Analytics India
MAGAZINE

Study

STATE OF DATA SCIENCE IN DOMESTIC INDIAN MARKET 2019

By Analytics India Magazine & SAS

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FOREWORD

-Kunal Aman
Head-Marketing, SAS India

Not very long ago, the Analytics suite of software would have occupied a 'good-to-have' tag in the overall IT portfolio for a business and 'Data Science' was a term that would be rarely, if ever, be used in common business parlance. The situation today though, couldn't have been more different! Data has evolved to become the lifeblood of every organization and analytics has grown and expanded enough that almost every organization today, recognizes the transformational business value that analytics offers.

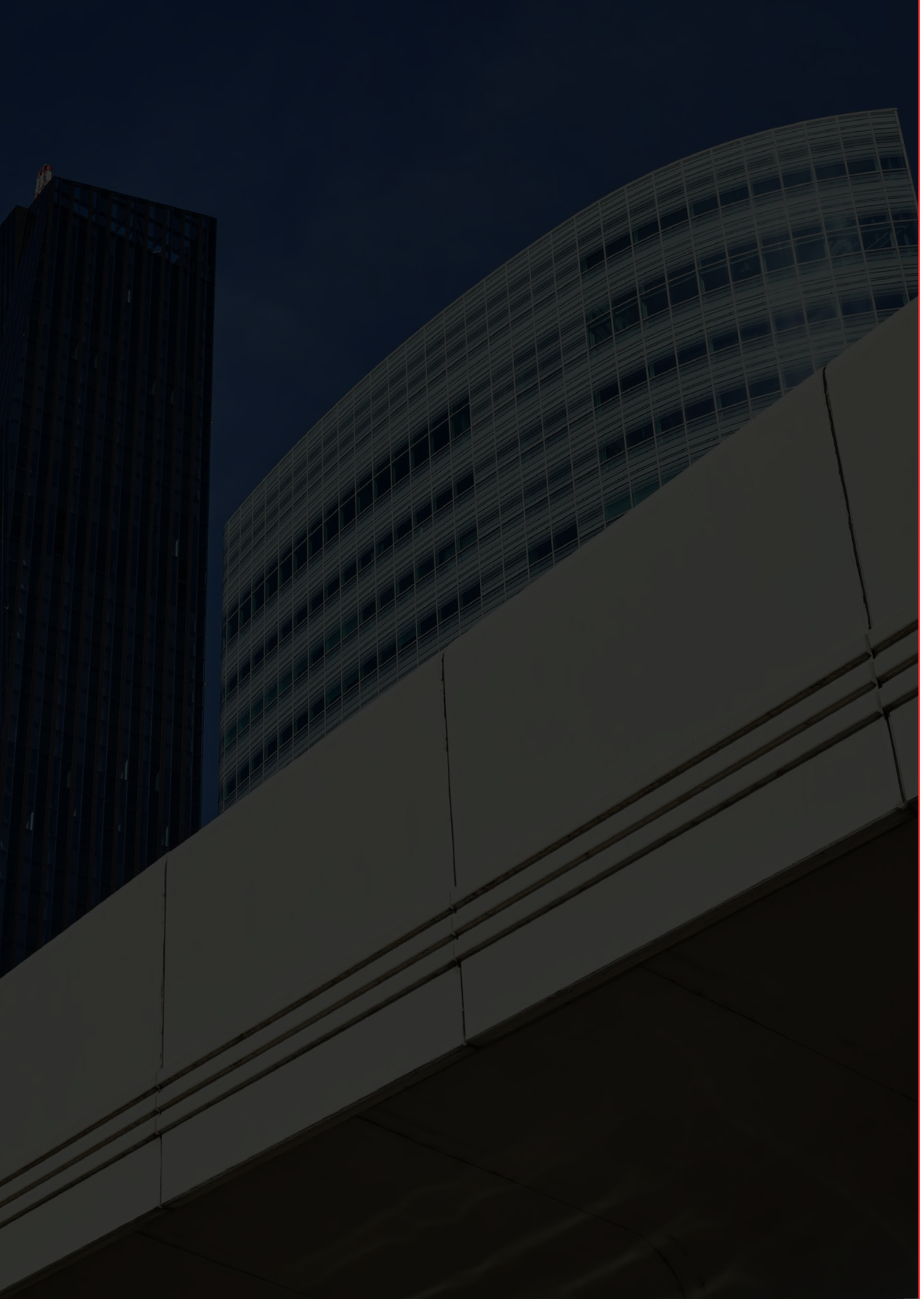
This research developed in collaboration between AIM and SAS studies key organizations across a cross-section of industries with an aim to inform organizational leaders on the current state of analytics in mature Indian organizations and the potential impact it can have.

These mature organizations have realized that data is an asset and have invested in and equipped themselves with sophisticated analytics to gain insights that not only enhance decision making but also improve operational performance and create new market opportunities. The road to get there, as this research informs, hasn't been easy and organizations not only having to deal with legacy issues and the changes related to embedding analytics into their business processes but also having to deal with continued challenges of analytics talent management.

