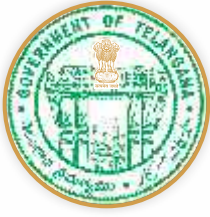


DATA ANALYTICS POLICY 2016



Information Technology, Electronics & Communications Department
Government of Telangana



Sri K. Taraka Rama Rao

Hon'ble Minister for IT, Industries, NRI Affairs, MA&UD
Government of Telangana

MESSAGE

Most of us take decisions intuitively and hope that these decisions will turn out to be the right decisions. However, decision making can now be made more efficient and productive by using data analytics. Information technology has played a key role in elevating data analytics into a science by itself. Data analytics or “Big Data” as it is called is now being used in all spheres of decision making covering Governments, corporates, healthcare, urban planning, logistics, and even supposedly unconnected subjects like sports, music and fashion.

In the IT Policy which has brought out by the Telangana Govt., we have identified a number of emerging technologies in which we aim to position the State as a leader within the country. Data analytics has been identified as one of the important emerging technologies for our focused effort. We plan to create dedicated infrastructure, enhance the supply of quality manpower, encourage private companies to set up their analytics units within the State, promote innovation and R&D, and encourage all the Government agencies to utilize analytics more and more in their decision making processes.

Telangana has already taken numerous initiatives to promote e-Governance, and has positioned itself among the most IT-intensive states not only with respect to attracting the best companies but also with respect to using IT to deliver better Governance. This policy is a crucial step in further enhancing our position and will complement the ICT and allied policies, namely Cyber Security Policy, Open Data Policy, and Data Centre Policy, in fulfilling our vision for the State.

I am confident that this first-of-its-kind policy will grab the attention of industry leaders from across the world and transform the way in which the Government of Telangana takes decisions.

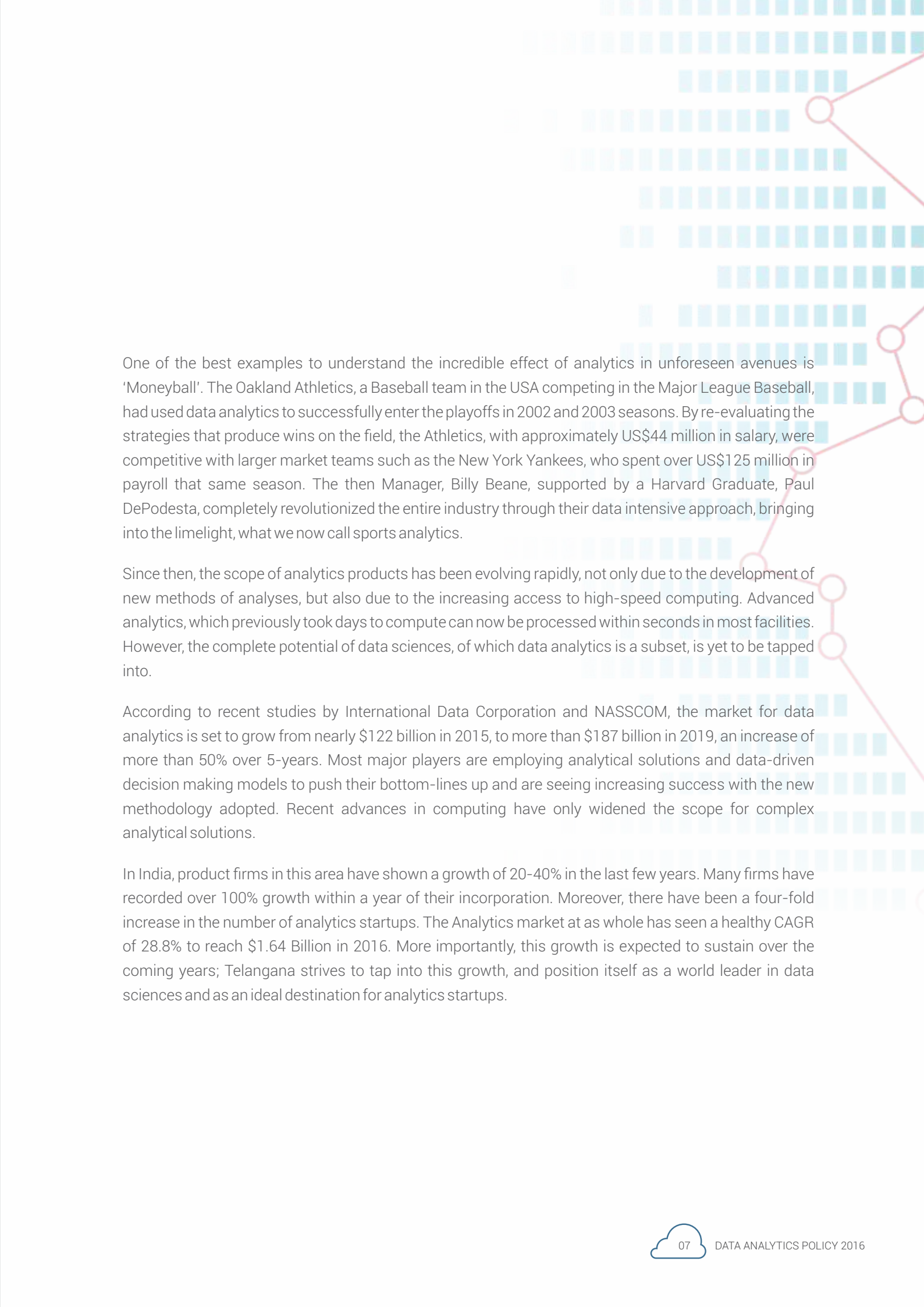
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PREAMBLE:
GLOBAL
CONTEXT





