*** Electronics Components, Semiconductor, PCB and related manufacturing is important for the overall growth of the Electronics Sector. The establishment of component manufacturing in the State will be encouraged through incentivization.



03

INNOVATION & ENTREPRENEURSHIP ECOSYSTEM



TARGETS

8000

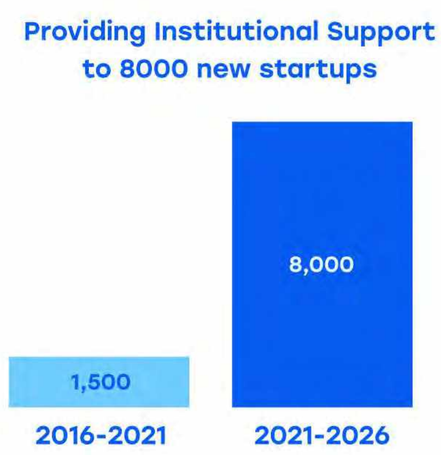
To provide institutional support to over 8000 start-ups.

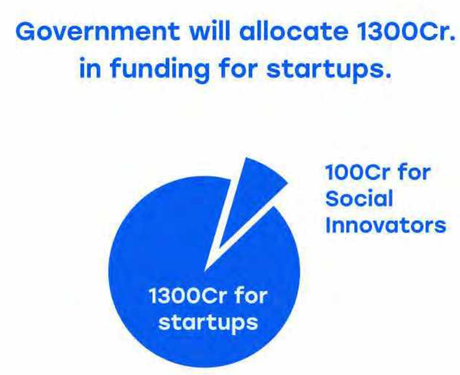
₹10,000 Cr

To attract over ₹10000 Cr. in investments for start-ups.

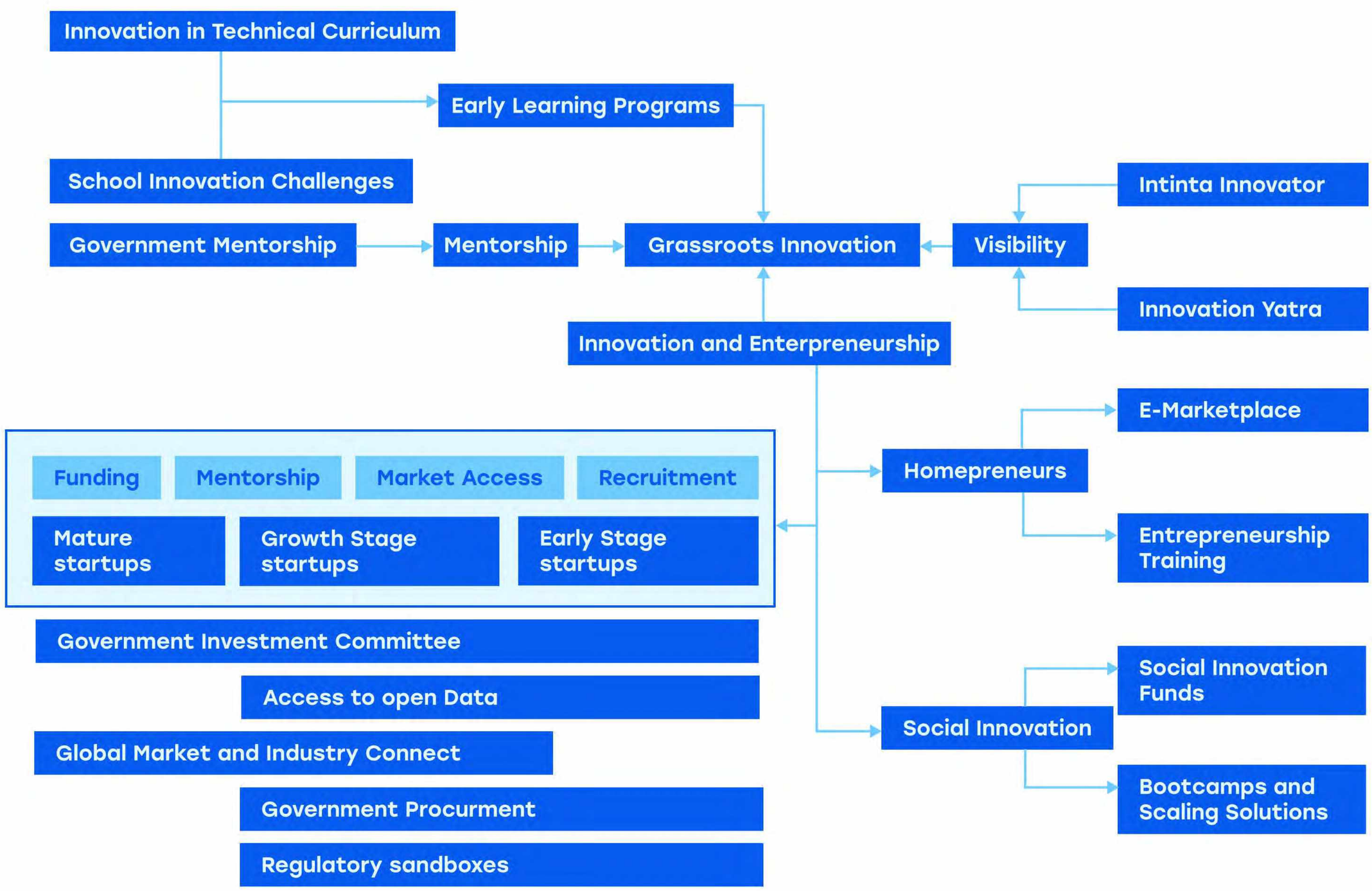
1300

To set-up a fund of ₹1300 Cr. for start-ups of which ₹100 Cr. would be for Grassroots Innovation Fund.





The government has set-up T Hub, WE-Hub, TSIC, T Works, TASK and Emerging Technologies Wing to encourage innovation and develop a vibrant start-up ecosystem. The government aims to enhance the start-up ecosystem such that Telangana is the primary choice for entrepreneurs looking to set-up operations with the help of accommodating policy frameworks and ample support across all stages. The government will also focus on grassroots innovations and empower them to transform from ideas to enterprises to create social impact.



Special Focus Sectors

Innovation in Multimedia Animation Gaming and Entertainment (IMAGE)

Telangana has extensively focused on developing its base in the Gaming, Animation, VFX, Computer Vision, and AI Startups. The state has collaborated with the Central Government and established the IMAGE CoE to further the development in this sector. Through its accelerator program, IMAGE CoE is supporting startups with mentorship, funding, and training programs. The upcoming IMAGE Tower is an incubator that is a flagship initiative to establish Telangana as the go-to destination for startups in the IMAGE space boasting a built-up area of 16,00,000 sqft.

Life sciences

Telangana has over 20 Life Sciences incubators which have supported over 200 startups in this space over the last years. The Biopharma Hub (B-Hub) is a flagship initiative for Genome Valley undertaken by the Government of Telangana to strengthen the Biopharma industry and Life Sciences innovation by setting up a Biopharma scale up facility. The facility is being set up in Genome valley with a built-up area of 1,00,000 sqft.

Agriculture

Telangana boasts over 10 Agri focused incubators supporting over 225 startups over the last few years. The state has over 30 agriculture-focused educational and research institutes. The Government of Telangana itself has focused on several tech-based solutions that will help improve the lives of farmers and has recently unveiled the AgHUB located in PJTSAU with a special focus on Agri-tech startups.

Defence

A defence accelerator will be established to promote innovation and R&D in the Defence sector in partnership with the Ministry of Defence and DRDO. Telangana previously has hosted several OEM-linked incubation and acceleration programmes along with T-Hub. Continuing on this path, the defence incubator shall handhold start-ups and private Mimes entering the R&D, manufacturing and service segments in the Defence sector and shall work in tandem with the existing state start-up ecosystem.

End-to-end support providers

The Government of Telangana strives to provide support to start-ups at all stages in the form of requisite infrastructure, funding, mentorship, and ecosystem.

Early-stage start-ups and innovators

Enabling early-stage innovators and researchers to take the next step in turning their ideas into enterprises will be the main focus. Institutional support in the form of funding, mentorship, testing, and industry connections will be facilitated through the innovation ecosystem partners. The government shall take measures to ease the process of setting up a start-up by providing toolkits for all common operations at the time of setting up a start-up to ensure a smooth start to one's entrepreneurial journey. Regulatory sandboxes shall be developed for focus sectors including fintech, healthcare, and education to facilitate ease of testing.

Growth stage start-ups

Through the stage of expansion, special support will be provided for raising funds, acquiring customers, hiring human capital, and gaining visibility. In addition to these activities, the government will enable relaxations in procurement criteria, thus government being the first customer for start-ups.

Mature stage start-ups

Through this stage, the government will ensure the right ecosystem and regulatory framework is maintained for start-ups. Recruitment support will be provided for those seeking high-quality senior management and talent to grow further. Moreover, partnerships will be established with large private firms and global markets to provide access to a larger market for their solutions. A dedicated consulting wing will also be setup by the government to support these start-ups with strategy and expansion.

In addition to the general support, the government will also establish mechanisms to provide corporate services like advocacy, cloud access, cybersecurity, etc. to the start-ups at a subsidized price. Additionally, digitalization support will be provided for back-office requirements.

New Initiatives

A Comprehensive Start-up Funding Ecosystem

a. Collaborative initiatives with VCs and Angel Investors to provide funds for start-ups.

b. Government Investment Committee: The Government shall set up a fund for start-ups and a Government Investment Committee shall be formed with experts in the field. Together with renowned VCs and Angel Investors, the Government Investment Committee will form a core component of the funding mechanism in the state. The state will add to the funds generated through partner VCs and Angel Investors.

Innovation and Model RFP-based procurement

As a progressive state, we strive to give start-ups as much government exposure as possible. The government will connect over 750 start-ups in 5 years with the Government Ecosystem through various programs and facilitate procurement of start-up services in every department. Over 100 start-ups' services and products shall be procured in this period. The Model RFP initiative by MeitY will be used to achieve ease of procurement of services by the government. Additionally, mentorship through the government shall be provided to a minimum of 200 start-ups over 5 years through the Government Mentor Program.

Homepreneurship

The COVID-19 pandemic has moved digitalization ahead by a few years, several home entrepreneurs have spurred to innovate and sell during this period. The government understands the immense scope of these home entrepreneurs and is looking to develop institutional support mechanisms to further their productivity. To provide visibility to such innovators, the government will also create a secure e-marketplace and connect entrepreneurs to potential customers.

Social Entrepreneurship

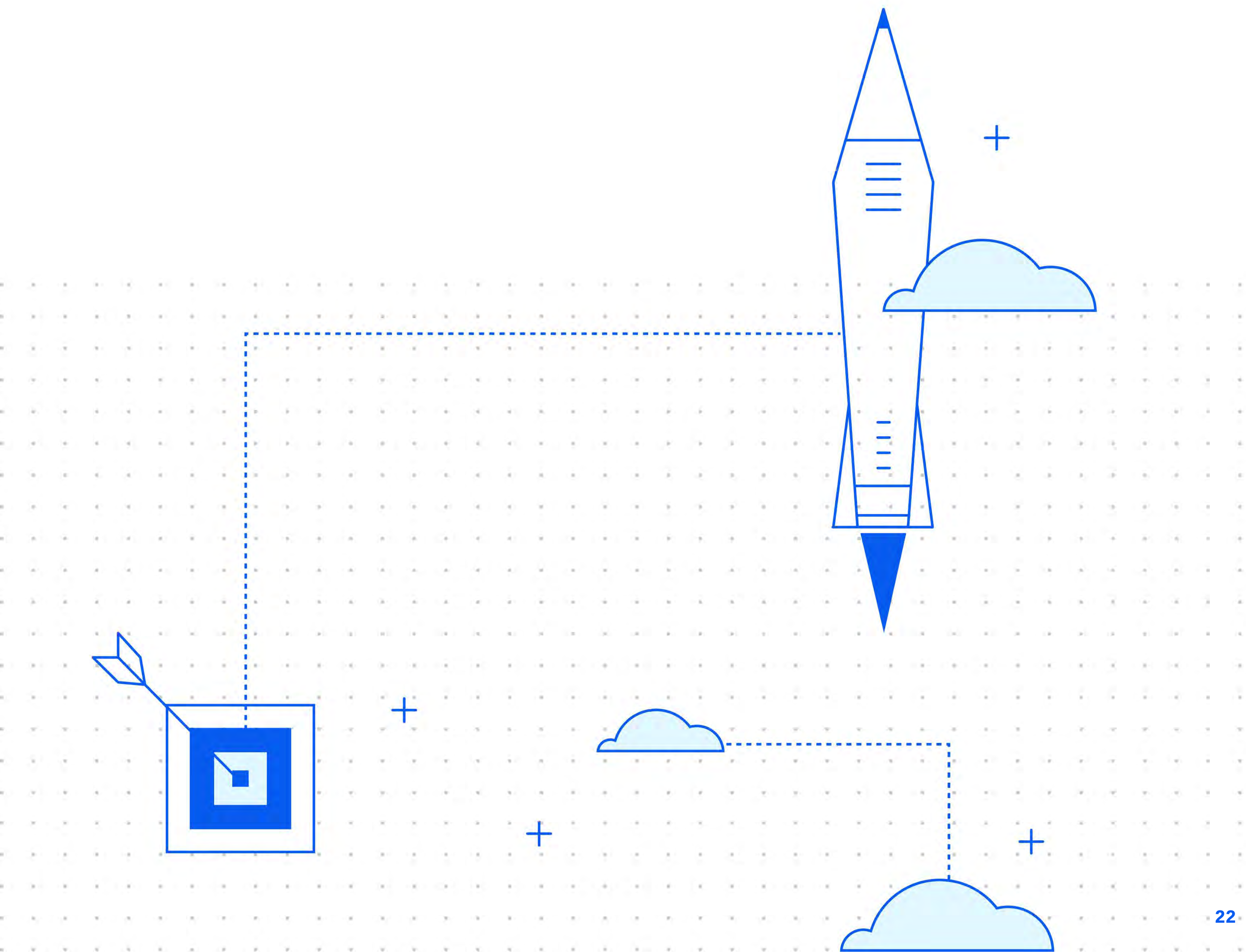
There are hundreds of problems in this world that both urban and rural sections are facing today. Innovation and Entrepreneurship are not only sources of income or employment generation but are also solution providers to some of society's major challenges. The government sees an opportunity in providing innovators in the social entrepreneurship space with a conducive environment to find scalable, implementable solutions that can improve the quality of life in the state.

Through the Social Impact Boot camp conducted in 2020-2021, we have been able to provide institutional support to over 50 start-ups. Looking forward, we aim to facilitate the growth of 5,000 social-impact start-ups over the next 5 years. The government shall allocate ₹100 Cr. for the social impact start-ups and will aim to attract over ₹5000 Cr. of investments from private partners across the world for these start-ups.