Hence, analytical maturity across sectors remains quite uneven across sectors - while certain industries have taken the plunge early, learnt through their experiences and are now reaping the benefits of analytics adoption, others have lagged and have a long way to go as illustrated by this research report.

Meanwhile, data science and analytics technology itself is leaping forward, and with AI, Machine learning, Deep learning capabilities coming of age, the field of analytics seems only poised to accelerate the pace of change and associated disruption.

These are exciting times, and the important thing to realise and remember is that Analytics prowess is increasingly becoming the basis of competition for businesses today. The leaders who have a clear vision and are executing against it, are going to be the ones differentiating themselves and gaining a clear competitive edge.



INTRODUCTION

This year's study done in collaboration with SAS dives into 50 large-sized firms to better understand analytics maturity and penetration in these organisations. Our in-depth study can also be seen as a deep dive benchmarking report to see how companies are winning with analytics. The study also provides a greater understanding of how analytics mature organisations are doing to draw tangible results from their investments and how other companies can adopt these learnings and practices to move up the maturity curve.

While many organisations are accelerating their investment in analytics, how well are these organisations able to leverage these analytics investments is yet to be seen. Our study reveals that e-commerce sector has emerged as one of the biggest adopters of analytics, thanks to the fact that this sector is not weighed down by legacy infrastructure constraints. Other sectors that boast of high analytics adoption are banking and auto which are undertaking major transformational initiatives and are embedding analytics across functions. Senior analytics leaders from these sectors recognize the need for building an immersive analytics environment and are assiduously working towards raising the analytics IQ in their organisations.

Besides accelerating analytics investments and focusing on faster deployment of solutions, another way analytically mature organisations are winning the game is by developing talent sourcing strategies. Talent analytics maturity also plays a critical role in helping organisations move up the analytics maturity scale. Our report finds that analytics maturity is correlated to employee seniority and tenure in an organisation. Fundamental capability gaps can limit the ability of an organisation to scale analytics initiatives and advance. Our report finds that Indian telecom sector boasts of the highest employee tenure with an experience of 10.2 years. Another key observation is that in less mature sector like Oil & Refineries, analytics function is more aligned with Sales and Business Development units.

DEFINITIONS & COMPANIES

We analysed 50 large sized companies in India by Revenues as of 2019, for this study. IT Service providers in India are not part of this study. Also, some leading start-up Unicorns and e-commerce players were included in the study.

Analytics penetration is a metric that denotes the degree of infusion of analytics function in an organisation. It quantifies the approximate number of analytics professionals employed by the organisation for every employee within the whole firm. So, a penetration of 1% should be read as 1 analytics/ data science professional for every 100 employees with the organisation.

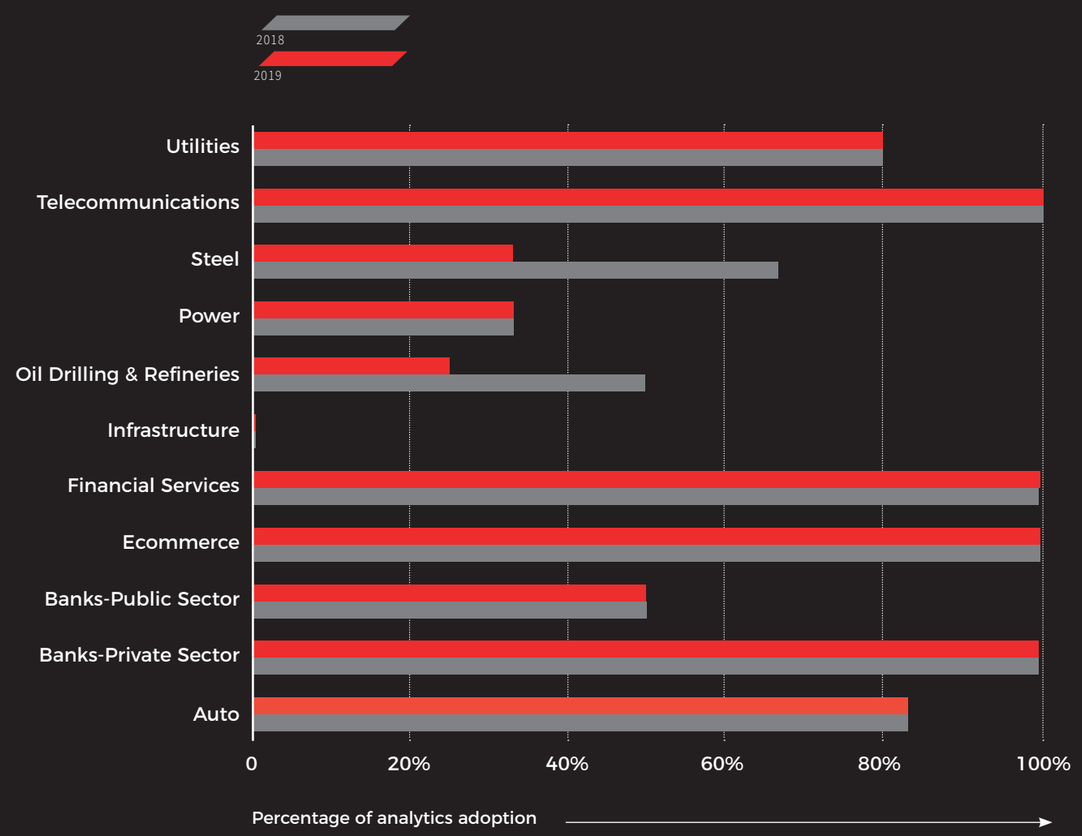
Analytics maturity is the metric to quantify the quality and depth of analytics adopted within an organisation. Maturity is a combination of 3 factors:

