Telangana
Growth analysis

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I would like to express my gratitude to codebasics team and Government of Telangana for providing this data set and the opportunity to grow and improve our skills.

Thank You!

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ABOUT THE PROJECT

Telangana, a rapidly growing state in India with an open data policy, has made all its data accessible online. Analyzing Telangana's growth across various sectors quantitatively can yield valuable insights for the government. These insights can inform data-driven decisions to further boost the state's development..

OBJECTIVE

Explore Stamp Registration, Transportation and Ts-Ipass Datasets. Understand their attributes, categories and time period.

Analyze trends and patterns within each department.

Identify growth opportunities and areas needing attention.

Find correlation among these departments and report the overall growth of the state through insights and relevant visuals such as shape maps.
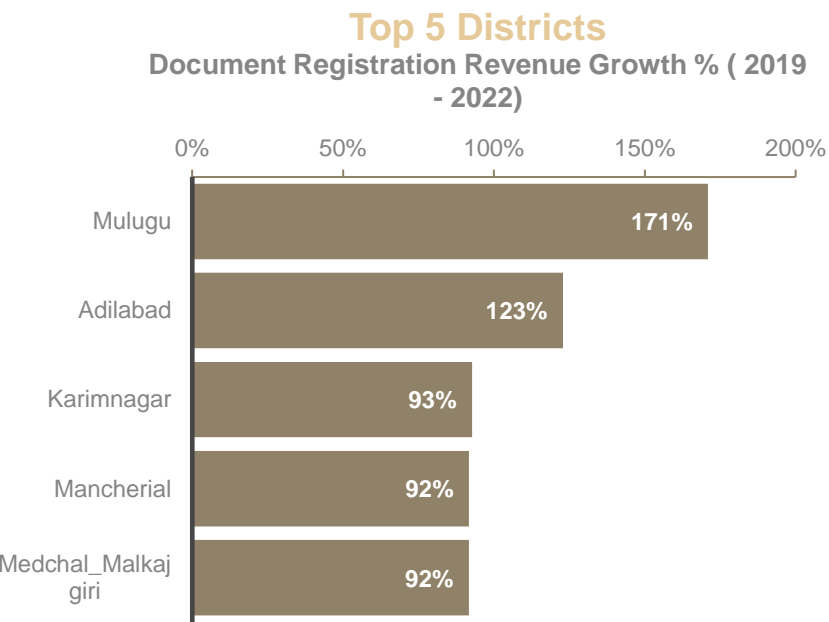
PRELIMINARY INSIGHTS
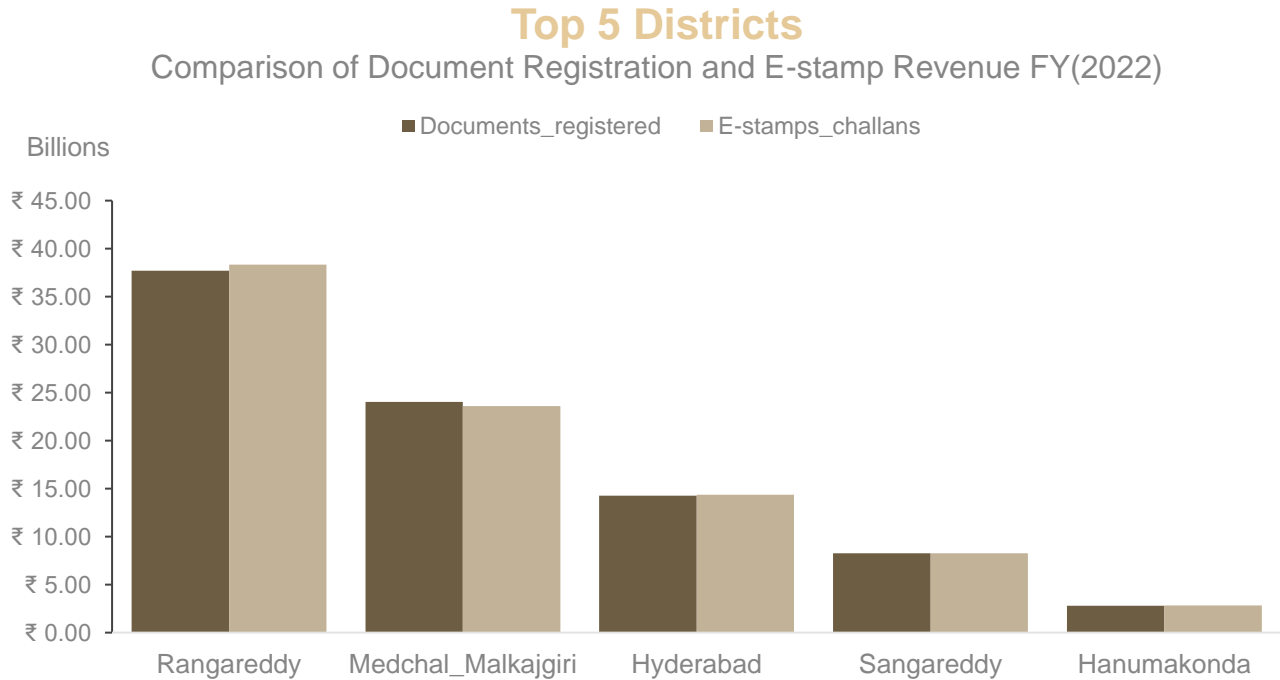
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STAMP REGISTRATION

1. How does the revenue generated from document registration vary across districts in Telangana? List down the top 5 districts that showed the highest document registration revenue growth between FY 2019 and 2022.

Top 5 Districts
Document Registration Revenue Growth % (2019 - 2022)

District	Growth
Mulugu	171%
Adilabad	123%
Karimnagar	93%
Mancherial	92%
Medchal_Malkajgiri	92%

Mulugu: This district achieved a remarkable 171% growth in document registration revenue, showcasing robust economic activity and property transactions.

Adilabad: Adilabad district recorded an impressive 123% growth in document registration revenue, indicating a thriving real estate market.

2.How does the revenue generated from document registration compare to the revenue generated from e-stamp challans across districts? List down the top 5 districts where e-stamps revenue contributes significantly more to the revenue than the documents in FY 2022?

Top 5 Districts
Comparison of Document Registration and E-stamp Revenue FY(2022)

■ Documents_registered   ■ E-stamps_challans

Billings

₹ 45.00	
₹ 40.00	
₹ 35.00	
₹ 30.00	
₹ 25.00	
₹ 20.00	
₹ 15.00	
₹ 10.00	
₹ 5.00	
₹ 0.00	

Rangareddy   Medchal_Malkajgiri   Hyderabad   Sangareddy   Hanumakonda

Rangareddy: District leads in revenue generation, with approximately 37 billion from document registration and 38 billion from e-stamp challans, indicating a nearly equal contribution of both sources.