School Innovation

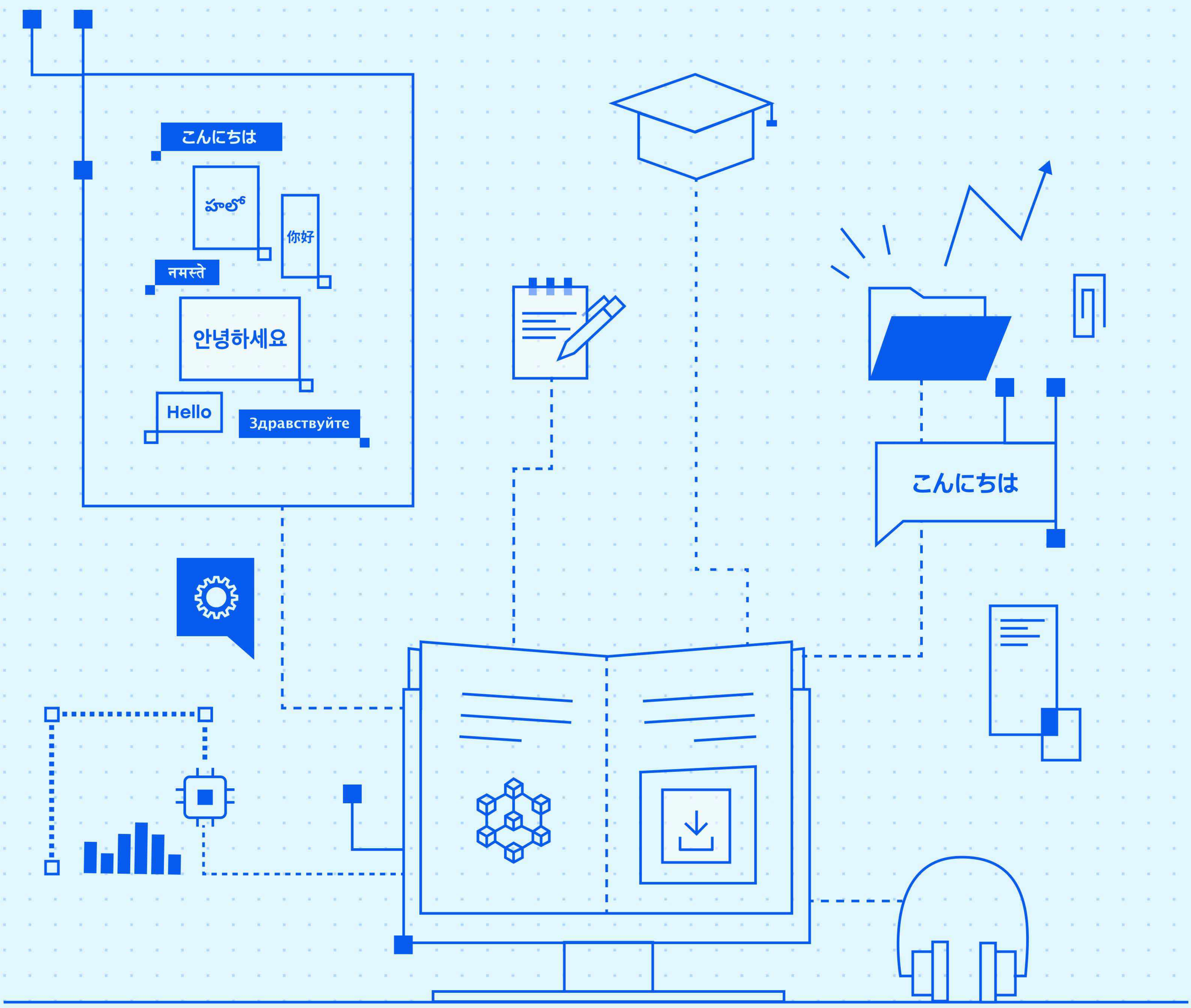
In Telangana, we believe that innovation as a culture has to be inculcated from a young age as the students of today are the entrepreneurs of tomorrow. The government will the school curriculum with special innovation-based courses in order to imbibe critical thinking skills among students at a young age.

The government will sensitize over 25,000 government students to imbibe innovation thinking through School Innovation Challenge across the 33 districts of Telangana. Special design & innovation thinking workshops focused on traditional arts and practices in Telangana will be arranged to further the understanding of the heritage of the state among school students.



04

SKILLING, UPSKILLING & RESKILLING



TARGETS

80%

Upskill, reskill or train the citizens of Telangana with a target to achieve 80% of workforce requirement being met through local talent.

50000+

Train 50,000+ students each year.

To develop an industry-ready talent pool, the Telangana Academy for Skill and Knowledge (TASK) was launched in 2014 and has played an important role in making the college graduates employment ready since then. The focus going forward is to not only enhance availability of talented workforce in the state, but to also skill the citizens of the state in basic technologies. This will help the government develop and deploy digital solutions to support the citizens and improve the quality of living from all socioeconomic backgrounds.

Citizen Digital Skill Enhancement

Early-stage digital skills
The government will launch programs to provide digital skills for students through courses on basic technologies, critical thinking, coding, etc. in order to set a strong base for them to explore the digital world.

Cybersecurity skills
With the onset of the digital era and growth in the number of internet users, it is imperative that the citizens are made aware of the dangers and risks associated with the internet. Special awareness programs will be undertaken to enable safe access to the internet for citizens.

Basic Training in Artificial Intelligence
Considering that AI is going to be an integral part of lives, all students in technology-based courses will be taught the basics of Artificial Intelligence along with skills in programming languages, data annotation, exploratory data analysis and more.

IT Skills as support for other activities
Citizens of the state will be equipped with basic digital skills and awareness to use applications and digital solutions to ease their day-to-day activities. Through this, the state aims to improve the quality of living for citizens.

Reskilling

Re-skilling shall be given special focus to curb unemployment and help citizens who are switching jobs or unemployed get more traction, skills and improve employability. Through partnerships with industry and academia, special courses and certifications will be created to improve hiring chances. Both online and offline media of teaching shall be explored for the citizens.

Upskilling

The government shall focus on upskilling the citizens who desire to pick up new skills, move to new fields of work, or grow within their respective establishments. The state will focus on upskilling existing workforce to be able to grab opportunities in new and emerging technologies. We will be collaborating with industry and academia in Telangana to design the curriculum for these courses.

Effective Industry Partnerships

Foreign Language Training
Several foreign-native companies require expertise in foreign language in addition to requisite skills. Foreign language training programs will be designed keeping in mind the employment demand from foreign locations. Partnerships shall be made with foreign industries and embassies to facilitate this initiative.

Early Industry Connect
Training programs will be introduced to 2nd and 3rd-year students in both technical and non-technical institutes to build employment skills from an early stage. Corporates will be encouraged to take up internships, training programs, and workshops with students.

Online Education providers
Collaborations with the best online skilling and academic courses will be leveraged to provide various courses and certification at subsidized prices in the state to ease the process of learning for students.

Emerging Tech. Ready employees

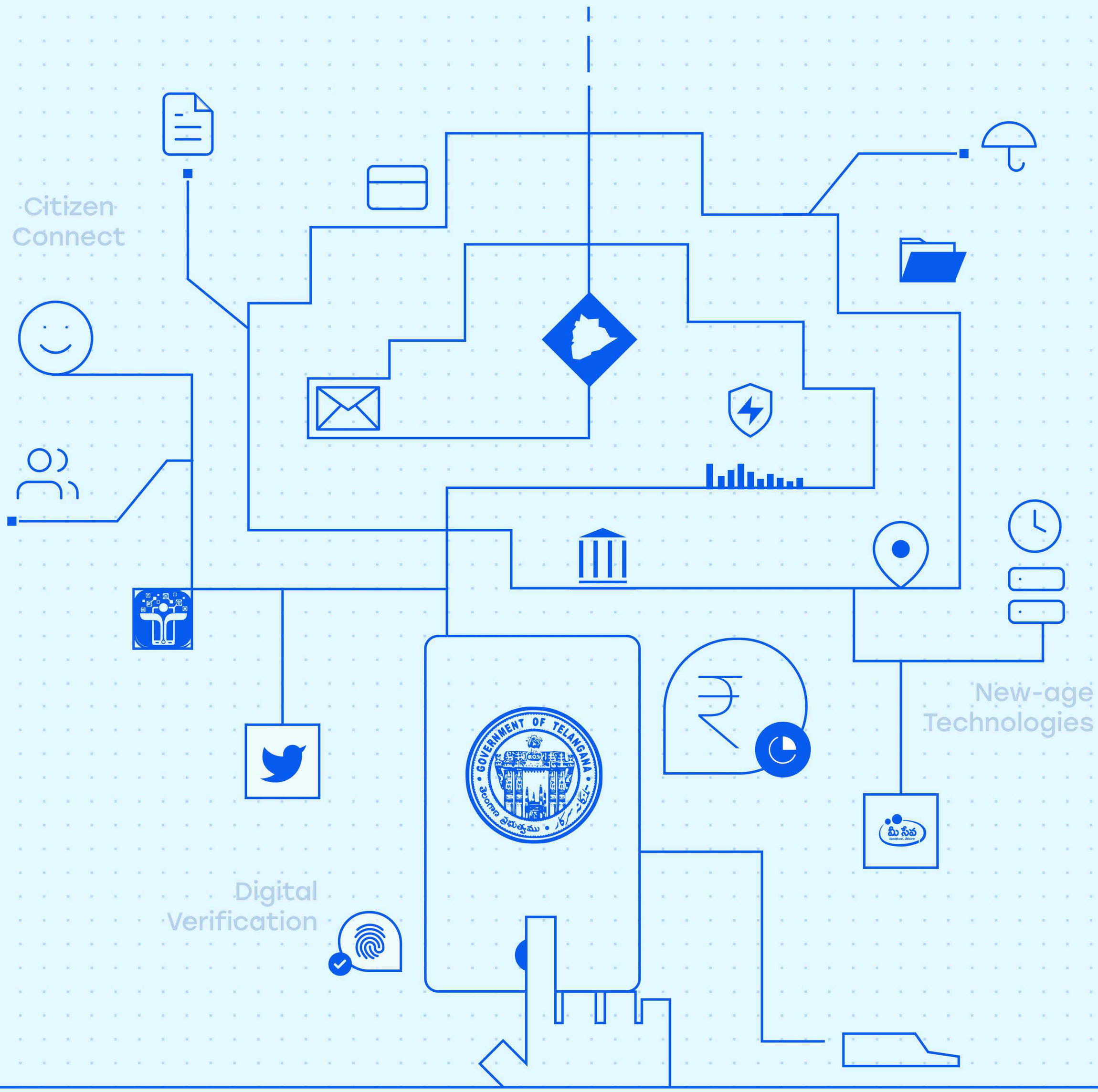
The growth of investments in emerging technologies and solutions that the state will lay focus on will be facilitated through the availability of trained students and professionals ready to pick up the technical and managerial work in these fields. The World Economic Forum expects that by 2025, "increasingly redundant roles will decline from being 15.4% of the workforce to 9%, and that emerging professions in will grow from 7.8% to 13.5%". The increase is expected to be driven by jobs using emerging technologies. A step further, NASSCOM estimates that, of the ~40 lakh employed in the Indian IT-ITES industry today, the nature of the job for 60-65% is likely to change, thus requiring re-skilling over the next 5 years. The government will align its resources to develop the right skilling framework to fit the future's needs.

Work-Ready Talent

While technical skills are core to employees and employers alike, several companies would have to spend resources to develop the soft skills for their young employees. TASK will develop courses to impart non-technical aspects of employment like soft skills and personality development to improve employability and reduce the burden on corporate partners to build these skills for recruits.

CONTACTLESS, PAPERLESS & PRESENCELESS GOVERNMENT

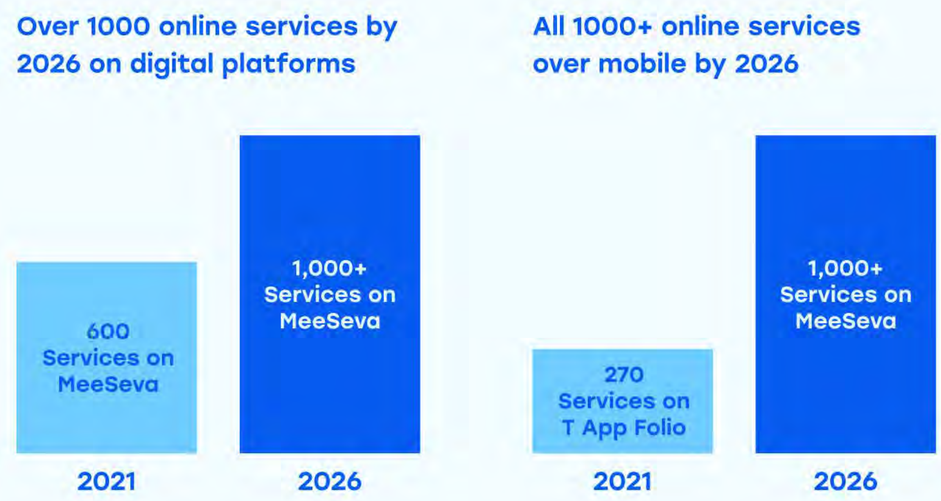
05



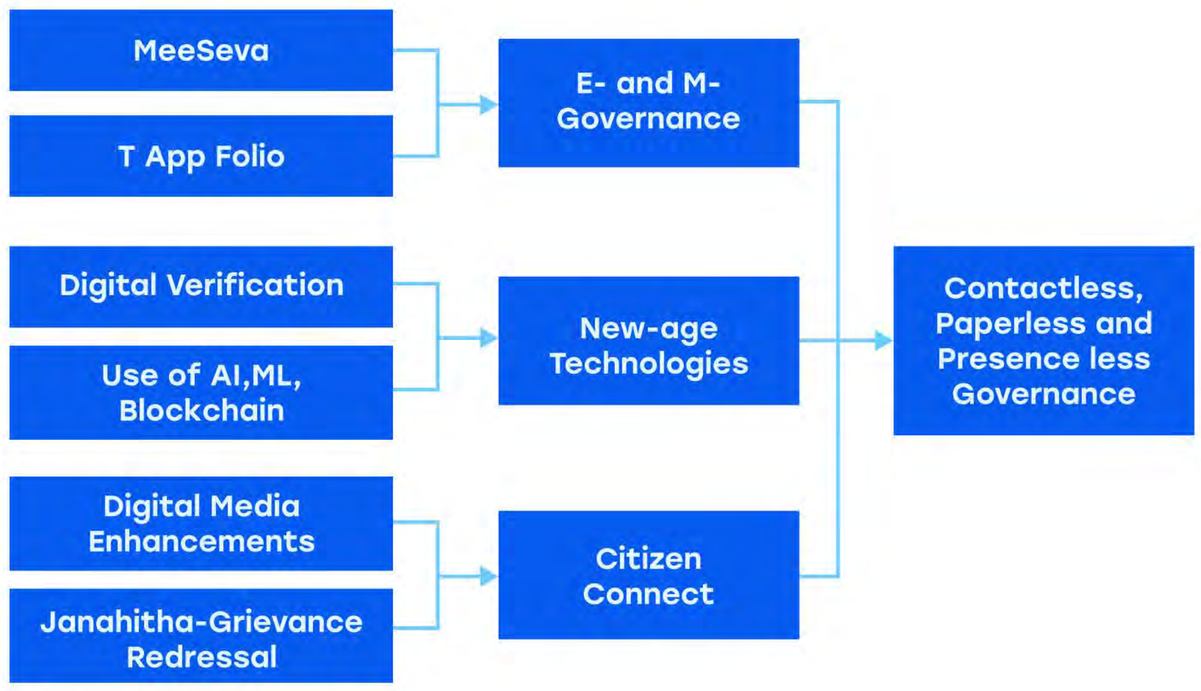
TARGETS

No G2C service shall mandate physical presence of citizens*: 1000+ G2C services online

All 1000+ online G2C services will be made accessible through a mobile-phones with the help of government's service delivery app — T-App Folio



Through the introduction of MeeSeva 2.0 and T-App Folio, most of the Government Services are available to citizens in the comfort of their homes and mobile phones. In the wake of COVID-19 and the onset of the digital revolution, the state aims to deliver all citizen services digitally and ensure that there are sufficient mechanisms to streamline digital interactions with the government. The government will also focus on streamlining service delivery by combining multiple new-age technologies like AI, ML, blockchain, etc. to provide secure verification and data processing.



