

Report

Diagnostics: Unraveling the Future

July 2022



Foreword



Indian diagnostic industry has emerged as a preferred play in India's growing healthcare sector, driven by attractive margins and good headroom for growth. The domestic diagnostic industry in FY21 was ~US\$ 10B and is expected to grow at a compounded annual growth rate (CAGR) of ~14% over the next five years. This growth will be primarily driven by increasing demographics, urbanization, penetration, and better realizations per test.

The diagnostic industry is characterized by a high degree of fragmentation with over ~100K labs. Of the US\$ 10B markets, standalone centers account for 48% market share, followed by hospital-based labs with 37% share, and national chains account for only 5% share. This fragmentation poses a challenge in terms of capability, scalability, and quality of labs, but on the other hand, it also provides an opportunity to consolidate newer business models to evolve.

While the pathology segment contributes ~57% to the diagnostic market share, radiology is importantly extensive at ~43% of the market, comprising tests like computed tomography (CT) scans magnetic resonance imaging (MRI),

color doppler ultra-sound scans, etc.

This report analyzes the current state of the diagnostic market and analyzes the key trends that we see emerging. These include a) Changing patient expectations from diagnostic players, b) Newer tests addressing critical and precise clinical needs, c) Non-traditional competitors entering the market, d) Newer patient-centric business models working around industry challenges, and e) Logistics becoming critical in the pursuit to serve customers at their convenience, and f) Use of technology and digital to improve customer experience, support clinical decisions and serve as a backbone of the business.

Our endeavor with this report is to understand, qualify and quantify the impact these trends will have on the Indian diagnostics market in short to medium term. We hope you find the report informative and look forward to continuing the discussion. We hope that this report will give you an insight into the underlying success factors to ride this wave of growth in the Indian diagnostics industry.

A handwritten signature in black ink, appearing to read "Madhur Singhal".

Madhur Singhal

Managing Partner & CEO

A handwritten signature in black ink, appearing to read "Aryaman Tandon".

Aryaman Tandon

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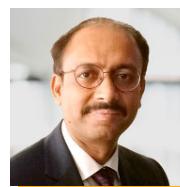
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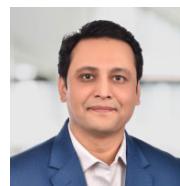
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Executive summary

Section	Key takeaways
Market landscape	<ul style="list-style-type: none"> Market size: Estimated market size in FY21 was US\$ 10B, of which 57% was pathology and 43% radiology; Biochemistry comprised ~20% of the market, and low-end radiology another ~22% Market growth: Indian diagnostics market is projected to grow at a CAGR of 14% to reach US\$ 20B by FY26 Significantly under-penetrated market: Pathology tests per 1000 population in India is 1,111 versus 5,924 in Brazil, 10,000 in Australia, and 20,958 in the USA; Number of CT, MRI tests per 1000 population in India was 36 compared to 53 in Brazil, 144 in the UK, 192 in Australia, and 407 in the USA Highly fragmented and urbanized: Standalone centers and hospital-based labs (including government labs) have an 85% share of the market; urban areas account for 74% of the market Reasonable penetration in Tier 2 and 3 cities in terms of number of labs: This indicates market readiness to expand and adopt more specialized tests and technologies GP driven market: ~55% of the tests prescribed in out-patient settings are from General Practitioners and Gynaecologists
Emerging trends in diagnostics market	<ol style="list-style-type: none"> 1 Changing patient behavior – pricing, convenience, and reliability are the top three driving factors while selecting a diagnostic service provider <ul style="list-style-type: none"> Preference for convenience: <ul style="list-style-type: none"> Home collection over walk-ins - ~75% of the customers prefer home collection over lab walk-ins and are willing to pay 75 -100 for home sample collection services Easy access to reports: Test tracking, report access through email, app, and other ways; Easy to read reports for customers; Longitudinal analysis of historical reports Neighbourhood labs: Preference remains high for acute and doctor driven tests Customers seek reasonable pricing: <ul style="list-style-type: none"> For self-initiated or wellness tests – preference is high for online platforms with competitive discounts Preference for reliable service providers: Convenience driving customers towards more reliable branded chains 2 Specialized wellness tests driving growth <ul style="list-style-type: none"> Specialized tests: Comprises 15-22% by volumes and 40-45% by value; Molecular pathology poised to grow at 35-40% year on year Wellness tests: Currently comprises 1-3% by volume and 10-15% by revenue; Growth likely to be driven by general wellness and condition-specific monitoring packages In addition, PoC and rapid tests have seen a wide acceptance during COVID and, going forward, are likely to witness wider acceptability with advancements in technologies

Executive summary

Section	Key takeaways
Emerging trends in diagnostics market	<p>3 Playfield becoming more competitive</p> <ul style="list-style-type: none"> • Due to attractive margins, players from adjacent service areas of the healthcare ecosystem have entered the diagnostics market and become more competitive. Examples include pharmaceutical companies (e.g., Lupin), Hospitals (e.g., Max, Aster DM, Sterling), Diagnostic service aggregators, telehealth providers • Government is taking several initiatives to strengthen the public health infrastructure and make diagnostics more accessible and affordable. With increasing competitive intensity in Metros and Tier-1, lab chains are undertaking aggressive expansion in Tier 2+ through asset-light models <p>4 New business models</p> <ul style="list-style-type: none"> • New business models around teleradiology and telepathology to improve access, quality, and efficiency of diagnostics; Newer players include computational pathology solution providers and teleradiology service providers; Teleradiology was estimated to be a US\$ 356M market in 2020 and is likely to evolve into US\$ 700M market by 2025 growing at a CAGR of ~15% • Network of partnerships: Diagnostics ecosystem has expanded from comprising only core equipment and reagent providers to include players offering lab automation, third party logistics & ones offering tech-centered business models; With the decoupling of operating layers, models are evolving into a network of partnerships • While still at its nascent stage, Insurance cover for out-patient care could propel a rapid growth <p>5 Supply chain innovation</p> <ul style="list-style-type: none"> • Best in class sample logistics is fast evolving into a core enabler of a successful pathology business: Supply chain innovations in sample processing in both pre and post-analytical stages are levers of key differentiators among the service providers. The focus is on improving sample visibility and, reliability & responsiveness of the supply chain <p>6 Technology and digital</p> <ul style="list-style-type: none"> • Focus on improving customer experience through digitalized journeys • Use of AI systems, especially in image processing across radiology and pathology • Robust IT system for fulfillment layer – collection scheduling, sample logistics, and tracking • While the considerable focus has been on leveraging digital to become efficient and deliver customer delight, many areas of opportunity remain unexplored
Key challenges	<ul style="list-style-type: none"> • Key challenges facing the industry are across the regulatory, fragmented market with a low focus on quality, commoditization and increasing competitive intensity, nonaccess to specialized resources, and value-conscious Indian customers

Executive summary

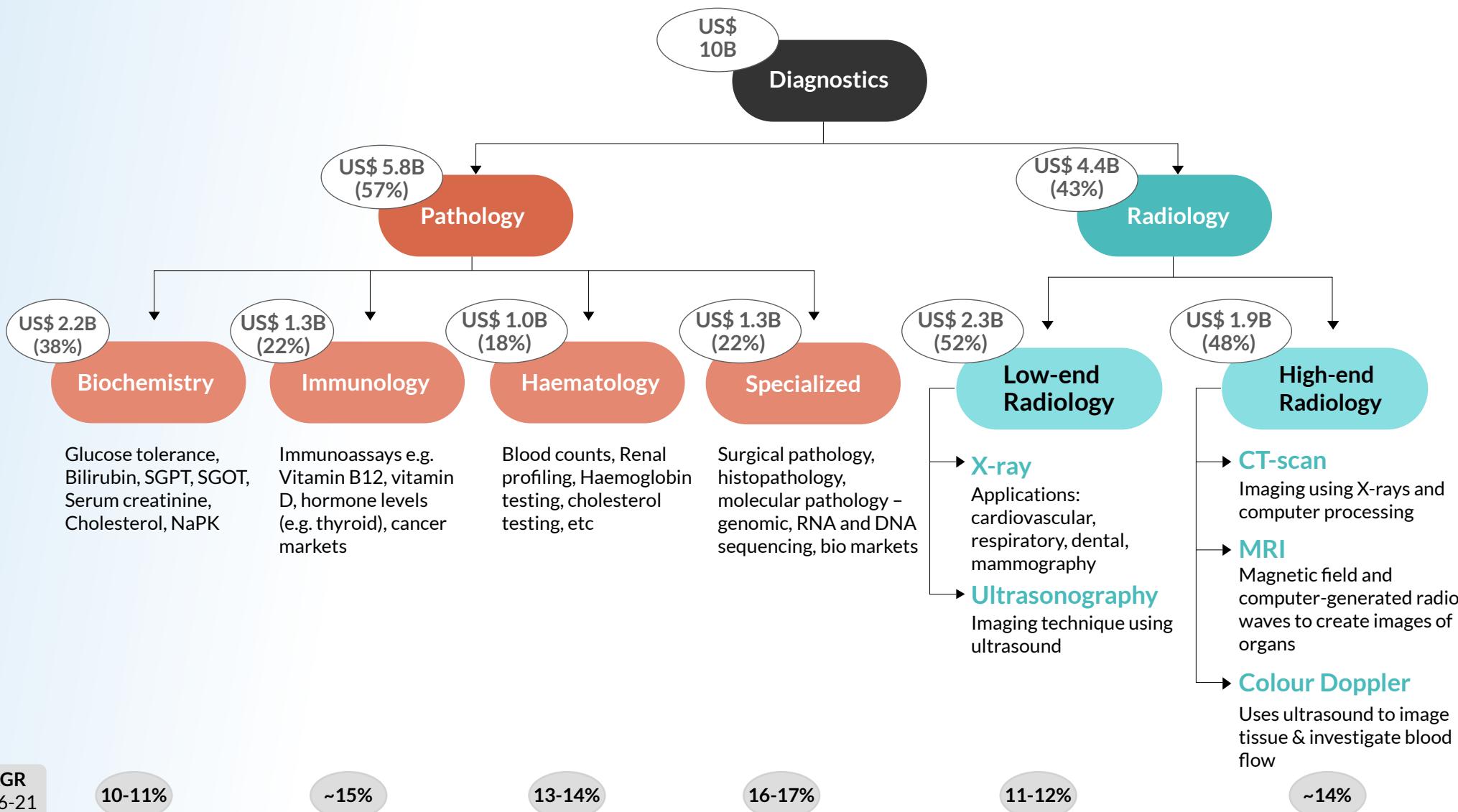
Section	Key takeaways
Future outlook	<ul style="list-style-type: none">While the industry is poised for healthy growth at a CAGR of 14% to reach US\$ 20B by FY26, diagnostic companies have certain imperatives laid out for them. These include:<ul style="list-style-type: none">Growing their core: Omni-channel strategy, accretive value Tier 2, 3, and 4 city expansion, stitch network of partnerships for faster growth, introducing new productsExpansion through inorganic route and in non-core: Expansion into adjacencies: e.g., Addition of capabilities for teleradiology and telepathology; integrated health offerings – e.g., wellness services; Data monetization or value add servicesSupply chain and operations: Improving service TAT and reliability, supply chain digitization to enhance supply chain visibility and reliability; usage of digitalization tools such as AI for process efficienciesCustomer acquisition, experience, & retention: fine-tuning digital journeys for customers and enhancing loyaltyBottom line improvement: With increasing competition and tests becoming more commoditized, there is a need for super-efficient operations to keep the bottom line healthy

Contents

Overview of diagnostics market



In the Indian diagnostics market, biochemistry has the largest share of pathology, while low-end radiology is the largest in radiology



Compared to other leading countries, diagnostics is significantly underpenetrated in India

While closer to UK, number of tests performed per capita in India are far lower

Diagnostics test under penetration in India

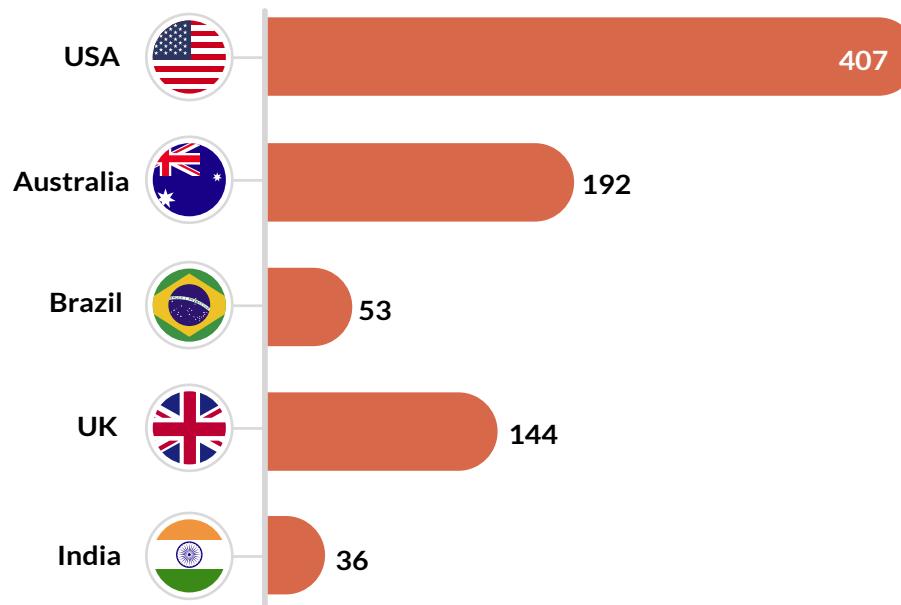
tests per '000 population per year



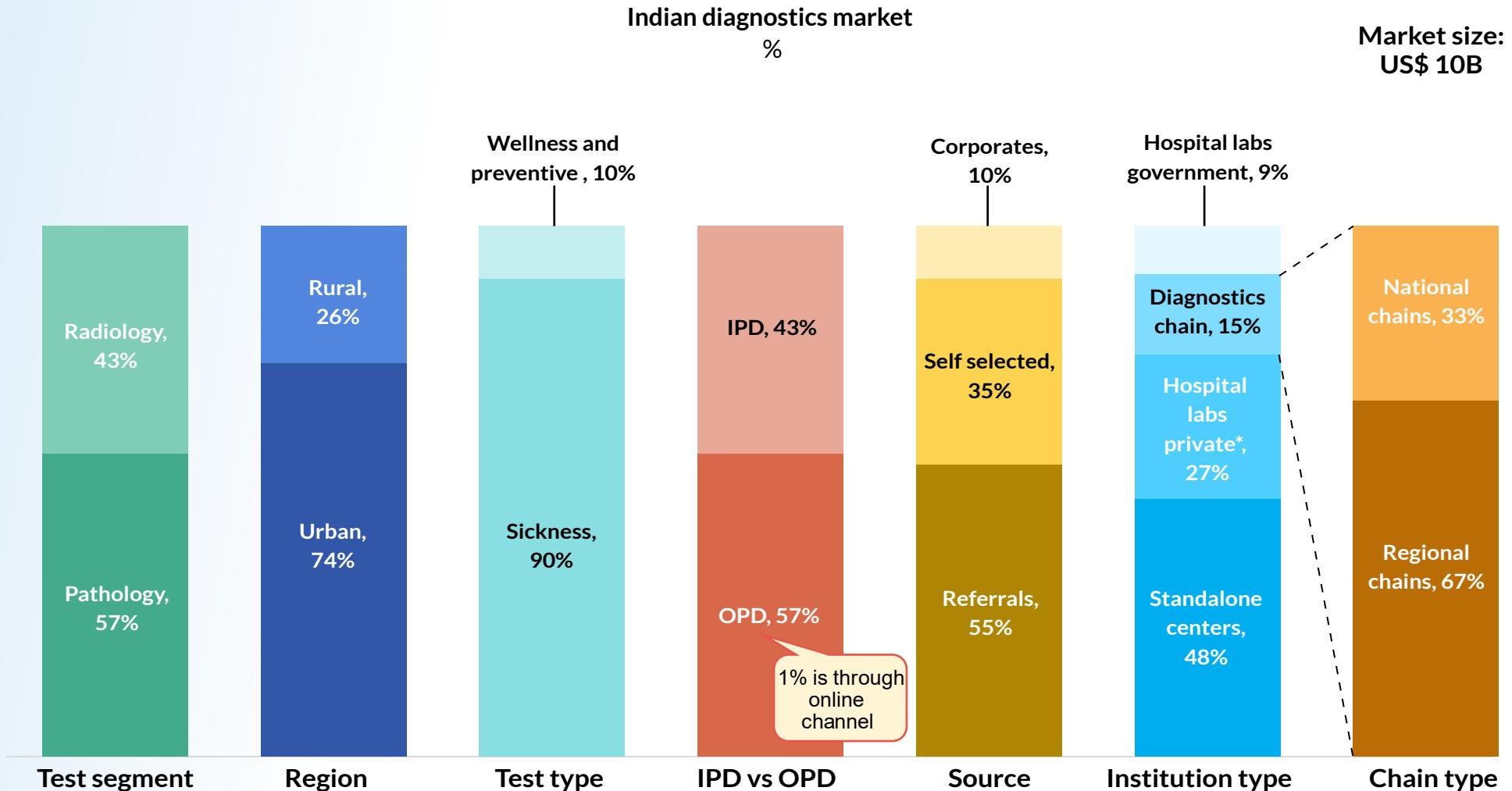
Even for imaging tests such as CT and MR, there is significant headroom for growth when benchmarked with other countries

