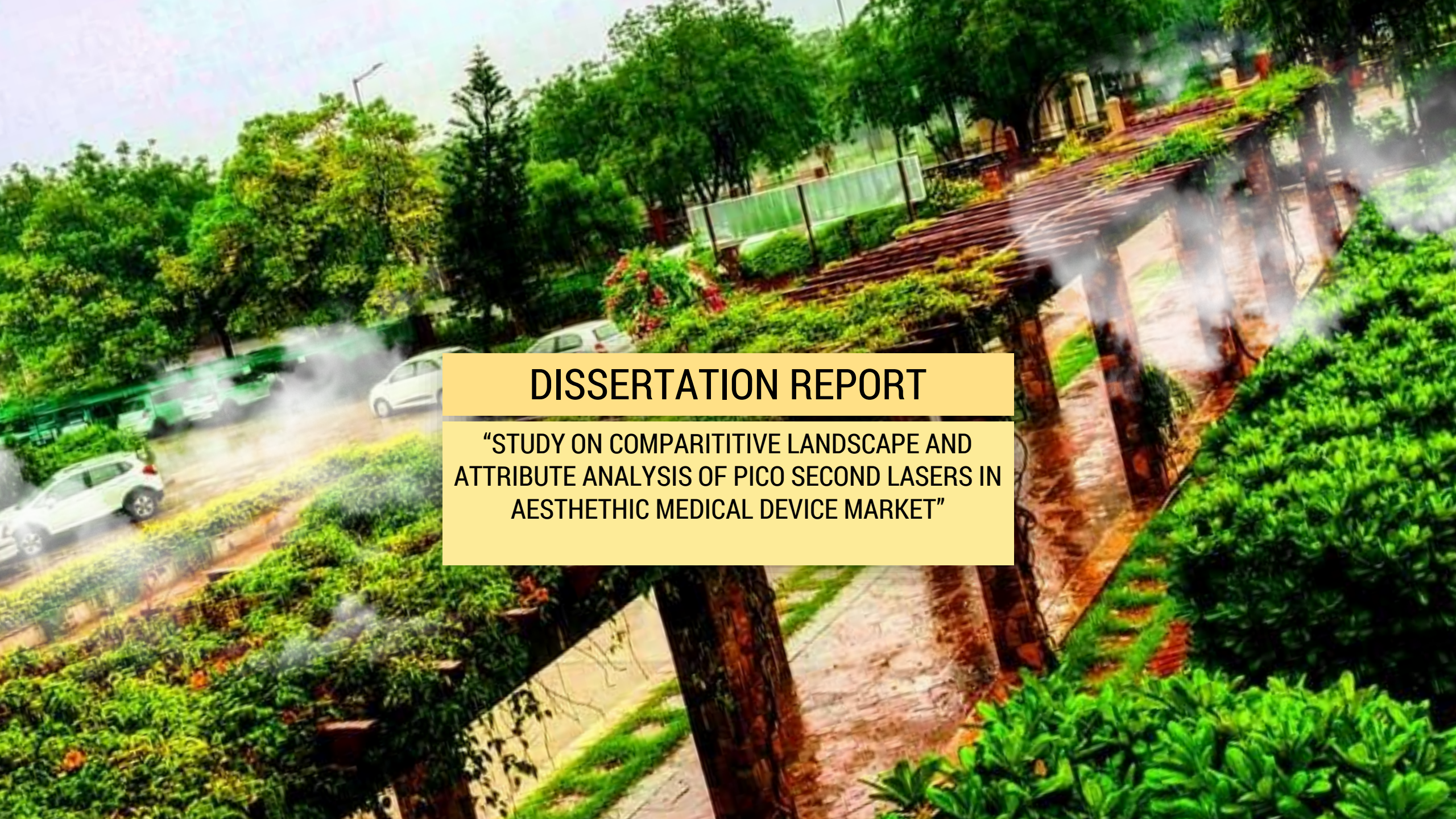






DISSERTATION REPORT

“STUDY ON COMPARITIVE LANDSCAPE AND
ATTRIBUTE ANALYSIS OF PICO SECOND LASERS IN
AESTHETHIC MEDICAL DEVICE MARKET”

ORGANISATION INSIGHTS

AAKAAR MEDICAL TECHNOLOGIES



MISSION

To constantly thrive for providing Aesthetic products & equipment's with versatile technology that help people to look smart, feel young and stay confident."



VISION

Our vision is to offer safe, efficacious & world-class products that help people look smart, feel young and stay. Confident."

Aakaar has been at the forefront of innovative technology system, designed to meet unique needs of Today's Practitioner.