MeeSeva

MeeSeva is the integrated service delivery platform in the state with 600+ G2C and B2C services of 100+ participating departments/agencies through a network of 4500+ centers located across the state. The government of Telangana has completed a comprehensive up-gradation of technological and process aspects of MeeSeva and MeeSeva 2.0. was rolled out in April 2019. During 2020-21, 35 services have been launched with an average roll out time of fewer than 3 days. MeeSeva has been the go-to platform for launching high-priority services such as LRS, GHMC Flood relief, NPB, Sadabainama and Sadarem.

T App Folio

T App Folio enables delivery of G2C, B2C, VAS, and info services through Smartphones as well as Feature phones (USSD, IVRS, and SMS) and is the only App in India that currently enables application and certificate services to be delivered to citizens. T App Folio has reached over 12+ Lakh downloads and supported 40+ Lakh transactions till March 2021, with onboarding over 270+ services in the same period.

*except incases like drivers license test etc...

Usage of Emerging Technologies in eGovernance

The Government of Telangana commits to increase the usage of emerging technologies such as AI, ML, Big Data, and Blockchain to create a fast, reliable, and secure e-governance experience for the citizens. A special budget for IT and Emerging technologies shall be allocated by each user department to develop applications that can be used by citizens. Going forward, we will not only develop solutions for the state but will also support other states in India that would require the solutions developed in Telangana to empower them and improve the ease of governance.

Online Authentication

All government procedures that require verifications will be done online through the use of RTDAI-Realtime Data Authentication of Identity, a safe and secure product developed by the state to ensure reliable and quick verification of citizen identities. This will enable the government to save several hours for verification processes for the citizens. With the increased usage of smartphones across the state, this project would play a critical role in providing digital services in the most remote locations.

Digital Verification for Beneficiaries

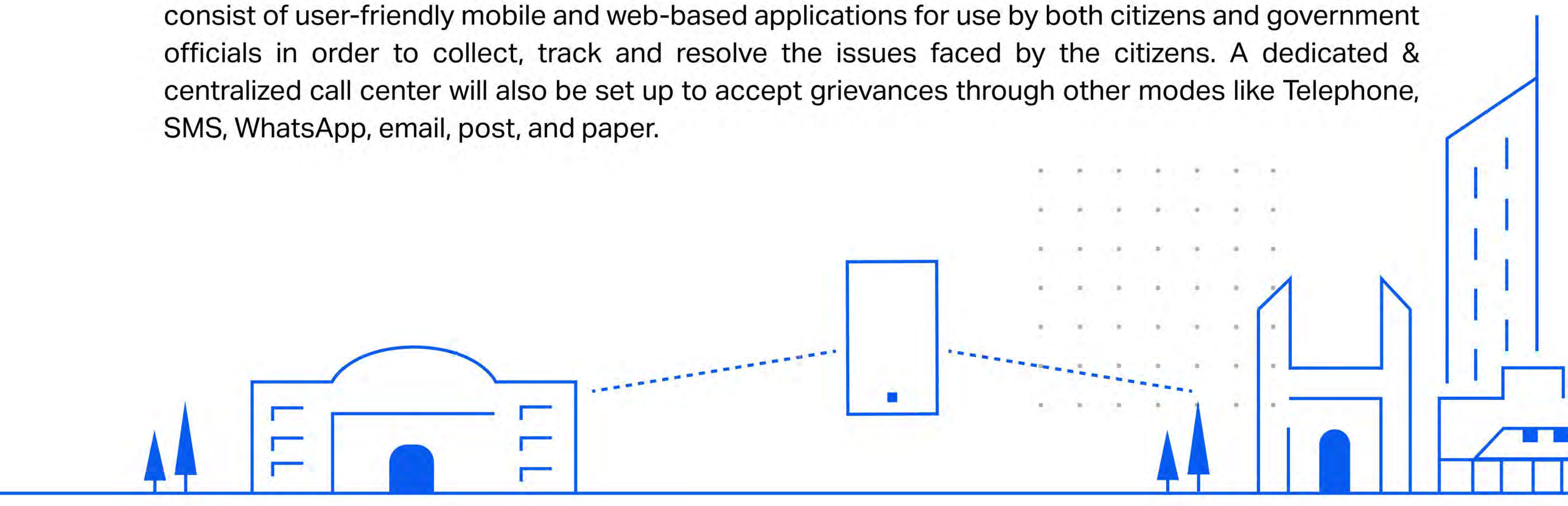
In Telangana, we strongly believe that adopting Emerging Technologies is key to an efficient and accountable Government. To ease the process of verification of details for welfare programs in the state, the digital verification platform developed will use AI, ML, and Big Data analysis methods to study the database of citizen information gathered from departments to assess whether an applicant is truly eligible for a scheme or not. The project has been successfully used for several schemes and has garnered high praise from GoI's Economic Survey (2018-2019) for being a world-class data-based solution.

Citizen Connect

Given the widespread use of digital media among the citizens in the state, the government shall leverage digital platforms to create an effective communication mechanism with the citizens in the state. New and efficient methods of information transfer shall replace the traditional modes of advertising and outreach. A standardized mechanism shall be developed to ensure the quality of interaction through digital media is retained across all departments in the state.

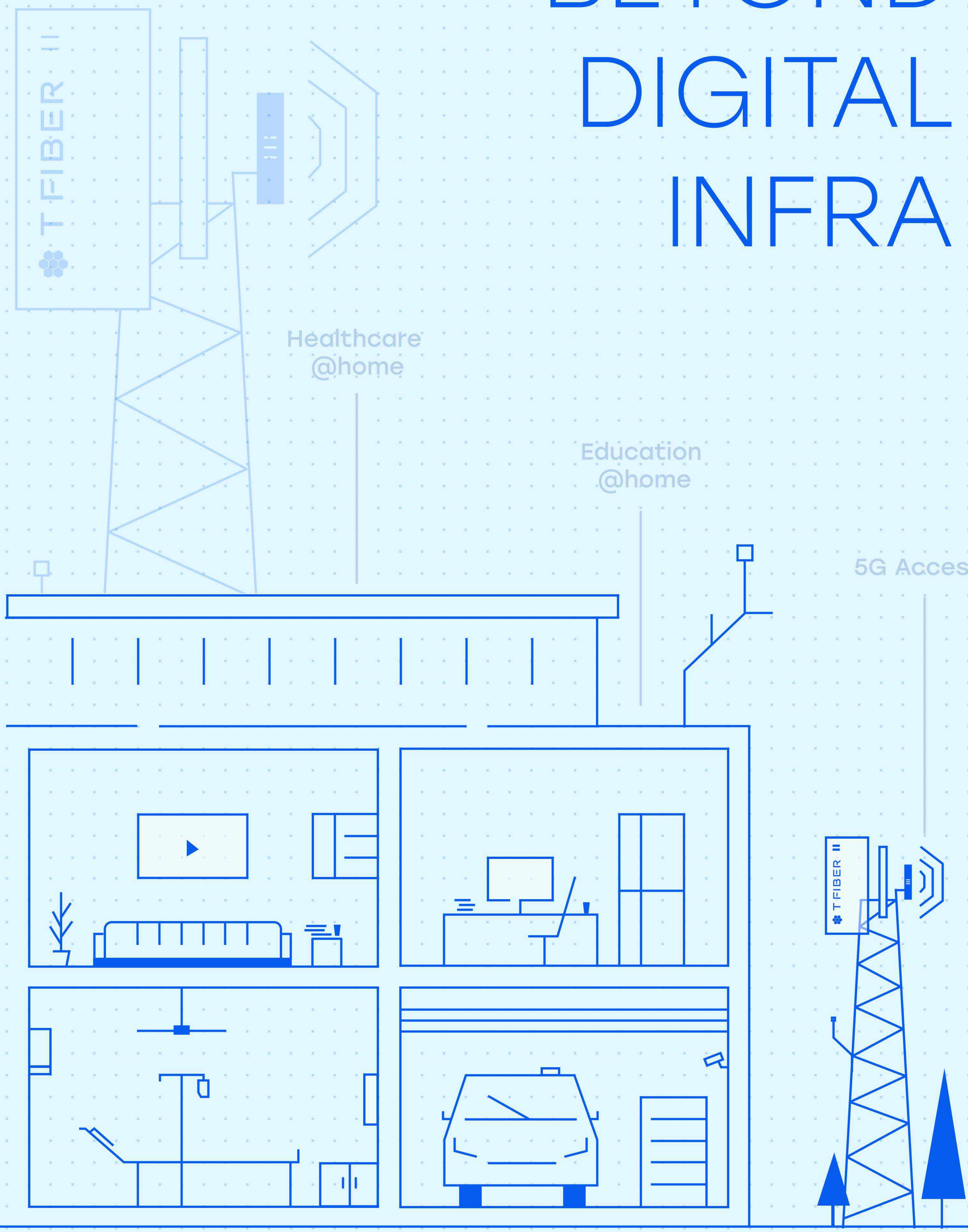
Janahitha – Citizen Grievance Redressal Platform

To make government services transparent, responsive, and user-friendly to the citizens, the government intends to have a Citizen Grievance Redressal System called Janahitha. Janahitha will consist of user-friendly mobile and web-based applications for use by both citizens and government officials in order to collect, track and resolve the issues faced by the citizens. A dedicated & centralized call center will also be set up to accept grievances through other modes like Telephone, SMS, WhatsApp, email, post, and paper.



06

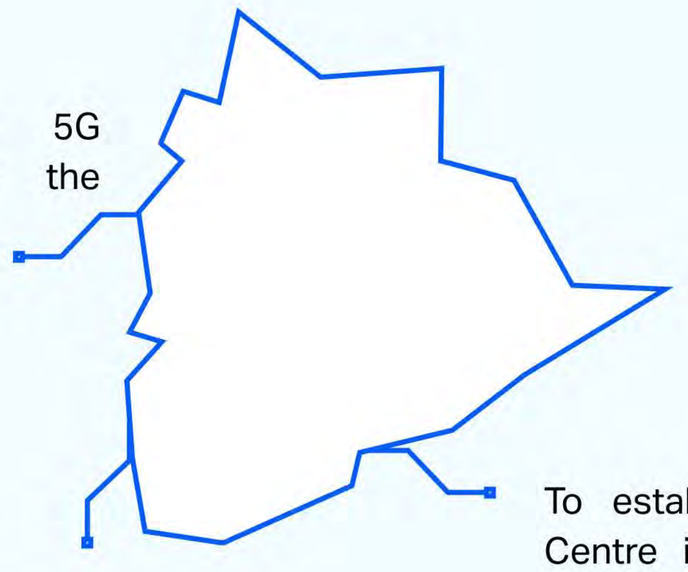
BEYOND DIGITAL INFRA



TARGETS

5G

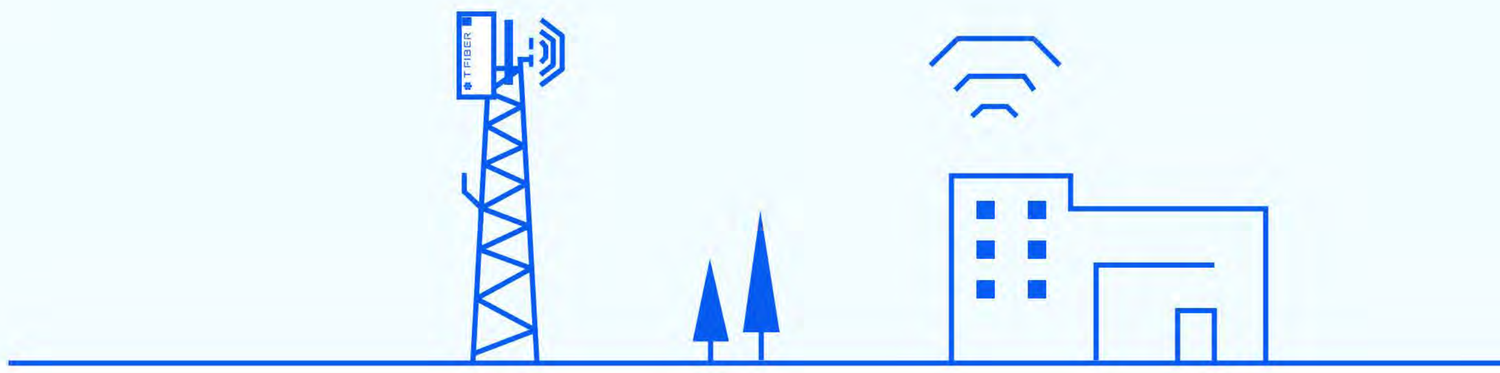
To complete 5G rollout across the state.