CT and MR test under penetration in India

tests per '000 population per year



Standalone centers and hospital-based labs (including government labs) have an 85% share of the market; urban areas account for 74% share



Notes: *Hospital-based labs in Institution type is inclusive of Government labs. Private and Government labs split is estimated at 75:25, and for market estimation price of tests are assumed at market prices instead of subsidized rates

Sources: CRISIL reports, HDFC Securities report, Praxis analysis

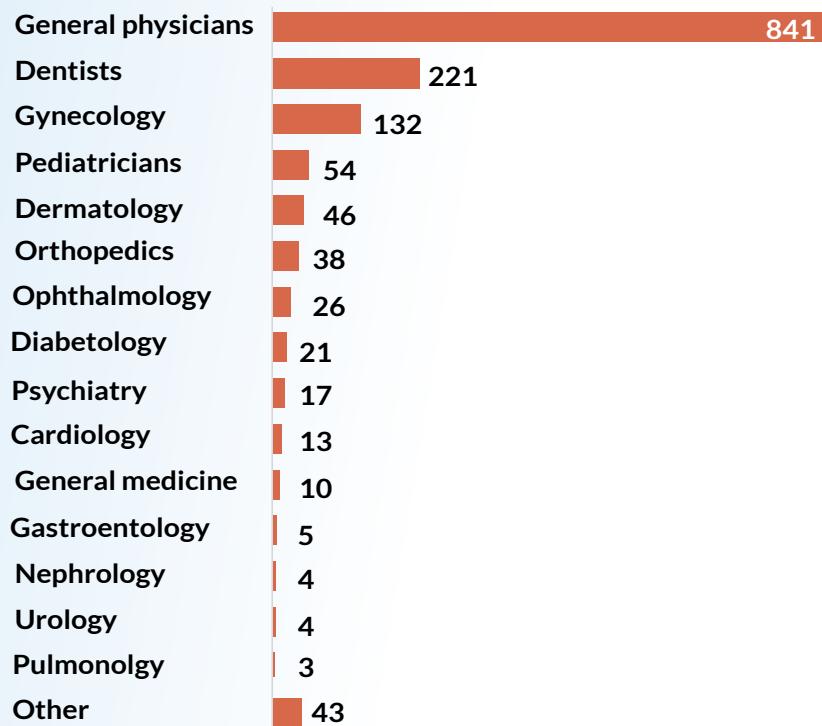
In OPD, general physicians followed by gynecologists account for the largest share of the diagnostics test prescriptions

General physicians have 55% share of the diagnostics test prescription market by volume

OPD diagnostics test prescription market

#tests, M

Total tests: 1,500M

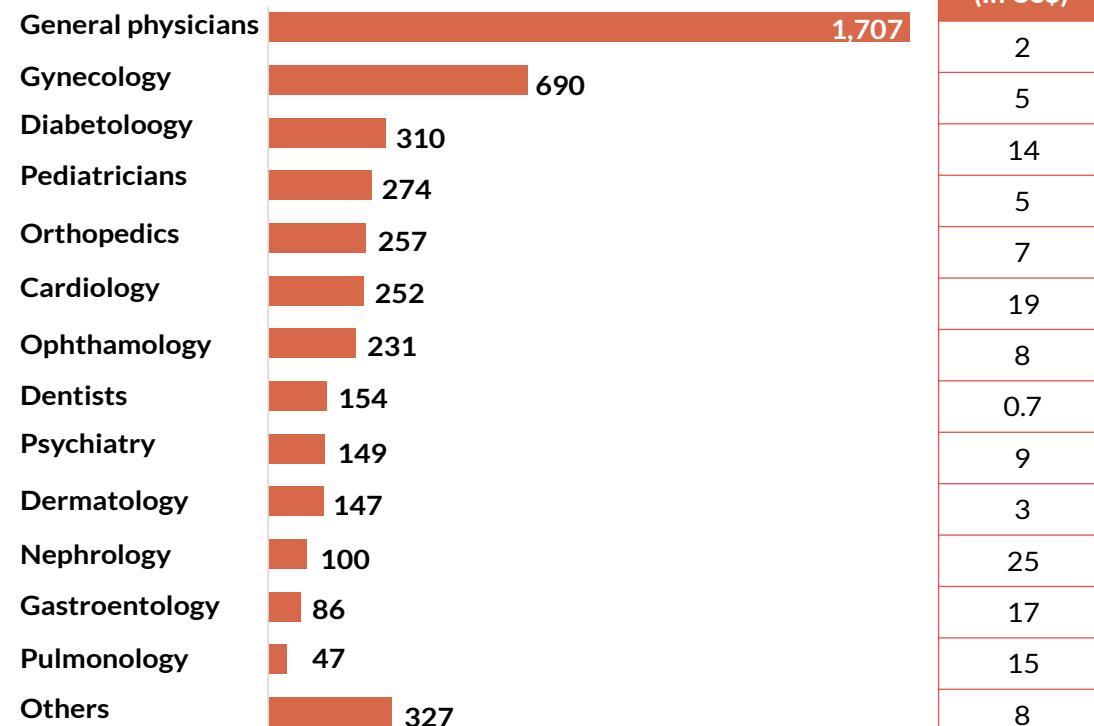


General physicians have 36% share of the diagnostics test prescription market by value

OPD diagnostics test prescription market

US\$ B

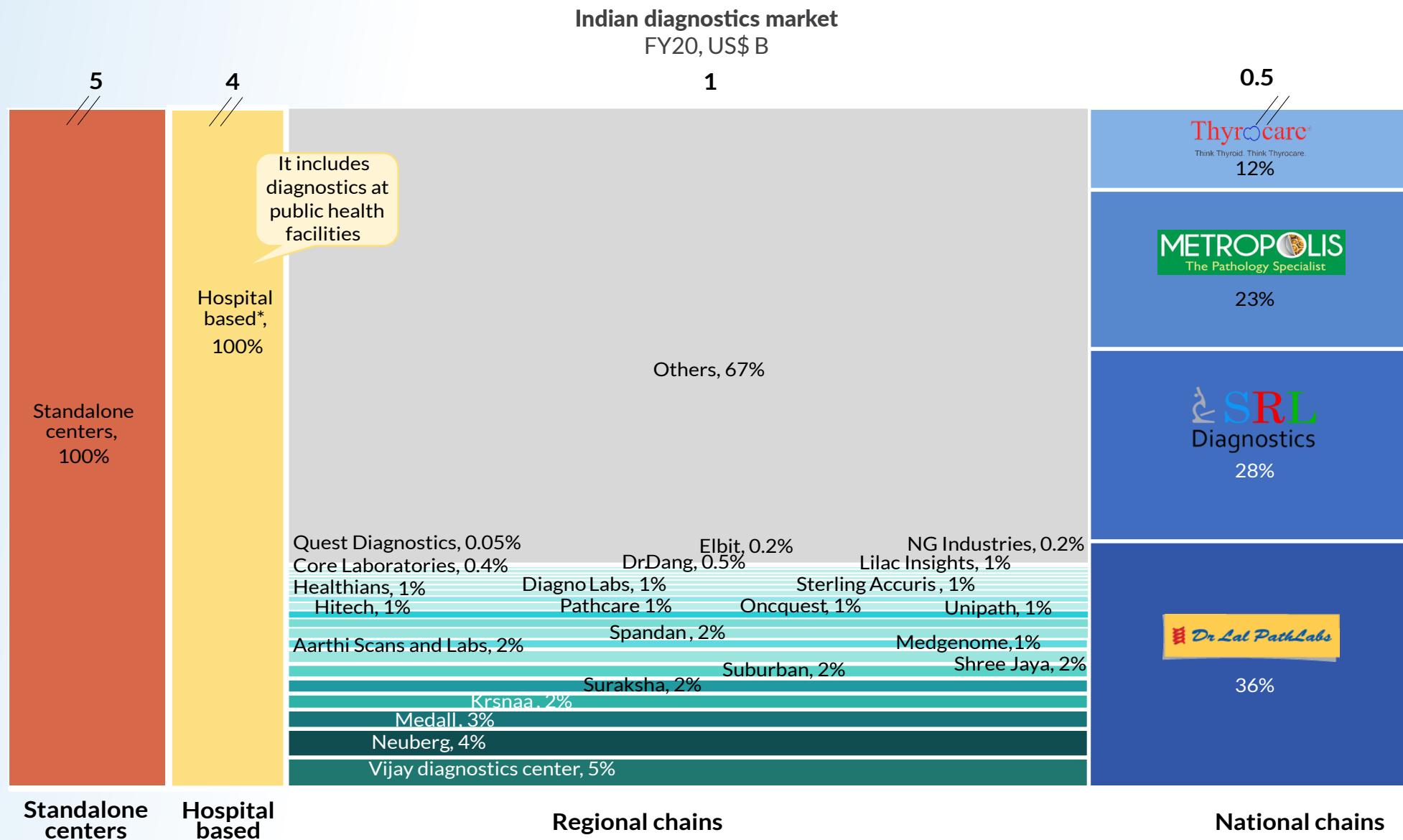
Total size: US\$ 4,700M



Notes: Others include General medicine, endocrinology and other specialties

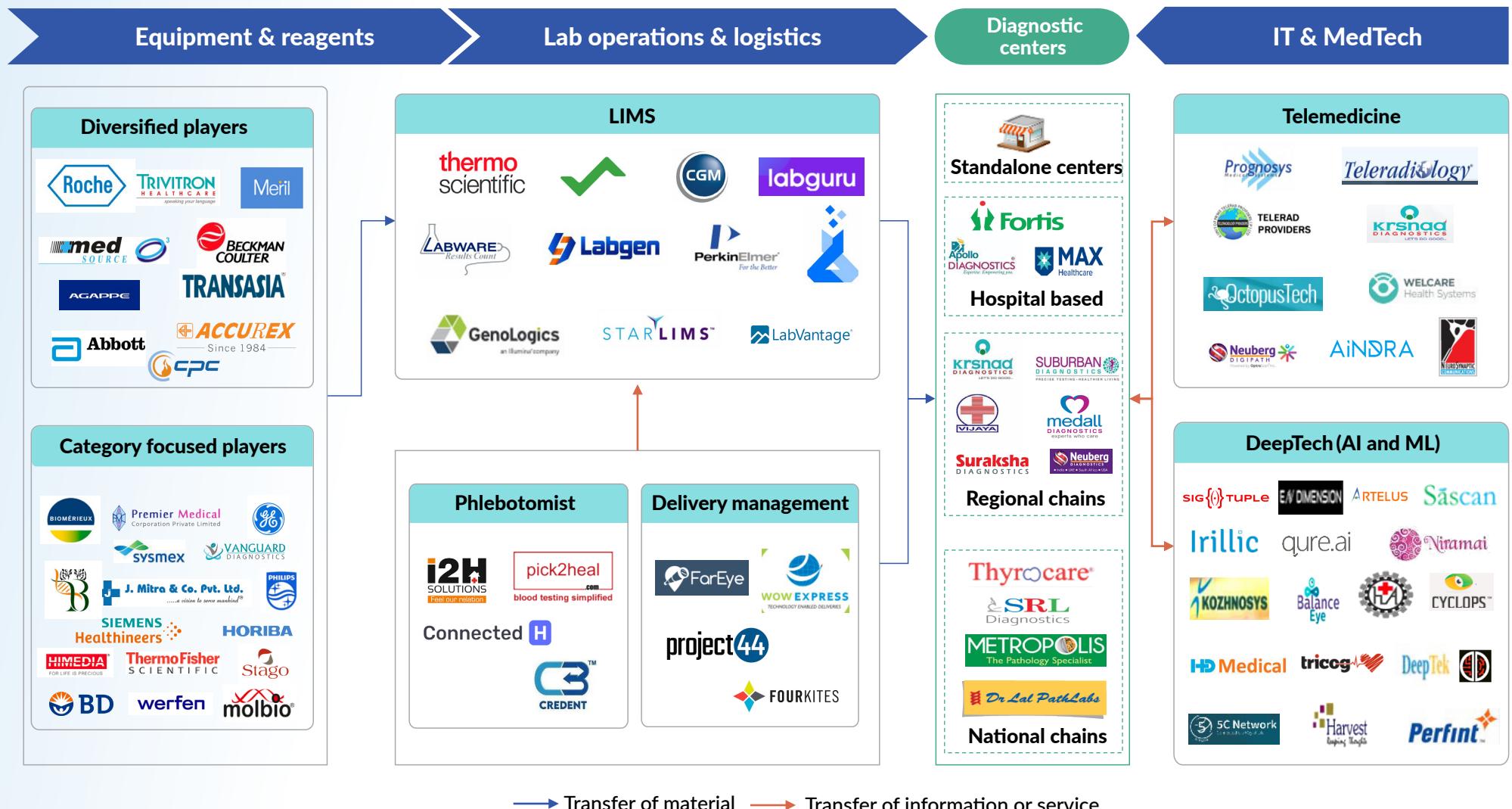
Sources: Praxis report – Outpatient healthcare market in India

Standalone centers have a 48% share, followed by hospital-based labs at 37%; national chains have a 5% share, led by Dr. Lal PathLabs