One of the best examples to understand the incredible effect of analytics in unforeseen avenues is 'Moneyball'. The Oakland Athletics, a Baseball team in the USA competing in the Major League Baseball, had used data analytics to successfully enter the playoffs in 2002 and 2003 seasons. By re-evaluating the strategies that produce wins on the field, the Athletics, with approximately US\$44 million in salary, were competitive with larger market teams such as the New York Yankees, who spent over US\$125 million in payroll that same season. The then Manager, Billy Beane, supported by a Harvard Graduate, Paul DePodesta, completely revolutionized the entire industry through their data intensive approach, bringing into the limelight, what we now call sports analytics.

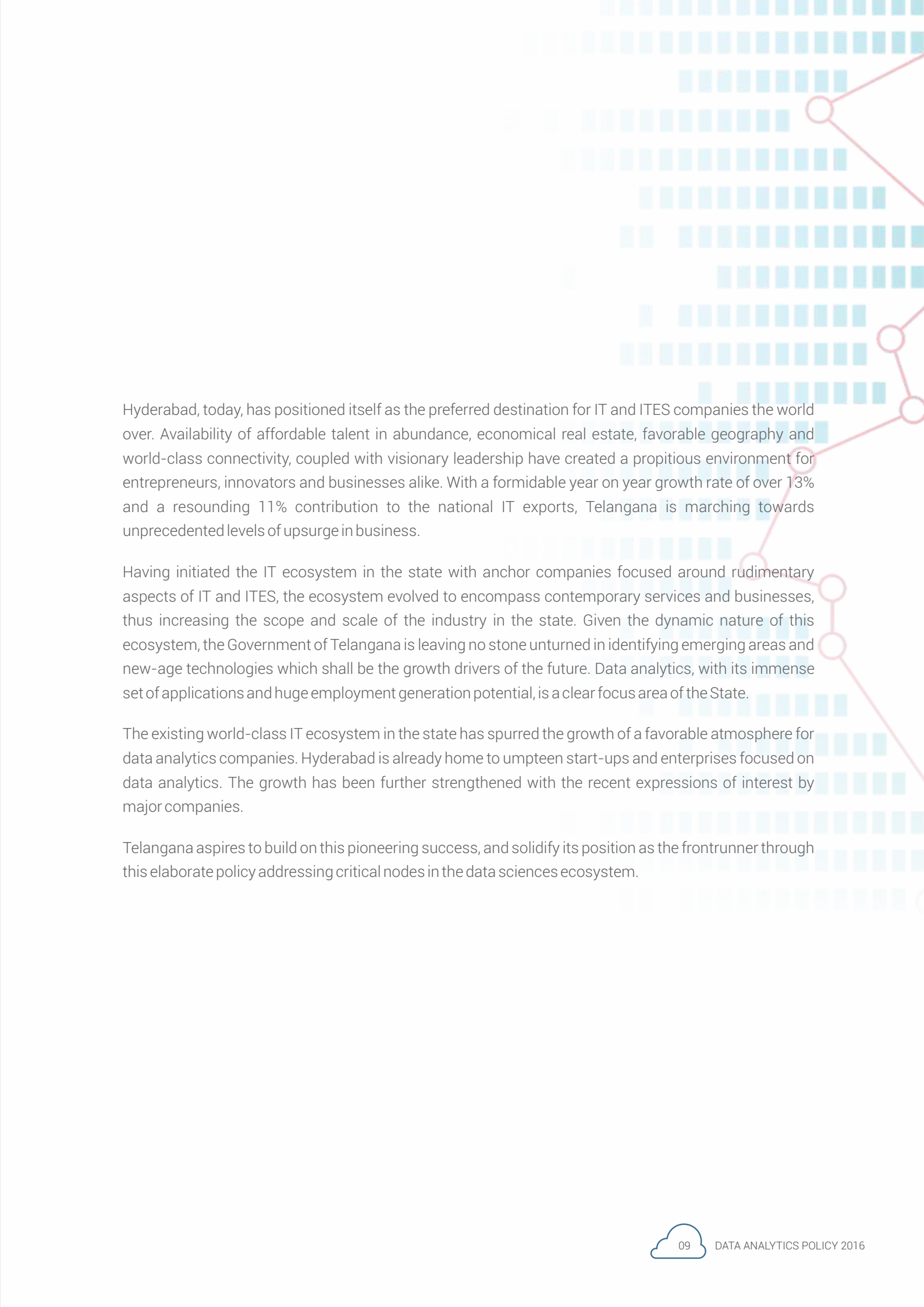
Since then, the scope of analytics products has been evolving rapidly, not only due to the development of new methods of analyses, but also due to the increasing access to high-speed computing. Advanced analytics, which previously took days to compute can now be processed within seconds in most facilities. However, the complete potential of data sciences, of which data analytics is a subset, is yet to be tapped into.