With 27 years of expertise & many firsts in India, Aakaar has been consistently enhancing the quality of life by delivering high-quality products and equipment with innovative technology.

We believe that every skin, body and hair deserves best possible care. We aim to provide a complete portfolio of innovative products that meet full spectrum of people's skin, body and hair care needs

EXECUTIVE SUMMARY

BACKGROUND : Picosecond lasers help achieve better results by application of q-switch and Pico pulse technology to safely and effectively removes subcision scar tissues. Pico seconds lasers not just help in day to day data but also in tattoo removal. It is safe, effective and powerful q-switch medical laser. This study is one of the most comprehensive documentation that captures all the facts of Pico second devices in medical aesthetics markets.

METHODOLOGY : It is a descriptive study based on secondary data. Data was collected from various journals, publications, reports of public listed companies and organization official webpages. Attribute analysis was carried out to compare the specifications for each devices.

RESULT : In terms of safety, efficacy and treatment possibilities Picocare - pico second laser was found to be better than the other conventional device in the market for all color tattoo removal and treatment of various skin problems.

CONCLUSION : Skin problems are seen in all ethnic groups with varying frequency. Differential prevalence of social, cultural, genetic and environmental factors is cause of these skin problems. The increasing population in India and rising urbanization makes India as one of the best markets to invest in. Advanced aesthetic laser like Picocare can prove to be a revolution in improving the life of the people by helping them get rid of their permanent problem lesions, mole, nevus, freckles, melasma, age spots, hyperpigmentation, birthmarks etc., with a promising solution, all because of advancement in technology.

INTRODUCTION

WHAT ARE AESTHETIC LASER?

Laser (L-A-S-E-R) stands for light amplification by stimulated emission of radiation.

There are two basic types of lasers used for cosmetic purposes: ablative and non- ablative. Ablative lasers vaporize the top layers of damaged skin, while non-ablative lasers work deeper in the skin without removing or otherwise damaging the top layers. Due to this no actual downtime is witnessed in patients undergoing cosmetic procedure, where only non-ablative laser technology is used.

Aesthetic Lasers work in cosmetic applications according to a process called "selective photothermolysis". For this, the wavelength of the light must be synchronized with the target color to be handled, regardless of whether the spots are brown, unsightly red broken capillaries or some other undesirable skin condition.

Pico Q-switch lasers are a special category of lasers that can deliver energy in extremely short bursts (within several billionths of a second). Picosecond laser treatment achieved a better clearance with fewer sessions and lower incidences of post inflammatory dyspigmentation, demonstrating better clinical outcomes and fewer adverse events compared with other conventional laser.

PICOCARE is a picosecond laser system to treat all tattoo colors & pigmented lesions & full body hair removal. In terms of speed and comfort, its performance outperforms other devices on the market. Pico second lasers minimizes damage to skin to remove pigment by precisely aiming the targeted lesions. Pico second laser is a rapid, safe and easy medical laser skin treatment for all types of pigment, tattoo & scar treatment.

LITERATURE REVIEW

Published online Dec 31, 2017 Available URL:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5801452/>

The picosecond-laser is a revolutionary advance for laser tattoo removal but may be a less effective device in other indications such as those currently being treated with the numerous no-down time cosmetic devices present in the market: The same applies for ps-laser treatments of melasma and other cosmetic procedures.

Published online March 1, 2017 Available URL:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5367877/>

The picosecond laser is a revolutionary laser technology due to its much-shortened pulse duration. In treating minocycline-induced pigmentation, Q-switched alexandrite laser is considered effective but typically requires several treatments many months apart to achieve the desired clearance.

A study on Laser tattoo removal: a clinical update. Ho SG, Goh CLJ Cutan Aesthet Surg. 2015 Jan-Mar; 8(1):9-15. Published online on PubMed

The use of a 1,064-nm wavelength Nd:YAG picosecond laser for the successful removal of blue, black, and purple ink while 532-nm was used for red and yellow ink. These variable wavelengths allow for the more effective treatment of difficult-to-remove colors.

Published online Feb 2019 Available URL:
https://www.researchgate.net/publication/330836142_Evolution_of_the_Picosecond_Laser_A_Review_of_Literature

Picosecond laser were initially used in tattoo removal, to optimize efficacy and reduce side effects with nanosecond domain lasers. More recently, they have been demonstrated to be effective in the treatment of pigmentary disorders, acne scarring, and photoaging.

Published online September 6, 2018 Available URL:<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0203370>

A picosecond 755 nm laser excellent efficacy in removing only green and blue pigments. a picosecond 1064 nm laser demonstrated some effects on non-black colored tattoos. In terms of safety, picosecond lasers produced less tissue injury than nanosecond lasers. Conclusively, picosecond lasers are more effective and safer than nanosecond lasers.