- employee tenure
- percentage of artificial intelligence in the analytics function
- employee seniority in that organisation

Analytics adoption is calculated at a penetration of less than 0.75% i.e. the organisation does not even have 1 analytics professional to support 133 employees within the organisation.

It is important to note that these are relative metrics and organisations as plotted here are based on a comparative study with respect to each other and should not be compared to other organisations outside this study. Also, the values may differ in terms of global standards.

Another point to keep in mind in this study is that the numbers would be negatively biased towards organisations that outsource their analytics functions heavily.



ANALYTICS ADOPTION RATE ACROSS VARIOUS INDUSTRIES

ANALYTICS & DATA SCIENCE IN INDIAN FIRMS - KEY TRENDS

- The overall adoption of Analytics & Data Science at large Indian firms is around 70%. In other words, 70% of all large firms in India have adopted analytics in some form. This is higher than last year's rate of 64%. That's a healthy adoption rate given most of these large firms are into traditional businesses like energy & utilities
- Telecom, Financial Services, Ecommerce & Private Sector Banks have almost 100% adoption rates. Some level of analytics & data science is being executed in these organisations, especially the large ones
- Banking and auto industries are on a firmer ground with 100% and 83% analytics adoption rate
- Telecommunications and utilities also report a high analytics adoption of 100% and 80%
- In contrast, infrastructure and power lag behind with low analytics adoption
- Some of the traditional sectors that are seeing an increase in analytics adoption are –
  - Steel
  - Oil Drilling & Refineries
- For the rest of the sectors, the adoption rates remain the same as last year

70%

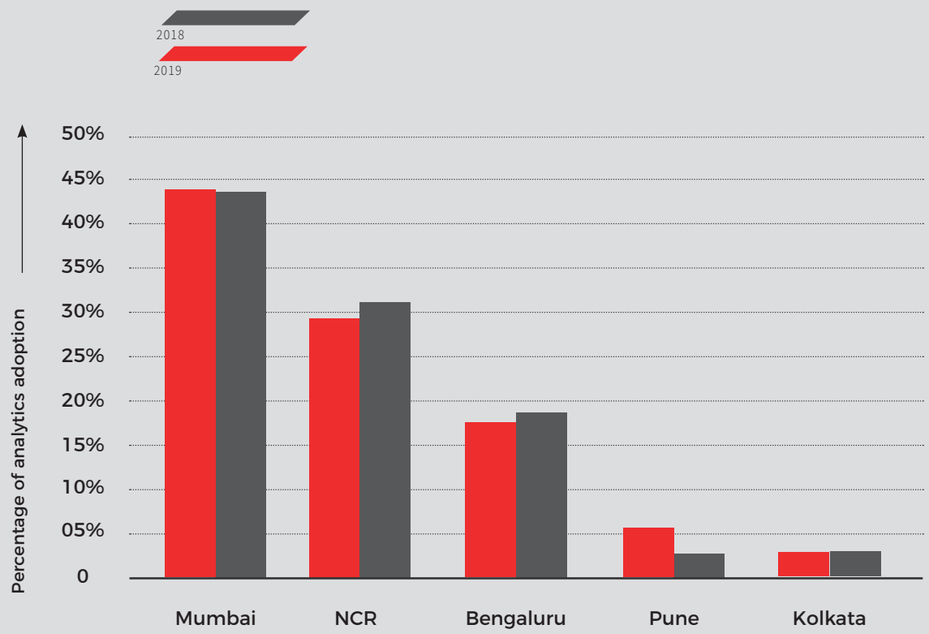
OF ALL LARGE FIRMS IN INDIA HAVE ADOPTED ANALYTICS IN SOME FORM

COMPANIES WITH BIGGEST ANALYTICS UNIT

To realize maximum business impact, large organisations and new-age companies have set up dedicated Analytics Services Unit — one of the first steps towards developing a 360 degree vision of existing data and building innovative solutions and initiatives. Based on our survey, we identified 5 Indian consumer firms have the biggest analytics units in the country. These 5 organisations also boast of enterprise wide analytics implementation, data-driven architecture and C-level leadership.

