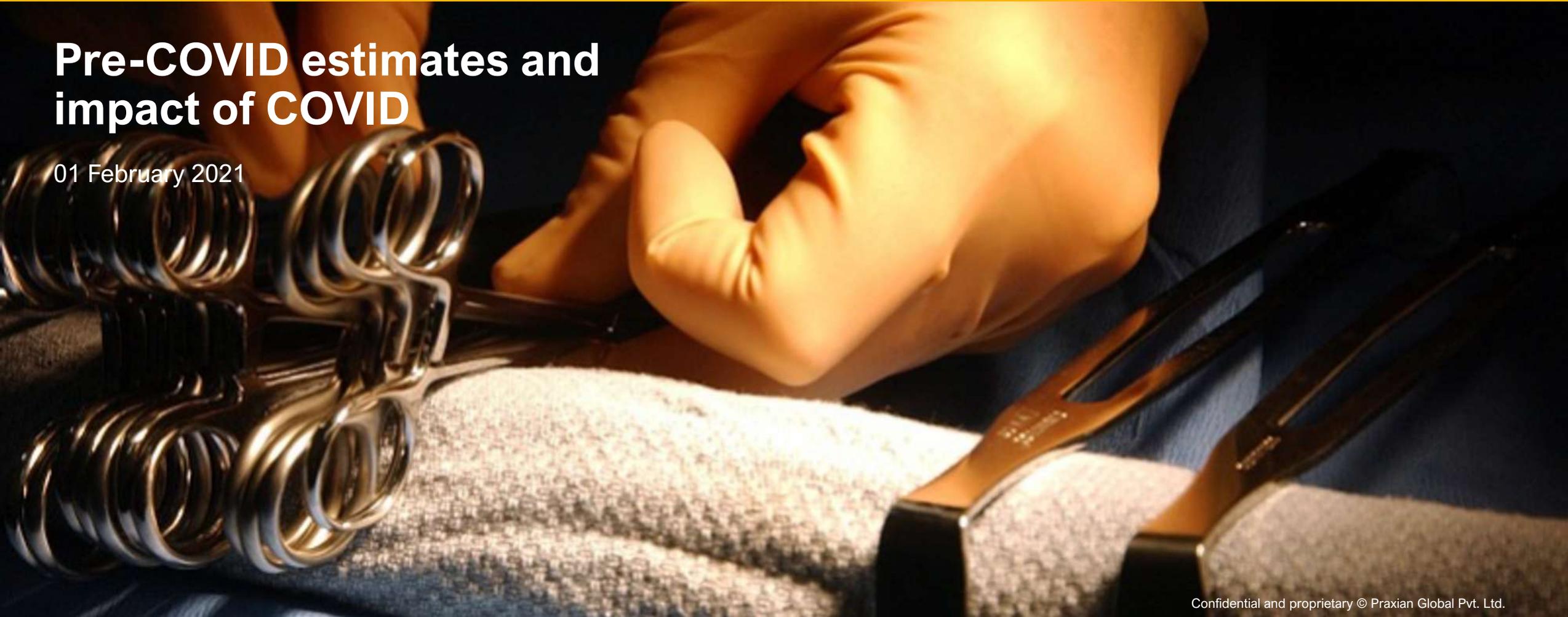


Surgical volume market in India

Pre-COVID estimates and impact of COVID

01 February 2021



While it is a well-known fact that there is an acute demand-supply gap in surgical procedures but still surgery volumes in India are a relatively lesser-known metric. We have estimated the surgical volumes basis various discussions with surgeons and industry experts. Going forward, supported by Ayushman Bharat supply demand gap for surgical procedures is expected to subside and the surgical mix may also change.

This report is intended to provide various industry stakeholders including business leaders an overall perspective on the current mix of surgical procedures. We have also examined the impact of COVID-19 on surgical volumes and the likely recovery scenario for all stakeholders in the sector.

We, at Praxis, look forward to continuing the discussion with our friends across sectors and exchanging notes.