Methodology

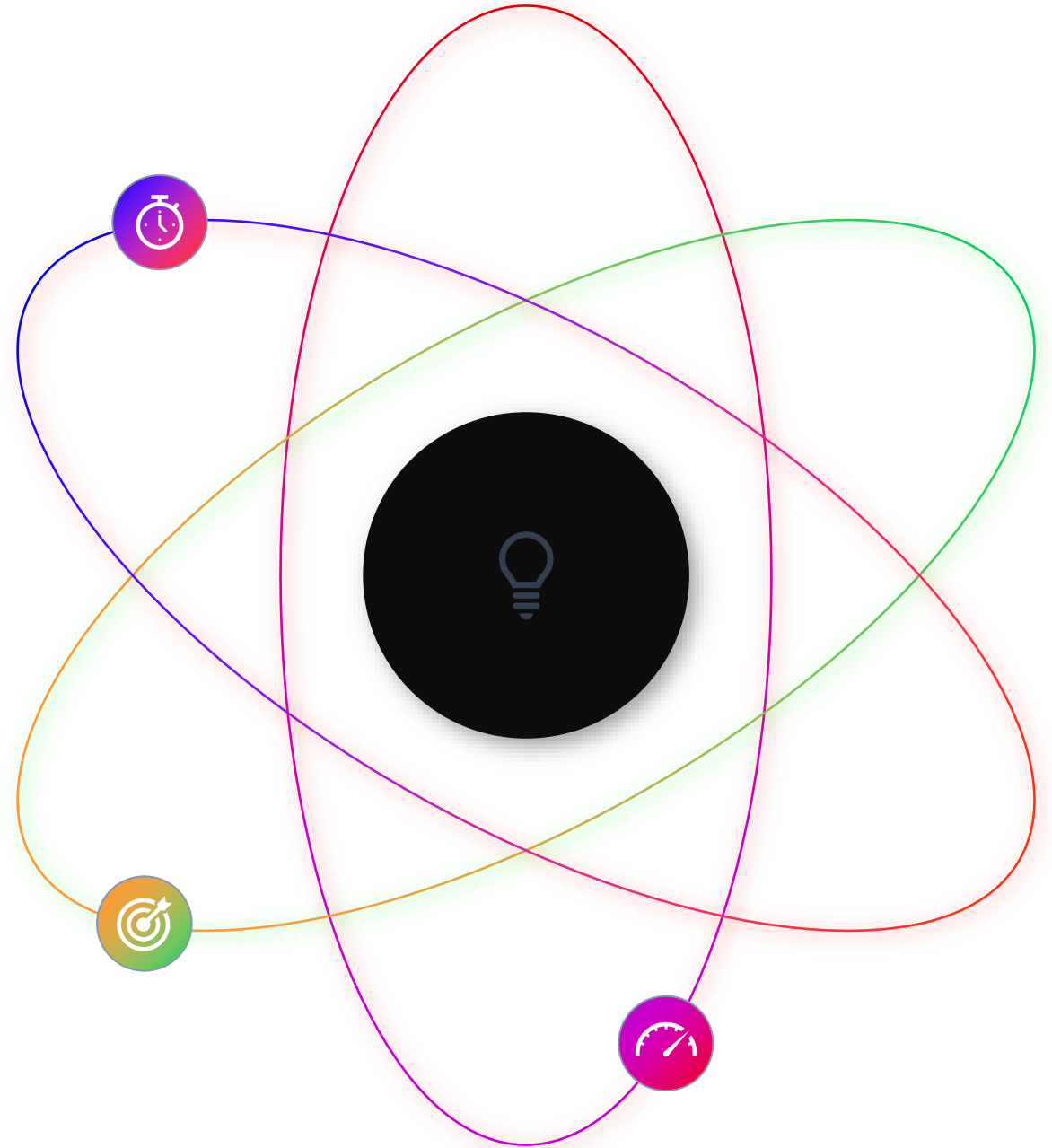
The study is based on literature review. The secondary data is taken from various journals, publications and reports of public listed companies.

MATERIALS AND METHODS:

Data Type: Secondary

Research Design: Descriptive

Data Collection Tool: Secondary data is collected from various journals and reports, and companies' official websites.