According to recent studies by International Data Corporation and NASSCOM, the market for data analytics is set to grow from nearly \$122 billion in 2015, to more than \$187 billion in 2019, an increase of more than 50% over 5-years. Most major players are employing analytical solutions and data-driven decision making models to push their bottom-lines up and are seeing increasing success with the new methodology adopted. Recent advances in computing have only widened the scope for complex analytical solutions.

In India, product firms in this area have shown a growth of 20-40% in the last few years. Many firms have recorded over 100% growth within a year of their incorporation. Moreover, there have been a four-fold increase in the number of analytics startups. The Analytics market as a whole has seen a healthy CAGR of 28.8% to reach \$1.64 Billion in 2016. More importantly, this growth is expected to sustain over the coming years; Telangana strives to tap into this growth, and position itself as a world leader in data sciences and as an ideal destination for analytics startups.

DATA
ANALYTICS IN
TELANGANA





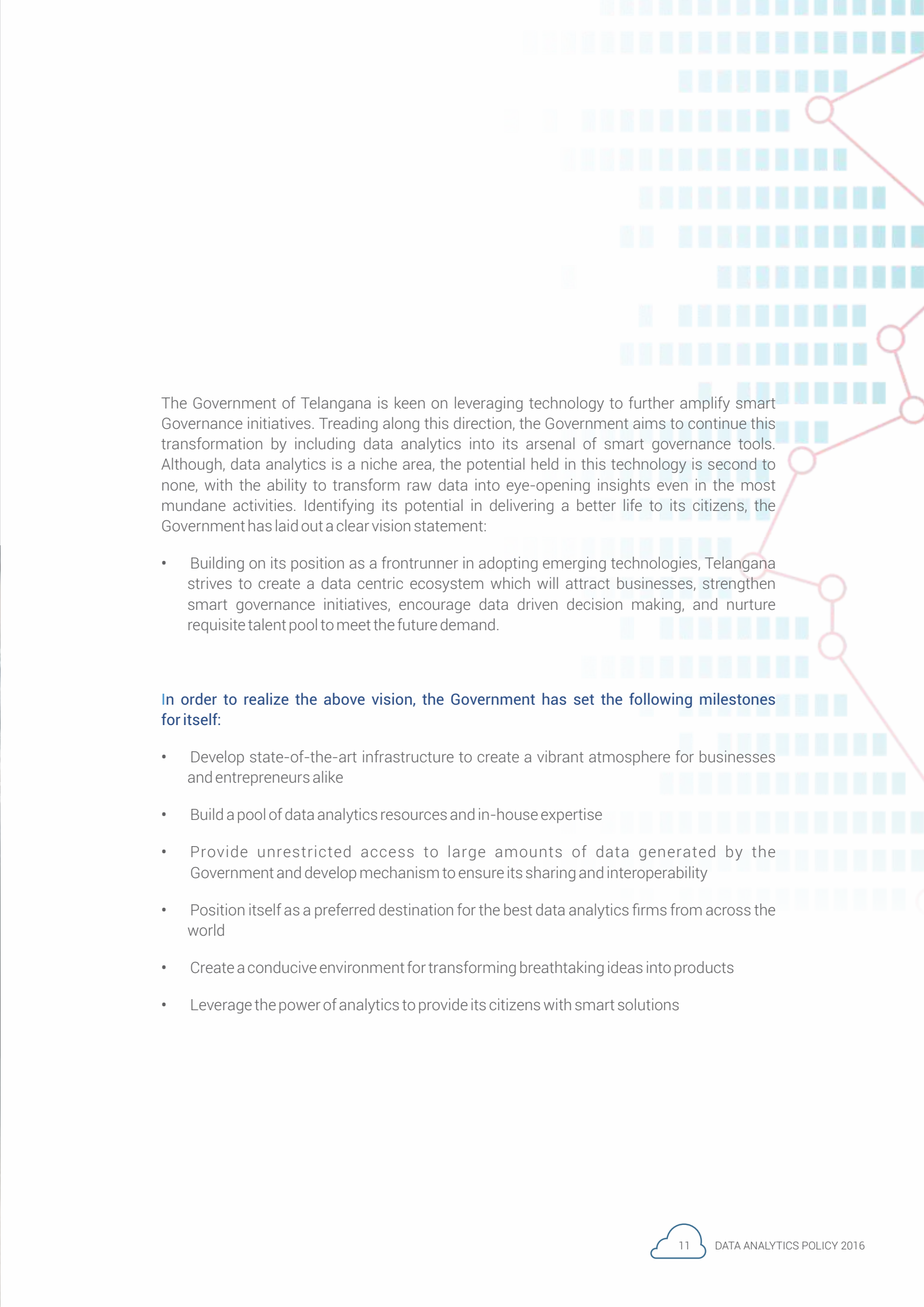
Hyderabad, today, has positioned itself as the preferred destination for IT and ITES companies the world over. Availability of affordable talent in abundance, economical real estate, favorable geography and world-class connectivity, coupled with visionary leadership have created a propitious environment for entrepreneurs, innovators and businesses alike. With a formidable year on year growth rate of over 13% and a resounding 11% contribution to the national IT exports, Telangana is marching towards unprecedented levels of upsurge in business.