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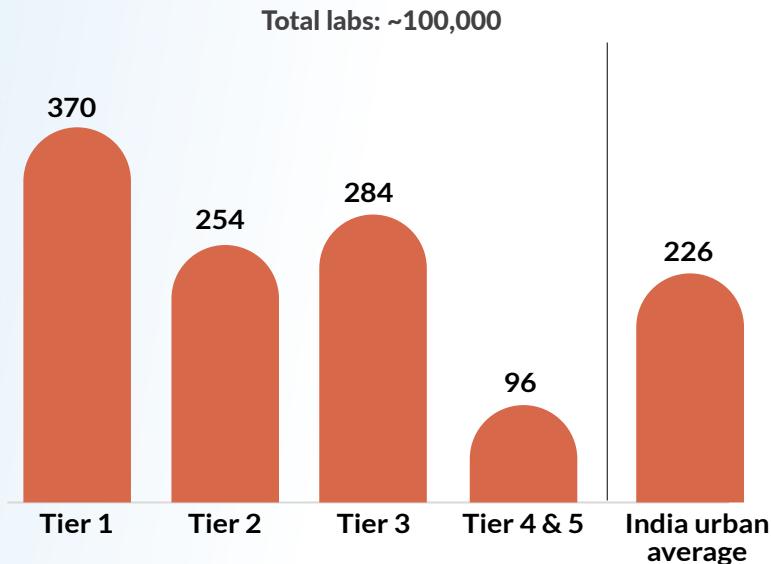
The ecosystem has expanded from only core equipment and reagent providers to players offering lab automation, third party logistics & tech-centered business models



Tier 2 and 3 cities are reasonably penetrated with headroom for growth, indicating market readiness to expand and adopt more specialized tests and technologies

In Tier 2 and 3 cities, while pathology labs have reasonable penetration, the offerings are more basic

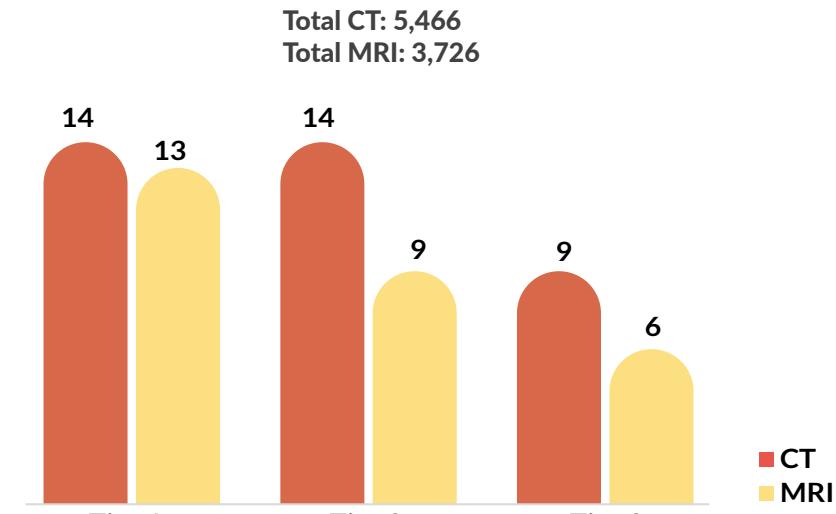
Distribution of diagnostics labs in India
per M, FY 20



Labs by tiers	43,700	20,064	19,039	17,097	100,000
Labs per city	4,370	608	241	41	185

Tier 1 and Tier 2 cities have similar penetration of CT scanners while MRI has higher penetration in Tier 1

Distribution of CT & MRI installations in India
per M, FY 20



CT by tiers	1,803	1,257	2,405	5,466
MRI by tiers	1,602	745	1,379	3,726

	Tier 1	Tier 2	Tier 3	Tier 4 & 5
Population (In M)	118	79	67	178

Notes: City tier classification criteria: Tier 1 – Population > 40 Lakhs, Tier 2 – Population 15 - 40 Lakhs, Tier 3 – Population 5 - 15 Lakhs, Tier 4&5 – Population < 5 Lakhs

Sources: Just Dial scrape, AERB database, Praxis analysis

COVID-19 shaped the market – emphasizing the need for diagnostics & treatment, influencing consumer acceptance of PoCT & home collection

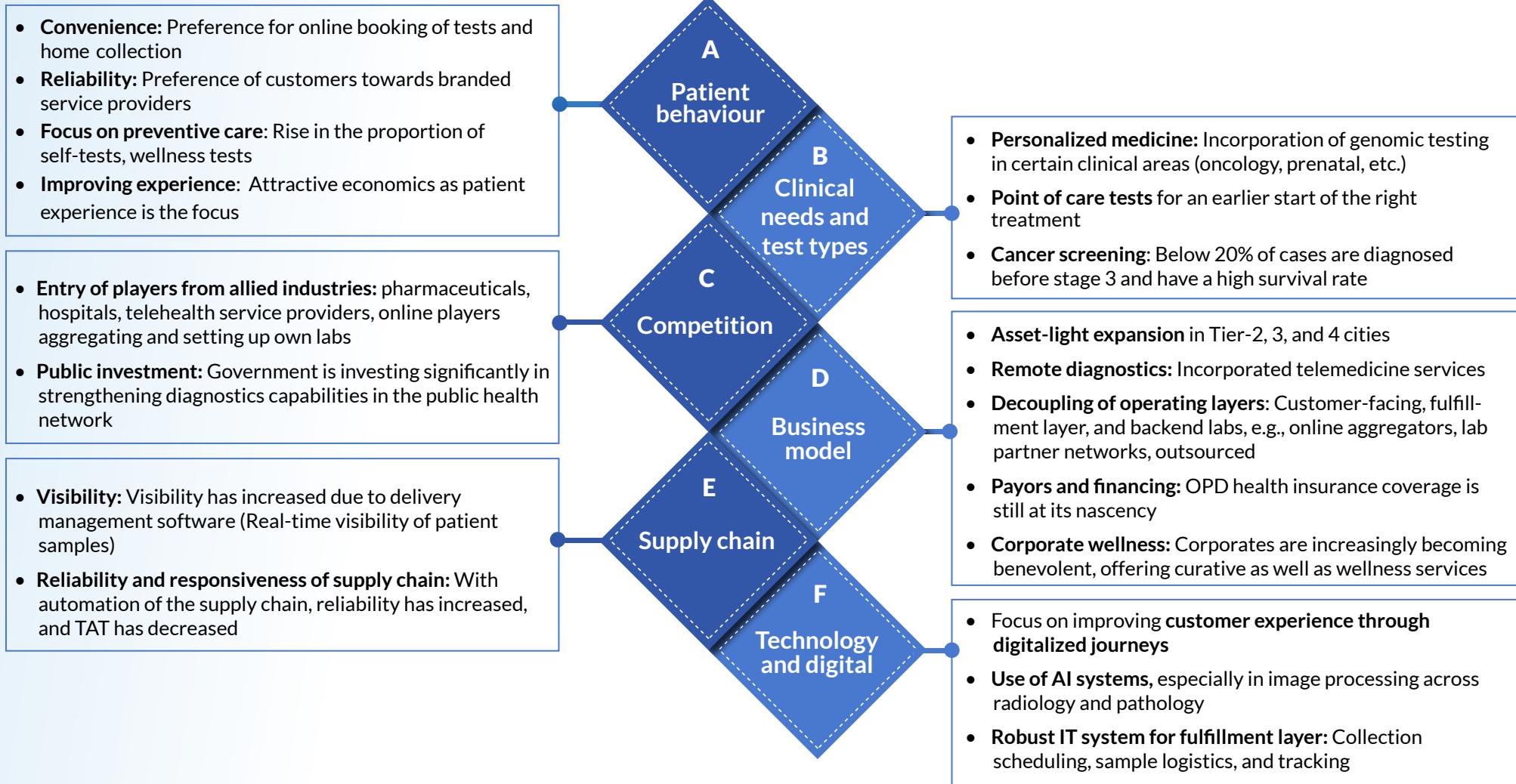
Impact of COVID	
Trust on home collection	<ul style="list-style-type: none"> Home collection revenues (excluding COVID business) grew by 25-30% for most of the national chains in FY21
Proliferation of molecular testing	<ul style="list-style-type: none"> Astronomical growth in the number of NABL accredited molecular testing labs → from 40 in March 2020 to 1,690 in November 2021 The additional capacity will remain in place as the pandemic subsides, which could potentially find multiple applications for the RT-PCR assay as the dominant method for diagnosing viral infections in India
Adoption of digital solutions for improving customer experience	<ul style="list-style-type: none"> Usage of apps (from aggregators as well as diagnostics chains) for booking tests increased multifold and is likely to increase as customers would continue to book tests online post COVID Several diagnostics chain players have improved their online presence and invested in automating and expanding the customer support team
Usage of tele-diagnostics solutions	<ul style="list-style-type: none"> Multiple players have implemented technology to allow their technicians and pathologists to read images remotely to drive better utilization of expert resources

Contents

Emerging trends

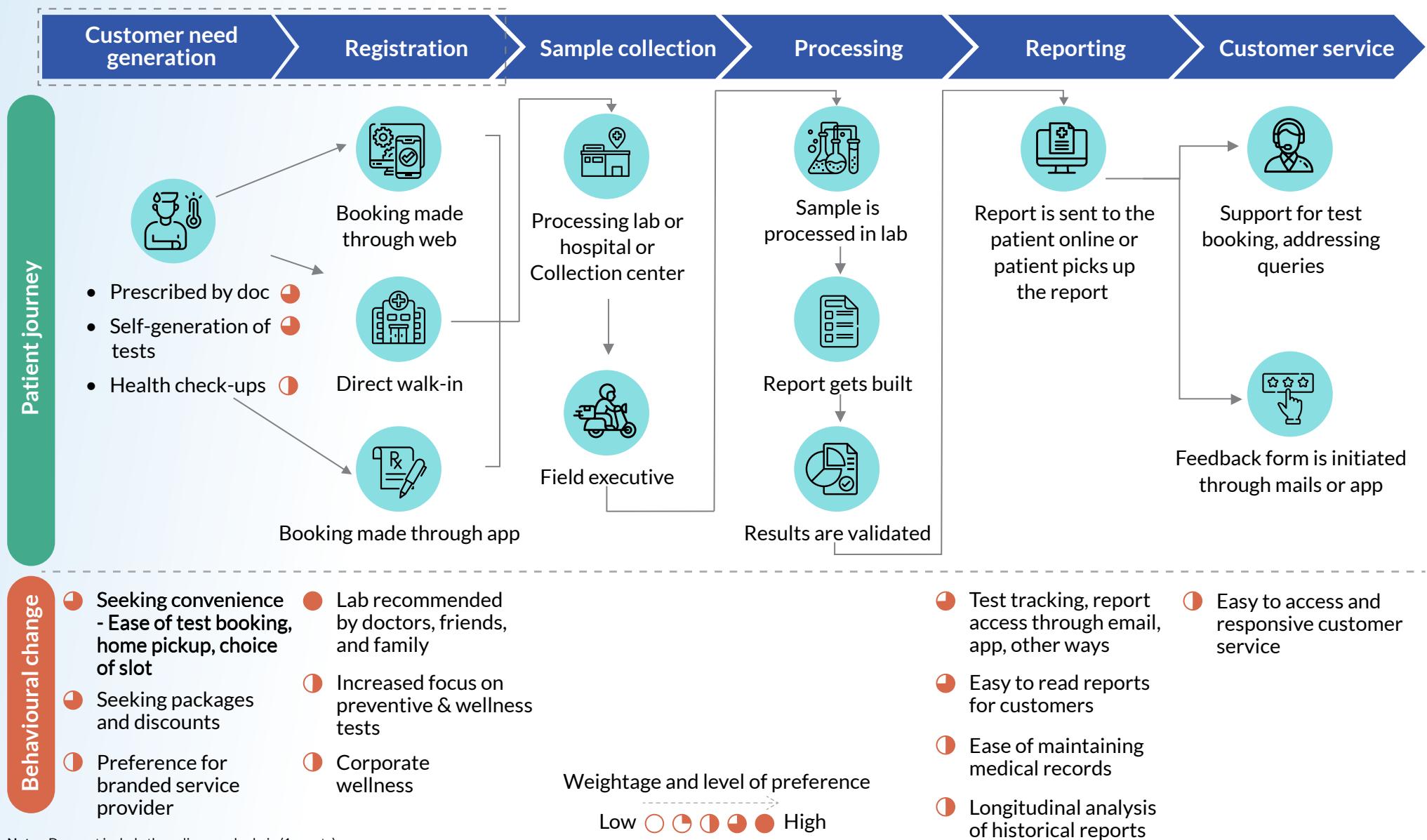


Emerging trends in Indian diagnostics market



Evolving patient behaviour

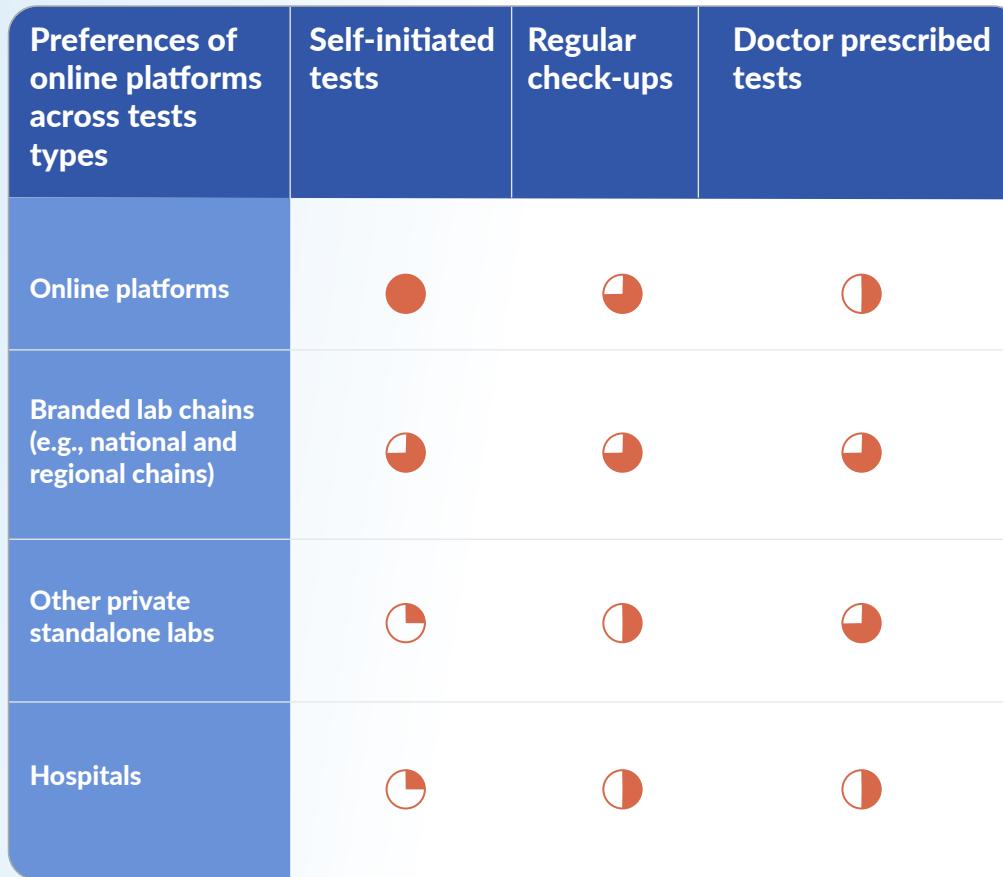
A Customers are increasingly seeking convenience, reliability and going for wellness-related tests