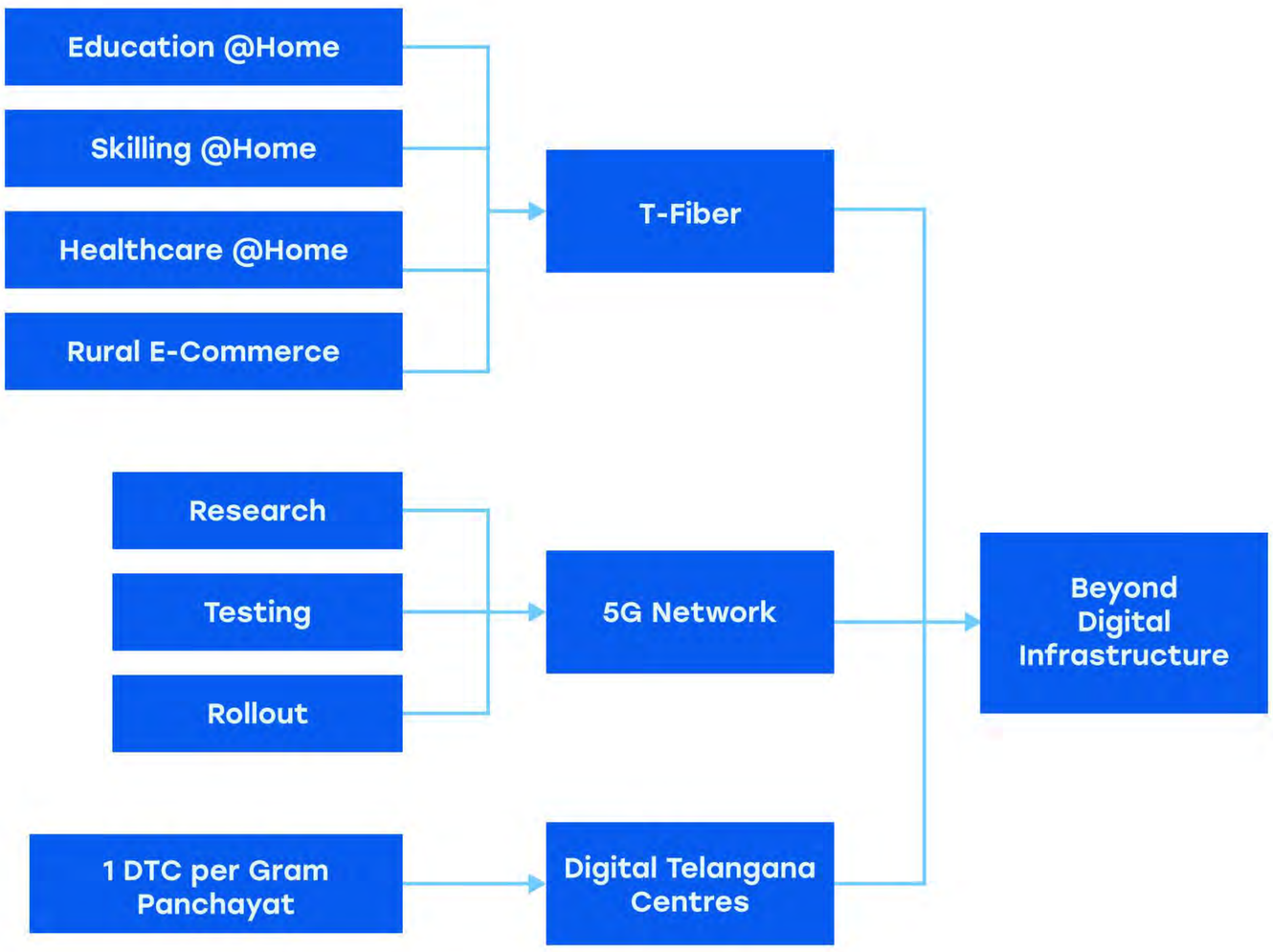
To establish one Digital Telangana Centre in each Gram Panchayat in Telangana

100%

To connect 100% of government institutions, rural and urban households to the Internet through T-Fiber by 2026



To enable digitalization across the state, the government will ensure all citizens are provided with access to the required digital infrastructure. The ambitious T-Fiber project will connect all educational institutes, homes, and government offices to high-speed and reliable internet enabling better access to services and digital content even in the most remote locations. Moreover, access to 5G internet across the state will be facilitated with a complete rollout.



T-Fiber as an enabler

Once established, T-Fiber will be used as the primary source of information and knowledge transfer. All the G2C services that require citizen and other public interactions with the government will be streamlined through the use of T-Fiber. Access to the internet will allow all departments to adapt to and deliver various new-age services at the doorsteps of the citizens.

Education at home

The government shall put special focus on e-learning and delivery of educational content directly to students' homes. Over-the-top media services shall be utilized for giving students access to the best digital education solutions from primary school to higher education on par with the developed countries of the world. The government shall strive to ensure every student in the state gets equal learning opportunities independent of their socioeconomic background.

Skilling at home

Through the high-speed internet service available at homes across the rural areas, skilling and training programs shall be carried out through an internet-based solution developed to facilitate ease of skilling. TASK will work with the industry, academic institutions, and professionals to create learning modules and curriculum for citizens of all demographics. Trainings required for various sections of professionals ranging from farmers to fishing to horticulture and several others will be provided through these programs.

Healthcare at home

Easy access to the internet gives the government new opportunities to meet the healthcare needs of citizens more holistically. The government shall take steps to spread the use of digital health solutions like T-Consult and the central government's National Digital Health Mission direct to home. The government will development new services using emerging technologies like AI, ML, Blockchain, Drones etc. for making activities like testing, basic diagnosis, and medicine delivery more efficient.

Rural e-commerce

With the growth of e-commerce across the world and increasing access to the internet across rural areas, the government sees a new opportunity to connect citizens with sellers and buyers of products in rural and remote locations. The government shall facilitate this through T-Fiber and a specialized e-marketplace developed to enable secure selling, buying, and payment mechanisms for the users.

5G Expansion

Telangana has been a pioneer at adopting new technologies and providing citizens with access to the latest communication solutions. In line with leading countries in the world, Telangana has begun experimenting with and developing the base for 5G technology.

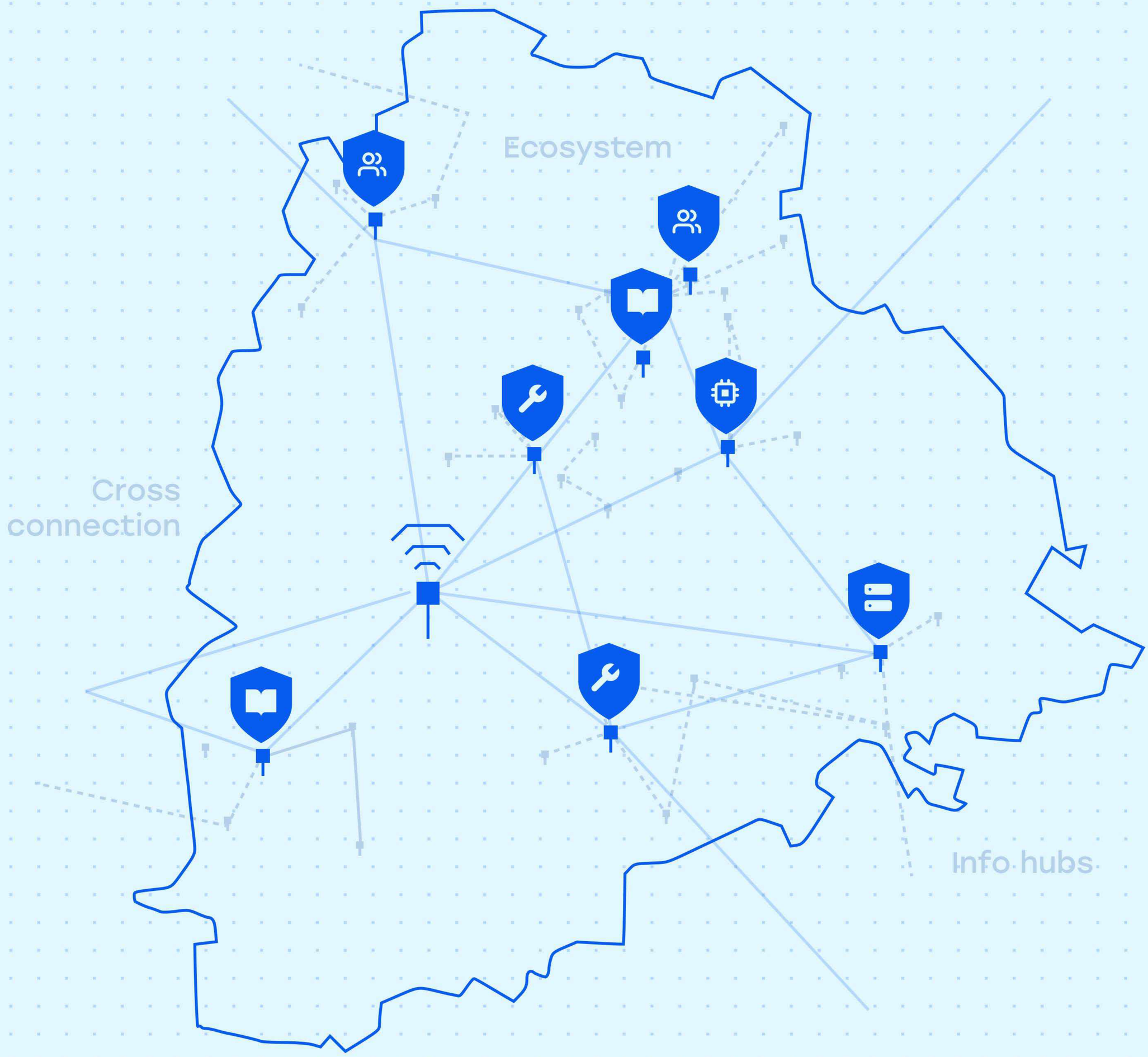
Hyderabad is one of the first cities in India which has had pilots for 5G communication services done by our telecom partners. Going forward, the state will formulate adequate strategies to enable citizens in both urban and rural locations to use 5G technology. Sufficient relaxations and Right of Way orders will be provided to ease the entry of the telecom service providers.

Digital Telangana Centers

The Government has created over 1000 Digital Telangana Centers at the Panchayat level. Each center is being managed by a trained Village Level Entrepreneur (VLE). The centers provide various digital G2C services like e-panchayat services (property tax, utility payments etc.), financial services, banking services, insurance services and training services. These operations will be scaled up to reach all 12,765 Gram Panchayats in the state.

07

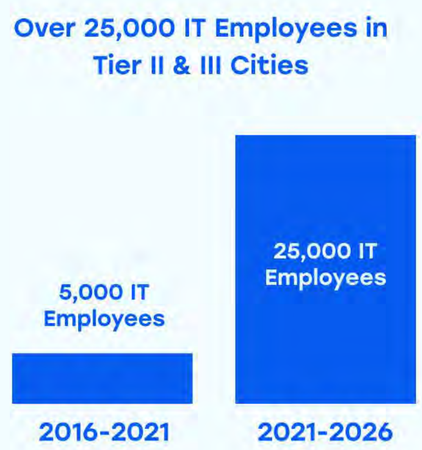
BEYOND HYDERABAD

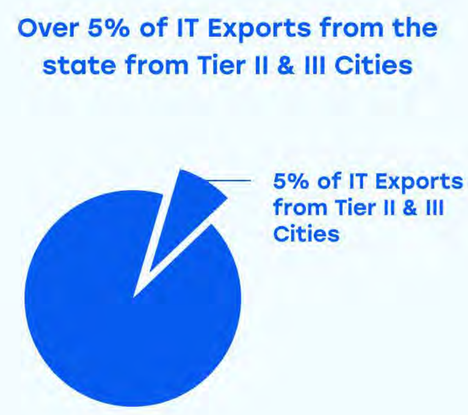


TARGETS

Generate employment of 25,000 in Tier-II & Tier-III cities by 2026

Develop a robust district Innovation Ecosystem in 5 regional centres





The majority of the state's IT/ITeS exports come from Hyderabad, which is a major IT-Hub not only in India but also in the whole world. To generate more employment opportunities in other cities of the state, the government aims to develop Tier-II and Tier-III cities as IT powerhouses and facilitate the growth of a complete ecosystem like Hyderabad in these locations. Cities like Khammam, Karimnagar, Nizamabad, Warangal, etc. have already been established as IT-Hubs. The government shall make efforts to develop these cities into well-established smart cities.

Ecosystem development

An environment conducive for investors will be developed by establishing government institutions in these cities. Centres for T-HUB, WE-HUB, TASK, and TSIC will be made functional in the Tier II & Tier-III cities like Khammam, Warangal, Karimnagar, Nizamabad, Mahbubnagar, Siddipet, Nalgonda, and Ramagundam. These divisions will work together in each city to develop the infrastructure and government support available for investors and working professionals.

College and Industry connect

To improve the learning and skilling outcomes for students and professionals, TASK will work closely with the industry, collect feedback, and improve the employability of citizens in Tier-II and Tier-III cities. Special training programs will be developed for students in collaboration with the industry to begin training from the 2nd and 3rd years of college education to give students more time to learn and a more hands-on training experience.

Information and Communications Technology Hubs

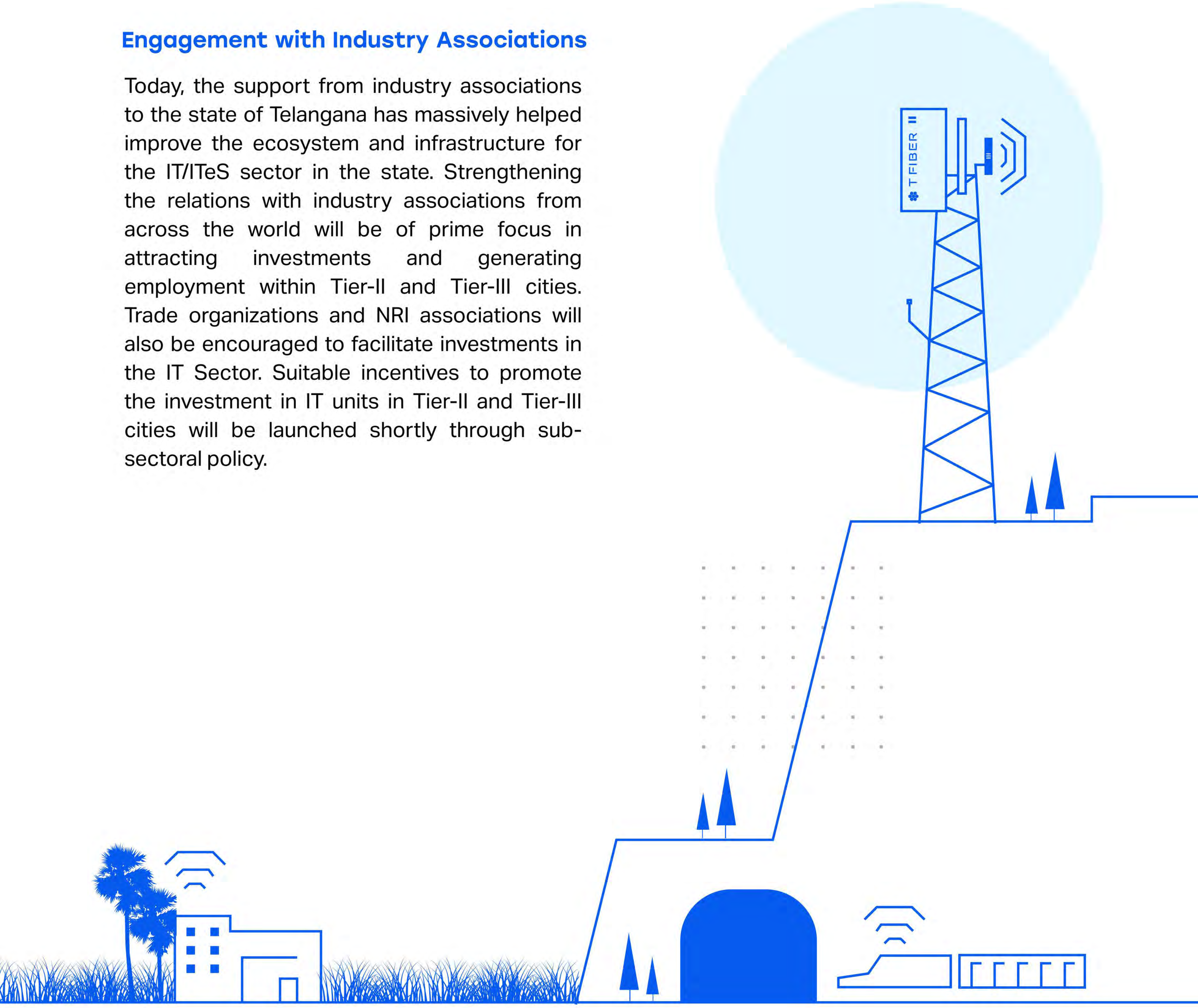
The state has already built over 1,50,000 square feet of ready-to-occupy space in IT-Hubs in Warangal, Khammam, and Karimnagar which are fully occupied by several IT/ITeS investors. New technology centres are currently being developed in the cities of Nizamabad, Mahabubnagar, Siddipet, and Nalgonda. To attract more investors to these cities with a plug-and-play model of IT-Hubs, the Government will incentivize private developers to set up technology centres in Tier II & Tier III locations through a Private-Public Partnership model.