Global Aesthetic Market, 2020-2024



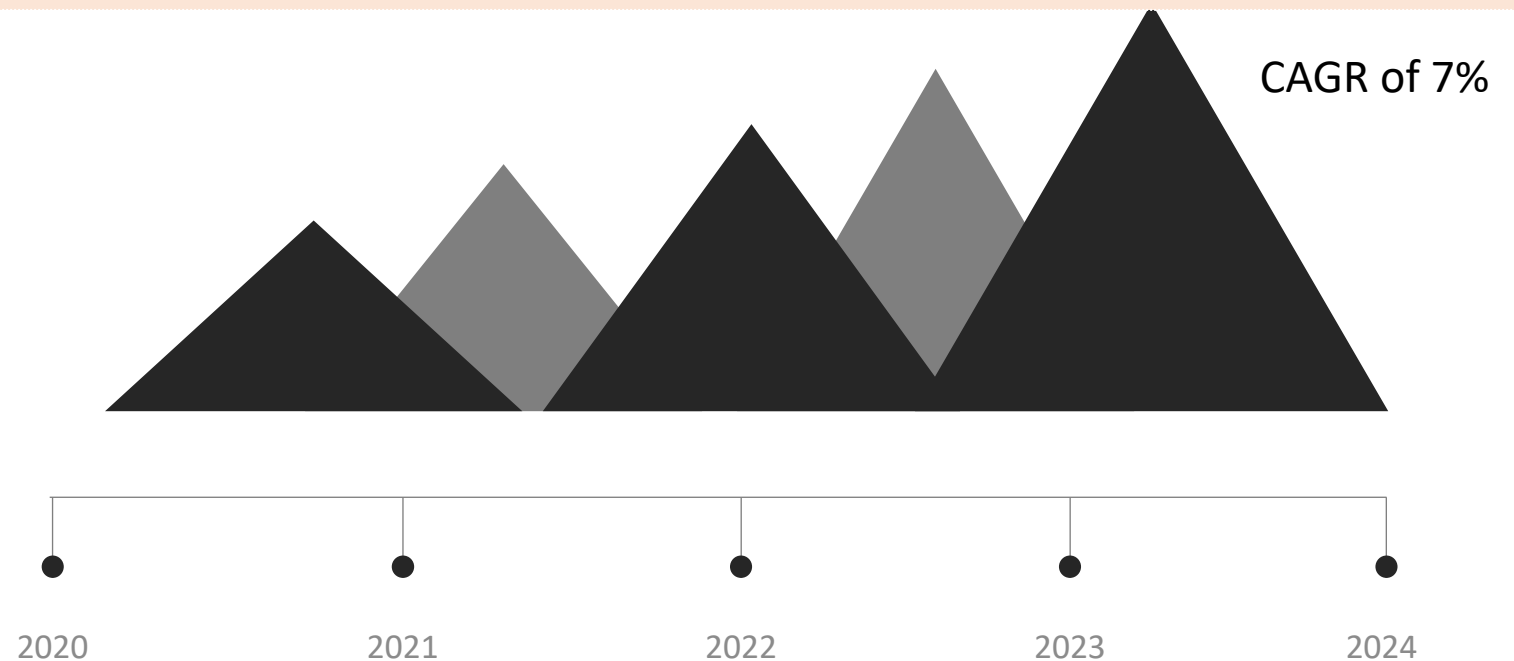
✓ **The Global Aesthetic Market is expected to grow by \$7.64 bn during 2020-2024 progressing at a CAGR of 7% during the forecast period**

✓ The global skincare market has witnessed strong growth on account of growing adoption of skincare products like anti-ageing creams, anti-blemish creams, exfoliators. Certain factors that are driving the market growth include increasing obese population, increasing awareness regarding aesthetic procedures and rising adoption of minimally invasive devices, and technological advancement in devices.

✓ **Key Players :** Major companies engaged in offering pico second lasers includes Cutera, Picocare, Picosure, Picoplus, Elighten, Discovery Pico

PIGMENTATION TREATMENT MARKET : (Source : Aslam A, Owen CM. Fashions change but tattoos are forever: time to regret. Br J Dermatol. 2013 Dec;169(6):1364)

- Over 40% of Asian women have melasma
- Over 5milions of Americans have melasma
- 2/3 tattoo done before the age of 20 years
- 1/3 patient regrets the tattoo; 1/2 if carried out before the age of 20 years



Skin problems are seen in all ethnic groups with varying frequency due to prevalence of social, cultural, genetic and environmental factors. The increasing population in India and rising urbanization market makes India as one of the best markets to invest in

CLASSIFICATION OF AESTHETIC LASER



SEGMENTATION BY TYPE:

Laser Resurfacing Devices | Body Contouring
Devices | Aesthetic Ophthalmology Devices |
Others