Medchal Malkajgiri: In this district, document registration revenue stands at around 24 billion, whereas e-stamp revenue closely follows at 23 billion, showcasing a balanced revenue distribution.

3. Is there any alteration of e-Stamp challan count and document registration count pattern since the implementation of e-Stamp challan? If so, what suggestions would you propose to the government?

Trend in E-stamp Challan vs. Document Registration Counts
(Before and After E-stamp Implementation)
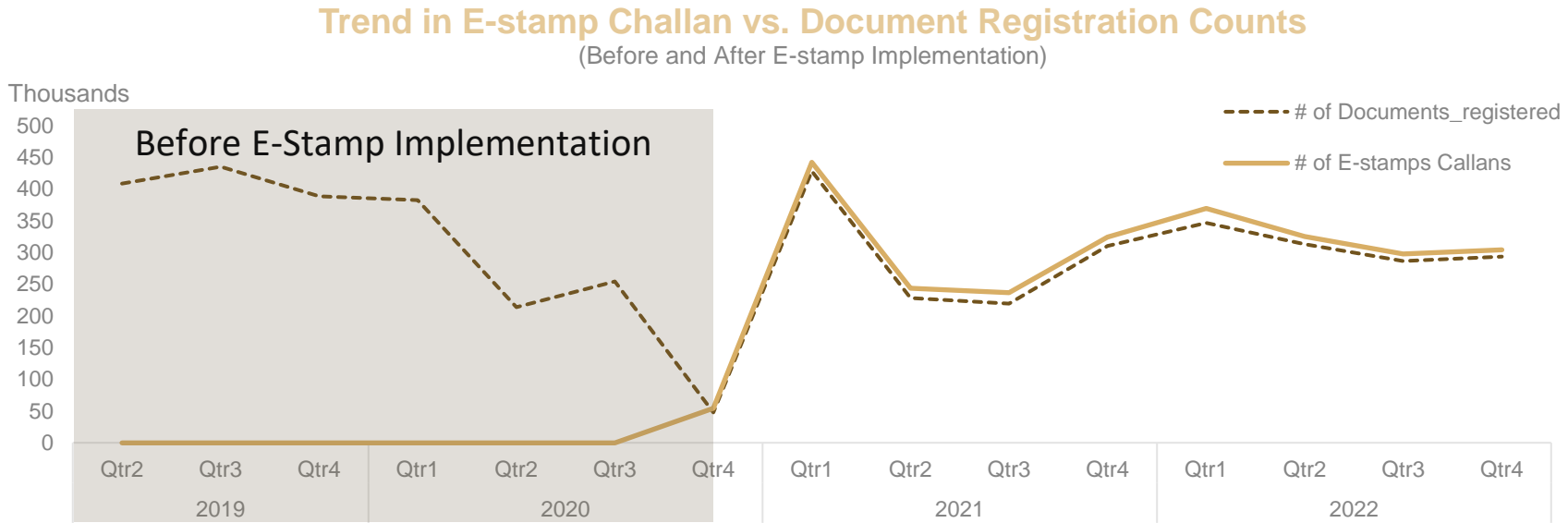
The implementation of E-Stamp has shown promising growth, but Document Registration remains relevant.
 A balanced approach, focusing on promoting E-Stamp while improving traditional registration processes, can ensure efficiency and revenue generation.

Suggestion for Government

Promote E-Stamp Awareness: Continue efforts to raise awareness about E-Stamp among citizens, businesses, and legal entities. Provide educational campaigns and resources to facilitate the transition from traditional stamps to electronic stamps.
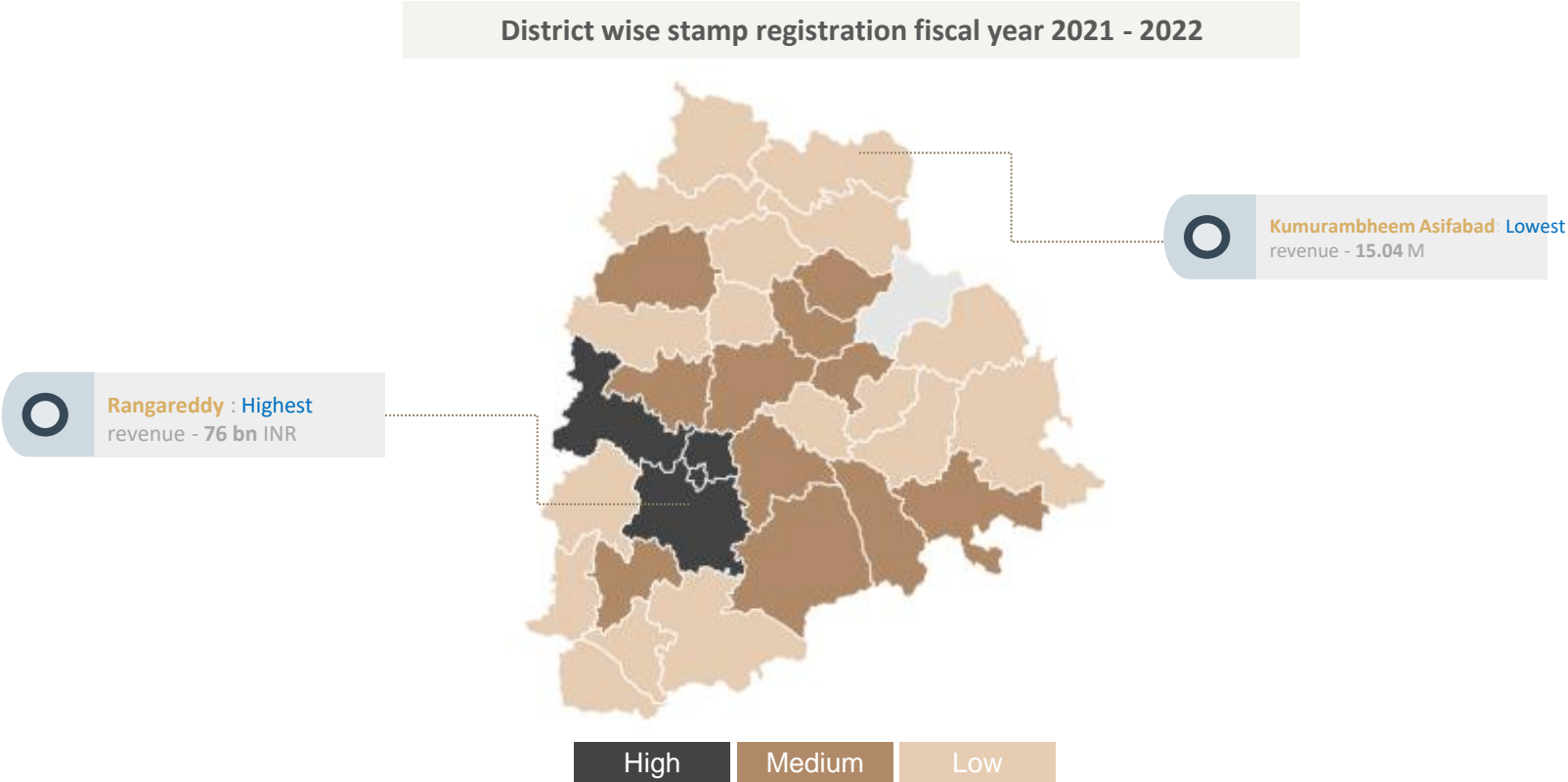
Streamline E-Stamp Processes: Ensure that the E-Stamp process is user-friendly, efficient, and accessible to all. Simplify the procedures for purchasing and using E-Stamps.