Happening Telangana

The government will facilitate the all-round development of Tier-II and Tier-III cities by improving the general infrastructure of the locations through the promotion of high-end malls, schools, tourism attractions, and other leisure activities. These cities will also be a major part of the smart cities' initiatives taken up by the state and the quality of living shall be improved to incentivize top talents to stay within the Tier-II and Tier-III cities.

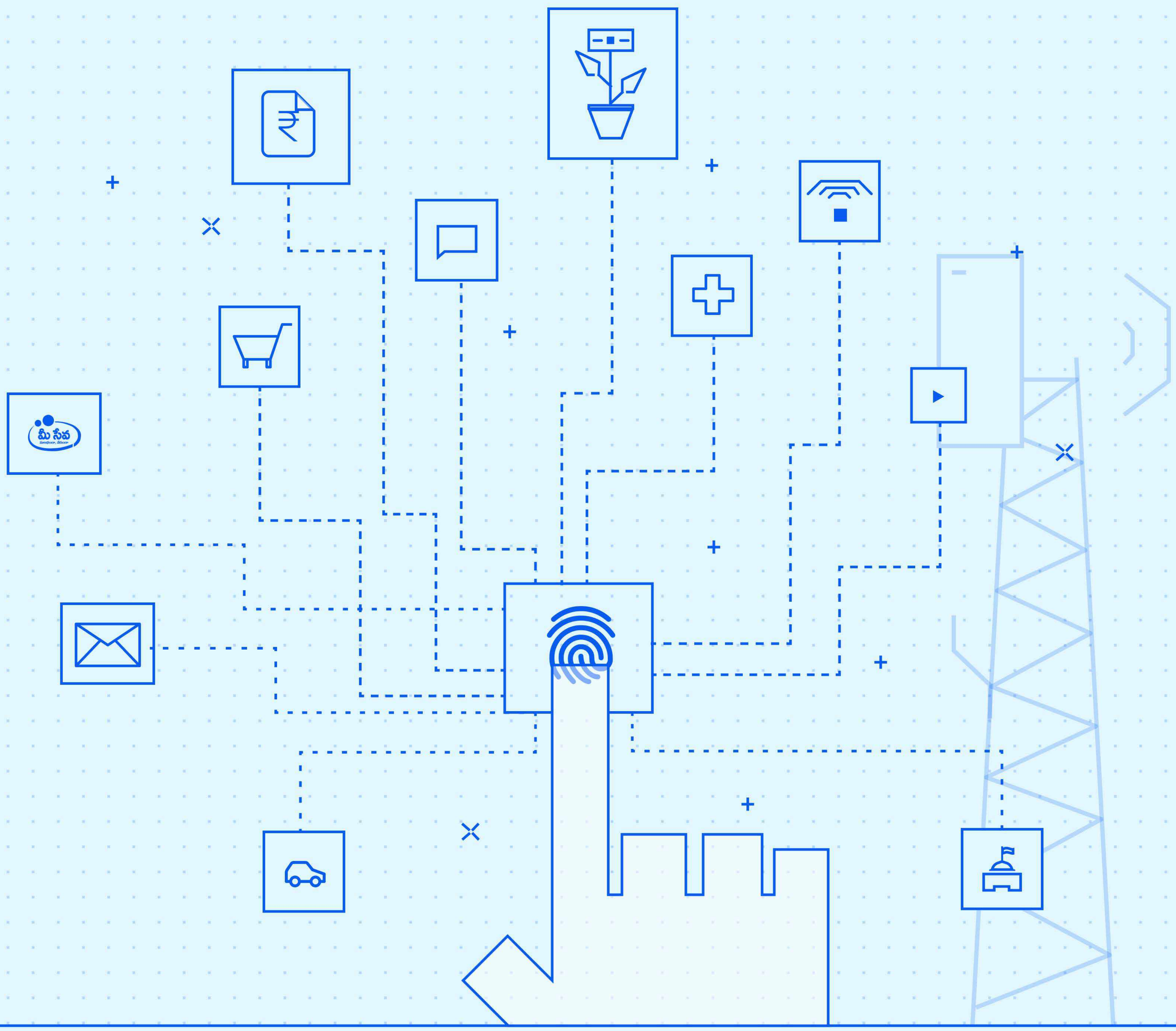
Engagement with Industry Associations

Today, the support from industry associations to the state of Telangana has massively helped improve the ecosystem and infrastructure for the IT/ITeS sector in the state. Strengthening the relations with industry associations from across the world will be of prime focus in attracting investments and generating employment within Tier-II and Tier-III cities. Trade organizations and NRI associations will also be encouraged to facilitate investments in the IT Sector. Suitable incentives to promote the investment in IT units in Tier-II and Tier-III cities will be launched shortly through sub-sectoral policy.



08

DIGITALLY EMPOWERED CITIZENS



TARGETS

To ensure that at least one individual in each household and SHG is digitally literate and is empowered to take advantage of the digital ecosystem.

One Digitally Literate member per household

One Digitally Capable member per Self Help Group

Right from the start of the digital age, as expected, the digital divide among citizens belonging to different socioeconomic backgrounds has been increasing. It is only imperative for the state to be extremely conscious of this fact and bridge the digital divide. The state will create solutions to give an advantage to the disadvantaged and will ensure that the citizens are sufficiently skilled to embark on the digitalization journey. Focus will also be on ensuring citizens of the state have a safe and secure access to the internet. Cybersecurity and data protection will be key areas of focus in order to protect citizens who will enter the digital world.

Digital Opportunities

Several requirements/needs of the citizens can be solved efficiently and quickly with the help of digital solutions. The government will focus on creating and deploying citizen-centric digital solutions keeping in mind the requirements of citizens.

Scalable Solutions

The government has piloted several solutions across sectors like agriculture, education, healthcare, etc. to provide highly capable solutions to the citizens in the state. Going forward, the state will focus on scaling up the solutions to reach each and every corner of the state and ensure the benefits are realized by even the most vulnerable citizens of the society.

Infrastructure Development

While solutions are being developed at a rapid pace, it is also important to make them accessible to all citizens. The main barriers that must be addressed are:

Access to the Internet

T-Fiber, a flagship initiative of the state that will connect all government institutions, urban and rural households is underway and will ensure the entire state has access to the internet in the next few years.

Digital Connection Points

To provide the citizens with common service locations in the state, several initiatives to build infrastructure have been taken up. In the case of agriculture, Rythu Vedikas have been built across the state. For education, we have several educational institutions and for citizen services, we have CSCs, MeeSeva centres and Digital Telangana Centers. More such destinations will be created for sector-specific needs like healthcare, SHGs, etc. which will all be connected to T-Fiber.

Digital Devices

To reap the full benefits of digital solutions, giving citizens access to end-point devices is important. The government will ensure that digital end-point devices like mobiles, tablets, etc. will be available at all the digital venues mentioned above.

Support Across Areas

Taking the socioeconomic status of citizens into account, the government will build and offer digital solutions across all the important focus sectors. For example,

T-Consult service which is a telemedicine service will be made available across the state in the coming years. The government is already offering digital classes through T-SAT. These services, solutions will be scaled up and efforts to meet the infrastructural needs of students will be taken up.
Basic agricultural support is being provided at the Rythu Vedika centres in the state. The government will ensure that the farmer have access to new-age technology-based solutions and can learn about them at Rythu Vedika centres.

The effectiveness of projects like Stree Nidhi is enhanced through the use of technologies like blockchain and AI to provide better support to these groups. The government will work towards ensuring that at least one individual in each SHG is digitally literate and is empowered to take advantage of the digital ecosystem.

Repository of Opportunities

A repository of all the digital solutions developed for various categories of beneficiaries will be created and access to it will be facilitated. The government's focus will be to ensure that beneficiaries are aware of all the solutions that are available to them.

Improved cybersecurity & awareness for citizens

With the development of digital infrastructure, the digital solutions available to the citizens, and the rapid increase in the number of internet users, developing mechanisms to improve the cyber-readiness of users is key. Cybersecurity for the citizens is now more important than ever, and the government has already launched a cybersecurity policy in this regard. The Government shall design cybersecurity awareness campaigns to increase the cyber-readiness of citizens & government departments.

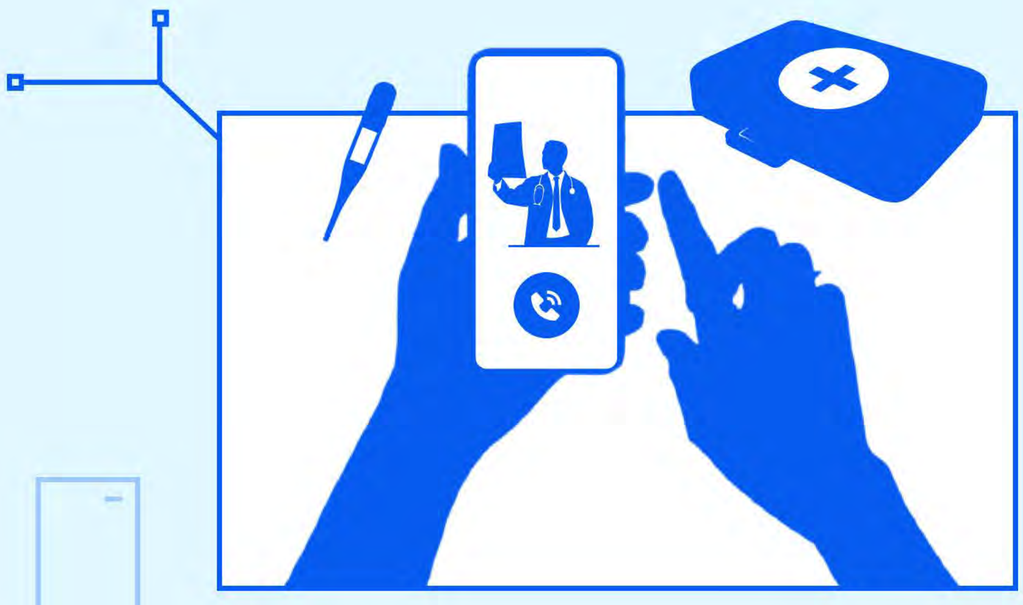
In addition to the preventive measures taken by the government, the Cyber Security Police Force will be strengthened to better address citizen grievances. Child and women safety will be bolstered with focused campaigns and special cybersecurity teams.

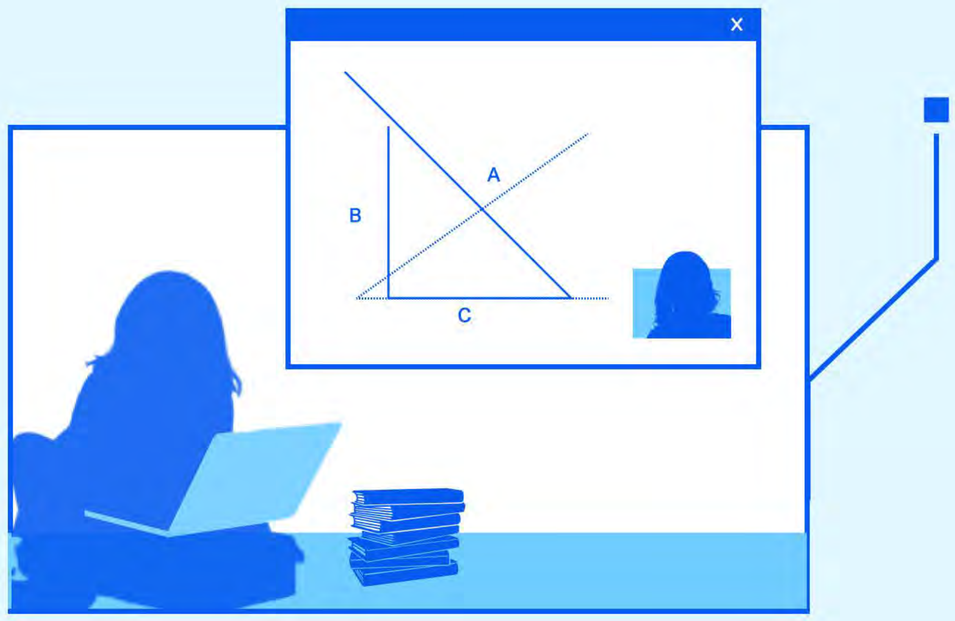
Accelerating PMGDISHA

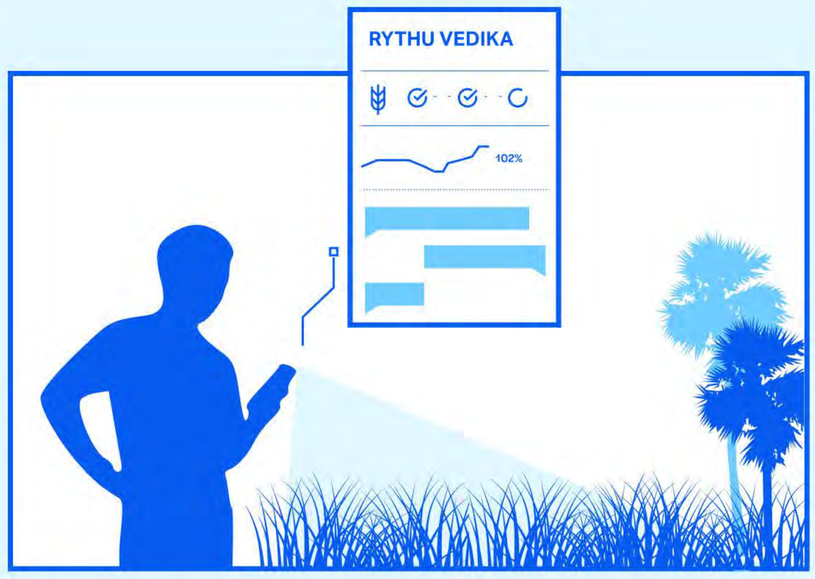
Basic actions like bill payment, railway reservations, banking services among others are proven to make the citizens' lives hassle-free. The government has supported the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) by Digital India and facilitated the development of over 10 Lakh certified digitally literate citizens. Over the next 5 years, the government aims to increase the number of digitally literate citizens to over 50 Lakhs.

The Case of Ramana and Deepti

Ramana and Deepti are small families situated in a village in the Bhadradri Kothagudem district of Telangana. Ramana is a farmer who harvests cow gram and Deepti is a housewife. They have one daughter who is 13 years old, and she studies in the local government school. With the implementation of T-Fiber across the State of Telangana, their entire village is well connected and Ramana's family recently began attending the digital literacy online classes being organised by the government. By helping themselves become more digitally literate, Deepti could immediately access teleconsultation services to resolve a major health issue she has been suffering from. However, Ramana has been facing serious challenges with pest control of the crop. He then learnt from his peers about the Rythu Vedika and decided to access it for the benefit of his harvest.