Madhur Singhal

Managing Partner & CEO



Aryaman Tandon

Managing Partner & Co-founder

Executive Summary

Pre-COVID ~2 crores major surgeries are performed annually in India; Surgical volume is expected to reach the same volume by March-21

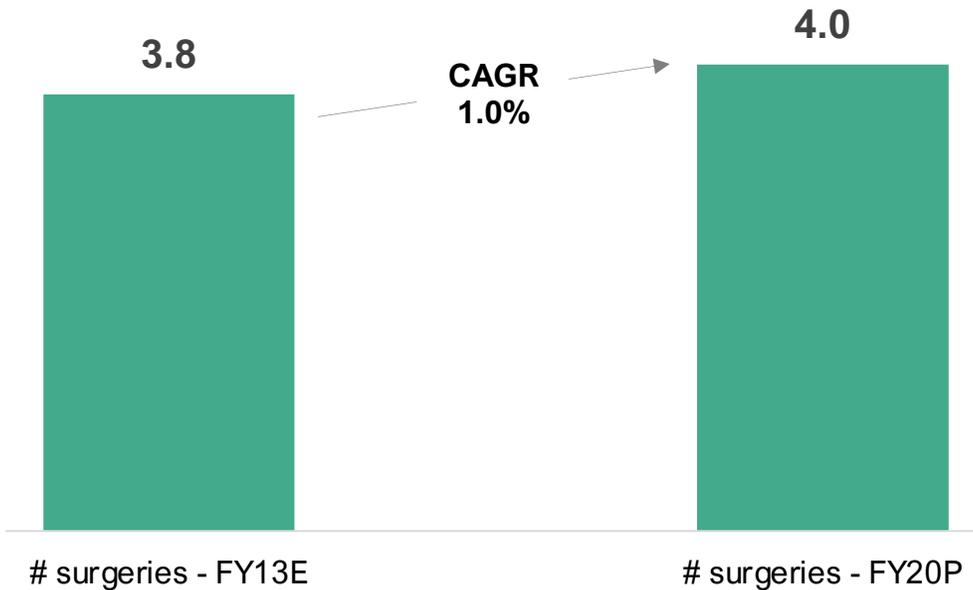
- As per the Lancet Commission for Global Surgery (LCoGS) estimate of **~5,000 surgeries are required to meet the surgical burden of diseases of 100,000 people** in low and middle-income countries such as India. Compared to disease burden **only ~1,500 major surgeries per 100,000 people are performed in India**
- Acute demand-supply gap in surgical procedures is because of the **shortage of personnel in rural health centers** to identify the need for tertiary-care interventions, **lack of surgeons, and affordability**
- However, this demand-supply gap is decreasing with **# major surgeries increasing at 6% from FY13-20 to reach ~2Cr in FY20**; Growth in # surgeries has been supported by an **increase in # surgeons and improvement in surgical productivity i.e., ~1% productivity gain**
- **General surgery and Gynecology based surgeries account for ~65% of overall major surgical volume**
- **C-section is the largest major surgery performed in India**; Surgery for piles, hernia, and gallbladder are other most common surgical procedures
- COVID-19 severely impacted the surgical volumes in India, with **surgery volumes declining to 20-25% of pre-COVID levels in April and May**; however, **the surgical volumes have recovered to ~80% of pre-COVID levels by December 2020**
- **Surgical procedures rapidly rebounded to reach ~50% of pre-COVID levels by the end of July 2020**
- Supported by the adaptability of people to COVID-19, declining active caseload, and pent-up demand for elective surgeries, **surgical volumes in India, has recovered to around 80% of the pre-COVID level and is expected to reach 100% by March-21**

During FY20, ~2Cr surgeries were performed in India

Growth in # surgeries was supported by an increase in # surgeons and improvement in surgical productivity