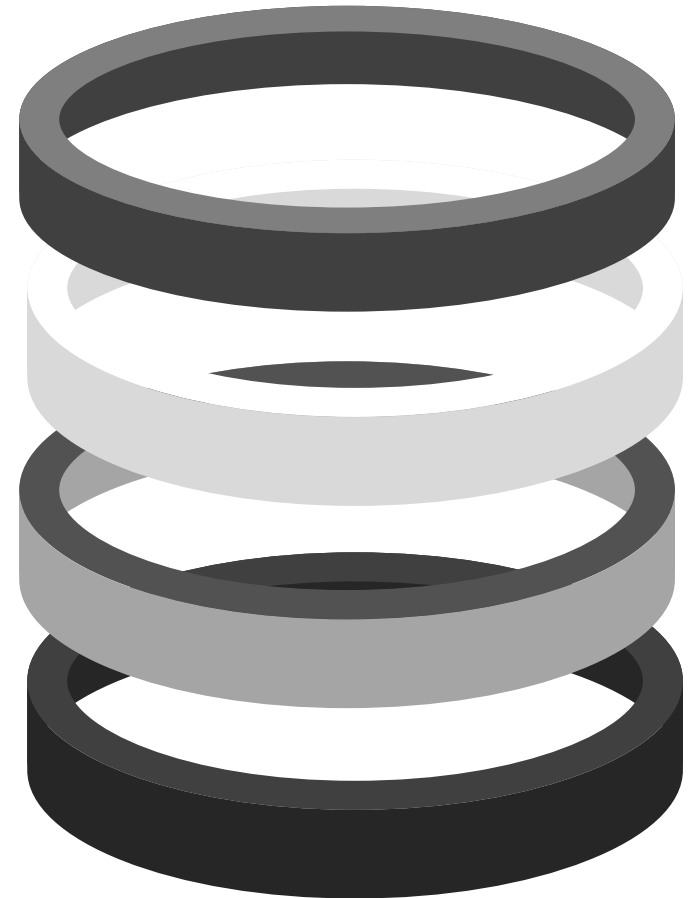
SEGMENTATION BY CATEGORY :

Hair Removal | Skin Resurfacing | Body Shaping |
Skin Rejuvenation | Others



SEGMENTATION BY DISTRIBUTION :

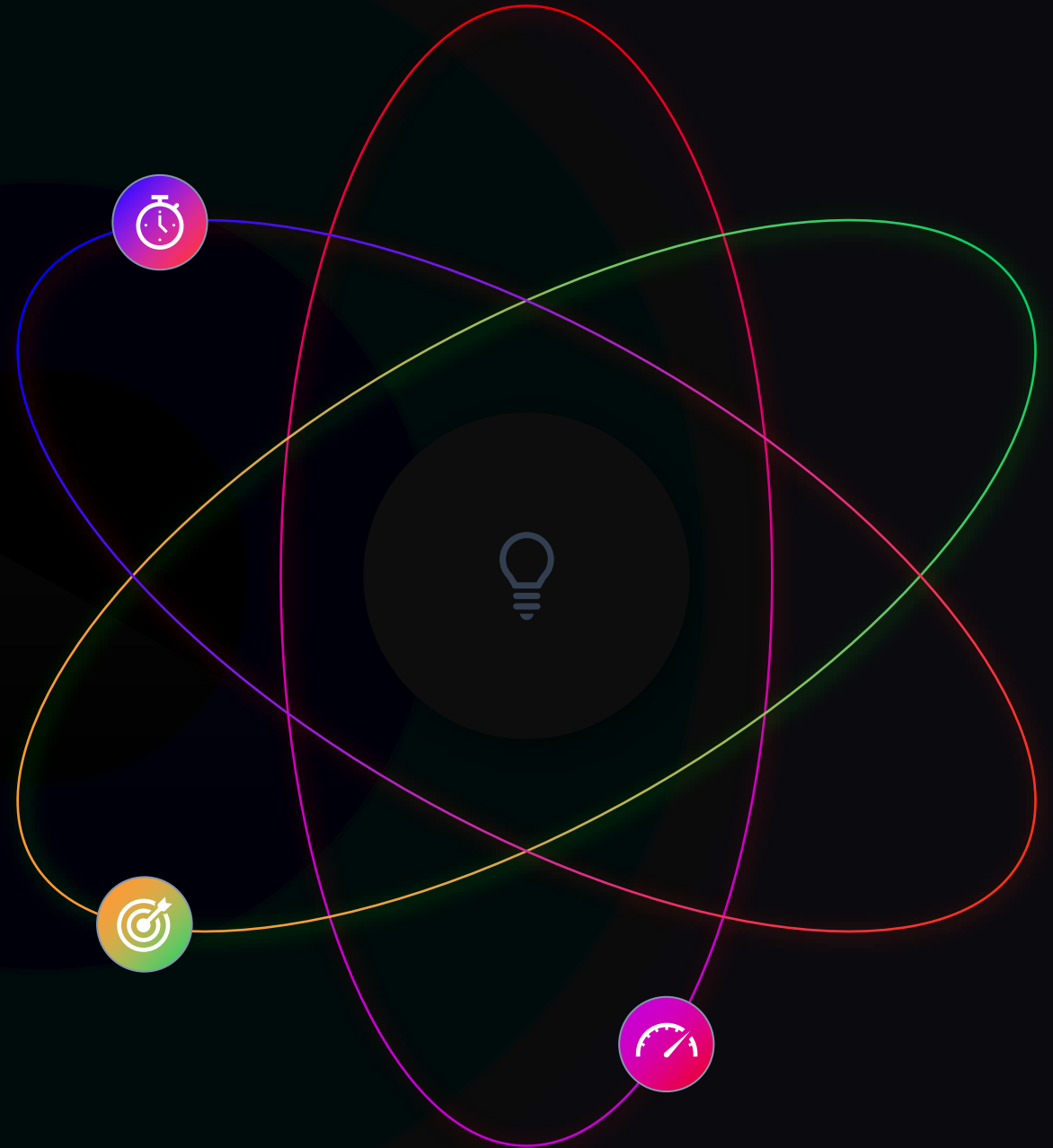
Laser Based Technology | Light Based Technology |
Energy Based Devices