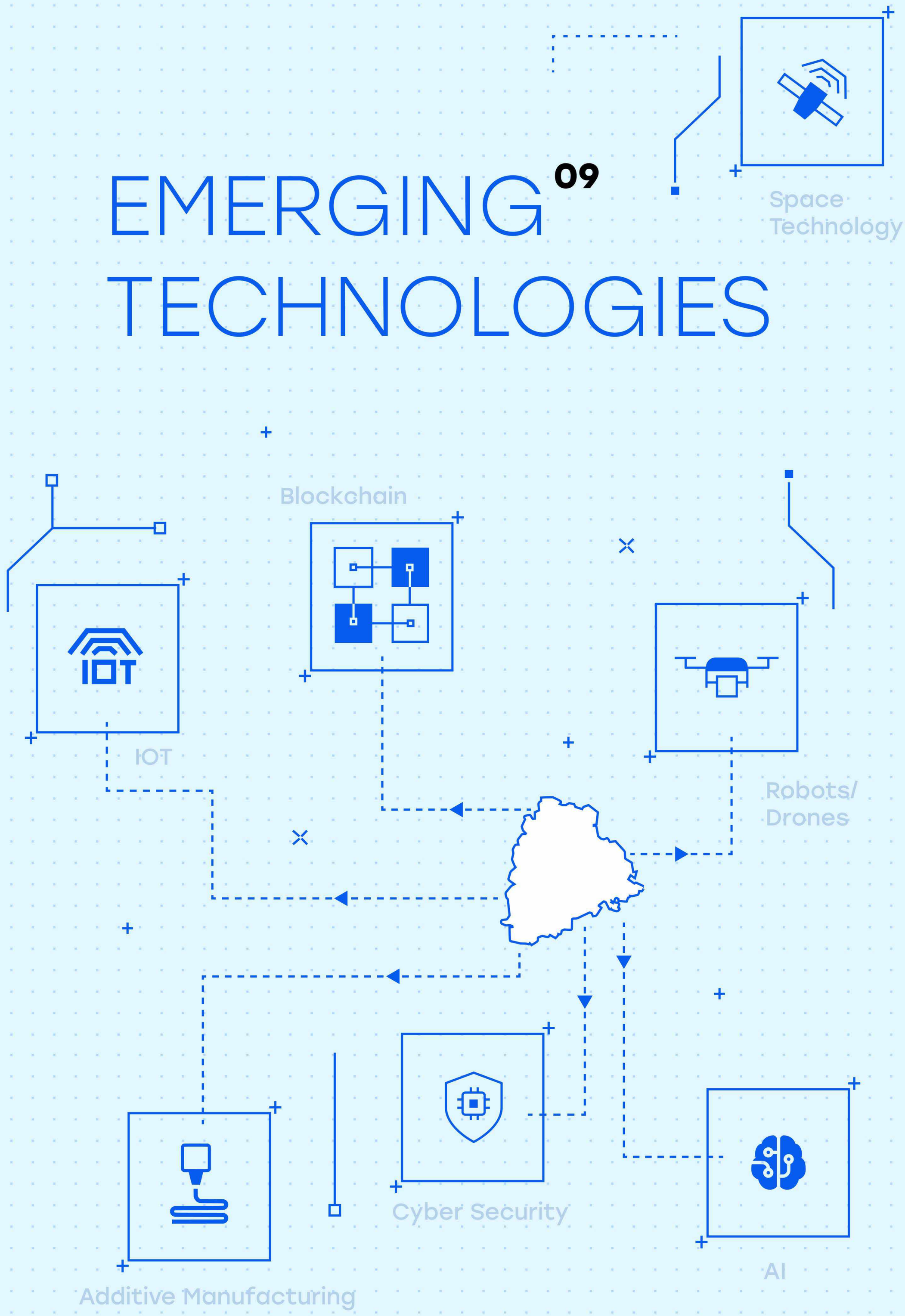




Ramana was asked to click a picture of the present condition of his crop and the pest problem he was facing. On uploading the photograph, he got the required help in resolving this problem. He also got all the necessary support in seeking market prices for his crop in 5 different regions which allowed him to make a sensible and informed decision on his pricing strategy. Ramana greatly benefitted from all the support he got and could finally turn his business around into profits. This also made him realise the importance of not having an information gap with the market.

Due to the pandemic, their daughter has been unable to go to school and even as she has been attending online classes, Deepti was concerned about her daughter developing a good skill set. She was keen on her daughter improving some of her math and problem-solving skills by attending a supplementary course apart from customary coursework. She found out about classes given by professionals on the T-SAT application and ensured her daughter attended them in the evenings. This way, Ramana's entire family is digitally empowered and is secure of their access to infrastructure, necessary resources and required external knowledge.

EMERGING TECHNOLOGIES 09



TARGETS

75

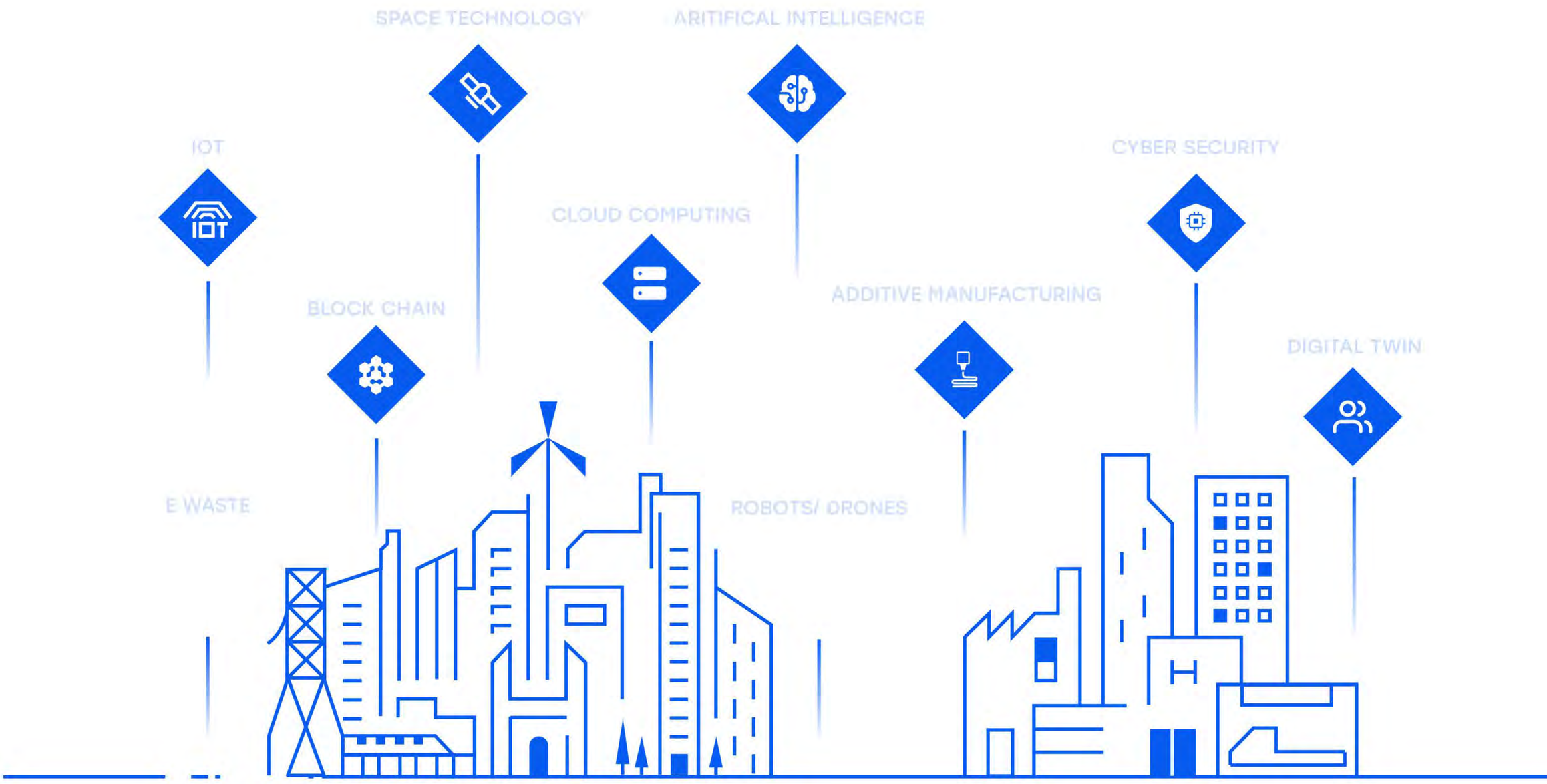
Undertake 75 innovative projects with focus on citizen services

10

Establish 10 emerging technologies focused Capability Centers (e.g., CoEs)

5

Establish 5 R&D centers to undertake deep research for new products and solutions



TET CORRIDOR

Acknowledging the fact that Emerging Technologies are driving disruptive innovations in many sectors, the Telangana State has been proactive at setting up the required institutional support and infrastructure for these technologies. The focus is on two aspects — ecosystem development for these technologies and government adoption to improve service delivery to citizens and businesses. The state has formulated strategy and policy frameworks for emerging technologies such as AI, Cloud Adoption, Blockchain, Drones, Cyber Security, E-waste and IoT. Centre of excellences or CoEs have also been established to drive the implementation of the strategic frameworks such as Telangana AI-Mission (T-AIM), Cyber Security CoE, E-Waste Management CoE, Centre for Responsible Deployment of Emerging Technologies (CRDET). The State envisions to retain its leadership position in emerging technologies.

Identifying high impact technologies

The government continues to explore the global developments for opportunities around transformative emerging technologies, the ones that have the potential to bring in disruptive innovations in the next three to five years. A few technologies that are showing great potential to be considered in the near term are:

Additive Manufacturing (AM)

AM or 3D Printing is transforming businesses with its potential of optimizing material consumption, creating new & complex shapes, and shortening production times. Further, the 'National Strategy for Additive Manufacturing' has been released to boost India's share in the global market projected to be USD 35.6 billion by 2023.

Space Technology

It has the potential for global commercialization and huge multiplier effect on the economy. From launch vehicles & satellites enabling indigenization to downstream applications enabling impact on sectors like agriculture, space is the new frontier. Also, there is national impetus to grow the private participation with release of Spacecom Policy, Space RS Policy, National geospatial policy*, etc. and gain share in global market projected to be USD 558 billion by 2026.

Robotics

The amalgamation of Computer Vision, AI, and robotics has enabled the development of automated equipment for multitude of tasks across diverse industrial settings. As of 2019, India ranked 10th in annual installations of industrial robots with just ~3% the number of installations compared to country that was ranked 1st, so the potential for growth is huge and the market is expected to reach USD 52 billion by 2026.

Digital Twins

Digital twins provide an exact virtual replica of an object (living or non-living), process or system, and even cities in the real world. The combinatorial use of IoT, Big Data and 5G for digital twins has unlocked various applications such as monitoring in construction and energy industry, healthcare by digital twins of patients, and planning, efficiency & traffic management in smart cities.

Adapting to changing workforce dynamics

The World Economic Forum in its report estimates that globally 850 lakh jobs may be displaced but 970 lakh new roles may emerge by 2025 as a result of emerging technologies. The destruction of jobs is accelerating and to ensure Telangana's workforce is trained for the future, Telangana Academy for Skill and Knowledge (TASK) shall monitor the state's shifting requirements and the skill-demand paradigms to develop a through and dynamic action plan to training for 'jobs of tomorrow'.

Establish Research & Development Centers

To truly become the hub for emerging technologies, the first link of the value-chain i.e., research is paramount. The government shall actively facilitate deep partnerships between industry, academia, and research institutions to establish R&D centers for developing new products and solutions in emerging technologies.

Realize the potential of Data Economy

The rise of smartphones, e-commerce, social media and IoT devices has led to generation of huge amount of data. The Internet traffic in India alone is expected to be 78 exabytes in 2021 (1 exabyte = 1 million terabytes). McKinsey estimates that India's core digital sectors have the potential to more than double to USD 435 billion by 2025, and the newly digitizing sectors incl. government applications can create incremental value of up to USD 150 billion in the same period. The data economy benefits the governments, citizens, industry and, academia in various ways ranging from transparency and empowerment of users to economic impact arising from innovation.

Telangana will try to achieve the potential of the data economy by creating a data stack ecosystem in the key sectors such as healthcare, agriculture, education, smart cities, and environment. A data marketplace will be set-up that will help discover and exchange data based on open standards, interoperability, open APIs, security-by-design, privacy-by-design and flexible data governance models.

Telangana as the Epicentre for GovTech

The state is already at the forefront of adopting innovative solutions developed by start-ups and SMEs. The solutions are being used to improve delivery of citizen services, governance, and process efficiencies. Currently, there are already 40+ ongoing projects using emerging technologies and the state endeavors to ensure full-scale implementations and adoption of such projects in user departments. To accelerate the development of innovative solutions for social good in the areas including but not limited to agriculture, healthcare, education, environment and smart cities, the government shall enable the digital ecosystem by:

Creating a Data Stack
A dynamic data stack is required to ensure rapid innovation and product development. So, the state shall create digital assets such as Electronic Health Records (EHR), Electronic Farmer Records (EFR), GIS Maps, etc. A Data Market Place (DMP) shall be established for the innovators to test their solutions in a sandbox using both government and commercial private data. The standards and guidelines for the use of data shall also be clearly defined.

Ethical and Responsible Deployment of Emerging Technologies
The state aims to create regulatory frameworks and guidelines that will help in addressing critical issues such as privacy, trust, and ethics ensuring that the transformative potential of emerging technologies is fully leveraged.

Promoting Digital Public Goods (DPGs)
The Digital Public Goods Alliance (DPGA), now endorsed by UN Secretary General's Roadmap for Digital Cooperation, is an effort by UNICEF and Govt. of Norway to promote digital public goods as a push to advancing the Sustainable Development Goals (SDGs). Telangana shall endeavor to support the development of citizen facing social good solutions such that they can contribute towards the development of DPGs that can potentially be used worldwide.