Legal Framework: Ensure that the legal framework governing electronic stamps is robust and up to date with technological advancements. This will build trust in E-Stamp systems.

User Support: Provide adequate support and customer service for users of both E-Stamp and Document Registration. Address any issues promptly to maintain public confidence.

Enhance Document Registration Procedures: While promoting E-Stamp, do not neglect traditional Document Registration. Modernize and digitize document registration processes to improve efficiency and reduce paperwork.

4. Categorize districts into three segments based on their stamp registration revenue generation during the fiscal year 2021 to 2022

District wise stamp registration fiscal year 2021 - 2022

Kumurambheem Asifabad: Lowest revenue - **15.04** M

Rangareddy : Highest revenue - **76 bn** INR

High | Medium | Low

TRANSPORTAITON

5. Investigate whether there is any correlation between vehicle sales and specific months or seasons in different districts. Are there any months or seasons that consistently show higher or lower sales rate, and if yes, what could be the driving factors? (Consider Fuel-Type category only)

Monthly Vehicle Sales by Fuel Type in Different Districts
(FY 2022)

Petrol ■ Diesel ■ Electric ■ Others
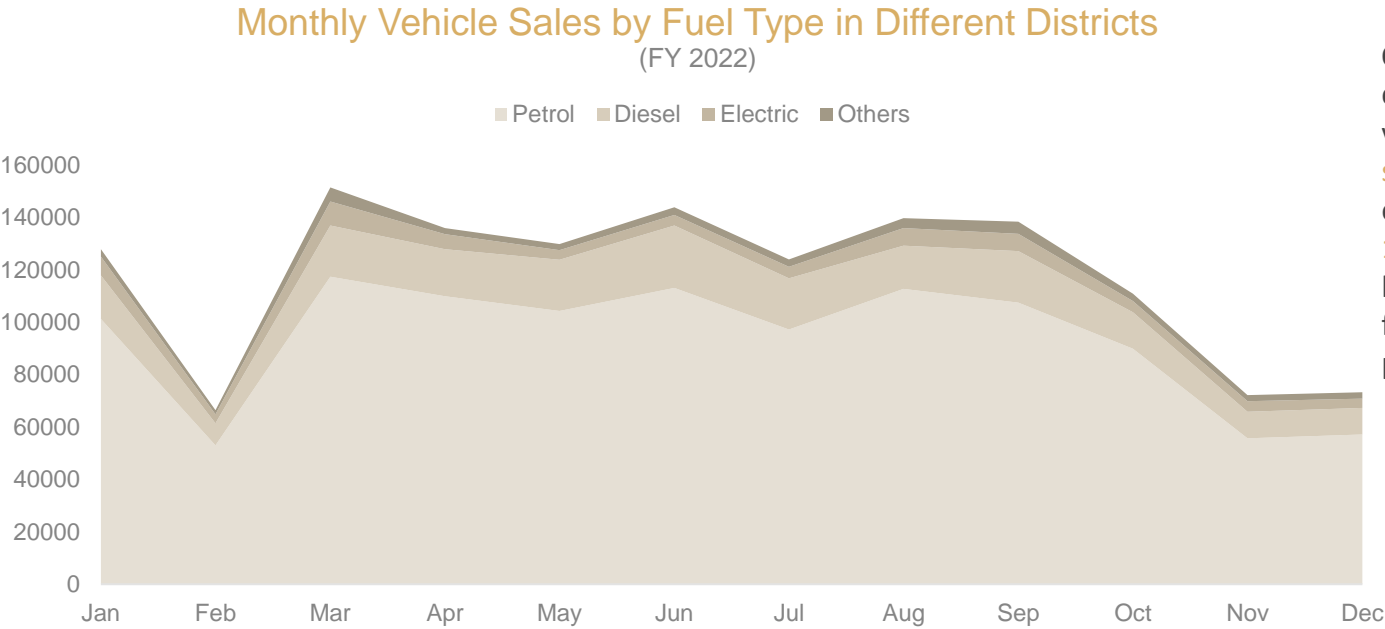
Overall Trends: February consistently records the lowest vehicle sales, with 66,431 units sold, while March consistently exhibits higher sales, reaching 151,416 units. This pattern can be attributed to various factors, including end-of-year promotions and tax incentives.

District-wise Trends

Kamareddy

This district experiences the lowest sales in December, with 898 units, and the highest in May, with 2,590 units. Seasonal factors like climate and agricultural activities might influence these trends.

Karimnagar

February marks the lowest sales in Karimnagar, with 1,309 units, while May sees the highest sales at 4,867 units. This could be linked to better weather conditions for vehicle purchases and travel during May.