These 5 Indian consumer firms have the biggest analytics units in the country

- ICICI Bank
- Flipkart
- HDFC Bank
- Axis Bank
- Bharti Airtel



ANALYTICS ADOPTION RATE ACROSS CITIES

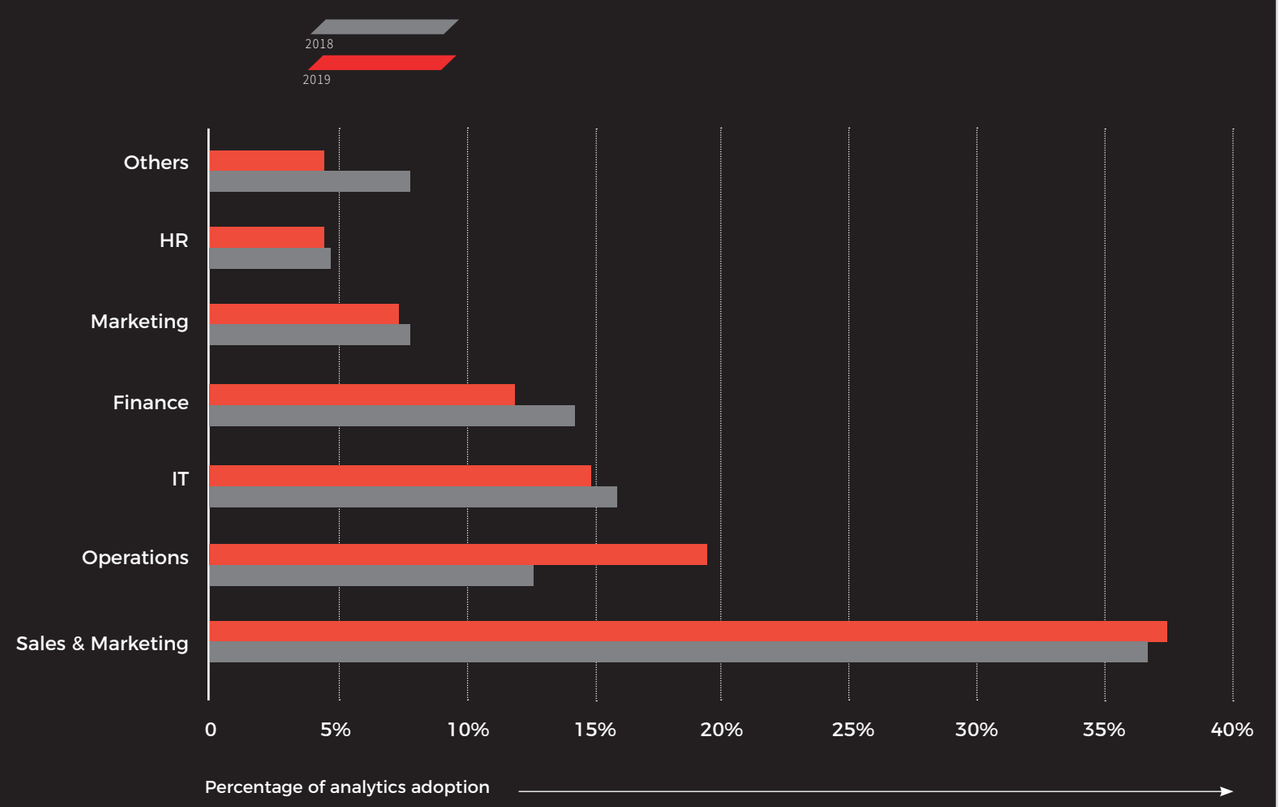
ANALYTICS HUBS IN INDIA

In terms of city-wise adoption, Mumbai leads the pack becoming the largest data analytics employer in the country. After Mumbai, Bangalore and Delhi region have a higher analytics concentration.

- 44% of all analytic functions for Indian firms are based out of Mumbai, followed by Delhi NCR at 29%
- Almost 91% of analytics functions are based out of just three cities – Mumbai, Bangalore & Delhi/NCR
- 6% of analytics functions for companies are based out of Pune