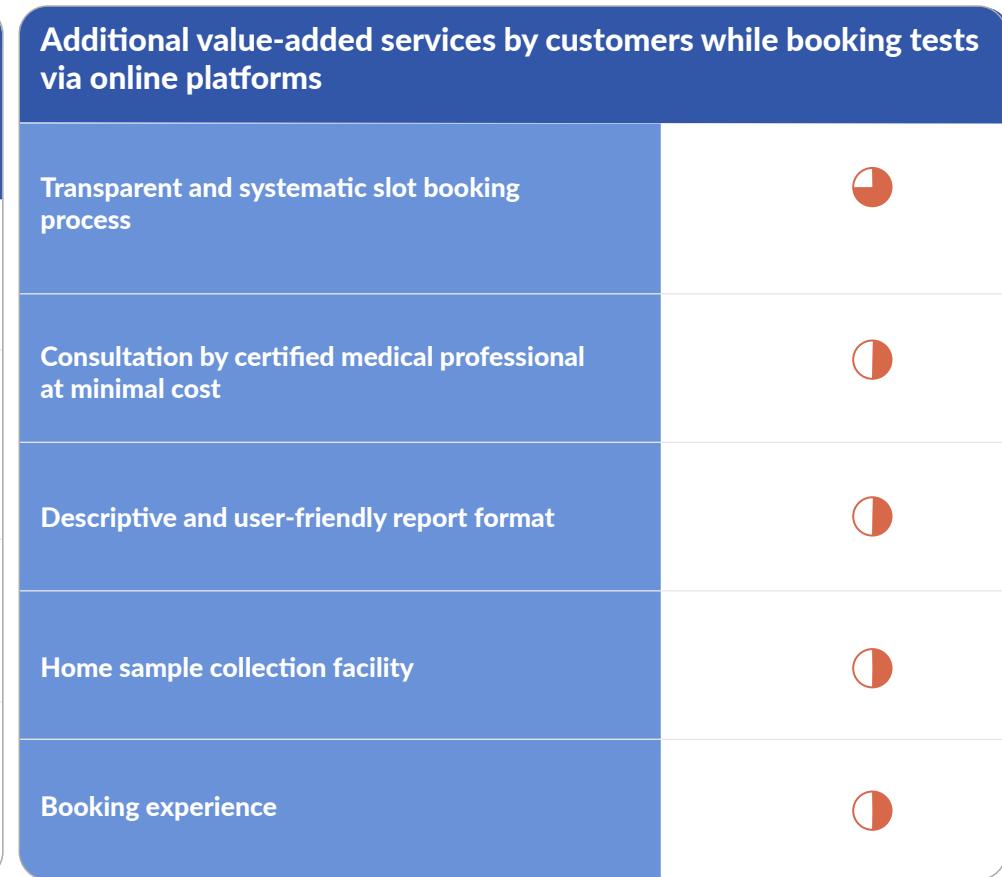
Evolving patient behaviour

A For self-initiated tests & regular check-ups, online platforms are preferred; customers also desire additional value-added services while booking tests online

Online platforms are emerging as customer preference for self-initiated and regular check-ups



Majority of customers believe following additional value-added services can make their online diagnostic test experience better



Emerging preference

Low    High 

Evolving patient behaviour

A

Price, quicker access to reports & home collection facility are the primary reasons for the selection of diagnostic service provider



Emerging preference

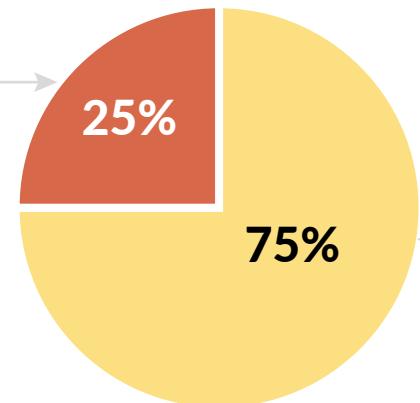
Low     High

A

~75% of the customers prefer home collection over lab walk-ins and are willing to pay rupee 75 - 100 extra for the same

Preference for customers among home collection versus lab walk-ins

In %



- Already satisfied with services
- Proximity of test center nearby
- Prefer walk-ins as its convenient
- Better accuracy of tests data
- Trusted labs don't have home collection facility
- Concerns on sample getting affected
- Better prices

- Convenient & hassle-free
- No wait time
- Ease of booking slots
- Free home sample collection facility
- Lack of proximity to labs

Willingness to pay

- Customers are **willing to pay rupee 75 - 100** for the home sample collection facility

Preference factors

Low

High

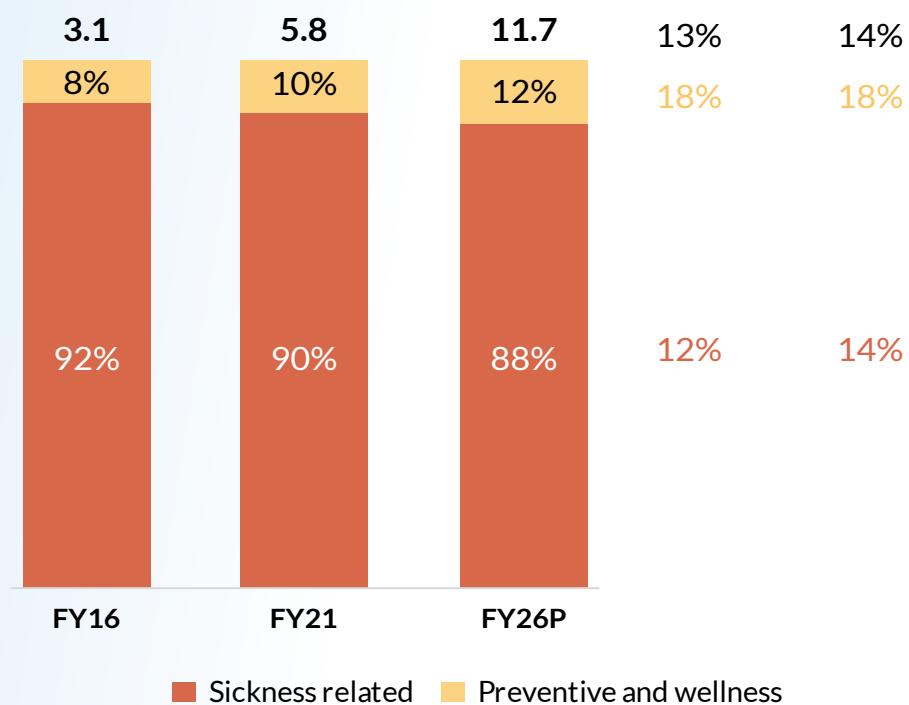
Consumers are increasingly adopting preventive and wellness related tests

Share of such tests is estimated to increase from ~10% to ~12% by FY26 at a CAGR of 18%

Preventative tests are projected to grow at a CAGR of 18% to increase their share in all diagnostics tests to ~12%

Distribution of pathology tests by type

US\$ B, FY16-26P



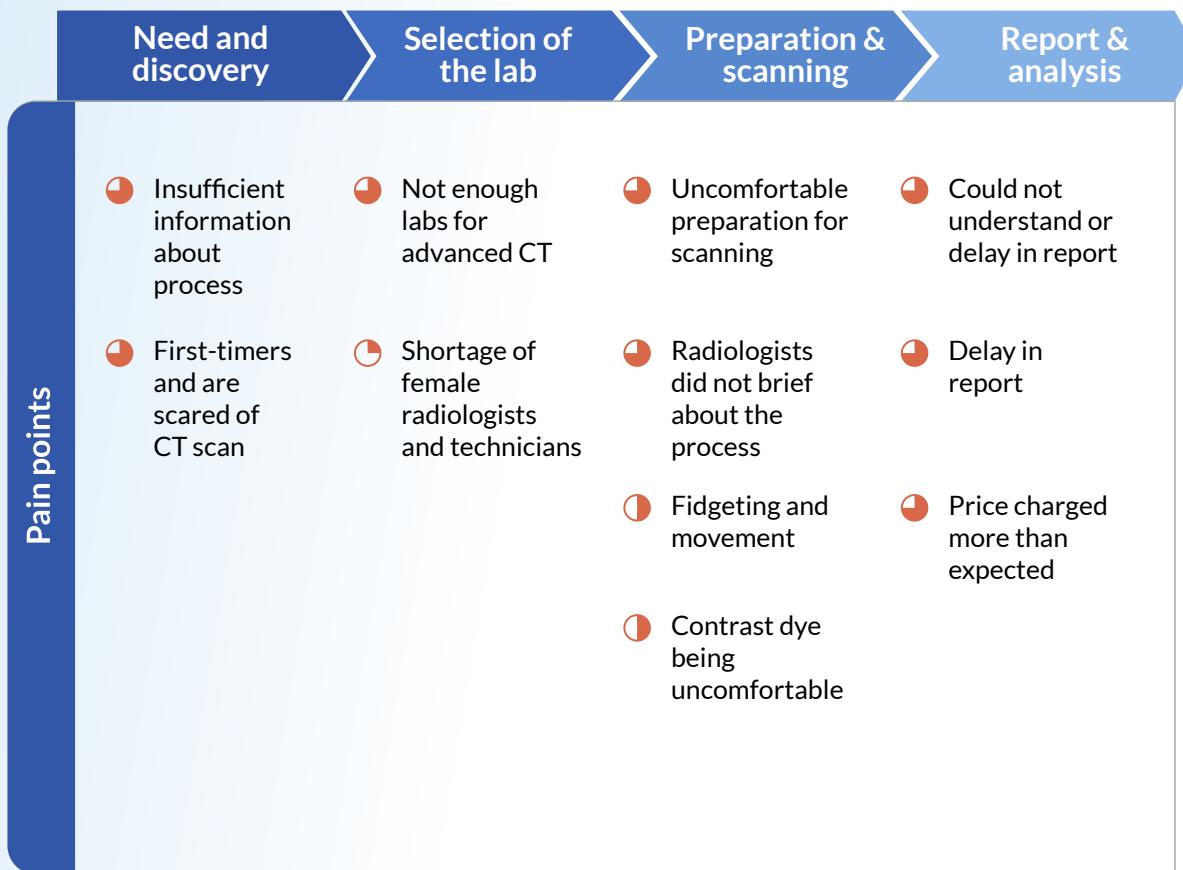
Growth drivers for preventative tests

- Increasing awareness for personal immunity and preventive healthcare post COVID-19
- Rise in disposable income among the Indian population (Section 80D of Income Tax Act allows income deduction of rupee 5-7K for preventive health check-ups)
- Government's push towards developing new models for health and wellness as part of the National Health Mission
- Corporate sectors are now encouraging employees to undergo preventive healthcare testing in order to boost workplace productivity
- Focus of online aggregators is moving towards the preventive and wellness segment of diagnostics
- Advances in the medical field such as preventive genetic testing will also push more people towards preventive healthcare

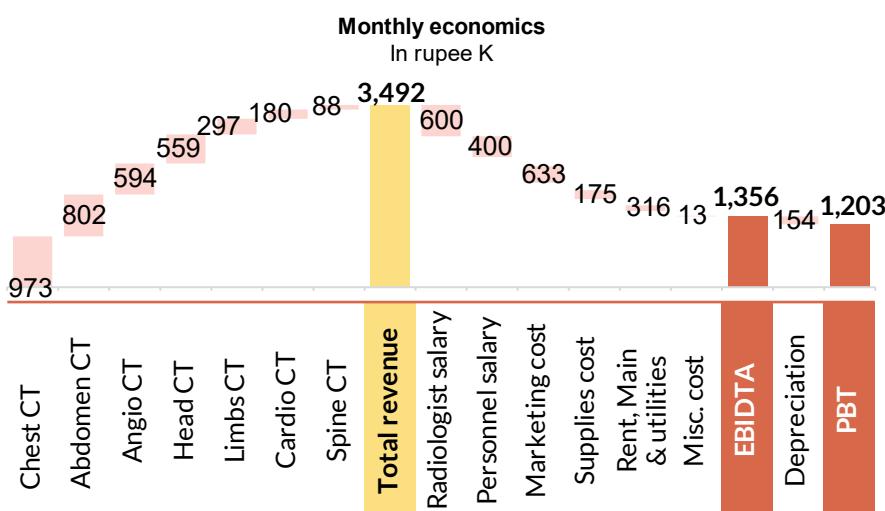
Evolving patient behaviour

A While radiology has many pain points being addressed, the attractive economics of this segment offers growth opportunities

Several key challenges exist to be solved across the value chain of imaging (e.g., CT scan), such as shortage of advanced labs, shortage of transparency in procedure charges, etc.



With attractive economics and these challenges remaining, radiology is emerging as an attractive segment (illustrative economics for CT scan unit at the large hospital)



Return on CT scanner	
Total investment	~₹ 18 M
RoI*	~56%
Simple payback	~2 years
EBIDTA	~39%
PBT	~34%

Clinical needs and test types

B Specialized and wellness tests are the key segments projected to be growth drivers for the Indian clinical testing market

Segments by clinical area	Test Mix	Growth outlook	Rationale
Routine tests Such as CBC, lipid profile, urine culture, etc.	<ul style="list-style-type: none"> In volume mix, this category is the major contributor to the volume, i.e., 40-45% of total clinical tests; however, in value terms, it's just 12-17% 	↑	<ul style="list-style-type: none"> Routine + semi-specialized tests that are primarily biochemistry pathology, immunology, and microbiology constitutes 75-85% of the total clinical tests volume Year on year growth in these segments is projected to grow at 10-15% year on year
Semi specialized tests Such as diabetes, thyroid, liver profile, etc.	<ul style="list-style-type: none"> In volume mix, this category is the second major contributor to volume i.e., 35-40% of total clinical tests however in value terms it's 25-35% 	↑	
Specialized tests Such as molecular diagnostics for colorectal cancer tests, lung cancer tests, somatic panel tests, etc.	<ul style="list-style-type: none"> In volume mix, this category is the second least contributor to volume, i.e., 15-22% of total clinical tests; however, in value terms, it's already the highest, i.e., 40-45% 	↑	<ul style="list-style-type: none"> Molecular pathology testing, which is more of genomics, genetic-based DNA, and RNA segment sequencing, is poised to grow at 35-40% year on year Some of the key factors driving the growth are finding alternative utilization of the rapidly installed base for PCR & rapid test products during the pandemic, growth in lifestyle diseases, etc.
Wellness tests Such as cholesterol, BP, mammogram, etc. under annual health check plans such as from corporates and individuals	<ul style="list-style-type: none"> In volume mix, this category is the least contributor to the volume, i.e., only 1-3% of total clinical tests; however, in value terms, it's already a healthy 10-11% 	↑	<ul style="list-style-type: none"> Wellness testing will grow to double that of sickness testing for the next 20-25 years – till wellness is 60-70% of the total, which is just 10% currently This is due to increased offerings, awareness, and adoption of bundled tests profiles and wellness packages

Diagnostics market outlook

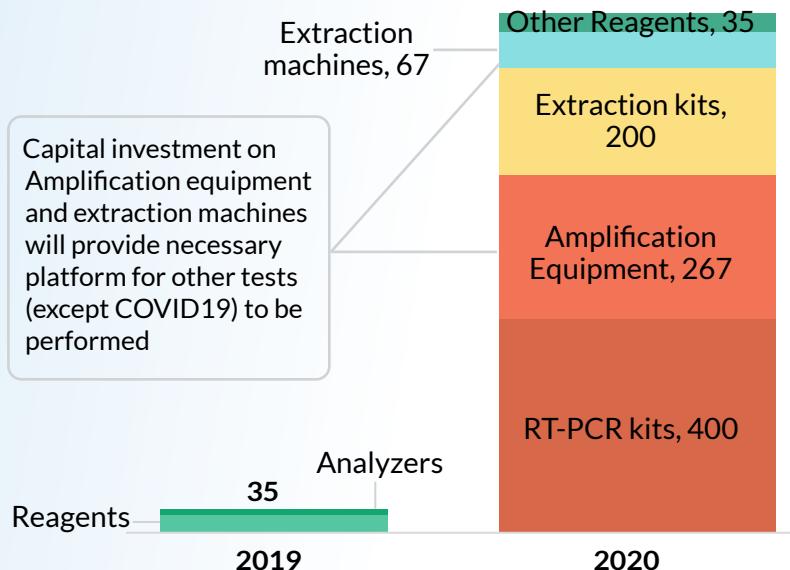
At par market growth ↑ ↑ Above market growth

Clinical needs and test types

B Infrastructure for molecular testing expanded multi-fold during COVID, which in a post COVID world could be used to create a market for new viral tests

Indian molecular diagnostics market grew exponentially in 2020 with COVID19 creating additional sales of ~US\$ 934M (est.)