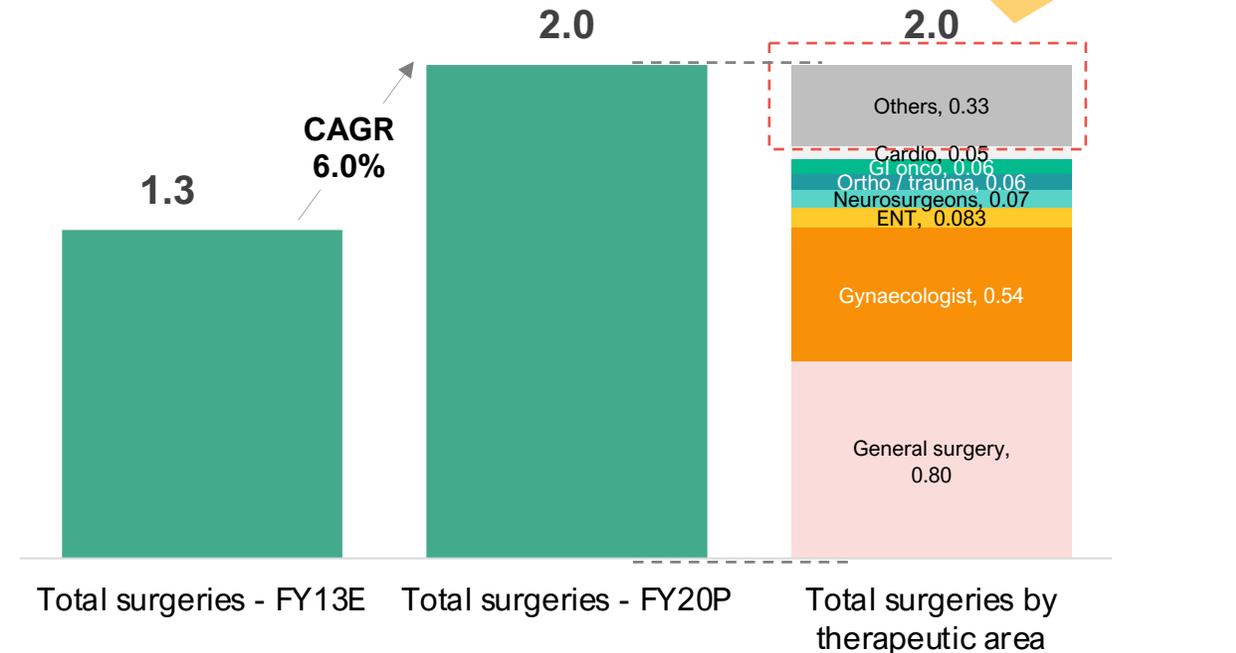
Surgical productivity increased at a CAGR of 1% during FY 13-20

#surgeries per week per surgeon in India, FY20



major surgeries in India are ~2Cr and general surgery and gynec based accounts for ~65%

Number of major surgeries in India, FY20 (Cr)



C-section is the largest form of surgery performed in India;

[1/2]

Surgery for piles, hernia, and gallbladder are other most common surgical procedures

 **General surgery**

Types of surgeries	% surgery in TA
Hemorrhoidectomy (surgery for piles)	15 - 25%
Hernia	5 - 25%
Cholecystectomy (removal of gall bladder)	10 - 20%
Trauma surgeries	10 - 20%
Laparoscopy surgeries	5 - 10%
Breast biopsy and removal	5 - 10%
Appendectomy	10 - 20%
Others	10 - 20%
Overall (# surgeries)	100% (8.0M)

 **Gynecological surgery**

Types of surgeries	% surgery in TA
C-section	60 - 70%
Hysterectomy	10 - 20%
Hysteroscopy	10 - 20%
Others	<5%
Overall (# surgeries)	100% (5.40M)

 **ENT surgery**

Types of surgeries	% surgery in TA
Ear surgeries <ul style="list-style-type: none"> - Tympanoplasty - Stapedectomy - Myringotomy tube insertion 	50 - 60%
Throat surgeries <ul style="list-style-type: none"> - Adenoidectomy - Tonsillectomy 	20 - 30%
Nasal surgeries <ul style="list-style-type: none"> - Septoplasty - Sinus surgery 	20 - 30%
Others	5 - 10%
Overall (# surgeries)	100% (0.83M)

 **Neurosurgery**

Types of surgeries	% surgery in TA
Brain surgeries <ul style="list-style-type: none"> - Craniotomy - Ventriculoperitoneal shunt (to remove excess fluid from brain) - Brain tumour (meningiomas, gliomas, vestibular schwannomas, etc) 	50 - 60%
Spine surgeries <ul style="list-style-type: none"> - Laminectomy 	30 - 40%
Others	10 - 20%
Overall (# surgeries)	100% (0.70M)

C-section is the largest form of surgery performed in India;

[2/2]

Surgery for piles, hernia, and gallbladder are other most common surgical procedures



Oncosurgery

Types of surgeries	% surgery in TA
Head and neck	40 - 50%
– Lip and Oral Cavity Cancer	
– Neck cancer	
– Nasopharyngeal Cancer	
– Oropharyngeal Cancer	
Breast cancer	20 - 30%
GI cancer	10 - 20%
– Liver cancer	
– Pancreatic	
– Gall bladder	
Gynecologic	10 - 20%
– Cervical cancer	
– Ovarian cancer	
– Vaginal cancer	
Others	5 - 10%
Overall (# surgeries)	100% (0.60M)



Orthopedic/Trauma

Types of surgeries	% surgery in TA
Hip surgeries	30 - 40%
Knee surgeries	30 - 40%
Spine	20 - 30%
Shoulder and rotator cuff surgery	5 - 10%
Hand and wrist surgeries	5 - 10%
Others	10 - 20%
Overall (# surgeries)	100% (0.60M)