44%

ANALYTICS FUNCTIONS ARE BASED OUT OF MUMBAI



ANALYTICS ADOPTION RATE ACROSS VARIOUS FUNCTIONS IN COMPANIES

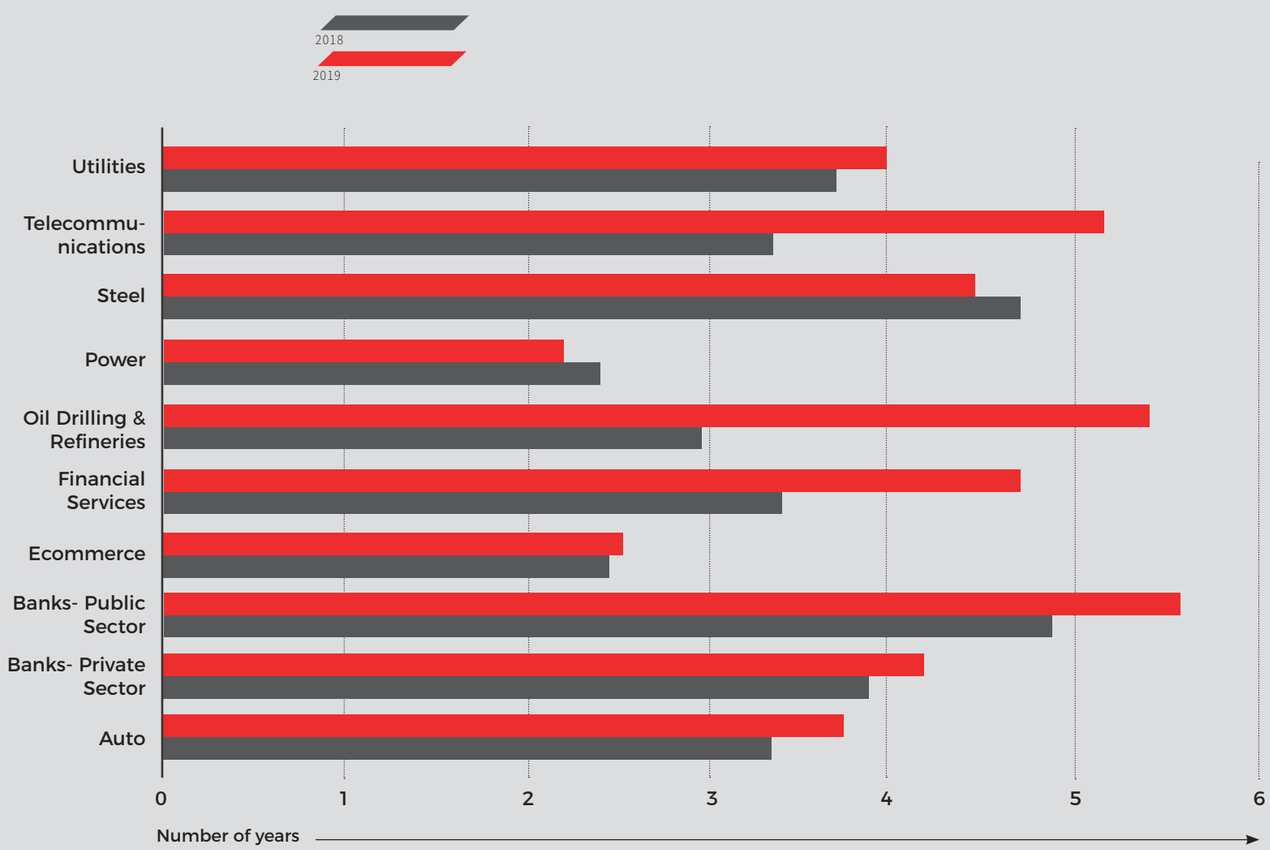
ANALYTICS UNITS IN ORGANISATIONS

There are several ways data and analytics function in organisation. In one model, data and analytics function works as a standalone unit, while in certain cases, analytics is embedded in the IT function with a team working in collaboration with traditional IT team on areas where analytics can deliver the greatest value. Our study finds that despite the high adoption rate, analytics is leveraged as a support function for traditional operations like Sales & Marketing, IT and Operations as opposed to a fully standalone service unit.

- 37% of analytics functions in large Indian organisations support the Sales & Marketing group. 19% support the operations group and just 15% support the IT group
- Contrary to the most widely accepted belief, Analytics functions do not usually fall under the IT unit for Indian firms