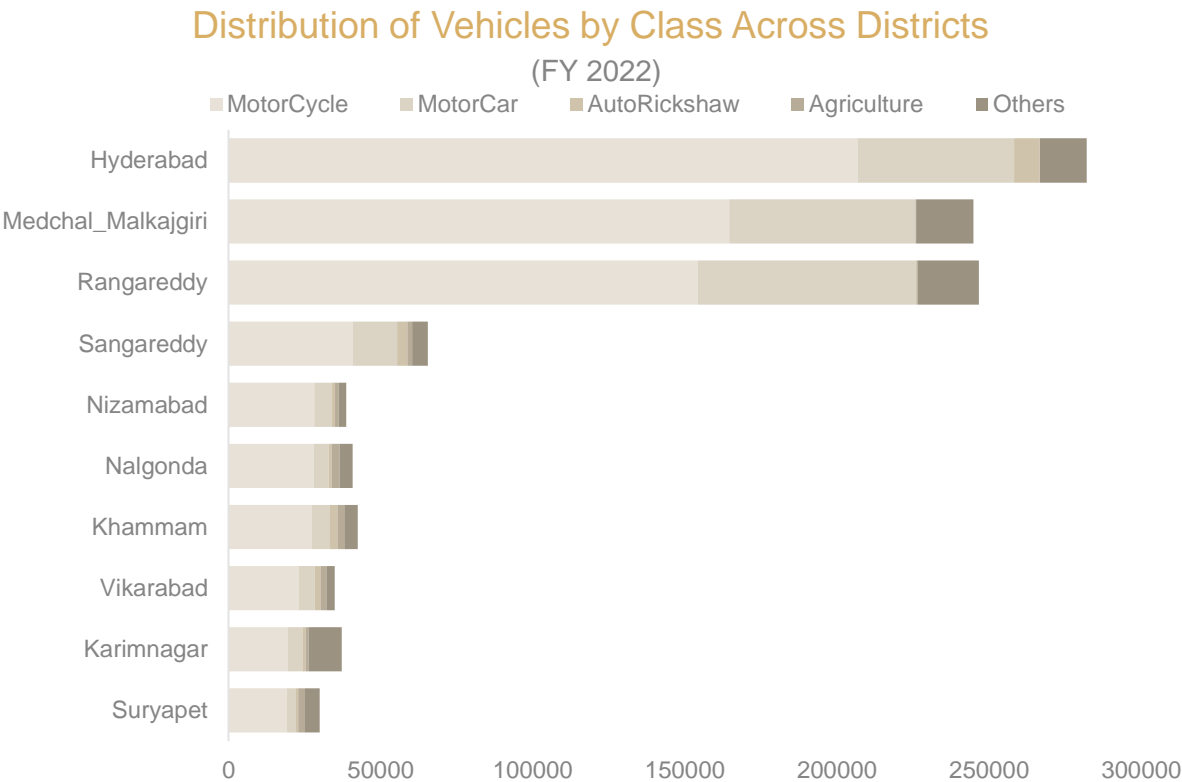## Kumurambheem Asifabad

December reports the lowest sales in this district, with 333 units, while March records the highest sales at 1,405 units. Agricultural activities during these months may affect vehicle demand.

Hanumakonda and Mulugu

Notably, there were no vehicle sales recorded in Hanumakonda and Mulugu during the observed period. This could be due to various factors, including limited economic activity or data collection issues.

6. How does the distribution of vehicles vary by vehicle class (MotorCycle, MotorCar, AutoRickshaw, Agriculture) across different districts? Are there any districts with a predominant preference for a specific vehicle class? Consider FY 2022 for analysis.
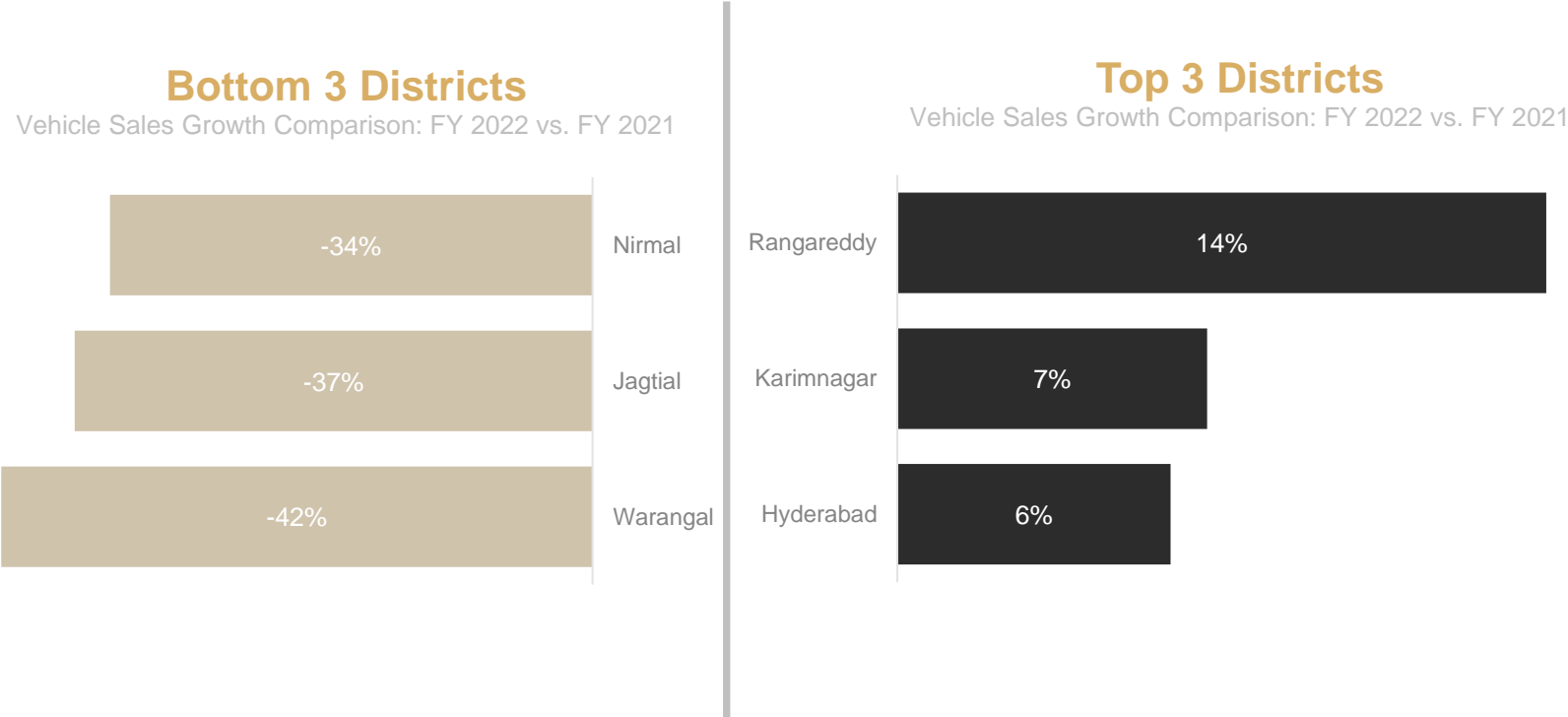
Distribution of Vehicles by Class Across Districts
(FY 2022)

Legend: ■ MotorCycle ■ MotorCar ■ AutoRickshaw ■ Agriculture ■ Others

Districts (top to bottom): Hyderabad, Medchal_Malkajgiri, Rangareddy, Sangareddy, Nizamabad, Nalgonda, Khammam, Vikarabad, Karimnagar, Suryapet