Having initiated the IT ecosystem in the state with anchor companies focused around rudimentary aspects of IT and ITES, the ecosystem evolved to encompass contemporary services and businesses, thus increasing the scope and scale of the industry in the state. Given the dynamic nature of this ecosystem, the Government of Telangana is leaving no stone unturned in identifying emerging areas and new-age technologies which shall be the growth drivers of the future. Data analytics, with its immense set of applications and huge employment generation potential, is a clear focus area of the State.

The existing world-class IT ecosystem in the state has spurred the growth of a favorable atmosphere for data analytics companies. Hyderabad is already home to umpteen start-ups and enterprises focused on data analytics. The growth has been further strengthened with the recent expressions of interest by major companies.

Telangana aspires to build on this pioneering success, and solidify its position as the frontrunner through this elaborate policy addressing critical nodes in the data sciences ecosystem.



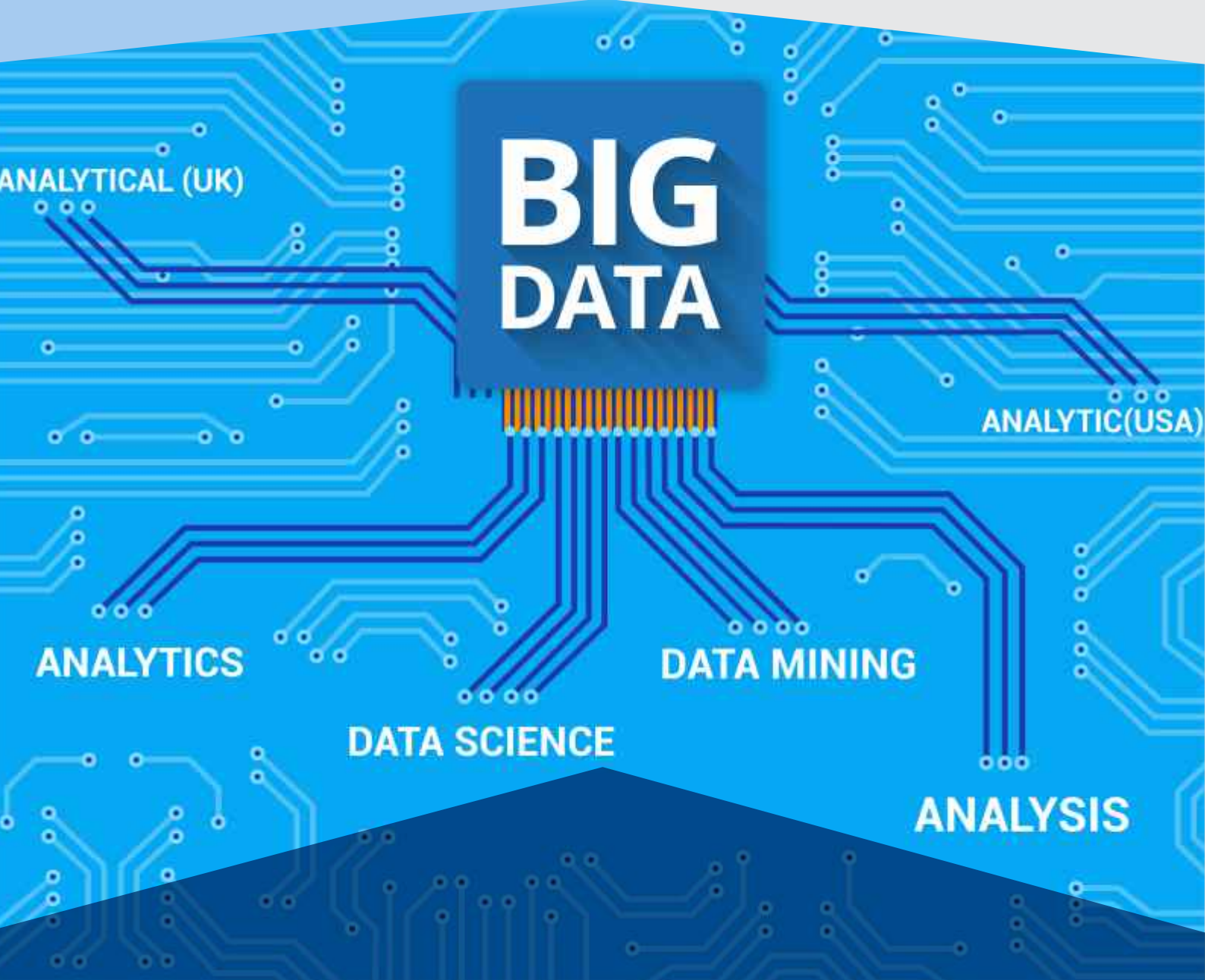



The Government of Telangana is keen on leveraging technology to further amplify smart Governance initiatives. Treading along this direction, the Government aims to continue this transformation by including data analytics into its arsenal of smart governance tools. Although, data analytics is a niche area, the potential held in this technology is second to none, with the ability to transform raw data into eye-opening insights even in the most mundane activities. Identifying its potential in delivering a better life to its citizens, the Government has laid out a clear vision statement:

- Building on its position as a frontrunner in adopting emerging technologies, Telangana strives to create a data centric ecosystem which will attract businesses, strengthen smart governance initiatives, encourage data driven decision making, and nurture requisite talent pool to meet the future demand.

In order to realize the above vision, the Government has set the following milestones for itself:

- Develop state-of-the-art infrastructure to create a vibrant atmosphere for businesses and entrepreneurs alike