37%

ANALYTICS FUNCTIONS IN LARGE INDIAN ORGANISATIONS SUPPORT SALES & MARKETING GROUP



AVERAGE TENURE OF ANALYTICS FUNCTIONS

INDIAN FIRMS KEY METRICS FOR ANALYTICS FUNCTION

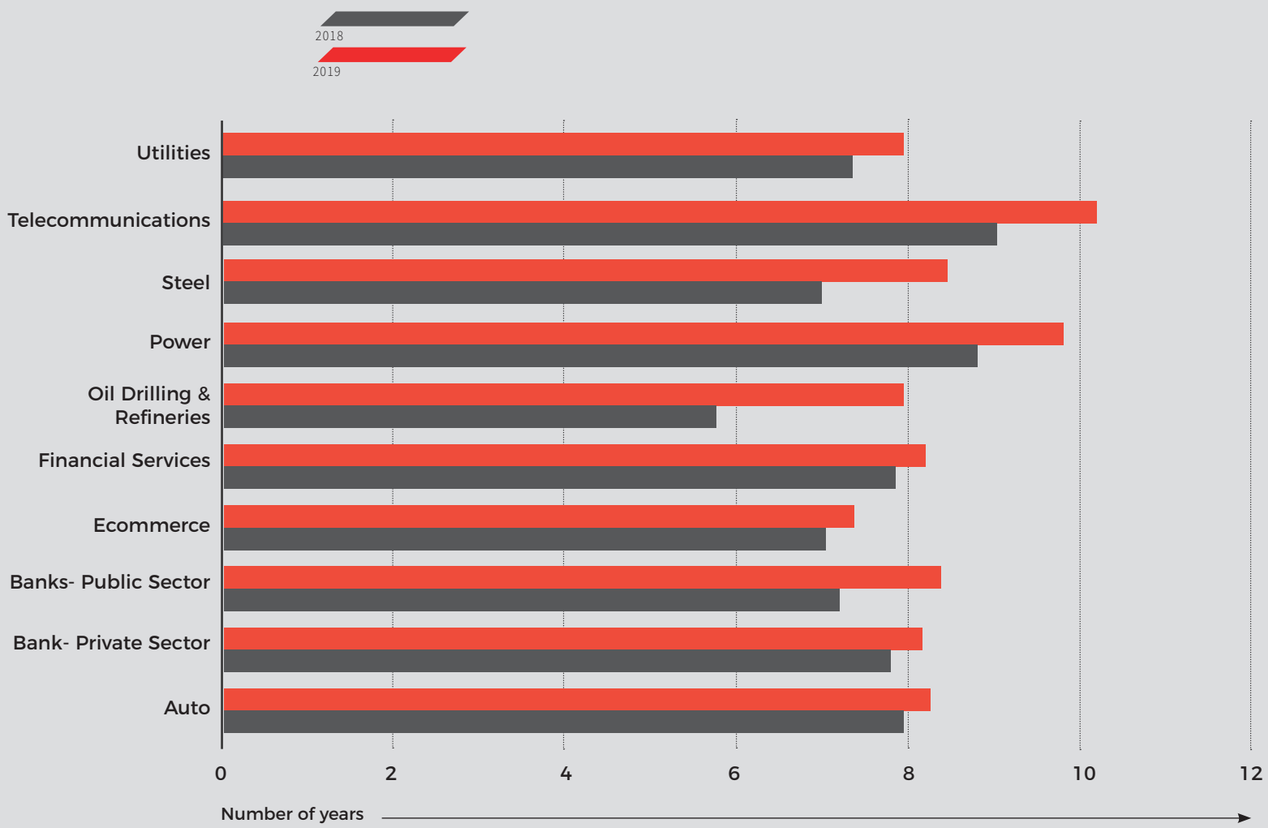
With analytics becoming a core competency across sectors, attracting and retaining talent has become a 'key mandate' for senior leaders. In the last couple of years, we have seen organisations launching dedicated programmes to source the best analytics talent. Besides attracting talent, it is also important for organisations to focus on retaining analytics talent by developing talent engagement programmes. Talent maturity, as reflected by employee tenure is 4 years this year as compared to 3.4 years in 2018. While analytics penetration in Indian firms is only 2.5%.

- On average, large Indian firms have an analytics penetration of 2.5%. This essentially implies that for every 40 employees in the organisation, 1 employee is in some shape associated with data and analytics.
  - This is slightly lower than 2.8% from last year. Overall, the large firms have decreased the proportional analytics headcount servicing their business this year
- The average tenure of analytics professionals at Indian firms is 4 years, slightly higher than last year at 3.4 years.
  - Public sector banks, despite low adoption have the highest analytics tenure among India firms, at almost 5.6 Years
  - On the other hand, E-commerce firms, with high adoption of Analytics, have a much lower analytics tenure at 2.5 Years
  - Overall, Tenure for all the sectors have gone up in the last one year except for Power & Steel

TENURE VS. ADOPTION

We looked at the sector across tenure vs adoption for analytics matrix. Here are some key findings:

- Most sectors in India fall into Quadrant I i.e. High adoption/high tenure relative to other sectors
- E-commerce sector, despite the high adoption rate of analytics, severely lacks on tenure of its analytics professionals
- Power Sector lags both on employee tenure and analytics adoption
- Public Sector Banks and Oil & Refineries have identical adoption & tenure



MEDIAN EXPERIENCE OF ANALYTICS TEAMS ACROSS INDUSTRIES

In terms of talent retention, Indian telcos lead the race with professionals having the highest experience. This is also indicative of employee engagement which helps drive talent retention in organisations. Telecom sector has some of the most interesting and complex problems with a high consumption of analytics and telecom majors doubled down by providing new career paths to attract and retain talent.

- The median experience level of Analytics professionals with Indian firms is 8.2 years
- Analytics professionals in Indian telecom firms have the highest experience at 10.2 years
- Oil Drilling & Refineries have the lowest at 7.9 years

8.2 Years

IS THE MEDIAN EXPERIENCE LEVEL OF ANALYTICS PROFESSIONALS WITH INDIAN FIRMS

ANALYTICS PENETRATION VS. MATURITY

Like the previous year, here we analysed various sectors on the basis of analytics penetrations and analytics maturity.