X-axis: 0, 50000, 100000, 150000, 200000, 250000, 300000

Motorcycle Dominance: Across all districts, motorcycles are the predominant vehicle class, indicating a common preference for two-wheelers in the region.
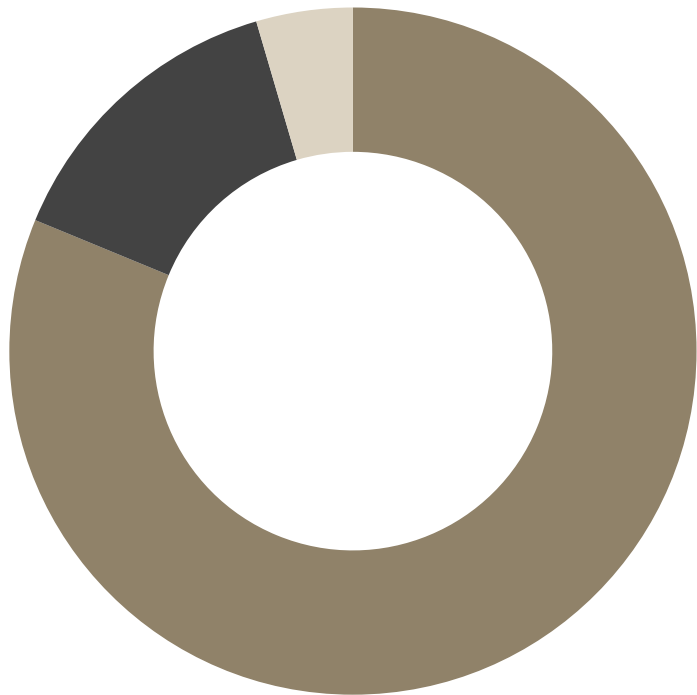
Hyderabad: While Hyderabad has the highest overall vehicle sales at 282,122 units, it notably records only 20 agriculture vehicle sales, suggesting a strong urban vehicle market.

Kumurambheem Asifabad: This district reports agriculture vehicle sales of approximately 160 units, demonstrating a presence of agricultural activity in the region.

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth during FY 2022 compared to FY 2021? (Consider and compare categories: Petrol, Diesel and Electric)

Bottom 3 Districts
Vehicle Sales Growth Comparison: FY 2022 vs. FY 2021

District	Growth
Nirmal	-34%
Jagtial	-37%
Warangal	-42%

Top 3 Districts
Vehicle Sales Growth Comparison: FY 2022 vs. FY 2021

District	Growth
Rangareddy	14%
Karimnagar	7%
Hyderabad	6%

Sales growth during FY 2022 compared to FY 2021

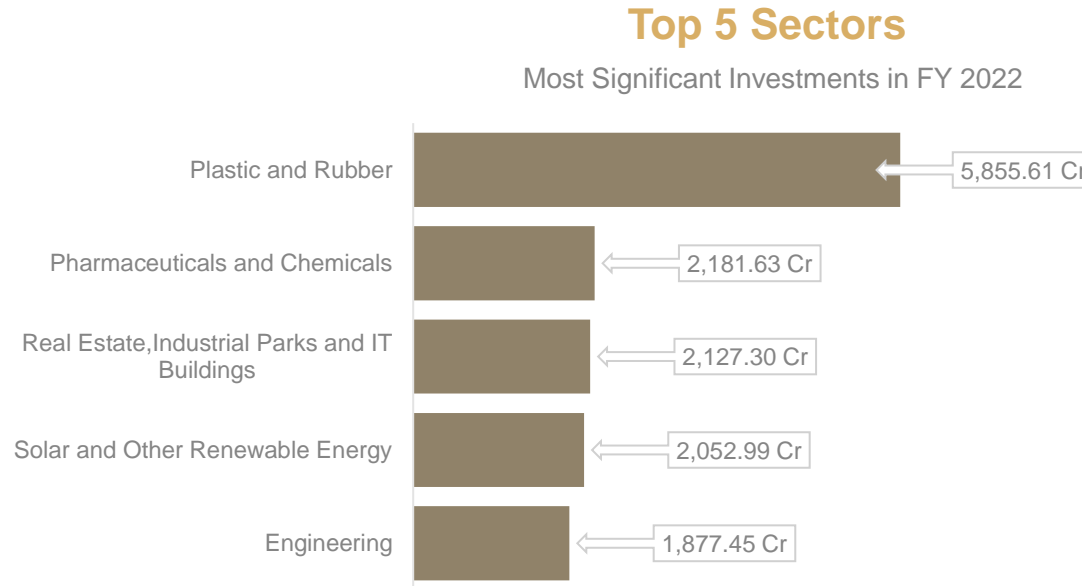| Sales – FY 2022		Growth
ELECTRIC	62.53K	101%
DIESEL	196.1K	-1.63%
PETROL	1.14M	-14%

Ts-Ipass

Telangana State Industrial Project Approval and Self Certification System

Stock Image

8. List down the top 5 sectors that have witnessed the most significant investments in FY 2022

Top 5 Sectors

Most Significant Investments in FY 2022

| Sector	Investment
Plastic and Rubber	5,855.61 Cr
Pharmaceuticals and Chemicals	2,181.63 Cr
Real Estate,Industrial Parks and IT Buildings	2,127.30 Cr
Solar and Other Renewable Energy	2,052.99 Cr
Engineering	1,877.45 Cr

Takeaway
These investments signify a diversified economic landscape in FY 2022, with a significant emphasis on industries such as plastics, pharmaceuticals, real estate, renewable energy, and engineering. These sectors play a crucial role in driving economic growth and development in the region.