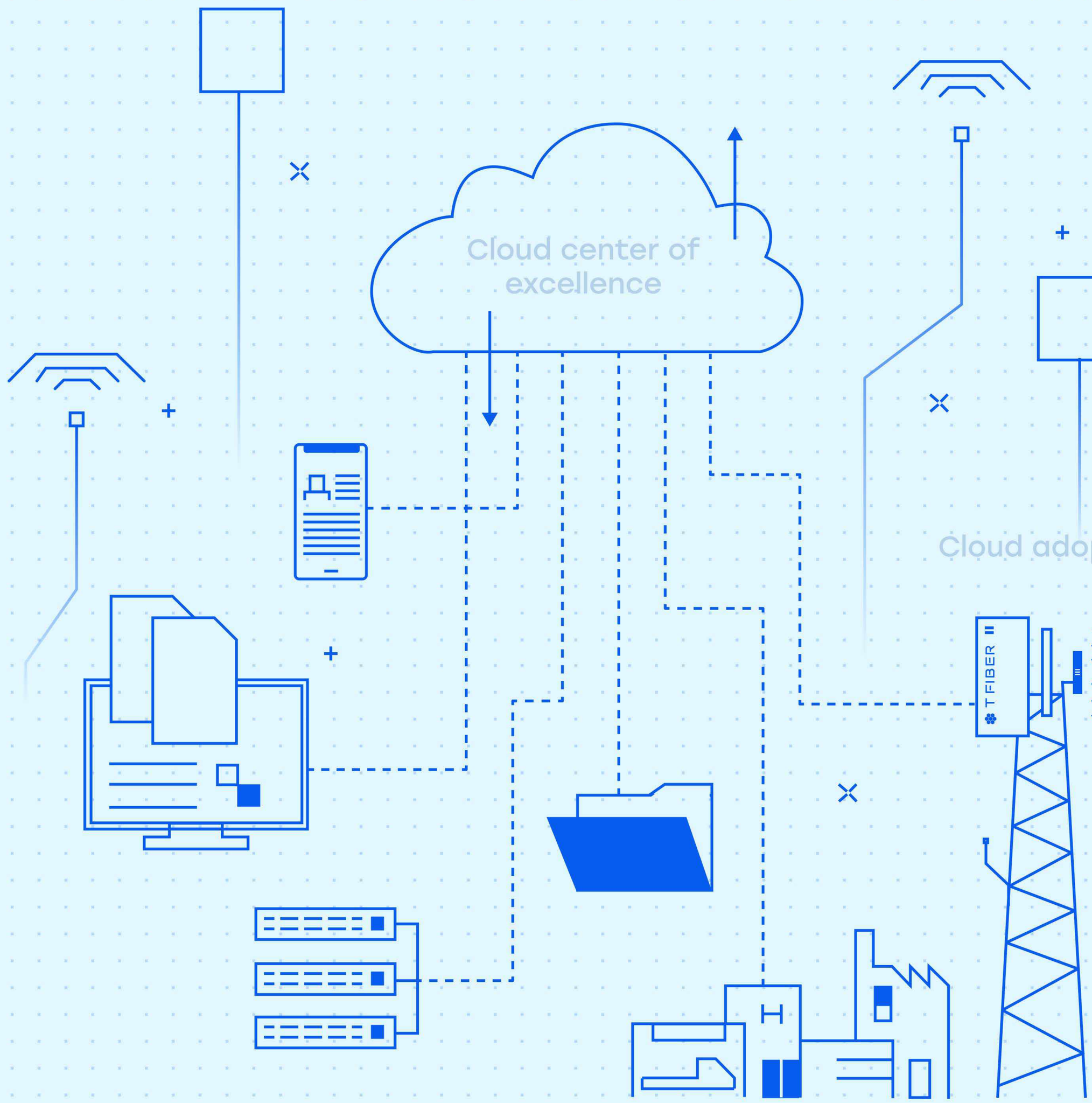
Easing Procurement
In addition to existing relaxations for start-ups in such public procurements, the procurement process would be streamlined with a model RFP outlining outcome-based requirements, new revenue models, new payment methods, risk mitigation measures in procuring from start-ups, etc.

Providing Government Mentorship
The government shall share problem statements, provide domain expertise, mentorship, and give an opportunity for start-ups to pilot the solutions. It shall also provide guidance for reconfiguring existing solutions to local context such as use of vernacular languages and integration with existing platforms.

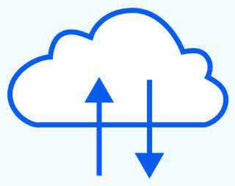
TET (Telangana Emerging Technologies) Corridor

The government has come up with specific policy frameworks in AI, blockchain, Drones, cyber security and established Centres of Excellences to provide a platform for various stakeholders including industry, government, academia, user enterprises, and innovators to collaborate and co-create solutions and products. The CoEs or the technology Centers of Excellences proved to be a powerful economic development tool. Therefore, in order to coalesce the varied efforts and to foster a world-class ecosystem for emerging technologies in Telangana, the government shall set up the Telangana Emerging Technologies (TET) Corridor. The TET Corridor shall act as a "Hub for CoEs or Technology Centers". TET Corridor shall act as a platform for providing institutional support, thought leadership, promoting R&D and innovation, offering incubation, attracting investments, building partnerships, facilitating capacity building and more.

10 – CLOUD FIRST POLICY



TARGETS



100% cloud adoption across government departments

The Government of Telangana has always led the adoption of new technologies through sectoral policies for several technologies like Cyber-Security, e-Waste Management, AI and Blockchain. In line with the Meghraj Policy launched by the Central Government in 2013, Telangana has launched the Cloud Adoption Framework for the state, mandating the use of cloud computing technologies within the government. The usage of such public cloud solutions will make the government solutions more agile and reliable while also providing the freedom to the departments to scale up or develop advanced solutions with ease.

Government Adoption

While the use of the cloud has been mandated in the state, it is necessary to educate the government departments and help them understand the advantages of using the public cloud over traditional on-site digital infrastructure. Fast becoming the new norm, cloud services provide the state with an opportunity to rethink digital service procurement and citizen service deployment. The Cloud Adoption Framework released by the Government lays out the key principles of cloud services and the methodologies of adopting these services.

Cloud Center of Excellence

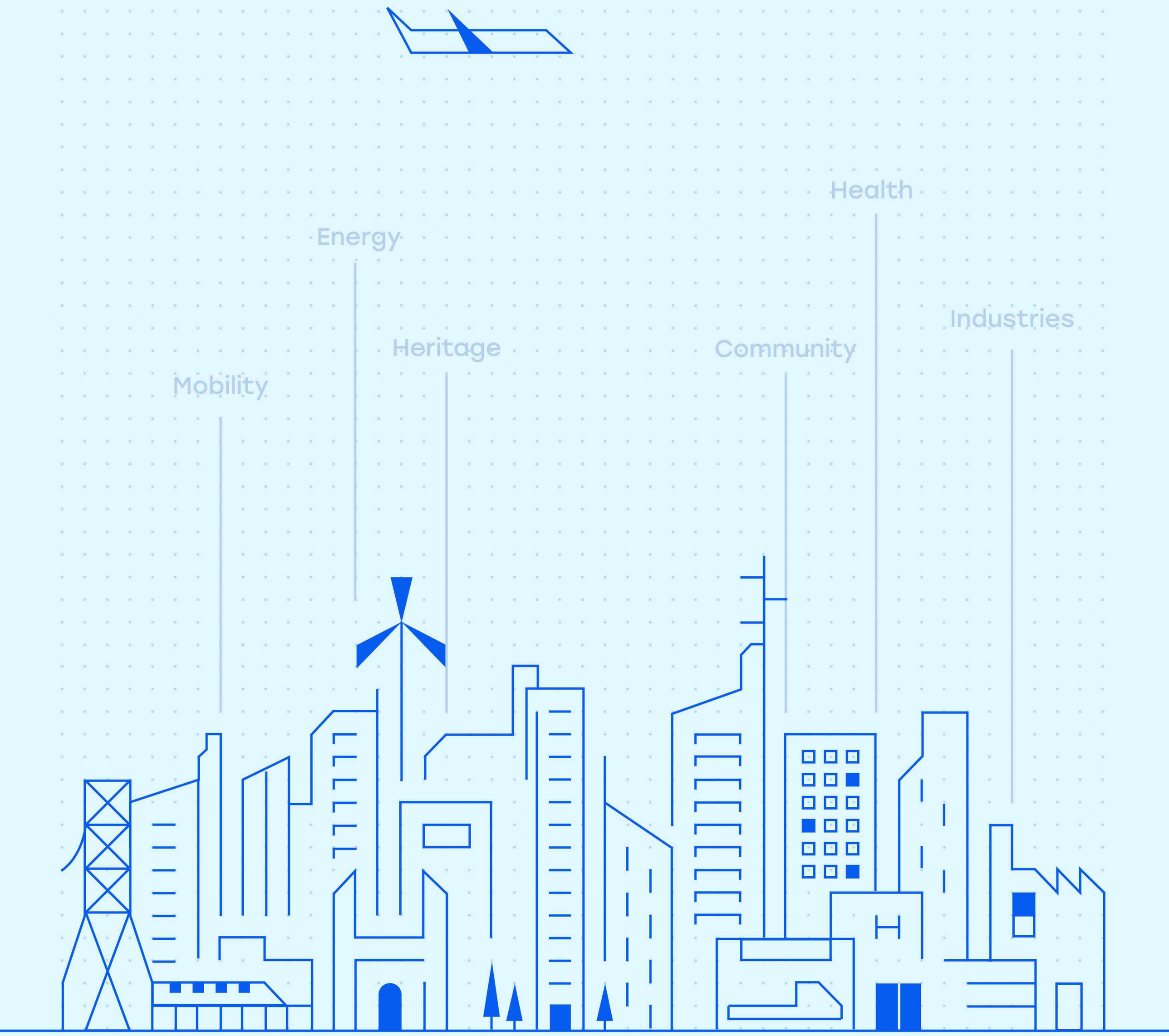
To assist the government in moving towards the cloud, the ITE&C Department is setting up a dedicated team of cloud specialists. This will help us accelerate cloud adoption across Telangana's user departments by propagating the best practices and capacity building across functions. The key functions of the Cloud Centre of Excellence would be:

- To assist user departments to comply with Telangana's cloud mandate
- To conduct a series of capacity building sessions for all key government stakeholders
- To provide advisory services around budgeting, evaluation, procurement, and continuous optimization migration plans, to-be architecture, and network & security configurations

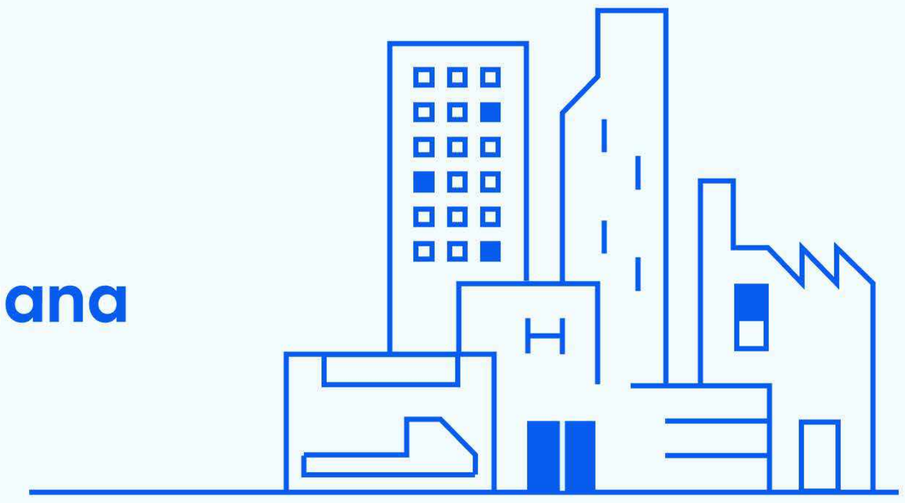
Cloud Service Providers and Data Center Investors

To better promote the use of cloud services and ease the process of cloud procurement, the government will facilitate cloud adoption following the empanelment model of MeitY. A service catalogue will be provided to the government department with empanelled services from cloud service providers after scrutiny of abilities. The catalogue will ease the process of price discovery and will outline a process of procurement that enables the users to make full use of cloud services. More details on the government's cloud adoption would be included in the cloud framework.

TECHNOLOGIES[11] FOR URBAN LIVING



40+ Smart cities and localities in Telangana by 2026



Telangana is one of the most urbanized states in the country with over 40% of the state's population being urban residents. The government aims to convert all cities and major towns in the state into smart cities and facilitate this conversion for rural locations as well.

Town Domain Services

A multitude of town-specific application services in the domains such as mobility planning, waste management, housing, parking, health, and education facilities will be supported through new technological functionalities.

Smart Lighting

The use of IoT has greatly improved the scope and potential of Lighting Solutions in cities. LED and IoT-based smart lighting systems will be used to enhance power savings and add additional features to study air quality, noise pollution and pedestrian safety.

Smart Water

Smart Irrigation and water supply systems will be developed in the upcoming smart cities to study and improve the availability of water, decrease waste and monitor the usage of water better.

Smart Education

Digital education solutions will help us serve the students of the state better. The ITE&C Department will work with the Education Department and develop state-of-the-art learning solutions and give all students access to the best learning solutions.

Smart Healthcare

Digital Healthcare is a fast-growing space with innovations taking over the healthcare needs of citizens. Digital consulting, record-keeping, monitoring, and medicine delivery among others will be explored and made standard in the smart cities.

Smart Mobility

New technologies have the potential to transform to transportation needs of citizens. Projects like smart traffic signals, smart buses tracked public transport solutions will be explored by the government to improve reliability, accountability, and to ease citizens' lives.

Smart Tourism

With the emergence of technologies like AR and VR, there is a lot of scope to make tourist spots in the state more interactive and attractive for local and international tourists. The government will deploy suitable solutions with an emphasis on cultural showcases.

Smart Waste Management

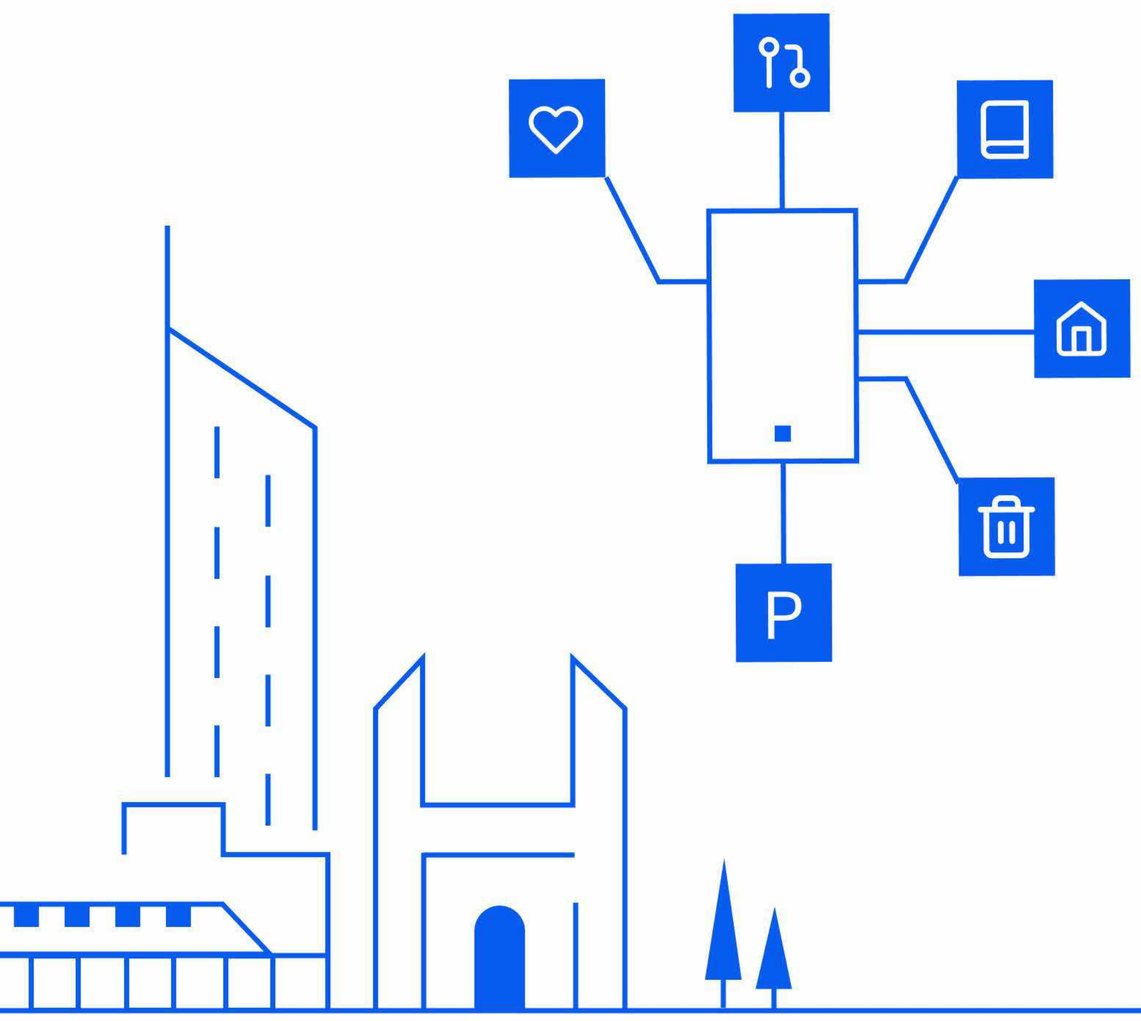
Waste management is a key consideration to designing a well-structured city. Hyderabad already has IoT-based smart waste management systems that help save fuel, time, and other resources. More such solutions will be explored, and more locations will have such smart technologies for waste management.