About PicoCare

An Overview

PICOCARE is a Nd:YAG picosecond laser system to treat all tattoo colors & pigmented lesions & full body hair removal. In terms of speed and comfort, its performance outperforms other devices on the market. Pico second lasers minimize damage to skin to remove pigment by precisely aiming the targeted lesions. Pico Second Laser features latest Pico Pulse Technology with fractional mode. Pico second laser is a rapid, safe and easy medical laser skin treatment for all types of pigment, tattoo & scar treatments.

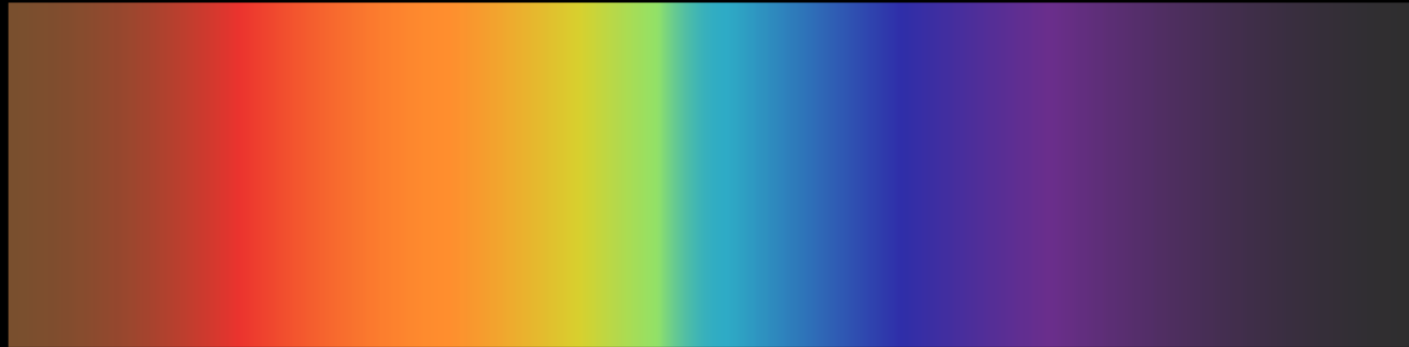


PICOCARE TREATMENT POSSSIBILITIES



PICOCARE

Indication of Use



	Brown	Red	Yellow	Green	Blue	Purple	Black
532nm Epidermal Pigment	人	人	人				
1064nm Dermal Pigment				人	人	人	人

*PICO*CARE

FEATURES

MULTIPLE
Wavelength

1064nm
532nm
595nm
660nm

HEXA
MLA

Scar
Treatment Skin
Rejuvenation

Auto
Calibration

Convenient system
Stable energy output
Effective and safe
treatment

COMPETITIVE LANDSCAPE

COMPETITIVE LANDSCAPE OF PICOSECOND LASER				
COMPANY NAME	DEVICE NAME	Platform system	PULSE RATE	HIGHLIGHTS
Wontech & Aakar Medical Technologies	PicoCare	Q-switch and Pico Pulse	1064nm@450ps, 532nm@375ps	FDA Approved User Fruendly GUI Various spot size Compact size device light weight 15 times higher power MLA
Cynosure	PicoSure	Picosecond	532nm, 755nm @ 750ps, 1064nm	
Syneron Candela	PicoWay	Picosecond	532nm @ 375ps, 785nm @ 300ps, 1064nm @ 450ps	For tattoo pigment acne scar wrinkles removal. Bad beam profile.
Quanta System	Discovery Pico	Hybrid picosecond/nanosecond platform	370ps @ 532nm, 450 ps @ 1064nm, 6ns @ 694nm	New Foot Switch Twain IPL Discovery Pico + Ruby = PLUS Handpiece change needed for each spot size. Multi wavelength but not stable.
Cutera	Enlighten	pico + nano	750 ps & 2 ns	1064nm indicated for skin types. 532, 670 nm indicated for skin types I-III MLA power from 2 to 6 times