Indian Molecular diagnostics market
US\$ M, CY19-20



Evolution of market

Pre-COVID19 market

- Niche segment in India with only a few active players due to low volume requirements
- The largest sub-segments, including HIV, HBV, and HCV reagents (US\$ 14M) and TB reagents (US\$ 13M), constituted ~80% of the market

Impact of COVID19

- Many companies entered the market, with 30+ companies getting manufacturing licenses and 119+ companies getting import licenses
- Multi fold capacity expansion undertaken**
 - Anywhere between 2x-10x by RT – PCR & raw material suppliers of **enzymes and reagents** such as Thermo Fisher Scientific, Promega Corporation, NEB, Bio-Rad, Qiagen, and Takara Bio

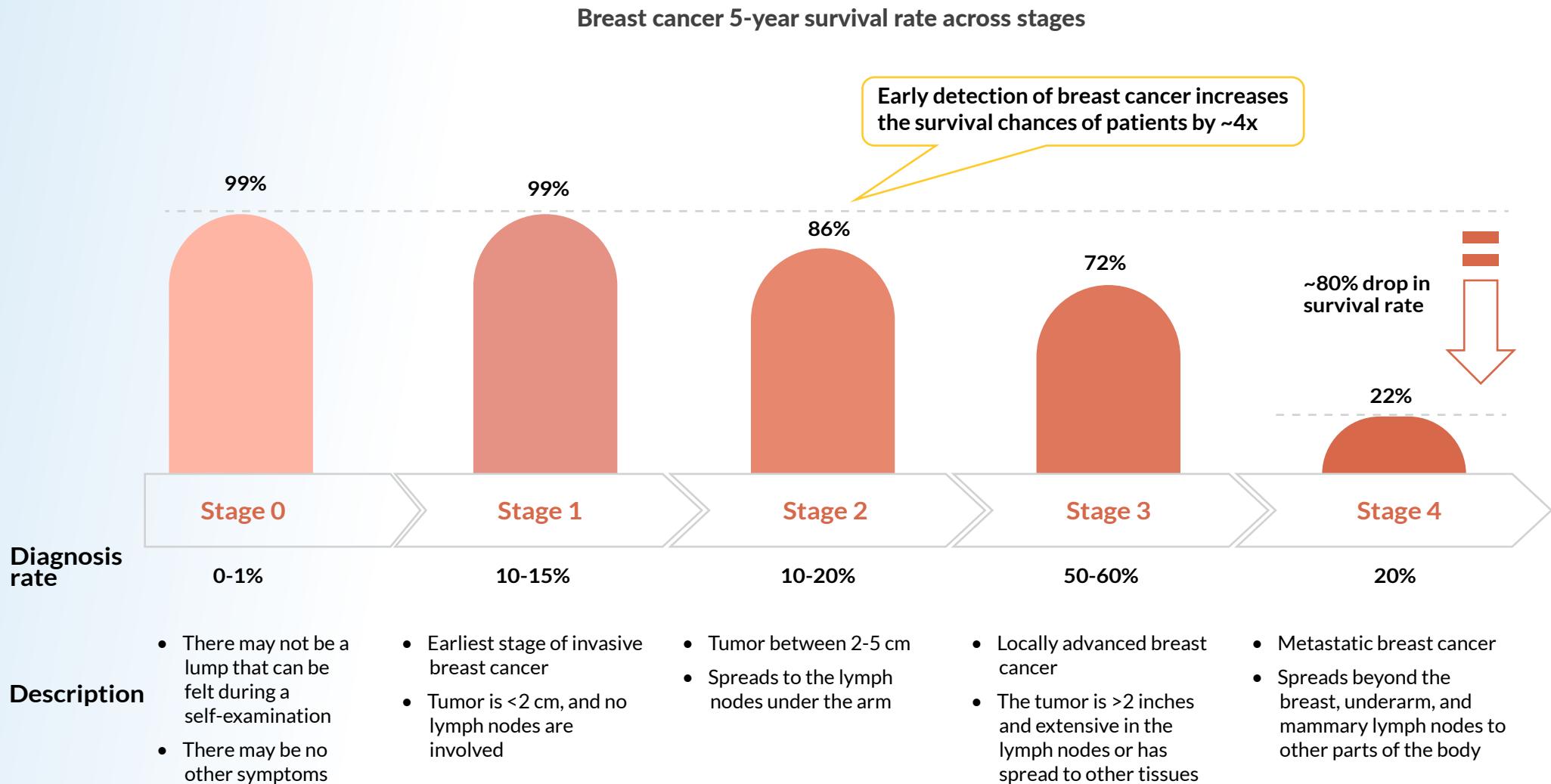
Expected evolution Post-COVID19

- Alternative applications for ramped up capacity of molecular testing equipment**
 - The additional capacity will remain in place as the pandemic subsides, which could potentially find multiple applications for the RT-PCR assay as the dominant method for diagnosing viral infections in India such as **TB (3 M cases in FY20), septicemia (11 M cases in FY20), meningitis (15K cases in FY19 and other CNS (central nervous system) infections**

Clinical needs and test types

B

Less than 20% of breast cancer cases get diagnosed early (before Stage III)



Notes: For ovarian cancer - the TNM staging, subsequent treatments and 5- year survival rates remain similar; and FIGO and AJCC stage ovarian cancer into I, IA, IB, IC, II, IIA, IIB, IIIA1, IIIA2, IIIB, IIIC, IVA, and IVB; diagnosis rates imply what % of people get detected with cancer across stages

Sources: Oncology research papers; Praxis analysis

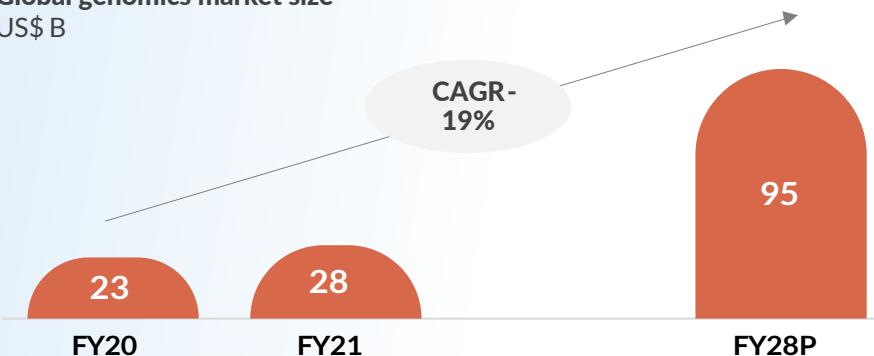
Clinical needs and test types

B

Global genomic testing market is expected to grow at ~20% CAGR; In India too, tests are being increasingly used for oncology, reproductive health, and predictive testing

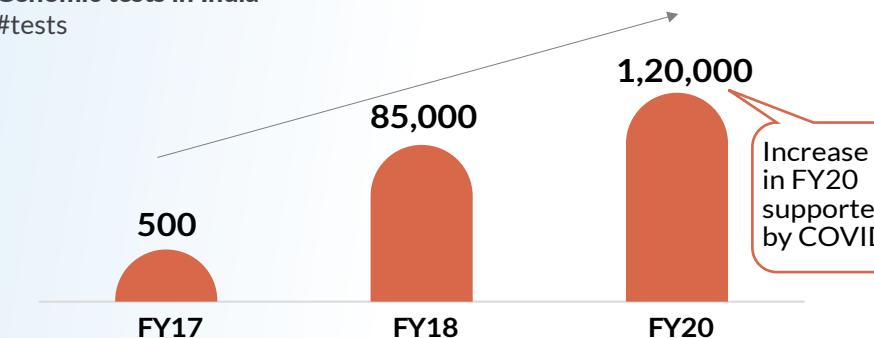
The global genomic market is expected to grow from US\$ 28B in 2021 to US\$ 95 in FY 2028 at CAGR of 19%

Global genomics market size
US\$ B



Number of tests done by MedGenome* has shown exponential growth from FY17-19

Genomic tests in India
#tests



Growth drivers for Indian genomic market



- Increased use in the management of cancer and rare diseases:** With an increase in incidence and early detection of cancer, clinicians are relying on these tests to decide the best line of treatment



- Pre-symptomatic testing:** Increased use to confirm or rule out a suspected genetic condition and the probability of the development of a genetic disorder or the same being passed on to the next generation



- Government initiatives:** Projects like "Genome India Project" and "IndiGen" to further drive the genomic diagnostics market in India



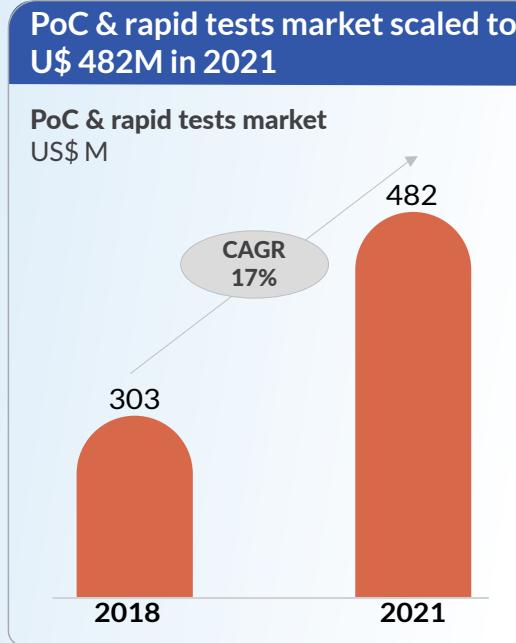
- Entry of new players in the market:** Involvement of private sector laboratories in genome sequencing tests during the COVID period to increase the genome sequencing capacity of India



- Increased awareness about the genomic industry:** Will increase the number of people willing to pay for DTC as well as B2B2C genomic testing

Clinical needs and test types

B PoC and rapid tests have seen a wide acceptance during COVID and in future are likely to witness wider acceptability with the advancement in technologies



City tier	TAT	Awareness	Relevance	Accuracy	Testing urgency
Description	<ul style="list-style-type: none"> Enables instant or quick diagnosis and administration of treatment plan 	<ul style="list-style-type: none"> Awareness amongst patients in metros is on the rise Doctors or hospitals want to become a one-stop solution for aware patients 	<ul style="list-style-type: none"> Medium to high in clinical decisions taken by doctors Acts as the biggest driver in tier 2 cities 	<ul style="list-style-type: none"> Satisfactory accuracy levels achieved as per doctors w.r.t. the time taken Trade-off between speed and accuracy favorable for PoC test for many use cases 	<ul style="list-style-type: none"> Establishing a set of basic PoCT devices helps GPs or specialists, or hospitals in getting better first-hand information and is quite helpful in times of emergency where time is of essence
Metro	●	●	●	●	●
Tier 2	●	●	●	●	●
Tier 3	●	○	●	●	●

Barriers to adoption of PoCT

City tier	Low accuracy	Absence of trust	High cost
Description	<ul style="list-style-type: none"> Accuracy achieved via PoCT is not 100% satisfactory. Doctors want highly accurate readings (>90% accuracy) as sometimes a second verification test from a traditional laboratory has to be done, and it defeats the purpose of PoCT 	<ul style="list-style-type: none"> Trust is a major factor with PoCT as sometimes the patients are skeptical about the results and sometimes even doctors are not 100% confident about the PoCT outputs 	<ul style="list-style-type: none"> Zero willingness amongst patients to pay rupee 500 for a test when the consultation fee itself is not more than rupee 200 In case of specialists in tier-3 cities, PoCT isn't as feasible due to high initial costs
Metro	●	●	●
Tier 2	●	●	●
Tier 3	●	●	●

Intensity level
Low ○ ● ● ● High

Notes: Sophisticated PoCT devices: POC devices other than glucometer, sphygmomanometer, oximeter and infrared thermometer
Sources: GP & specialists IDIs (N = 45), Hospital IDIs (N = 5), Expert interviews (N = 3), PoCT player interviews (N = 8), Tracxn, BIRAC, PGA Labs analysis

Competition

c Due to attractive margins, players from adjacent service areas of the healthcare ecosystem have entered the diagnostics market and made it more competitive

Player type	Market actions
Pharma companies	<ul style="list-style-type: none"> One of the major pharma companies plans to set up its National Reference Laboratory in Navi Mumbai, and plans to open 100 labs and 1000 collection centers pan India in the next 3 years Another Pharma giant commercialized its RT-PCR test kit 'ViraGen' for COVID-19 And launched a portable wireless spirometer for diagnosis of chronic obstructive pulmonary disorder (COPD) and asthma <p>Whereas another player launched diagnostic center chain in 2017, and is currently expanding in Maharashtra and other western & central states of India</p>
Hospital chains	<ul style="list-style-type: none"> One of the national chains formulated a wholly-owned subsidiary focused on diagnostics
Comprehensive telehealth service providers	<ul style="list-style-type: none"> An online pharmacy player acquired 66% stake in Thyrocare, the fourth largest diagnostics chain in India Whereas the other competitor in this space acquired Droplet, a logistics company specializing in home sample collection for diagnostics labs And another player in this space launched phlebotomist services for consumers to avail lab tests from the comfort of their homes
Diagnostics service aggregators	<ul style="list-style-type: none"> An online platform for health services, launched health testing at home in 100 new cities in the country by recruiting 1,500 support staff, including pathologists, phlebotomists, lab technicians, etc. Whereas another provider expanded its diagnostic solutions to 3500+ routine and specialized tests for hormone testing, genomic testing, routing pathology investigations, etc.

c Government is taking initiatives to strengthen the public health infrastructure and make diagnostics more accessible and affordable

Recent policies

Free diagnostics service under NHM

- **Timeline:** FY18 – ongoing
- Free radiology and pathology services at SHCs, PHC, CHCs, District & sub-district hospitals to reduce high out-of-pocket expenditure
- Tests include hematology, serology, biochemistry, clinical pathology, microbiology, radiology, and cardiology. However, States are free to add to the list based on their priorities

National Essential Diagnostics List

- **Timeline:** FY19 – ongoing
- 105 general lab tests, 30 disease-specific tests, and 24 radiology tests to address a critical gap in the standardization of medical devices and IVD devices

Ongoing initiatives

Procurement of imaging equipment by State govts

- Procurement of equipment such as CT and MR by state govts for in-house public facilities
- **For CT:** States such as Maharashtra, Karnataka, Gujarat & Kerala floated ~ 122 tenders between 2020 – 21
- **For MR:** States such as Maharashtra, Telangana, Uttarakhand & Kerala floated ~ 48 tenders between 2020 - 21

National Program for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Strokes

- **Timeline:** FY19 – ongoing
- Free treatment to poor people at SCIs or TCCCs
- Preventive screening for ~7 Cr; 67K cancer, 99K strokes, 42 lakh Hypertension, 33 lakh Diabetes and 2 lakh cardiovascular diseases cases diagnosed