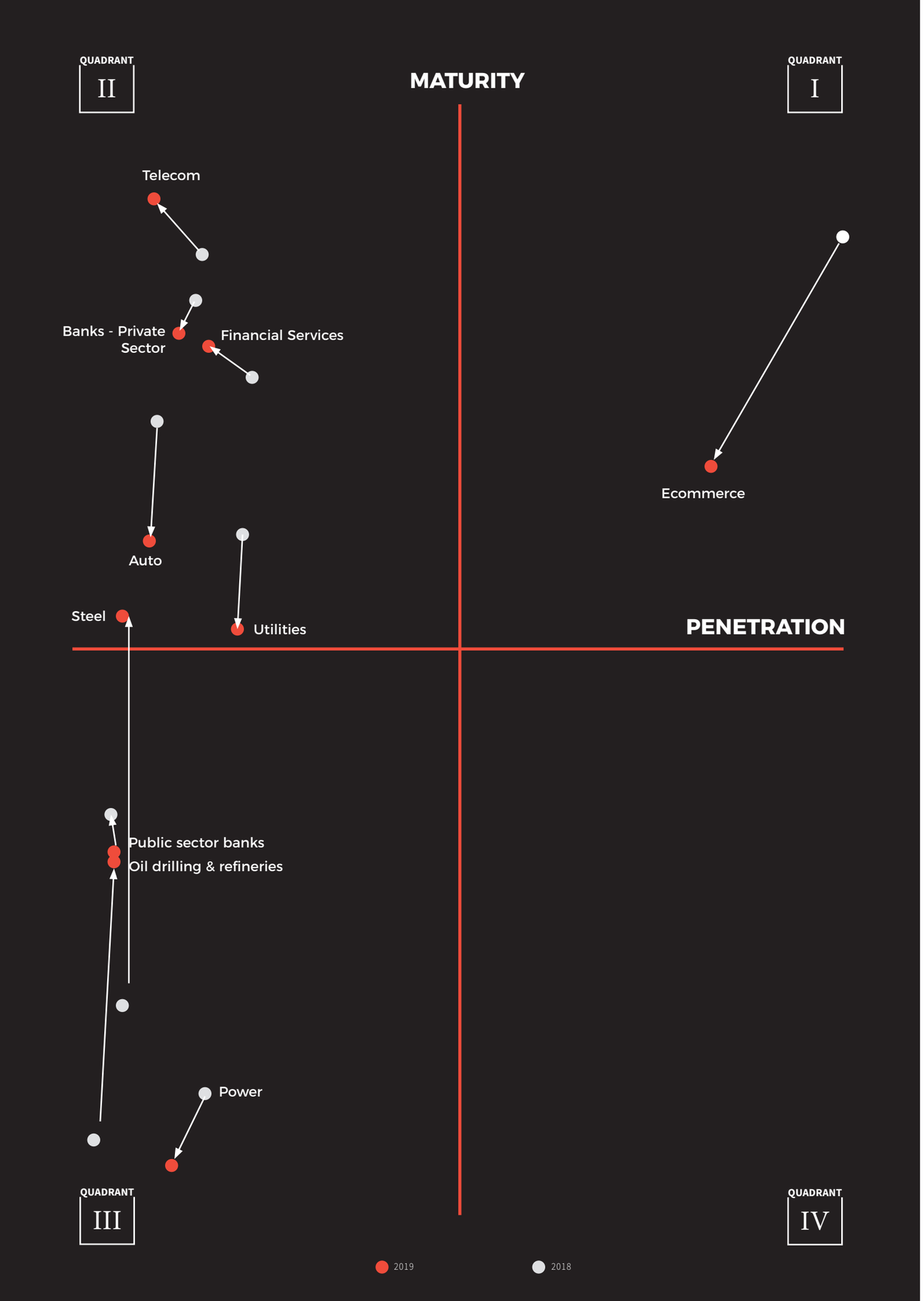
The Quadrant measures industries on two parameters Analytics Penetration and Analytics Maturity. As outlined earlier, Maturity signifies the scope of analytics within an organisation while Penetration measures the approximate number of analytics professionals employed by the organisation for every employee within the whole firm. So, a penetration of 1% should be read as 1 analytics/ data science professional for every 100 employees with the organisation.

In Quadrant I, companies are raising the bar with analytics both in terms of penetration and maturity. Their enterprise success comes from high level of depth both in terms of analytics penetration and maturity.

In Quadrant II, companies are scoring big on analytics maturity but low on analytics penetration. From BFSI to telecom, utilities, traditional sectors are reshaping their strategies with high analytics adoption but score less on analytics penetration.

Quadrant III is where we see sectors lagging behind on both metric - analytics penetration and analytics maturity. These sectors are missing out on a huge opportunity.

Quadrant IV denotes high analytics penetration but low analytics maturity. This implies that companies need to have a tighter focus on strengthening analytics capabilities.