M E T R I C E S F O R C O M P A R I N G

Key Metrics For Comparison Of The
Pico Second Lasers Are :

- Number of wavelengths
- Pulse Duration
- Peak power
- Platform
- Spot size
- Delivery system
- Irradiation type
- Max energy
- Repetition Rate
- Device Dimensions
- Weight
- Handpiece
- Certifications
- Warm up time

ATTRIBUTE ANALYSIS

Company	WONTECH	CANDELA	CUTERA	Quanta System	CYNOSURE	REMARKS
Device Name	PICOCARE450	PICOWAY	Enligten III	Discovery PICO PLUS	PicoSure	
Image						PICOCARE was found to be the: Most economical Suitable for many indication, broad usage high energy output and fast treatment FDA approved Most light weight, easy to shift various spot size, no changes required zoom handpiece with var spot size 2-10 mm shortest pulse width in market 4 wavelength - 785 skin indication treated. Tattoo Color-595,660 wise more options comfort and safety
Wavelength	1064,532,595,660nm	1064,532,785nm	1064,532,670nm	1064,532,694nm	755.1064,532nm	4 types of wavelength available for Picocare, broader scope of treatment
Optional Handpiece	Zoom(1064&532) : 2 to 10mm HEXA MLA (1064&532) : 3,4,5/6,7,8,9,10mm Collimation(1064&532) : 7mm DOE(1064/532) : 5*5~9*9mm(1064), 6*6 mm(532) Dye(595/660) : Max 3mm	Zoom(1064&532) : 2,3,4,5,6,7,8,9,10mm Resolve(DOE)(1064/532) : 6*6/6*6mm (10*10Micro Beam Array) 785HP : 2,3,4mm	MLA 532&1064 : 2.5,3,3.5,4,5,6,7,8mm 670 : 2,2.5,3,3.5,4,5,6mm	PICO, Q-Switch, Opti-Pulse, Photo-Thermal Mode Square: 2x2; 3x3; 4x4; 5x5; 9x9 mm² Round : ø 3; 4.5; 6; 7.5; 9; 10.5 mm Fractional : 8 mm	Zoom : 2 - 6mm Fixed : 6, 8, 10mm Focus Lens Array(MLA/755) : 532HP : 1.5, 2.0mm 1064HP : 2.0,2.5mm	4 handpiece provided with Picocare, which are detachable. various spot size, no changes in configuration required. zoom handpiece with var spot size 2-10 mm.
Pulse Duration	450ps @1064 370ps @532	450ps @1064 375ps @532 300ps @785	750ps, 2ns(1064,532) 660ps@670nm	450ps @1064 370ps(400ps) @532 6ns	750ps, 550ps	In lesser time more energy is delivered through Picocare and picosure. This mean faster treatment. And less downtime.
Max Energy	600mJ @1064 300mJ @532 150mJ @ 595 75mJ @ 660	400mJ @1064 200mJ @532 85mJ @785	600mJ @ 1064_10J/cm² 300mJ @ 532_2.5J/cm² 125mJ @670_4J/cm²	800mJ @1064 300mJ @532	532_1.1J/cm² 1064_1.9J/cm²	pico plus delivered highest energy but with diff hp, huge cost & because of wt. not easily movable to diff clinic. On the other hand, Picocare was found to delivered stable and dynamic energy as per the requirement.
Peak Power	1.33GW @1064 0.8GW @532	0.9GW @1064 0.53GW @532 0.28GW @785	0.4 GW, 0.8 GW	1.8GW @ 1064 0.75GW @532(400ps)	532nm, 755nm @ 0.36gw, 1064	Picocare has the highest peak power
Repetition Rate	Single shot to10Hz, 1~5Hz(Dye)	Single,1,2,3,4,5,6,7,8,9,10 Hz Single,1,2,3,4,5Hz(785HP)	Single, 1,2,3,3.5,10Hz Single,1,2,3,3.5Hz(670)	Up to 10Hz(Nd:Yag) Up to 3Hz(Ruby)	Up to 10Hz(532,1064)	Picocare can provide dynamic pulse rate from 1 to 10 as per the requirement. In other cases it is usually fixed.
Dimension(mm)	450W * 940D * 870H	1070H * 460W * 690D	914H * 508W * 838Dmm	106H * 53W * 104.3D		
Weight	80kg	125Kg	150kg	150kg	100kg	Picocare – most light weight, easy to

SWOT ANALYSIS- PICO CARE



Strengths

- FDA Approved,
- Multiple Specialized Handpieces,
- Spot Size,
- Light-weight, Portable
- Product Features,
- Economical Cost.