- Build a pool of data analytics resources and in-house expertise
- Provide unrestricted access to large amounts of data generated by the Government and develop mechanism to ensure its sharing and interoperability
- Position itself as a preferred destination for the best data analytics firms from across the world
- Create a conducive environment for transforming breathtaking ideas into products
- Leverage the power of analytics to provide its citizens with smart solutions



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- **Analytics:** Collective noun consisting of the tools and process that facilitate the practice of analysis
 - **Big data:** Data that has volume, velocity, and/or variety which exceeds the capacity of normal computing
 - **Analytical (UK) / Analytic (USA):** Adjective denoting a relationship with analysis
 - **Analysis:** Detailed examination of the elements or structure used as a basis for interpretation
 - **Data science:** An interdisciplinary analytical field (including statistics, data mining, and predictive analysis) that aims to extract insights from data in various forms, either structured or unstructured
 - **Data mining:** The process of discovering patterns in large data sets




DEVELOP STATE-OF-THE-ART INFRASTRUCTURE

The Government has initiated the creation of a Data Analytics Park in the technology business centre of Hyderabad which shall position itself as the national hub for data analytics. Equipped with state-of-the-art amenities, facilities, labs, and plug and play spaces, the Data Analytics Park shall be the one stop location for data analytics entrepreneurs and businesses irrespective of the size. To expedite the creation of the Data Analytics Park, the Government shall consider the Public-Private Partnership (PPP) route given the scale of requirements, such as world class physical and social infrastructure, high power electric supplies, high end communication channels, massive data storage components, etc. Participation in the Data Analytics Park, either physically or virtually shall attract benefits, which shall be detailed out in the Operational Guidelines of the Policy.