Pradhan Mantri Atma Nirbhar Swasth Bharat Yojana

- **Timeline:** FY22 – 26
- Support for 17,788 rural HWCS, and 11,024 urban HWCS through the establishment of integrated public health labs in all districts

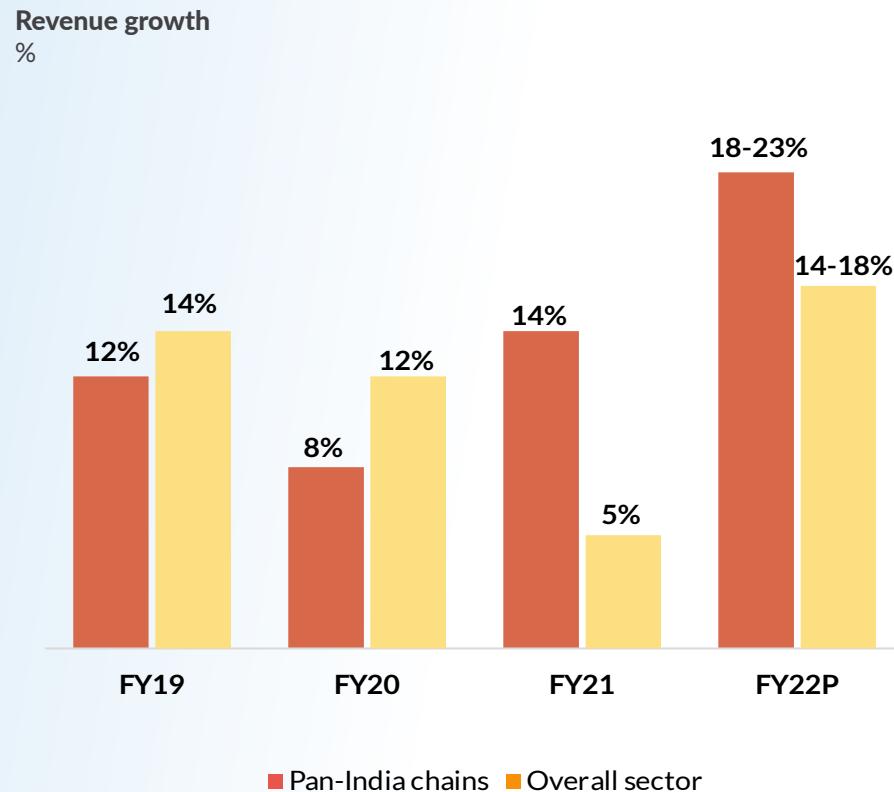
Diagnostics centers under PPP model

- 1,797 centers under the PPP model operated by Krsnaa Diagnostics across 14 states
- Expansion of hub & spoke centers as 1,127 centers added in the last three years

Competition

c Despite competition, organized labs are expected to have better revenue growth than others due to their wider test portfolio, better customer experience, and deeper reach

Pan-India chains are witnessing faster revenue growth since the beginning of the pandemic



Rationale for shift towards organized labs

Customer preference for accredited labs

- NABL accredited labs increased from 347 in 2012 to 1,880 in Mar-21, which have mostly been from the organized chains segment
- Organized lab chains have been able to capitalize on the COVID testing market due to their existing capabilities for molecular diagnostics

Lower costs and better customer experience

- Organized segment has a lower price for the tests primarily due to lower costs enabled by a hub and spoke operating model
- Organized labs provide a better customer experience by having online portals for test booking, home collection, tracking, and report generation

Increase in lab penetration due to investments and M&A

- Vijaya Diagnostics & Krsnaa Diagnostics raised rupee 1,895 Cr and rupee 1,213 Cr through IPOs for increasing their network labs and testing capabilities
- National chains are acquiring regional chains to expanding footprint

Business models

D Due to increased competition in Metros and Tier-1, lab chains are undertaking aggressive expansion in Tier 2+ cities through asset-light models

Route for business expansion	Details
 Acquisition and consolidation of labs	<ul style="list-style-type: none"> • Online players betting big on diagnostics, e.g., Pharmeasy's acquisition of Thyrocare • Acquisition of larger stand-alone facilities, and regional chains for geographic expansion and establishing pan-India presence
 New labs in T2+ cities	<ul style="list-style-type: none"> • Lab chains are fast expanding through organic and inorganic routes in Tier 2+ cities • Diagnostic chains going for IPO seek aggressive growth across city tiers
 Collection centers	<ul style="list-style-type: none"> • Lab chains are further deepening their presence in multiple cities across the country through collection centers, patient service centers, pick-up points, etc. e.g., some of the key national chains have a strong network of over 14K collection centers and over 55K patient touchpoints

Business models

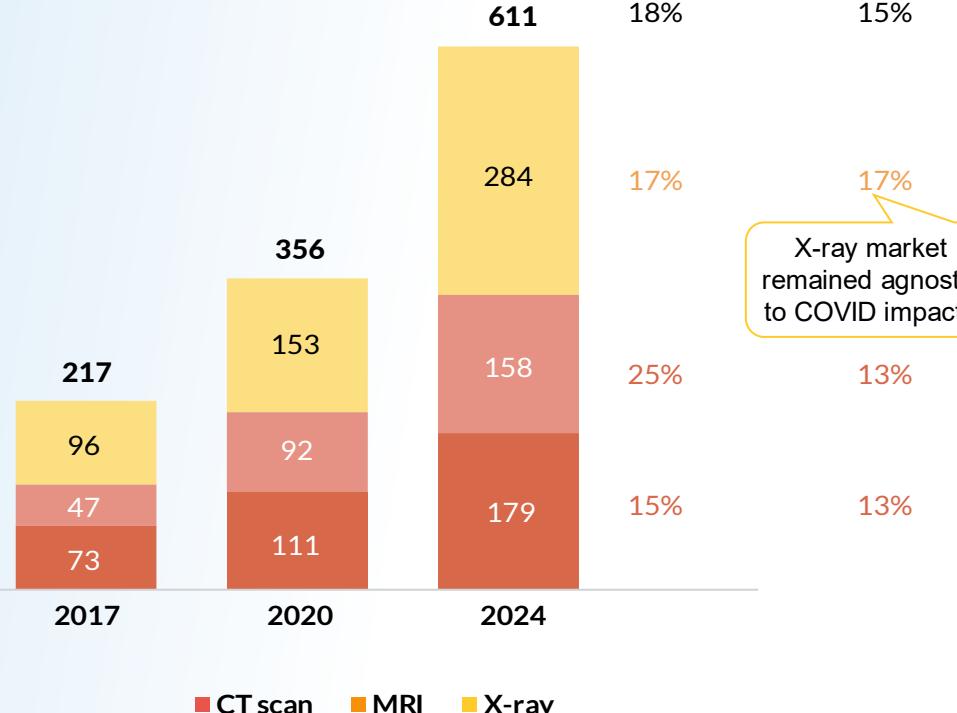
D To cater to the latent demand, teleradiology is seeing wider adoption and is likely to expand in T2, T3, and T4 cities

Teleradiology market in India is projected to grow at a CAGR of 15% to reach US\$ 611 M in 2024

Growth in tele-radiology market
US\$ M

CAGR
CY17-20
18%

CAGR
CY20-24P
15%



Drivers of adoption	Description	Benefits
Cost benefits of teleradiology	<ul style="list-style-type: none"> In case of low scan volume, in-house radiologist salary can become an unrecovered fixed cost 	<ul style="list-style-type: none"> Teleradiologist paid on a per scan or % scan price basis resulting in cost-effectiveness ~40% cost saving in the radiologists cost*
Lower reporting TAT	<ul style="list-style-type: none"> Availability of a single or smaller team of 2 – 3 radiologist increases the reporting TAT 	<ul style="list-style-type: none"> Distribution of scans among the larger panel of tele-radiologist making it possible to report multiple scans all at once
Shortage of radiologists	<ul style="list-style-type: none"> Unavailability of in-house radiologist Unexpected increased scan volume 	<ul style="list-style-type: none"> Wider panel of radiologist with varying skills and experience
Shortage of experienced staff	<ul style="list-style-type: none"> Occasionally in-house or associated radiologist do not have expertise to interpret complex cases 	<ul style="list-style-type: none"> Wider panel of radiologist with varying skills and expertise to solve complex cases

Notes: Teleradiology market size (TAM) = (# Installed base of radiology equipment) X (# Radiology scan) X (Teleradiologist fees per scan); Installed base and number of scans are sourced from secondary research, while teleradiologist fees is sourced through conversations with industry experts

Sources: Secondary research, Praxis analysis

Business models

D Even in pathology, wherever images are involved, players are investing to make business plans around remote diagnosis and improve quality and efficiency of diagnostics

Plays	Offering	Players (illustrative)
Service providers	<ul style="list-style-type: none"> Digitization of tissue slides Access to a large pool of histopathologists to analyze images for domestic and international markets 	  Digiscan™ Leader in Digital Pathology  <small>Powered by OptraScan Inc.</small>
In-house use of Technology	<ul style="list-style-type: none"> Hospitals and diagnostic chains adopting solutions esp. for cancer diagnostic 	 Dr Lal PathLabs <small>Where Quality, Service, Innovation Is A Way Of Life</small>  <small>adding life to years</small>
Computational pathology solution providers	<ul style="list-style-type: none"> AI-powered digital pathology solution for cancer diagnostics <ul style="list-style-type: none"> Significant improvements in diagnostic efficiency, with a 25-30% reduction in time-to-diagnosis compared to conventional microscope viewing, 1 - to 2 - day reductions in total turnaround time 	<ul style="list-style-type: none"> Philips – Ibex Medical tie-up Roche – Ibex tie-up for workflow and AI analysis for cancer

Business models

D With the decoupling of operating layers, models are evolving into a network of partnerships

	Customer facing layer	Logistics	Backend sample processing	Reporting
Conventional diagnostic operations	<ul style="list-style-type: none"> COCO collection centers Hospital labs B2B pickup points 	<ul style="list-style-type: none"> Own logistics 	<ul style="list-style-type: none"> Own labs Home grown LIMS 	<ul style="list-style-type: none"> Report preparation by the labs themselves
Modern diagnostic operations	<ul style="list-style-type: none"> Online aggregators 	<ul style="list-style-type: none"> Third party logistics 	<ul style="list-style-type: none"> Partner labs Robust LIMS providers 	<ul style="list-style-type: none"> Teleradiology Telepathology

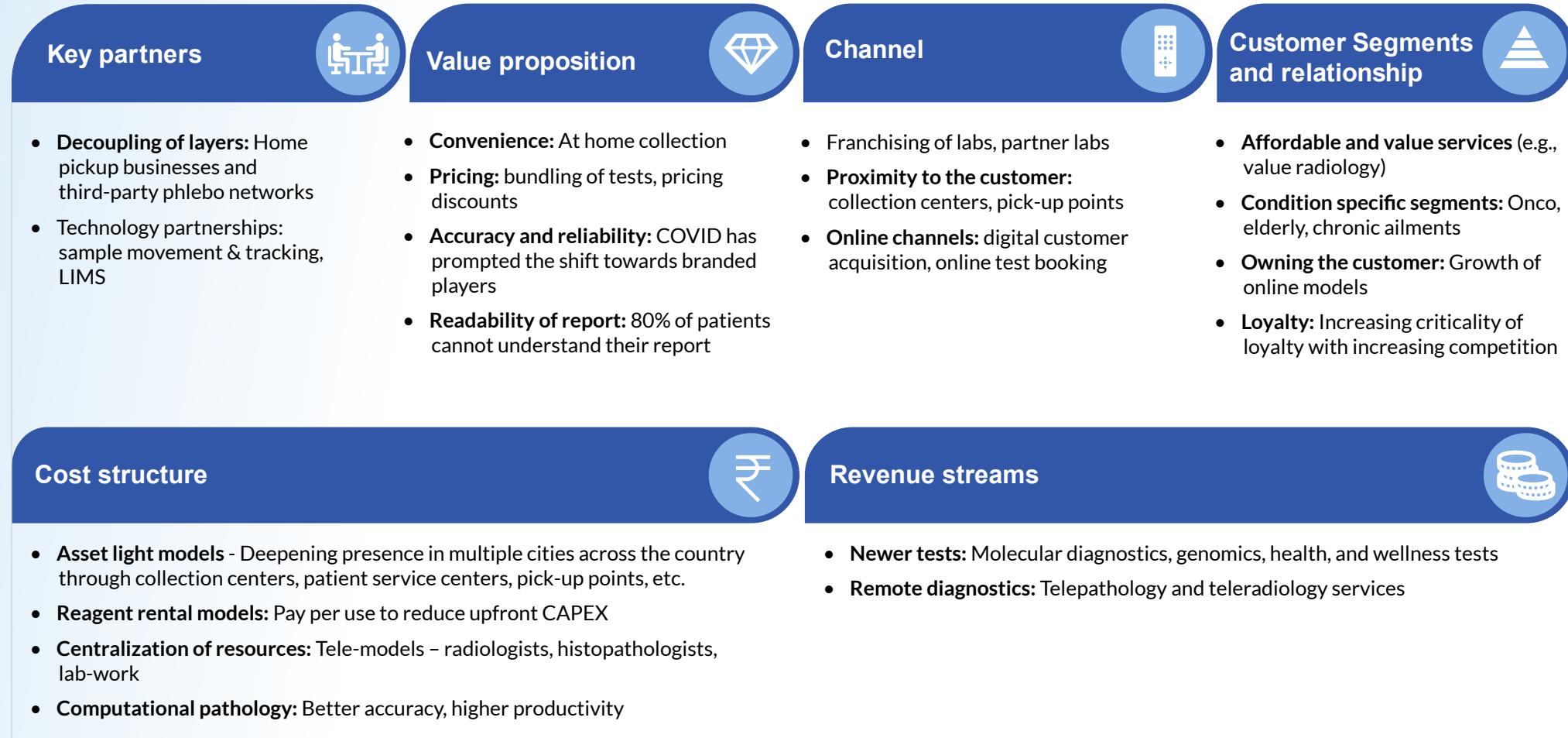
Examples



Business models

D

Business models are evolving fast to align with customer preferences



Financing and payers

While still in nascentcy, insurance cover for out-patient care could propel a rapid growth