Following conclusions can be made from the graph

- E-commerce continues to be the only sector in the first Quadrant, which signifies that it is both high on penetration and maturity. With Data Science becoming a core part of e-commerce sector, all mid to large e-commerce firms have some form of analytics adoption within the firm
- The highest number of sectors lie in Quadrant II. This is a good indication of adoption as well as relative maturity of analytics functions within these sectors

Comparison from Last Year

- E-commerce has decreased in both maturity & penetration as compared to last year Please note that maturity & penetration for each year is a relative index to other sectors So, while the absolute maturity and penetration for e-commerce might have increased, it has decreased when compared to other sectors this year.
- The biggest changes can be seen in the Steel industry, undergoing digital transformation. The sector moved from Quadrant III to Quadrant II signifying and increase in maturity of the analytics functions in the sector
- Oil Drilling & Refineries have also increased maturity, though the sector still falls in Quadrant III
- Power, Auto & Utilities have a decrease in maturity vis-à-vis last year

ANALYTICS PENETRATION VS. MATURITY ACROSS SECTORS

Private Sector Banking

- Private Sector Banking in India scores high on Maturity of analytics and data science deployed in the organisations, slightly lower than Telecom and E-commerce industry
- Finance & Sales are the two primary functions where private sector banks deploy analytics. Research is the third function where analytics get deployed
- Mumbai is the top city where analytics functions of private Indian banks are based
- Since last year, the penetration and maturity of this sector has almost remained constant

Public Sector Banking

- Public Sector banking in India has among the lowest analytics penetration among other sector, almost the same as drilling and refineries sector
- Again, Mumbai is the base for all analytics functions related to public Indian banks
- Since last year, the penetration and maturity of this sector has almost remained constant

Auto

- Auto sector has high adoption rate of analytics and data science. 5 out of 6 auto companies in India have some form of analytics adoption.
- Most analytics functions in auto industry supports the sales and Operations units
- Most analytics functions in auto industry are based out of Mumbai or Pune
- Since last year, Auto sector has dropped in terms of analytics maturity and remained constant in terms of penetration; vis-à-vis other sectors

E-commerce

- E-commerce has emerged as one of the largest adopters of analytics and is evident with their focus on hiring senior analytics professionals
- It is the leading sector in India in terms of both analytics penetration and maturity
- Most analytics functions in e-commerce industry supports the business development units; followed by the Engineering group

Oil Drilling & Refineries

- We looked at 8 large sized oil drilling & refinery companies in India. Analytics adoption is dismally low in this sector
- Just 3 out of 8 large sized companies have some form of analytics adoption
- Most analytics functions in Oil Drilling & Refineries supports the business Development & Sales units
- In terms of analytics maturity, the sector showed an increase this year

Steel

- We looked at 3 large sized Steel companies in India. Analytics adoption is high in this sector
- 2 out of 3 large sized companies in this sector have some form of analytics adoption
- This is the only sector that has moved across the Quadrants this year (from Quadrant III to II) depicting an increase in analytics maturity this year

CONCLUSION

While some sectors have made significant progress in terms of analytics maturity, traditional sectors like Steel, Power, Oil Drilling & Refineries and Utilities, weighed down by legacy infrastructure are yet to realise the gains from analytics implementation. In the big scheme of things, analytics adoption requires exponential shifts in terms of processes, people and technology. So, what's holding back these traditional sectors from rising up the analytics maturity scale.

Sectors with low adoption have little senior management buy-in and also lack a coordinated analytics integration. at a time when leadership plays a critical role in coalescing a strategy and tying it to financial bottomline, these traditional sectors have little C-level accountability. At a time when enterprises are achieving a series of improvements through enterprise-wide adoption, these traditional sectors are yet to define a vision for implementation of analytics strategies. Also, companies that lag behind in analytics adoption should put in a closed-loop process to map the baseline value out of analytics initiatives and include learnings in new initiatives.

ADDENDUM 1

List of Companies analysed, by Sector

Auto
Maruti Suzuki
Tata Motors
M&M
Hero Motocorp
Ashok Leyland
Bajaj Auto

Banks *(Private Sector)*
ICICI Bank
Axis Bank
HDFC Bank

Banks *(Public Sector)*
Union Bank
Bank of India
Central Bank
Bank of Baroda
SBI
IDBI Bank
Canara Bank
PNB

Ecommerce
Swiggy
Inmobi
Paytm
Ola
Flipkart
Shopclues
Zomato
Snapdeal

Financial Services
Power Finance
REC

Infrastructure *(General)*
Larsen
BHEL

Oil Drilling and Refineries
IOC
Reliance
HPCL
ONGC
GAIL
BPCL
Chennai Petro
Petronet LNG

Power
ReNew Power
Power Grid Corp
NTPC

Steel
Tata Steel
JSW Steel
SAIL

Telecommunication
Idea Cellular
Bharti Airtel

Utilities
ITC
Hindalco
Vedanta
HUL
UltraTechCement

ABOUT ANALYTICS INDIA MAGAZINE

Founded in 2012, Analytics IndiaMagazine has since been dedicated to passionately championing and promoting the analytics ecosystem in India. It chronicles the technological progress in the space of analytics, artificial intelligence, data science, big data by highlighting the innovations, players in the field, challenges shaping the future, through the promotion and discussion of ideas and thoughts by smart, ardent, action-oriented individuals who want to change the world.

Analytics India Magazine has been a pre-eminent source of news, information and analysis for the Indian analytics analytics ecosystem by covering opinions, analysis and insights on the key breakthroughs and developments in data-driven technologies as well as highlighting how they are being leverages for future impact.

ABOUT SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions, SAS helps customers at more than 70,000 sites improve performance and deliver value by making better decisions faster. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW®.

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