The proposed Data Analytics Park shall be the go-to location for the entire spectrum of enterprise and business operations-

- Dedicated space for large corporates to set up their campuses
- Plug and play area provided to start-ups on a lease model
- Training setup with classrooms and conference halls for establishing training centres
- T-Hub supported dedicated incubator for start-ups
- Centre of Excellence for augmenting research, academic and skilling capabilities
- Free licenses to popular software such as SAS, SPSS etc. to SME and startups incorporated in Telangana and participating in the Park. However, this will be subject to certain milestones as detailed in the Operational Guidelines
- Both, SEZ and Non-SEZ options within the Data Analytics Park



Additionally, the Government shall also encourage private players to develop Data Analytics R&D units, software development centres and campuses across the state. These developers, upon meeting a predefined set of criteria that shall be enunciated in the operational guidelines, shall avail extensive subsidies and incentives pertaining to land, taxation, power, registration and capital expenditure. The Government shall also extend support in ensuring 24hr water, connectivity, and power supply.

Further, given the band of work profiles, ranging from low skilled to highly specific, in the data analytics space, which shall be elaborated in the following sections, the Government proposes to set up outposts of Data Analytics Park in tier II and III cities and rural centres, as defined in the Policy on Rural Technology Centres, specifically for operations such as data entry, data cleansing, data verification, etc. Through these efforts, the Government shall not only provide employment opportunities to the youth, but also operate these outposts as feeders of promising talent.

Information Technology Support and Maintenance

While the Data Analytics Park will help in bringing the large corporates, start-ups and training institutes under one roof, it is equally important to back these facilities with state-of-the-art support infrastructure that will help the community perform cutting edge research and produce disruptive ideas.

- Leveraging the leadership in Information Technology, the Government shall work with major corporates to setup intensive computation facilities
- The Government shall allocate cloud space in its State Data Centre (SDC) to start-ups operating out of the dedicated incubator
- The Government will work with major Internet Service Providers to provide minimum 2 GBPS internet connectivity to all the nodes in the Data Analytics ecosystem

Further, the Government realizes that post providing the mentioned facilities, it is equally important to maintain them. The Government shall do the following to maintain the proposed services.

- The Government shall carve a separate fund exclusively for the development of infrastructure for facilities that shall be built under the PPP mode
- A separate Physical and IT Infrastructure Maintenance Fund, with participation from major technology businesses, shall be created to ensure provision of high quality services to the community



The policy identifies human capital as a crucial cog in building a world class Data Analytics ecosystem in the state. Data Analytics is a differentiated field with skill requirements ranging across a wide spectrum. Beginning with low skilled roles such as data entry operators and data cleansing executives, the work profile ranges to high skilled roles such as data scientists and data mining experts. Each of these profiles command a unique set of skills, which are currently taught only at a few specialized institutions in the country.

For profiles pertaining to lower skill requirement, the Government shall initiate training activities for the youth by collaborating with training institutes and setting up camps in tier II and III cities and rural centres. In parallel to the efforts under the training vertical, the Government shall encourage companies specializing in the lower rung of services of the data analytics chain to set up their offices in tier II and III cities and rural centres by presenting their economic and operational benefits. This complements the efforts of the Government in the direction of establishing Rural Technology Centres in the state. A separate Policy on Rural Technology Centres has been launched by the Government earlier in 2016.

Moving to profiles at the higher end of the skill spectrum, the Government initiated body, Telangana Academy for Skill and Knowledge (TASK), shall be the nodal agency. TASK shall train and develop a skilled workforce of data analysts, data scientists, data mining experts, etc. to ensure a continuous supply of talent to build the ecosystem.

Further, any company with a particular skill requirement in data analytics, for that matter irrespective of the sub-segment under IT and ITES, can approach TASK. Following this, TASK shall, at its own expense, identify the right talent and interest in the required area, and train students for the roles offered by the company.

Additionally, to improve the data analytics aspect in the current academic scenario, the Government shall undertake active steps, such as-

- Partnering with reputed national and international institutions to introduce courses pertaining to data analytics in colleges and universities in the state. Through these partnerships, certification courses and full-fledged degree and diploma programs shall also be designed
- TASK shall enter into partnerships with major corporates and innovative data analytics enterprises to train pre-final and final year students at colleges in the state
- Introduce MOOCs on data analytics which can be opted as electives by students at colleges in the state
- To fuel entrepreneurship spirit among enthusiastic youth, the Government shall collaborate with partners to conduct a series of hackathons

CREATE A
PROPITIOUS
ENVIRONMENT
FOR BUSINESSES



Although there is no dearth of talent or ideas in the country, there is no mechanism to identify, nurture and support them in evolving into global players. Telangana strives to be a frontrunner in creating such a space and creating indigenous giants through various targeted measures:

- Data analytics start-ups and SMEs incorporated in Telangana shall be **encouraged to bid for government projects** on an exclusive and priority basis; guidelines will be released elaborating on the same
- **Commercial Cell**, whose focus will be on identifying products with potential and helping them scale up by providing access to a ready market, shall be set up
- A **dedicated incubator** shall be set up supported by T-Hub to channel ideas into companies. This incubator shall also be tied up with the proposed Data Analytics Park to feed it with successful startups looking to expand
- **Government Procurement Rules shall be relaxed** for startups and enterprises incorporated in Telangana in select unique cases; Specifics shall be elaborated in the operational guidelines of this policy
- The data analytics startups of the State shall be exposed to the best practices across the world by encouraging them to participate in global expos and other programs
- An annual **Data Analytics Public Challenge** shall be conducted each year, where individuals or startups can compete to provide analytics solutions for social or governance issues.