Launched in June 2020 and currently only serving B'lore



# network hospitals	5,900	6,500	6,700	8,250	11
Claim settlement ratio %	~94%	~91%	~96%	~93%	
% penetration of OPD policies	<ul style="list-style-type: none"> 5-10% of retail health policies sold include OPD cover 	<ul style="list-style-type: none"> 5-10% of retail health policies sold include OPD cover 	<ul style="list-style-type: none"> 5-10% of retail health policies sold include OPD cover 	<ul style="list-style-type: none"> 5-10% of retail health policies sold include OPD cover 	<ul style="list-style-type: none"> All plans cover OPD consultations and diagnostics
Policy name	<ul style="list-style-type: none"> Smart + OPD 	<ul style="list-style-type: none"> ProHealth Plus 	<ul style="list-style-type: none"> GoActive 	<ul style="list-style-type: none"> Comprehensive 	<ul style="list-style-type: none"> Even Plus
Hospitalization cover	<ul style="list-style-type: none"> 5L 	<ul style="list-style-type: none"> 6L 	<ul style="list-style-type: none"> 5L 	<ul style="list-style-type: none"> 5L 	<ul style="list-style-type: none"> 50L a year per family member
OPD cover (rupee)	<ul style="list-style-type: none"> 5,000 (25% copayment in year 1) Net OPD cover: 3,750 	<ul style="list-style-type: none"> 2,000 (no co-payment) Net OPD cover: 2,000 	<ul style="list-style-type: none"> 2,400 (no co-payment) Net OPD cover: 2,400 	<ul style="list-style-type: none"> 5,000 (no co-payment) Net OPD cover: 5,000 	<ul style="list-style-type: none"> Unlimited doctor consultations Unlimited diagnostic tests
Policies with OPD cover	<ul style="list-style-type: none"> Without OPD cover: 4,300 With OPD cover: 6,300 Premium for OPD cover: 2,000 	<ul style="list-style-type: none"> Without OPD cover: 7,093 With OPD cover: 8,170 Premium for OPD cover: 1,077 	<ul style="list-style-type: none"> Without OPD cover: 7,697 With OPD cover: 8,874 Premium for OPD cover: 1,177 	<ul style="list-style-type: none"> Without OPD cover: 6,621 With OPD cover: 10,535 Premium for OPD cover: 3,914 	<ul style="list-style-type: none"> With OPD cover: Starts at 1,050 per month
Premium (rupee)	<ul style="list-style-type: none"> 53% 	<ul style="list-style-type: none"> 72% 	<ul style="list-style-type: none"> 49% 	<ul style="list-style-type: none"> 78% 	
Claim process (OPD expenses)	<ul style="list-style-type: none"> Bills reimbursed in 3 working days (cashless through Godigit app) 	<ul style="list-style-type: none"> Bills reimbursed in maximum 7 working days (cashless through Medibuddy app) 	<ul style="list-style-type: none"> Bills reimbursed in maximum 7 working days (through Max Bupa website or app) 	<ul style="list-style-type: none"> Bills reimbursed in 7-10 working days (cashless through their app) 	<ul style="list-style-type: none"> Procedures are already paid for, no need to file claims (cashless)
Diagnostics Coverage	<ul style="list-style-type: none"> All necessary and prescribed diagnostics up to the extent of sum insured 	<ul style="list-style-type: none"> All necessary and prescribed diagnostics up to the extent of sum insured 	<ul style="list-style-type: none"> Diagnostics test are allowed in lieu of permissible annual health check-up expenses 	<ul style="list-style-type: none"> All necessary and prescribed diagnostics up to the extent of sum insured 	<ul style="list-style-type: none"> Unlimited coverage of diagnostics test prescribed by partner doctor and carried out at partner hospital or lab

Notes: OPD cover here refers to expenses that do not require hospitalization; All policy prices based on 27 year old male living in Metro

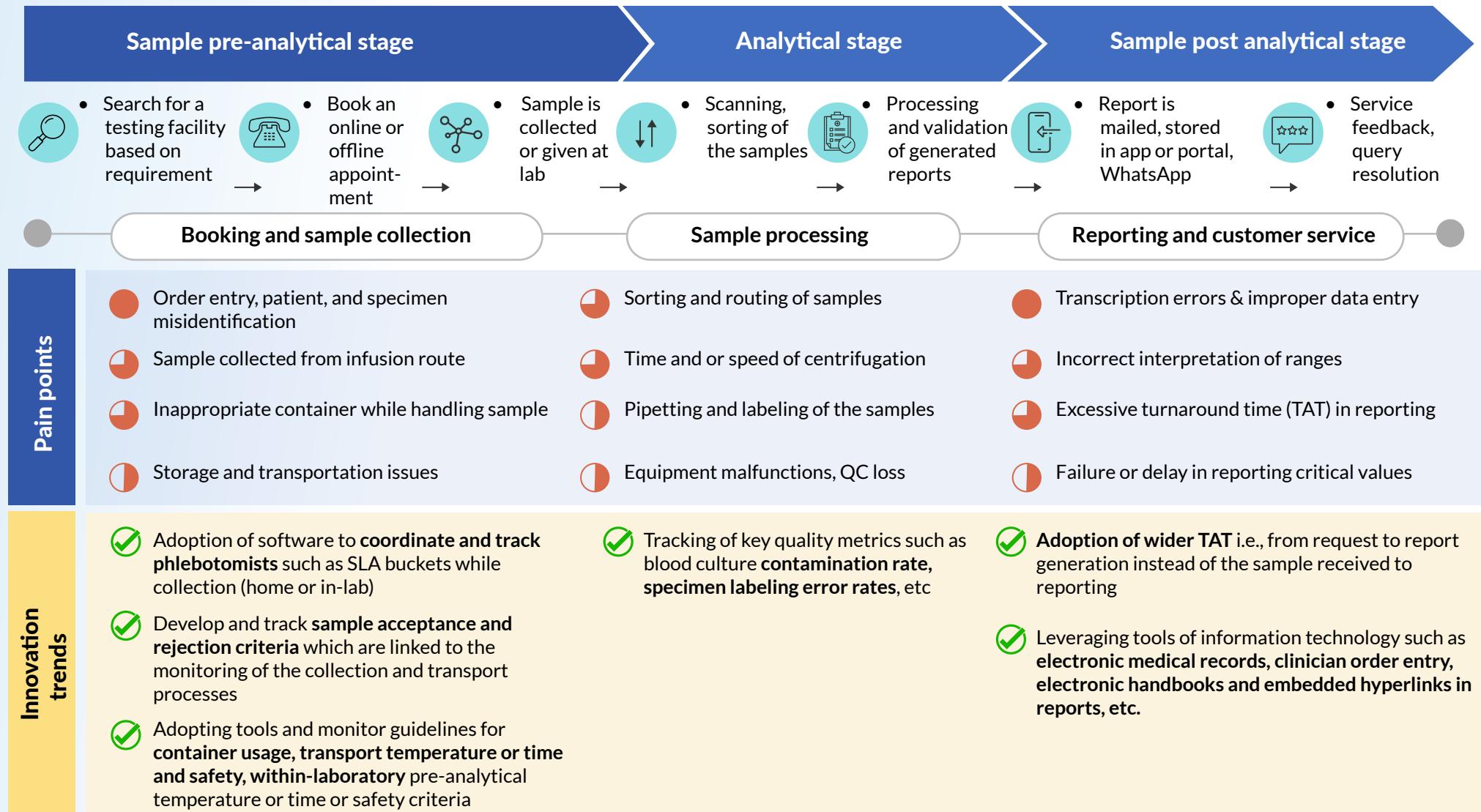
Sources: Company websites, Agent interviews, Insurance aggregator websites, Praxis analysis

More favorable

Less favorable

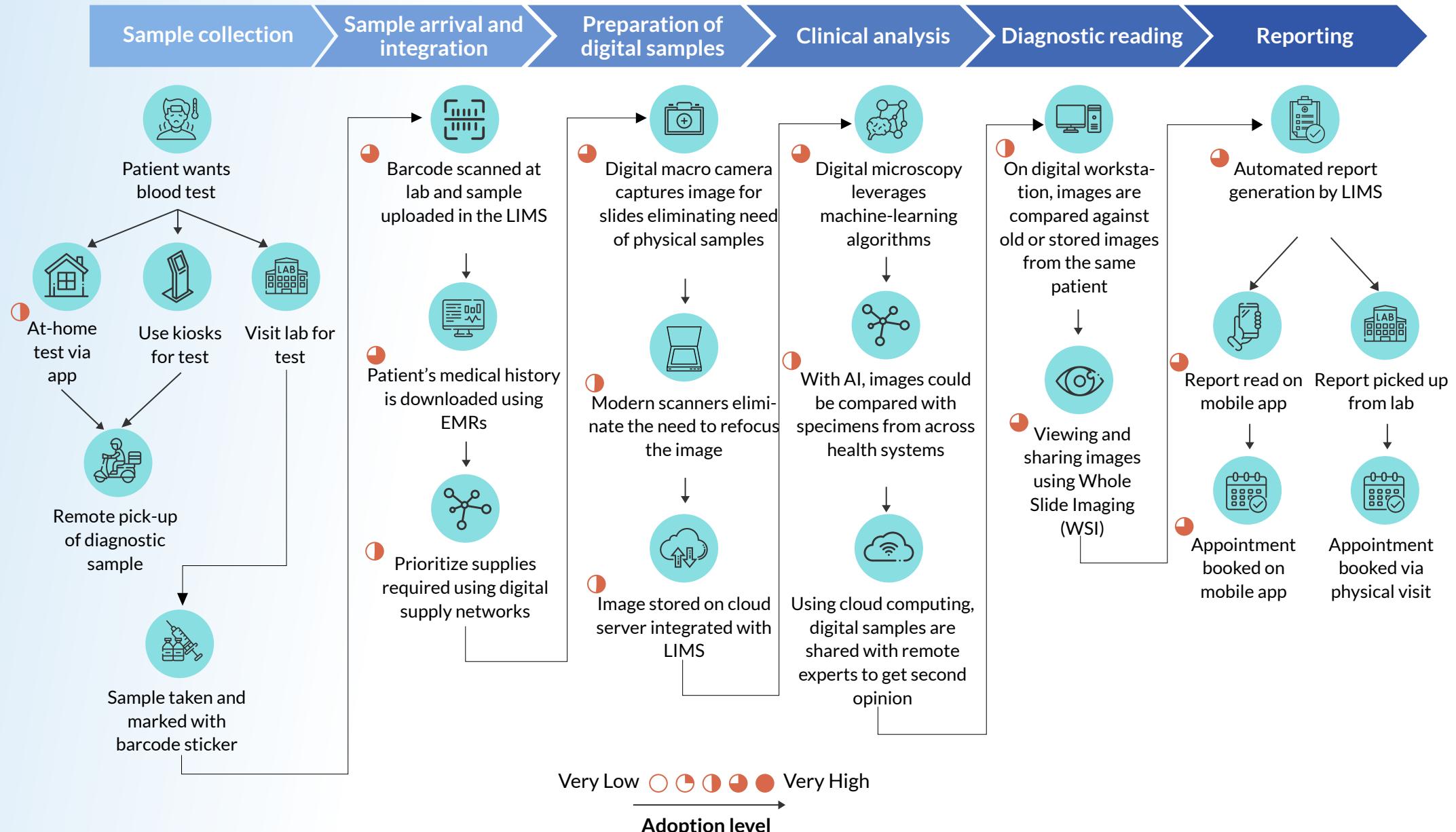
Supply chain

E Supply chain innovations in sample processing pre and post-analytical stages are levers of key differentiators among the service providers



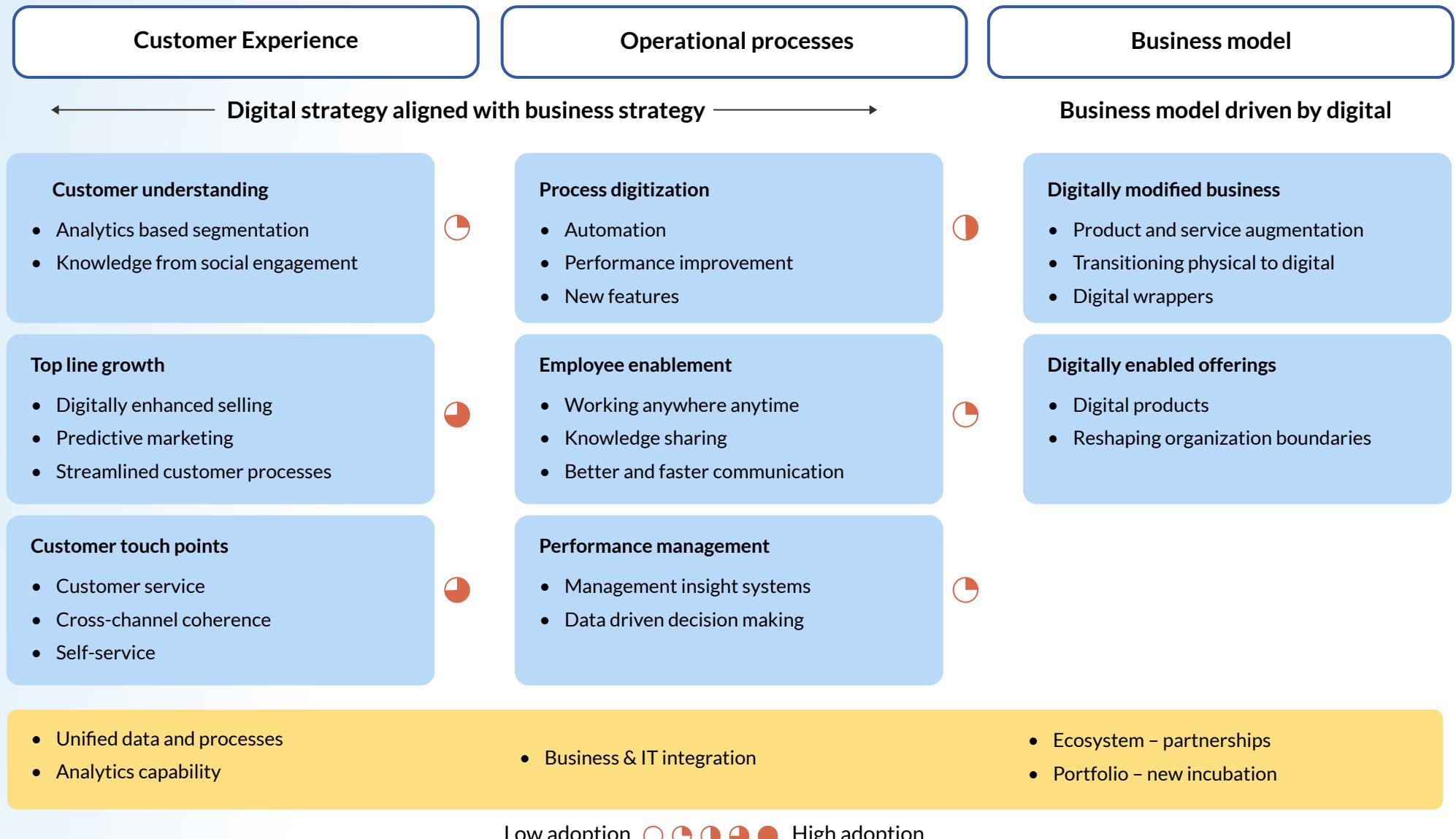
Sources: Industry reports, Press reviews, Praxis analysis

F Digital transformation is happening across areas in diagnostics



F

While considerable focus has been on leveraging digital to become efficient and deliver customer delight; many areas of opportunity remain unexplored