Cardiology

Types of surgeries
Coronary artery bypass grafting
Heart valve repair
Insertion of pacemaker
Heart transplants
Others
Overall (# surgeries: 0.50M)



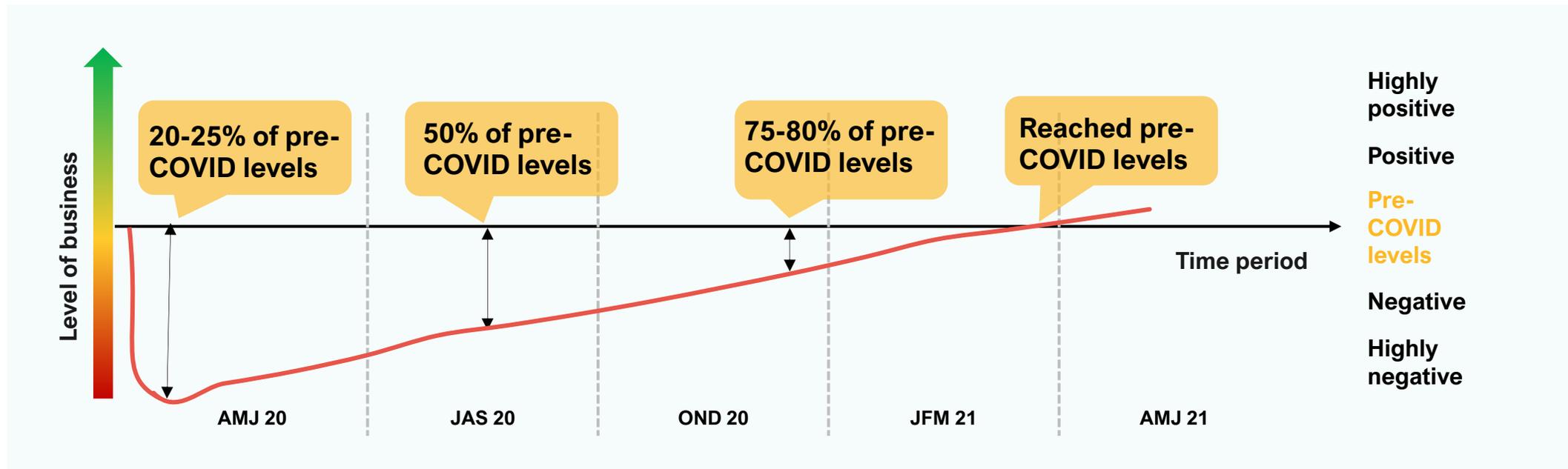
Others

Types of surgeries
Eye surgery (hospital setup)
Cosmetic surgery
Plastic surgery
Organ transplants
Endocrine surgery
Others
Overall (# surgeries: 3.30M)

General surgery and ENT procedures were more affected by COVID;

Surgeries are expected to reach pre-COVID levels by end of Q1CY21

Expected recovery pattern (relative to pre-COVID-19 level)



Key impact factors

Surgeries	Impact of COVID	Rationale
General surgery	↓↓↓	• Elective general surgery was put on hold or postponed by majority of doctors due to COVID
ENT surgery	↓↓↓	• ENT surgeons are at higher risk and have higher rates of contracting the COVID virus due to the high virus load in nose, nasopharynx and oropharynx
Oncosurgery	↓	• Partially delayed because of high risk of infections
Neurosurgery	↓	• Elective neurosurgery procedures were significantly affected by the pandemic
Gynecological surgery	↓	• C-section deliveries were impacted by COVID and women preferred to go for normal deliveries instead of C-section
Orthopedic/ Trauma	—	• Emergency cases / trauma patients were treated during the pandemic



- Gradual increase in the elective medical procedures (there's a ~10-15% rise in the elective procedures across public and private hospitals, month on month)
- Piled up elective surgeries which were postponed in the lockdown period
- Reduced fear of COVID-19 due to declining cases

-
- Dramatic drop in elective procedures across therapeutic areas (gastroenterology, ENT, pulmonology, cardiology, etc.) due to lockdown and imposed risks
 - Patients were scared to come for hospitalization unless it was an emergency
 - A significant drop in regional transport authority travel, out-of-town patients and international patients because of air and rail travel restrictions

Impact of COVID

— Low ↓ High ↓↓ Very high

Who we are



Full stack 'Knowledge services' provider:
Consulting + Research + Data science + Talent