In addition to this, Telangana shall proactively drive business development efforts and attract the largest players from across the Globe to the State. The other chapters in this Policy have already outlined how the State is going to position itself in this focus area. All companies, including large corporations and niche players, shall receive incentives as outlined in the GO for Expansion of IT/ITeS Units, in addition to the specific incentives mentioned in this Policy.



State Open Data Policy, Data Sharing and Interoperability

Data Analytics includes not only the analysis of data, but also the access, collection, cleansing, and presentation of processed data. Identifying that access to and collection of data are key precursors to data analysis, this Policy complements the State Open Data Policy in ensuring that all data, excluding sensitive personal information and security related data, is made available to the public, thereby increasing transparency and opening up new avenues for data analytics.

The State Open Data Policy also emphasizes on the need for interoperability in making data collection more efficient and less redundant, and the means to achieve it. In addition to ensuring interoperability, a secure cyber platform is required for the different stakeholders to share data generated by them. The State Open Data Policy clearly defines what, how and when Government data shall be shared. Supplementing this, the private players will be encouraged to share their data on the same platform through incentives. The standards set by the State Open Data Policy shall facilitate smooth integration of data from the different sources.

Access to Non-Public Government Data

Identifying that access to real data as opposed to sample or simulated data is a game-changer, Telangana shall promote start-ups and SMEs to bid for Government projects by giving them access to non-public Government data to implement a pilot as Proof-of-Concept.



In addition to providing state-of-the-art infrastructure, skilling youth to meet the demand of tomorrow, provision of access to data, and attracting businesses to the state, the Government realizes that creating a bustling innovation sphere around data analytics is equally critical. As detailed out in the Innovation Policy of the state, the Government shall lay special emphasis on programs concerning students, innovators and entrepreneurs. In addition to introducing courses in the university curriculums, the Government shall also focus on entrepreneurship programs and initiatives.

Moving forward, the Government plans to spur innovation in two major target segments, namely start-ups and large corporates. Both start-ups and large corporates have the potential to bring in a new wave, in any field, through product and process innovations.

Focusing on innovation in start-ups, the Government shall create a cell under the Chief Information Officer of the state to identify and implement analytics in day to day governance. Having witnessed data driven governance systems in place the world-over, the Government of Telangana is highly interested in employing data analytics tools to further improve decision making. To achieve this objective, the Government shall encourage data analytics start-ups in the state to create innovative products and

processes pertaining to the State. In addition to providing access to government data and a clear understanding of the working of the current systems, startups with successful products shall also be offered the opportunity to launch a pilot reaching millions of beneficiaries across the state.

Innovation in large corporates is a completely different ball game with a different set of objectives and focus areas. Most of the corporates have their own work culture, with a unique approach towards product and process innovation. The Government proposes to create a systematic channel to facilitate learning of best practices that are followed in these corporates. The Government intends to work towards this goal through the following means-

- Encourage large corporates employing data analytics to set up Centres of Excellence in the state. These Centres shall be the go-to locations to learn about cutting edge research happening within the firm. These Centres of Excellence shall also include shared labs with pre-installed licensed software
- Corporates shall be encouraged to set up themed incubators and accelerators while partnering with T-Hub and Data Analytics Park. The Government shall support select incubators and accelerators by providing a tailor made package depending on the strategic advantage offered to the entrepreneurial ecosystem in Telangana
- Connect large corporates to engineering colleges in the State through TASK, to offer internships to students and give them hands-on experience in innovative projects
- The Government shall utilize its strong relations with the industry to invite eminent personalities across sectors and functions to give lectures, conduct workshops and mentor startups in the State



Telangana understands that data analytics can be used not only by private players to provide better services to their customers, but also by Governments to drive data-smart governance initiatives. Initiatives driven through data analytics are expected to become more cost-efficient and relevant to the target audience.

The Government shall consult pioneering enterprises and startups in the area of Data Analytics to create centralized dashboards for Ministers, Administrators and the Public. These dashboards shall contain open information pertaining to critical subjects such as transport, housing, civic administration, health, education, etc. Additionally, the dashboard shall also provide the users with insights and recommendations in each of these areas.