10. Is there any relationship between district investments, vehicles sales and stamps revenue within the same district between FY 2021 and 2022?
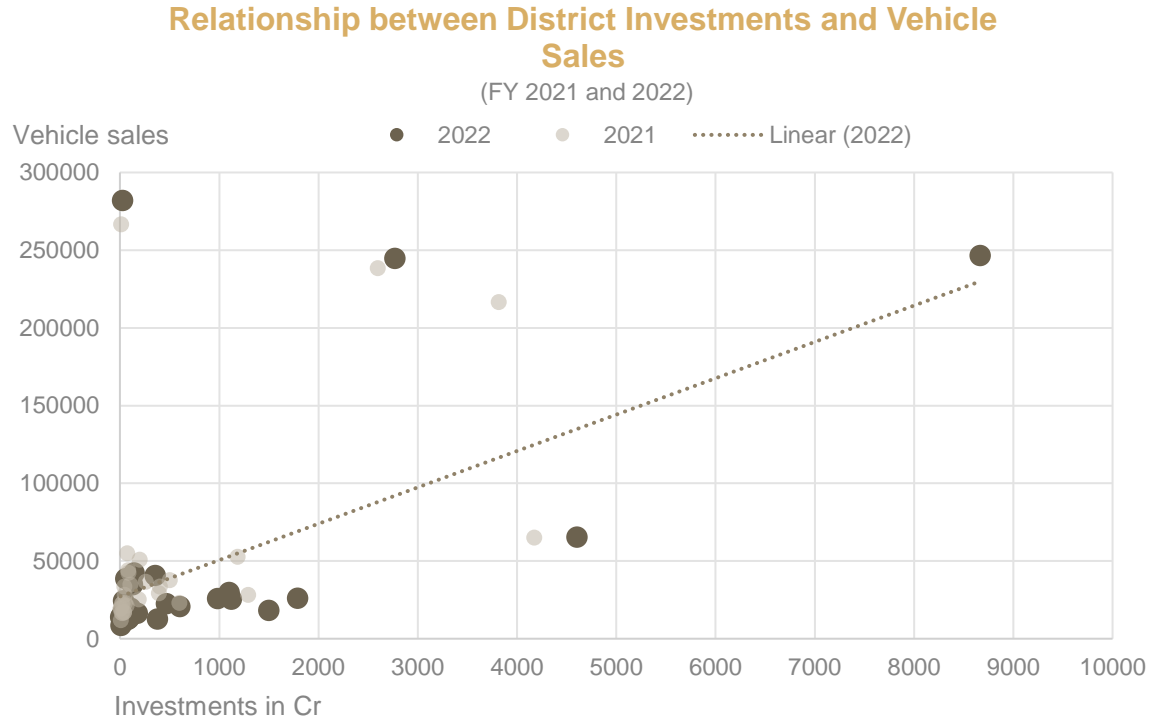
Relationship between District Investments and Stamps Revenue (FY 2021 and 2022)

Billions

● 2022   ● 2021   ·········· Linear (2022)

Stamp Revenue

Invesment in Cr
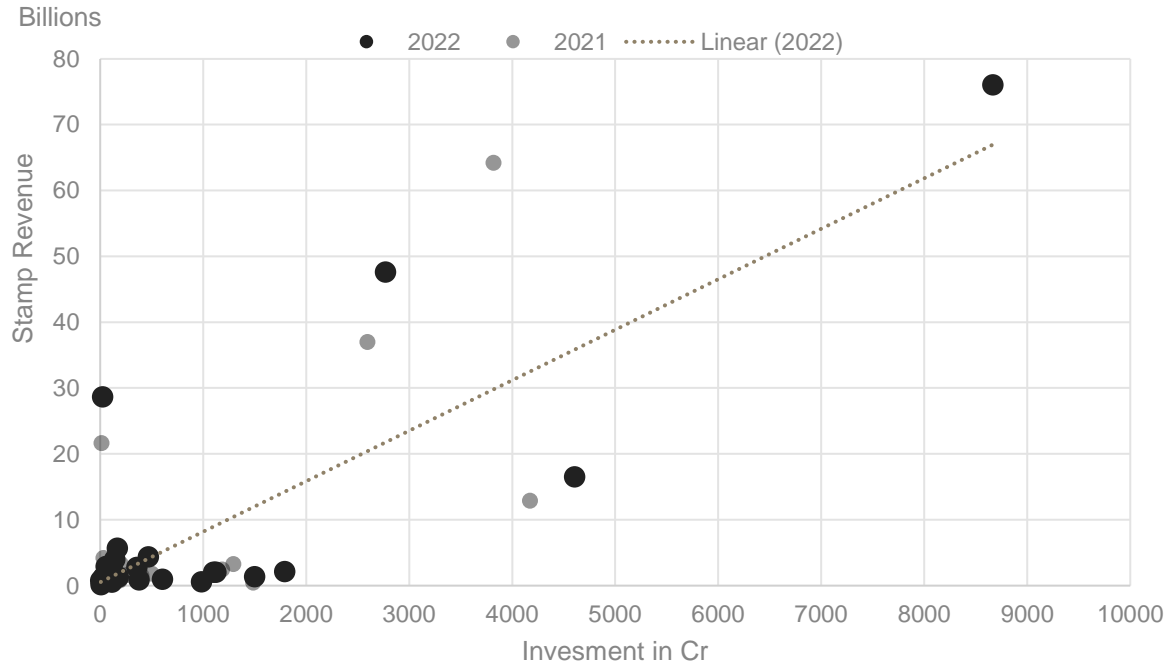
District Investment and Stamp Revenue

A linear relationship is observed between district investments and stamp revenue. As investments in a district increase, stamp revenue also tends to increase. This suggests that economic activity and investments have a positive impact on stamp revenue generation.

10. Is there any relationship between district investments, vehicles sales and stamps revenue within the same district between FY 2021 and 2022?

Relationship between District Investments and Vehicle Sales
(FY 2021 and 2022)

District Investment and Vehicle Sales: While there may be some correlation between district investments and vehicle sales, it's not necessarily a linear relationship. Other factors like consumer preferences, infrastructure development, and economic conditions can also influence vehicle sales.