Unique 'expertise oriented' Domain Partner led model
→ scaling aggressively



We are thought leaders across



Hospitals



Medical Devices



Specialty Care Providers



Pharma & Life sciences



Diagnostics



HealthTech



Cutting-edge Healthcare focused IP

Leadership



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Managing Partner & Co-founder
Praxis Global Alliance



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Praxis Global Alliance

How we help our Healthcare clients



Strategy & Transformation

Portfolio strategy, Go-To-Market strategy, Growth strategy



Growth & Scale up

Revenue Maximization, Micro-market Assessment, New Market Entry



Cost & Performance Excellence

Cost reduction, Operational & Process Excellence



Customer & Loyalty Experience

Patient Experience, Doctor Model and Experience, Patient Retention



Organization Productivity

Staff Model and Productivity, Staff NPS, Attrition Defence



Enablement & Implementation

New Business Incubation, Program Management Office



Investment Advisory

Commercial Due Diligence, Post Deal Value Creation, Exit Thesis

Connect with us:

We will be happy to share perspectives



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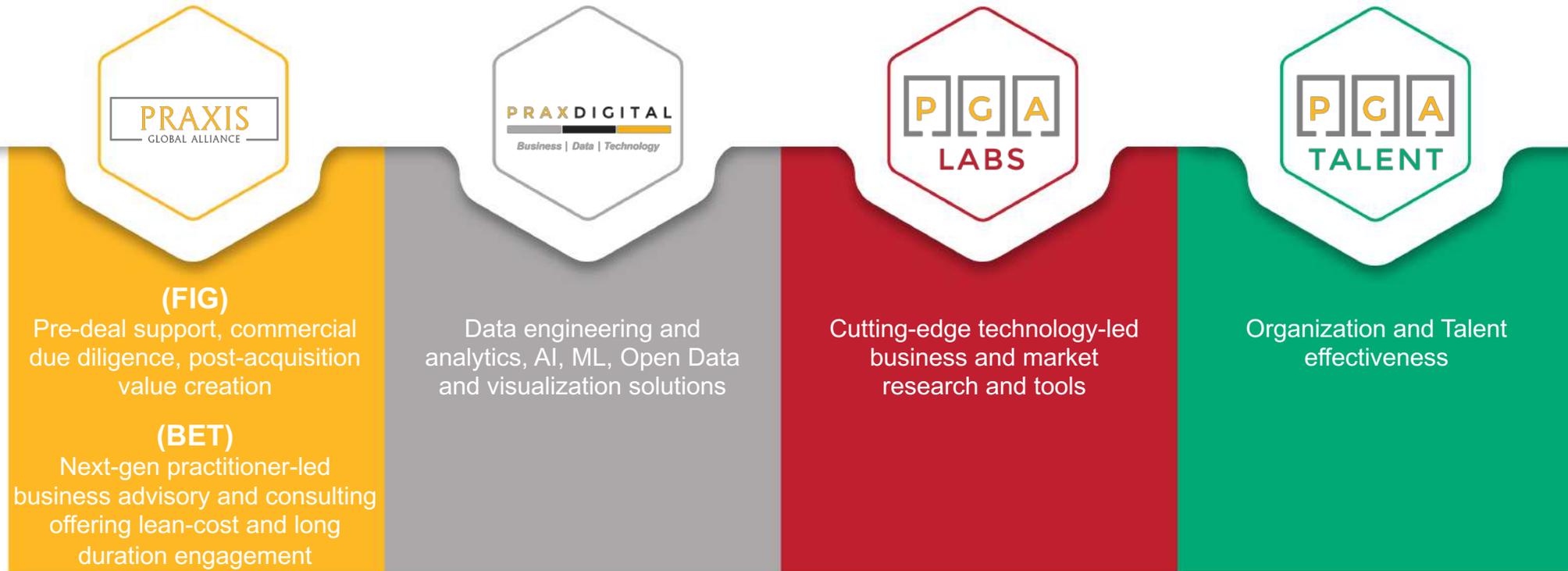
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Praxis Global Alliance is the next-gen management consulting and business research services firm revolutionizing the way consulting projects are delivered. We deliver practical solutions to the toughest business problems, by uniquely combining domain practitioner expertise, AI-led research approaches, and digital technologies.



Praxis is 'Practical'



We bring the best domain expertise with our deep pool of industry practitioners and implementation teams as two-in-a-box



We work with agility, flexibility and embed with your teams to enable **SUPERIOR OUTCOMES**



We leverage technology deeply to enable higher ROI on your consulting and analytics spend



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