Telangana Data Analytics Wing will be established with the State Chief Information Officer at its helm. This will act as the agency for civic intelligence, where data across agencies is aggregated, analyzed and turned into actionable solutions. All Government procurement for data analytics shall be directed through this agency, with some projects being delivered in-house.

This Wing shall:

- Deliver data analytics solutions for the different Government departments in areas where in-house expertise exists and help procure these services otherwise
- Track the outcomes of different measures taken by the Government as requested by collaborating with the on-ground operations teams
- Constitute a dedicated team to track social media activity of the citizens to derive actionable insights based on public expectations, sentiment towards Government initiatives etc.
- Advise various departments of the Government on what data is critical from a data analytics standpoint, how this data can be generated and used to deliver smart solutions
- Set targets for different Government departments for generating data and commissioning data analytics projects



Fiscal Incentives

Relevant incentives mentioned in the GO on Incentives for Expansion of IT/ITeS shall be applicable for data analytics firms.

In addition to the IT/ITeS and Innovation Policy, the following incentives shall be provided:

- **Server Space:** Rack space from the State Data Centers shall be earmarked for data analytics start ups operating out of Telangana at a subsidized cost
- **Promoting Startups/SMEs:**
 - Procurement:** Additional preference shall be given to Startups/SMEs for procurement of analytics services by the Government. Separate guidelines will be issued for the same
 - Subsidy on Lease Rentals:** 25% Subsidy on Lease Rentals up to INR 5,00,000 per annum for a period of 3 years will also be provided
 - Exhibitions Costs:** 50% exhibition stall rental cost or INR 50,000, whichever is lower, will be reimbursed for participating in the notified national/international exhibitions limited to 9 sq.mts. of space
- **Promoting Startups:**
 - Financial Assistance as Matching Grants:** The Government would match the funding raised by the Incubator from Government of India on a 1:1 basis as matching grants
 - Recruitment Assistance:** To promote idea stage companies, the government shall offer recruitment assistance of INR 10,000 per employee for the first year

R&D Grants: The Government of Telangana will facilitate to provide specific R&D grants to companies in tune of 10% of overall R&D expenses of the company's Telangana operations or 2% of annual turnover of company's Telangana operations or INR 5,00,000, whichever is lesser

Internet Costs: Analytics Startups shall be provided 25% reimbursement on internet charges up to a maximum of INR 2,50,000 per year for the first three years of operation

Patent Filing Costs: The cost of filing and processing a patent application will be reimbursed to data analytics startups subject to a limit of INR 2,00,000 per Indian patent awarded and INR 10,00,000 for foreign patent awarded

Recruitment Assistance: Recruitment Assistance will be provided to startups, SMEs and large organizations as per GO on Incentives for Expansion of IT/ITeS Units

For projects of strategic importance, a tailor-made package of incentives shall be designed.

Non-Fiscal Incentives

Below, are given the general incentives available to the ICT industry, automatically. The Data Analytics firms, by virtue of being IT units, are serving global customers on 24x7x365 basis. Therefore, this industry is regarded as an essential services enjoying benefits mentioned below:

- Data Analytics firms are exempt from the purview of the Telangana Pollution Control Act, except in respect of IT parks/IT SEZ campuses with built up area over 20,000 sq.mts., special permissions need to be taken from SEIAA under MoEF.
- Data Analytics firms are exempt from the purview of statutory power cuts.
- Data Analytics firms are exempt from inspections under the following Acts and the Rules framed thereunder, barring inspections arising out of specific complaints. These units are permitted to file self-certificates, in the prescribed formats.
 - The Factories Act 1948
 - The Maternity Benefit Act 1961.
 - The Telangana Shops & Establishments Act 1988.
 - The Contract Labour (Regulation & Abolition) Act 1970.
 - The Payment of Wages Act 1936.
 - The Minimum Wages Act 1948.
 - The Employment Exchanges (Compulsory Notification of Vacancies) Act 1959.
- General permission for three shift operations with women working in the night
- Data Analytics Firms are declared as essential service under TS Essential Services Maintenance Act.

CONCLUDING NOTE

Data analytics possesses tremendous potential to help governments and organizations harness data and use it to identify innovative opportunities. Economic suitability, agile decision making, and innovative product ranges are a few distinct ways through which data analytics can add value. Moving forward, the future is expected to witness increased penetration of data analytics in almost every other field. Data analytics is all set to position itself as a powerful decision making tool in the hands of organizations and businesses alike. The future will belong to those who understand the potential of this powerful tool and employ it in the most effective manner.

This policy on Data Analytics captures these futuristic trends, with clear recognition of critical interdependencies between the Government, startups, corporates and enlightened public. The Government of Telangana, through this policy, hopes to create a successful data driven atmosphere in the State.



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