Contents

Future outlook

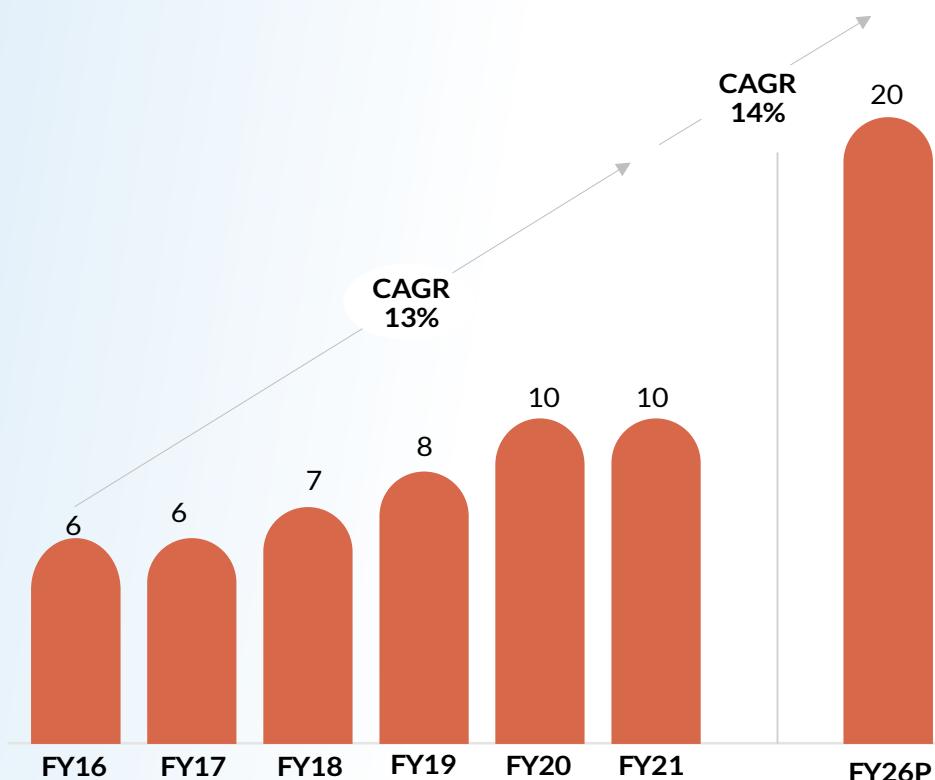


Future outlook

Indian diagnostics market is projected to grow at a CAGR of 14% & reach US\$ 20B by FY26

Diagnostics market grew at a CAGR of 13% to reach US\$ 10B in FY21

Size of diagnostics market in India
US\$ B, FY16-26P

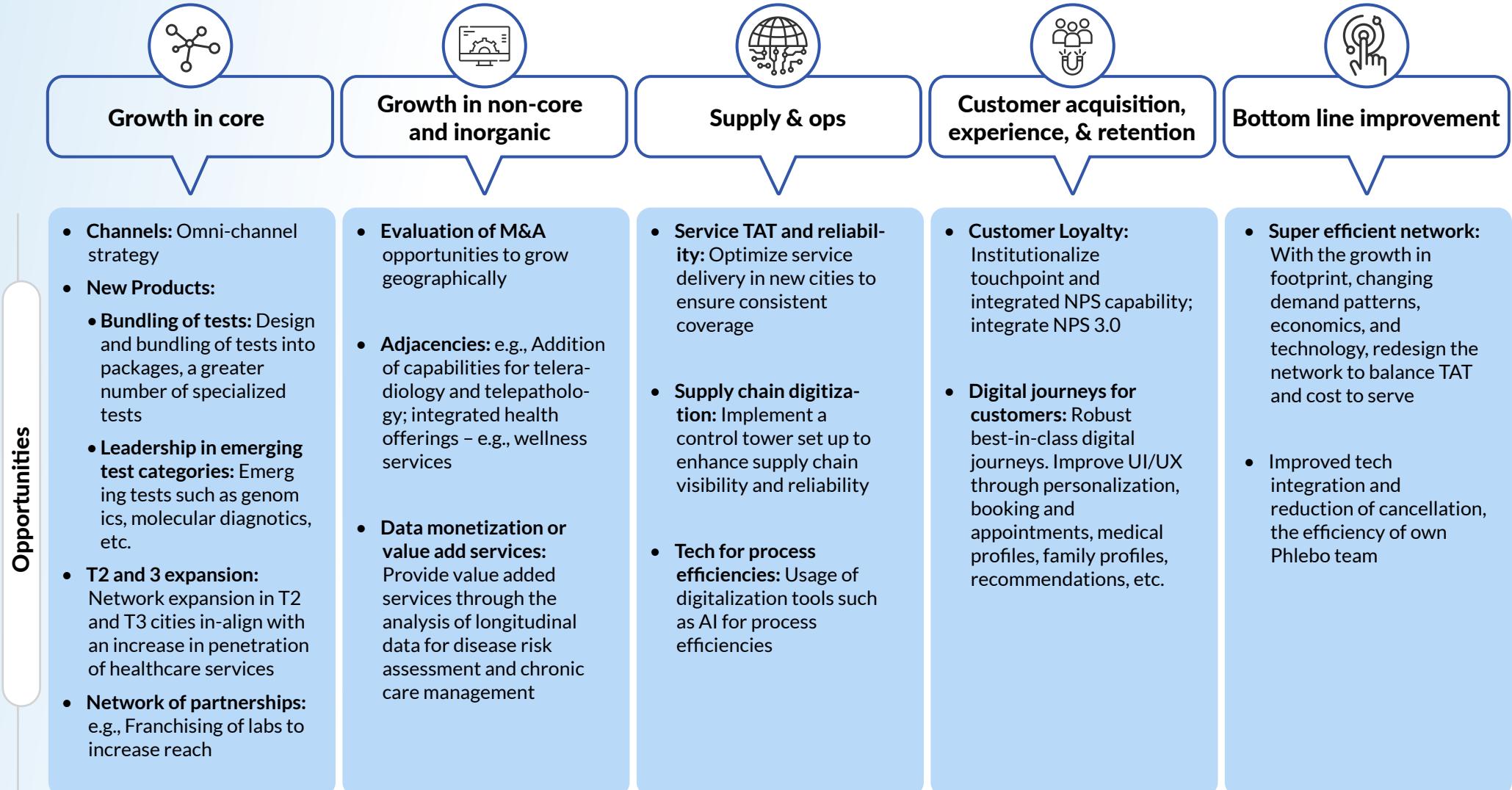


Growth drivers	Expected growth rate	Rationale
Population	1.0%	<ul style="list-style-type: none"> India population expected to grow annually at ~1% from FY21-FY26
Urbanization	2.5%	<ul style="list-style-type: none"> With increasing urbanization, diagnostics market is expected to grow
Penetration	5.0%	<ul style="list-style-type: none"> Penetration expected to improve by 5% driven by access (home collections), affordability and focus of state governments on establishing labs under PPP model in under-served locations
Tests or patient	2.0%	<ul style="list-style-type: none"> Higher awareness about preventive care, test mix moving towards specialized tests
Realization per tests	2-4%	<ul style="list-style-type: none"> Pathology: Growth in realization per test has been ~4% from FY17-FY20 Radiology: Realization is lower due to the dependence on referrals (Channel margins), but growth in teleradiology is driving growth in realization per test Effect of cost controls on the essential test could be balanced out with increased volumes (as witnessed historically in the case of Malaria and Dengue) and a shift in test mix towards specialized tests
Diagnostics CAGR FY21 - 26	~14%	<ul style="list-style-type: none"> Pathology: The growth rate is expected to be ~15% Radiology: Growth rate is expected to be in the range of 11-13%

Challenges facing the industry

Challenges	Likely impact
Regulatory	<p>Price control, especially on tests covered under NEDL – Low likelihood</p> <ul style="list-style-type: none"> Focus likely to be on ensuring the tests are provided to patients who need it Barring exceptional situations, Government will allow markets to operate <p>High margin, high volume ‘routine tests’ may face pricing pressure.</p> <ul style="list-style-type: none"> Government is likely to invest in augmenting diagnostics infrastructure, which, if utilized well, may impact unorganized labs more Could lead to the growth of the industry as ‘evidence-based treatment’ would find higher acceptance
Fragmented market, low focus on quality	<p>NABL is not mandatory and not likely to be made mandatory in medium terms</p> <ul style="list-style-type: none"> Industry is highly fragmented, and enforcing accreditation may not be feasible Consolidation would drive focus on quality in medium to long term
Commoditization and increasing competitive intensity	<ul style="list-style-type: none"> Pricing pressure could be there on semi-specialized and specialized tests; however, with scale, margins can still be maintained Will require Companies to work on increasing ticket size through bundling of tests, promote health and wellness tests, and introduce specialized tests
Access to specialized resources	<ul style="list-style-type: none"> Emerging models like teleradiology and telepathology could address this issue
Value conscious market	<ul style="list-style-type: none"> Could witness value products from leading OEM to address the value segment across Tiers of cities

Imperatives for diagnostic companies

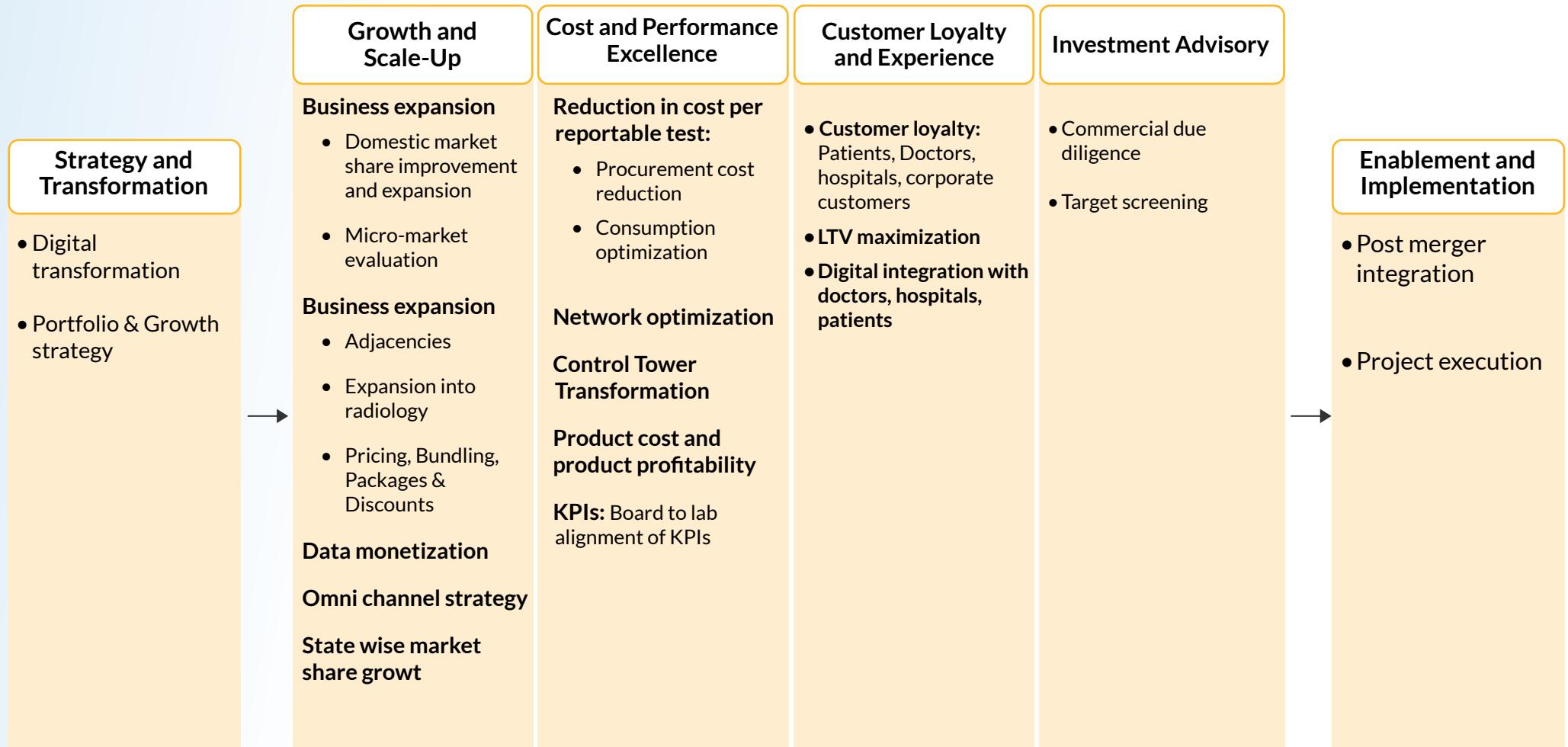


Contents

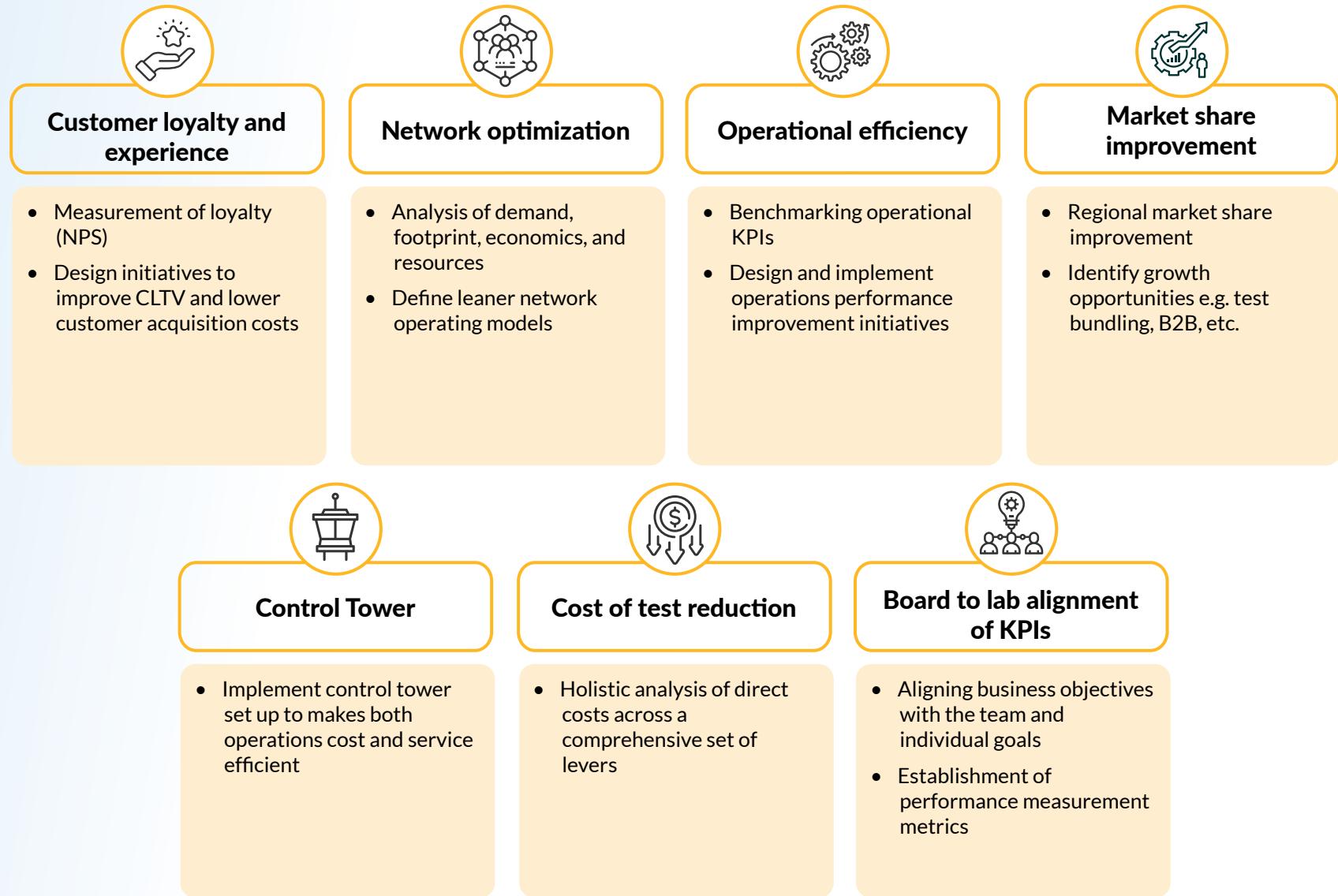
Praxis offerings



How can we add value to diagnostics? – Praxis Global Alliance



Our solutions to help increase shareholder value



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We will be happy to share perspectives

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