In the case of **Hyderabad**, although it has lower investments compared to some other districts, it may have higher vehicle sales due to various factors such as a larger population, urbanization, higher income levels, and a more developed transportation infrastructure. These factors can contribute to increased vehicle demand and sales.
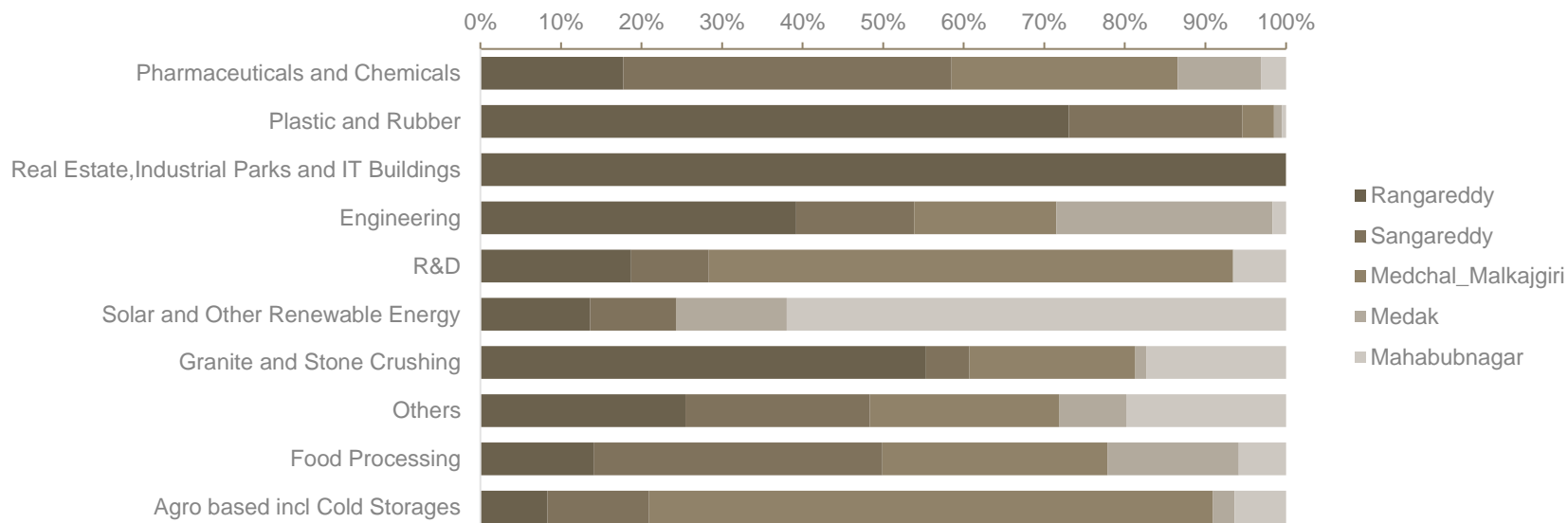
Note :

Performing additional statistical analysis is crucial to accurately quantify and validate these relationships. It's vital to acknowledge that each district possesses distinct economic and demographic characteristics that can influence the connections between investments, vehicle sales, and stamp revenue. Hence, a comprehensive analysis, incorporating statistical modeling, becomes imperative to gain a deeper understanding of these relationships and pinpoint the unique drivers in each district. This initial observation underscores the necessity for a nuanced, data-driven approach to economic analysis and policymaking.

11. Are there any particular sectors that have shown substantial investment in multiple districts between FY 2021 and 2022?

Sectors with Substantial Investments Across Multiple Districts :
FY 2021 - 2022

Legend:
- Rangareddy
- Sangareddy
- Medchal_Malkajgiri
- Medak
- Mahabubnagar

Sectors (Y-axis):
- Pharmaceuticals and Chemicals
- Plastic and Rubber
- Real Estate,Industrial Parks and IT Buildings
- Engineering
- R&D
- Solar and Other Renewable Energy
- Granite and Stone Crushing
- Others
- Food Processing
- Agro based incl Cold Storages

Pharmaceuticals and Chemicals:

This sector has shown significant investments in Rangareddy, Sangareddy, Medchal Malkajgiri, Medak, and Mahabubnagar districts, indicating its prominence and potential for growth.

Engineering:

Investments in the Engineering sector have been substantial in Rangareddy, Sangareddy, Medchal Malkajgiri, Medak, and Mahabubnagar districts, reflecting a strong focus on infrastructure and technological advancements.

Granit and Stone Crushing:

The Granit and Stone Crushing sector has garnered notable investments in Rangareddy, Sangareddy, Medchal Malkajgiri, Medak, and Mahabubnagar districts, suggesting demand for construction materials.

Food Processing Agro-Based:

Investments in Food Processing Agro-Based industries, including Cold Storage, have been significant in Rangareddy, Sangareddy, Medchal Malkajgiri, Medak, and Mahabubnagar districts, emphasizing the importance of agriculture and food processing.

Real Estate, Industrial Parks, and IT Building:

Notably, this sector has primarily attracted investments in Rangareddy district, indicating a concentration of real estate and IT development in that area.

12. Can we identify any seasonal patterns or cyclicality in the investment trends for specific sectors? Do certain sectors experience higher investments during particular months?

Seasonal Investment Patterns in Key Sectors:

FY 2021 - 2022
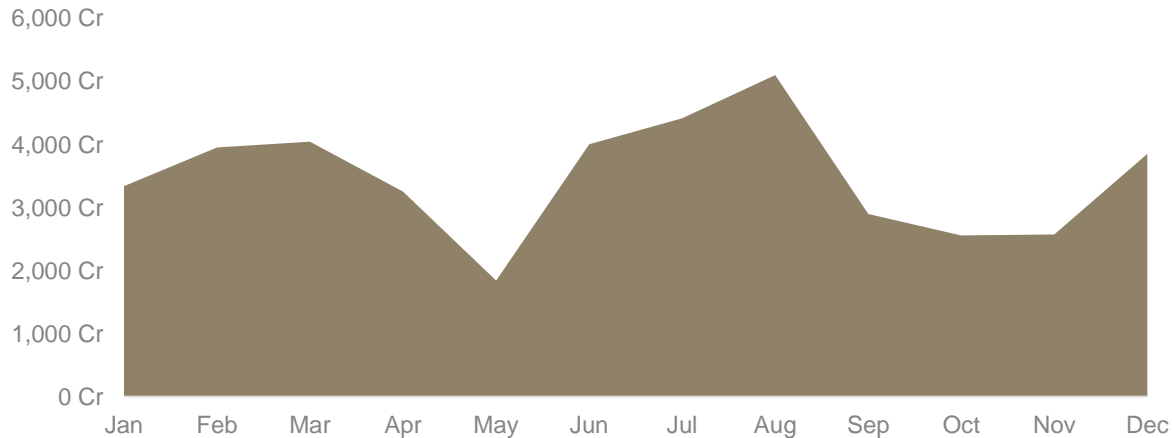
Overall Sector Investments:
May records the lowest overall sector investments at 1,842.50 Crores, while August stands out with the highest investments at 5,102.22 Crores. This suggests a potential seasonal trend of higher investments during the summer months..

Agro-Based and Cold Storage

The Agro-Based sector, specifically Cold Storage, experiences its highest investments in June at 574.77 Crores, which aligns with the agricultural harvest season.

Automobile Sector:

While the automobile sector exhibits lower investments during certain months, it sees a surge in October, reaching 219.89 Crores, possibly due to new vehicle models or promotions.

Cement and Concrete,

Fly Ash Bricks: Investments in these sectors peak in August, totaling 966.82 Crores, indicating a potential construction-related seasonal trend.

Electric and Electronic

Products: This sector records its highest investments in July at 155.86 Crores, possibly linked to consumer electronics demand.

Engineering Sector:

Investments in the engineering sector are notably higher in February at 827.13 Crores, suggesting a potential focus on infrastructure and development during this period.

Paper and Printing:

The Paper and Printing sector sees significant investments in July, totaling 1,058.67 Crores, possibly related to publishing and packaging needs.