Data Driven Administration

Tools for smart administration will be set up in the city to monitor the operations, quality, and flow of elements like water, air, and traffic. The government and citizens will be enabled to get a holistic view of the city's operations and status. In addition, this will also enable data-driven and evidence-based decision-making and planning for the activities in the city.

Emergency Control

ICT functionalities will be developed in the selected smart localities to control activities and help the town's administrators to carry out operations efficiently during medical emergencies and natural calamities. Facilities along the lines of smart ambulances, smart traffic systems, and early crisis detection will be developed to aid emergency control services.



Government Services Enablement

Through E-Governance and M-Governance services, the government is en route to enabling a 100% digital service environment. The government will facilitate the setting up of physical infrastructure in the form of MeeSeva centres and T-Fiber to promote accessibility of digital services from the government.

Safety and Security

The digital transformation provides us with opportunities to improve the safety and security standards in smart cities. While the risks faced by citizens are both online and physical, through the use of technology, cyber-security police will be facilitated to counter them. There will also be a special focus on developing technological systems to make Telangana the safest state for women and children.

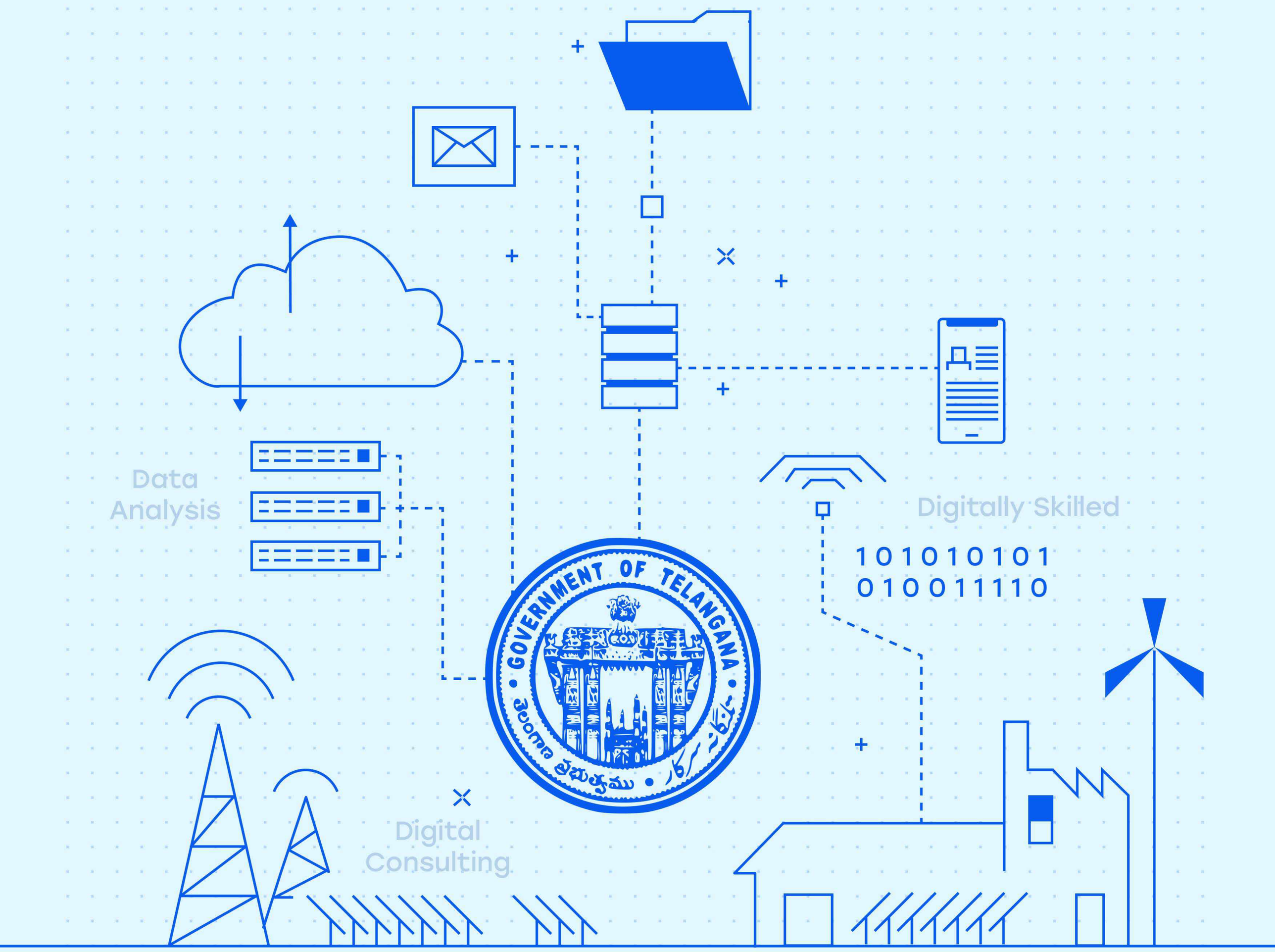
Employment and Investment Attraction

Data generated will not only allow innovators to provide solutions but will also help the smart cities to track and enhance objective development metrics like the Quality of Living Index, Municipal Performance Index, and ISO indices. These will portray development and attract further investments, jobs, and highly skilled employees to these cities. The Government of Telangana will engage with various private consulting and research organizations, to benchmark itself with the best in the world.

Safety and Security

The government will set up a dedicated Smart Cities wing equipped with expertise in this space. It will consist of resources from the MA&UD Department and the ITE&C Department that will focus on identifying the ideal solutions, piloting projects, and strategizing the deployment of the projects.

ITE&C DEPARTMENT AS THE TECH ENABLER



TARGETS

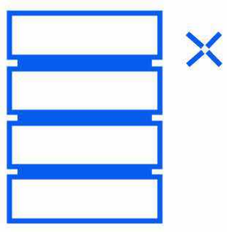
50+ Digital Transformation Projects in the Government

40+ User Department Collaborations

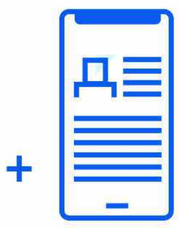
Telangana's journey to being a true digital state requires the government to be at the forefront of innovation and technology. The government will take a citizen-centric and data-driven design approach to develop and deploy solutions. The ITE&C Department will anchor this transition and will provide all the necessary support that government departments need for their digital solutions. Ensuring high quality of digital services and the safety of users will be of key focus moving forward.

ITE&C as the Technological Advisor

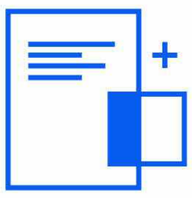
The government has taken steps to facilitate the use of new-generation technologies and digital solutions to serve citizens better. Telangana State Technology Services (TSTS) was established with the aim to provide all government departments with the right skills, guidance, and confidence to go digital.



Hardware and Software Procurement
TSTS is the nodal agency for the state departments to get their Hardware and Software requirements fulfilled. A Technical-cum-purchase committee has been created in TSTS to evaluate every request for procurement services. The committee will ensure the services provided to the state have been technically and financially evaluated in order to give the user departments the best services possible.



Digitally Skilled Workforce
Digital skills in the government are key to take up any form of digital transition. TSTS has the capability to identify or provide the right workforce required by the departments to carry out their activities. Given TSTS's expertise, it will also assist the government departments in recruiting suitably skilled employees for the state.



Digital Consultancy
Expertise in the digital sector is often a necessity to implement a project at scale from the process of planning and procurement. The expertise of TSTS in digital procurement and management will be used to provide the state with IT advisory facilities and to get the best solutions prepared. The government will also set up a dedicated arm in TSTS to support other states in the country with indigenously developed technology.

The T-WEB Project

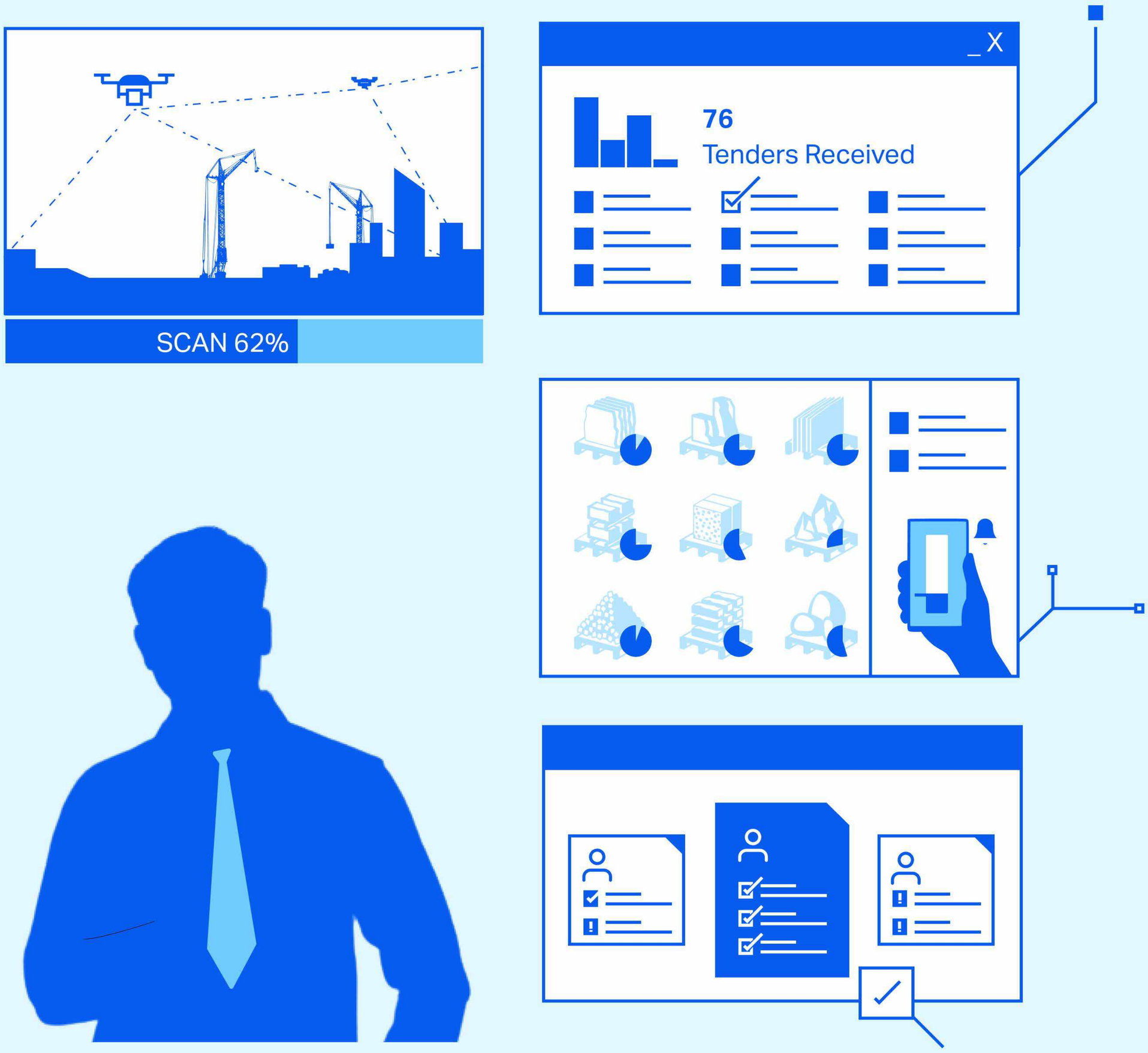
The Government of India through its Ministries, Departments and agencies have come up with guidelines for Websites and e-Governance Services including, but not limited to, Guidelines for Indian Government Websites (GIGW), National eGovernance Service Delivery Assessment (NeSDA). The Government of Telangana has adopted these guidelines and extended its scope to prepare Guidelines for Telangana Government Websites (GTGW) incorporating categories like social media integration, localisation, device-neutral access, and compliance to Aadhaar and RTI Acts.

All these compliance efforts are clubbed together under one umbrella called the T-Web Project. The ITE&C Department shall provide the necessary assistance to all the Government Departments to make their websites and online services comply with the relevant guidelines. The objective of these efforts is to make websites and online services Secure, Usable, User-Centric and Universally Accessible.

Data Analysis Wing

Understanding the citizens within the state is key to creating an effective digital strategy. To further the citizen-centric service deployment, a data analysis wing will be created within the ITE&C Department to better understand users from the data generated across government departments and to deliver data-driven services for the citizens. This model will not only ease communication and service delivery but will also aid data-driven policy decisions.

The Case of Srinivas



Srinivas is the project manager for the 2BHK dignity housing scheme being implemented by the Government of Telangana looking after all activities of the project in the region of Hyderabad. He made use of survey drones to identify suitable plots of land to commence construction of the project. After identification of the project, he was able to finalize on the construction firms through an e-tendering process led by the procurement portal. All permissions required for the buildings were given to the contractors in a matter of 21 days through the TS-iPASS portal. Once construction commenced, he was able to track the availability of resources by using the resource planner application created for the project. The progress was also tracked on the same project with regular updates from the site all through the use of the application. When several thousands of applications have come in from the public, he used the AI-based Digital Verification Tool available to identify the right beneficiaries and saved several man-hours of work for the same. With some help from the technological solutions developed by the government, Srinivas was able to identify the deserved beneficiaries and help them realize their dream of dignified housing much sooner than expected.

Looking Ahead

Telangana has been on an incredible journey of excellence since its establishment as a new state in 2014. This has been possible due to the visionary leadership and executional excellence shown by the state's leaders. They set the trajectory for Telangana's growth at its inception and then followed through with flawless execution. From the beginning, it was decided that technology would be the enabler that would help the state reach greatness and all that the state has achieved is because of the dedication to this vision.

However, Telangana is not resting now with the laurels it has accumulated. The state has taken stock of where it can improve and is now gearing towards the next big leap. After benchmarking with the best of economies, the state is looking to double production, productivity, farmers' income and overall, improve the welfare of all sections of society. It also aims at having the most optimum utilization of natural resources, high quality of living and an accountable and citizen-centric government. As has been Telangana's history, technology will play a major role in pursuing all the above goals going forward as well.

To this end, the 2nd ICT Policy will be the instrument that will place IT in the centre stage of fulfilling the vision of Golden Telangana. This policy document will set the path for Telangana to continue achieving greatness and empowering the lives of all its citizens.

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