Real Estate, Industrial Parks, and IT Buildings:

This sector experiences substantial investments in March, amounting to 1,862.96 Crores, indicating a potential pattern related to fiscal year-end planning.

Solar and Other Renewable Energy:

Investments in this sector are highest in April, reaching 857.19 Crores, possibly linked to renewable energy project launches.

SECONDARY INSIGHTS

04

Top 5 districts to buy commercial properties in Telangana

Hyderabad

Justification: As the capital and economic hub of Telangana, Hyderabad offers the most significant opportunities for commercial property investment. It has a robust IT sector, a growing startup ecosystem, and a diverse economy. The city's connectivity, business-friendly policies, and availability of skilled talent make it a prime choice for investors.

Rangareddy

Justification: Rangareddy, adjacent to Hyderabad, benefits from the capital's economic spill-over. It has witnessed significant industrial and infrastructure development, making it an attractive location for businesses. Proximity to Hyderabad and its well-developed transportation networks enhance its commercial appeal.

Medchal Malkajgiri

Justification: This district has shown considerable growth in recent years, partly due to its proximity to Hyderabad and the presence of industrial zones. It offers a strategic location for businesses looking to serve both urban and suburban markets.

Sangareddy

Justification: Sangareddy's strategic location and connectivity to Hyderabad make it an emerging commercial hub. It has seen notable investments in infrastructure, making it an appealing choice for businesses seeking expansion opportunities.
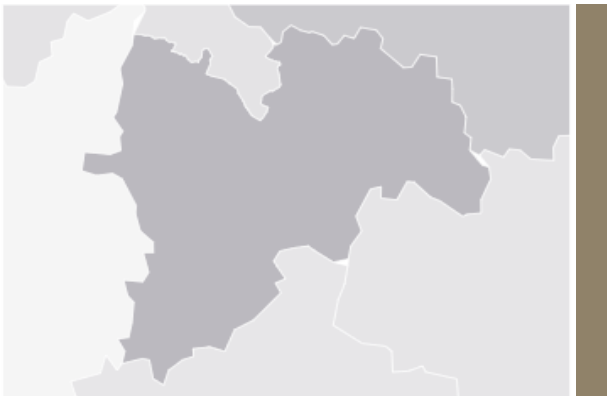
Mahabubnagar

Justification: Mahabubnagar is gaining prominence due to its potential for industrial growth and the development of industrial corridors. Its strategic location, coupled with government incentives, could attract businesses looking for cost-effective commercial properties.

It's important to note that the suitability of a district for commercial property investment may also depend on the specific needs and objectives of the investor. Factors like budget, industry sector, and long-term growth prospects should be considered when making an investment decision. Consulting with real estate experts and conducting thorough due diligence is advisable before making any commercial property investment.

What significant policies or initiatives were put into effect to enhance economic growth, investments, and employment in Telangana by the current government? Can we quantify the impact of these policies using available data?

Industrial Policy (TS-iPASS)

T-Hub (Innovation Ecosystem)

Mission Kakatiya (Revival of Tanks)

Rural Employment Generation Programmes (Rural Jobs)

Industrial Policy (TS-iPASS)

Initiative
TS-iPASS is a comprehensive industrial policy that aims to provide a hassle-free business environment, expedited approvals, and single-window clearances for industries.

Potential Impact
By streamlining the approval process, this policy can attract investments and promote economic growth. The number of new industries established and the jobs created can be key indicators of its impact.

T-Hub (Innovation Ecosystem)

Initiative
T-Hub is a startup incubator and innovation hub that supports and nurtures entrepreneurial talent.

Potential Impact
The number of startups incubated, funding received by startups, and the growth of the startup ecosystem can measure the impact of this initiative on employment and economic growth.

Mission Kakatiya (Revival of Tanks)

Initiative
 Mission Kakatiya focuses on the restoration of tanks and water bodies, with an aim to improve agricultural productivity and create rural employment.

Potential Impact
 The increase in the number of revived tanks, improved agricultural outcomes, and the number of rural jobs created can be used to quantify the impact.

Rural Employment Generation Programmes (Rural Jobs)

Initiative
Various rural employment generation programs aim to create jobs in rural areas through infrastructure development, watershed management, and skill training.

Potential Impact
The number of jobs created in rural areas and the improvement in rural living standards can be indicators of these programs' success.

Top 5 Insights & 5 recommendations to Telangana government for sustained growth in the next 5 years based on analysis.

TOP 5 INSIGHTS

Leverage the Tech Ecosystem

Telangana's strong information technology ecosystem, centered around Hyderabad, should be leveraged further. Encourage innovation, support startups, and attract tech giants to foster economic growth.

Invest in Infrastructure

Continued investment in infrastructure, particularly in transportation and digital connectivity, is essential for sustained growth. Improving connectivity between urban and rural areas can bridge economic disparities.

Focus on Skilling and Education

Prioritize skill development and education to ensure a skilled workforce that can meet the evolving demands of industries. Strengthening vocational training and STEM education can be beneficial.

TOP 5 INSIGHTS

Sustainable Agriculture

Develop sustainable agriculture practices to enhance food security and income in rural areas. Initiatives like Mission Kakatiya can be expanded to improve water management.

Diversify Industries

While technology is a strength, diversifying industries beyond IT, such as manufacturing and renewable energy, can create a more resilient economy.

TOP 5 RECOMMENDATIONS

Invest in Rural Development

Develop and implement a comprehensive rural development strategy that includes infrastructure improvement, access to healthcare, and quality education to bridge the urban-rural divide.

Ease of Doing Business

Continue efforts to streamline regulatory processes and enhance the ease of doing business. Ensure that policies like TS-iPASS are effectively implemented.


Support Innovation

Foster a culture of innovation by providing incentives, resources, and incubation facilities for startups and research institutions. Encourage public-private partnerships for innovation.

TOP 5 RECOMMENDATIONS

Sustainable Growth

Prioritize sustainable and eco-friendly practices, particularly in industries like agriculture and renewable energy. Develop incentives for environmentally responsible practices.
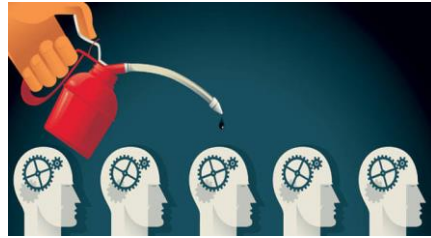
Skilling and Workforce Development

Establish partnerships with industries to design training programs that align with job market demands. Promote lifelong learning and upskilling among the workforce.

THANKS

Does anyone have any questions?
Follow the project updates

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