Threats

Competitors Outreach
Newer Entrants
limited Branding,
Similar products but with compromised
Safety and efficacy or huge cost are
available in the market.



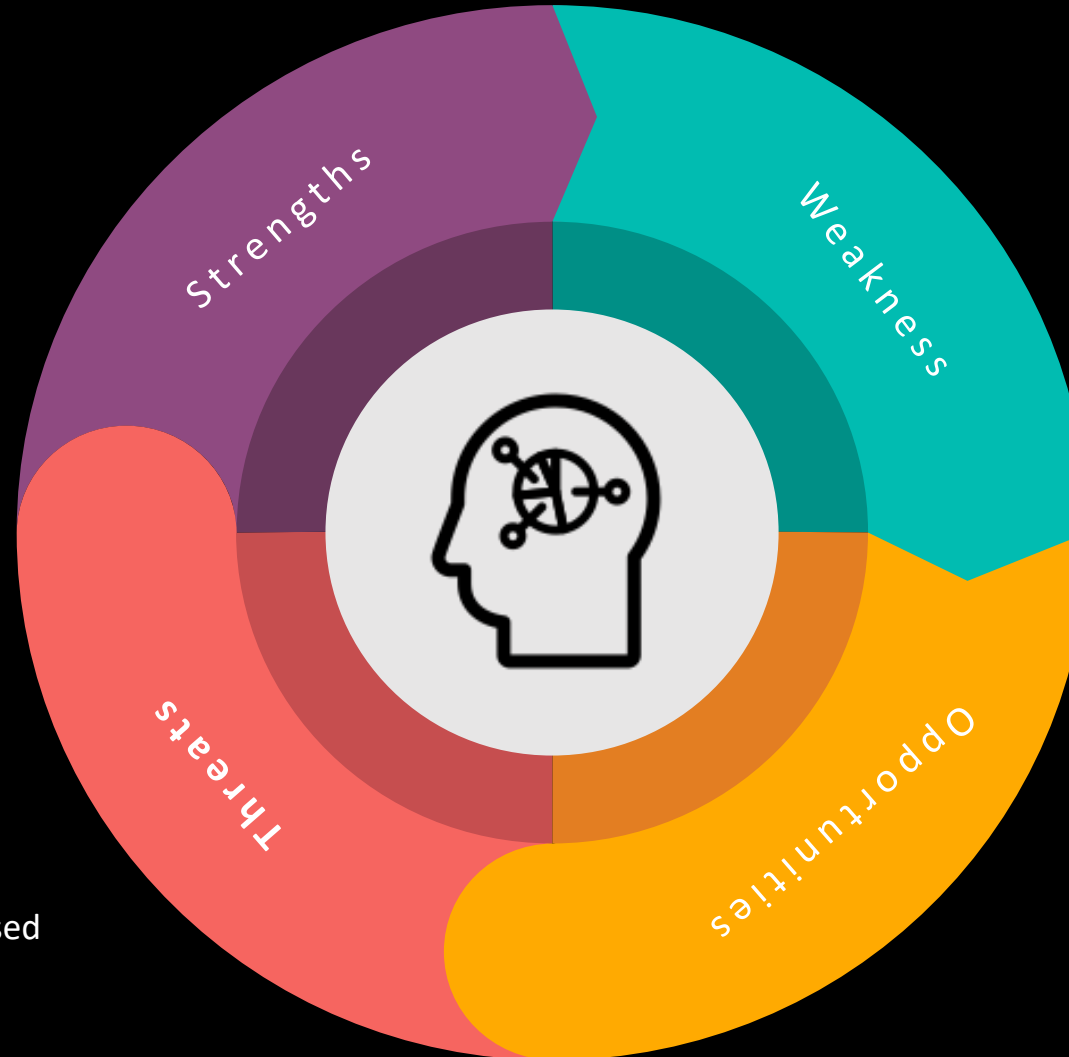
Weakness

Lesser Investment In
Branding, PR And
Advertisements,
Less Product
Range/Treatment For
Lower Middle Class

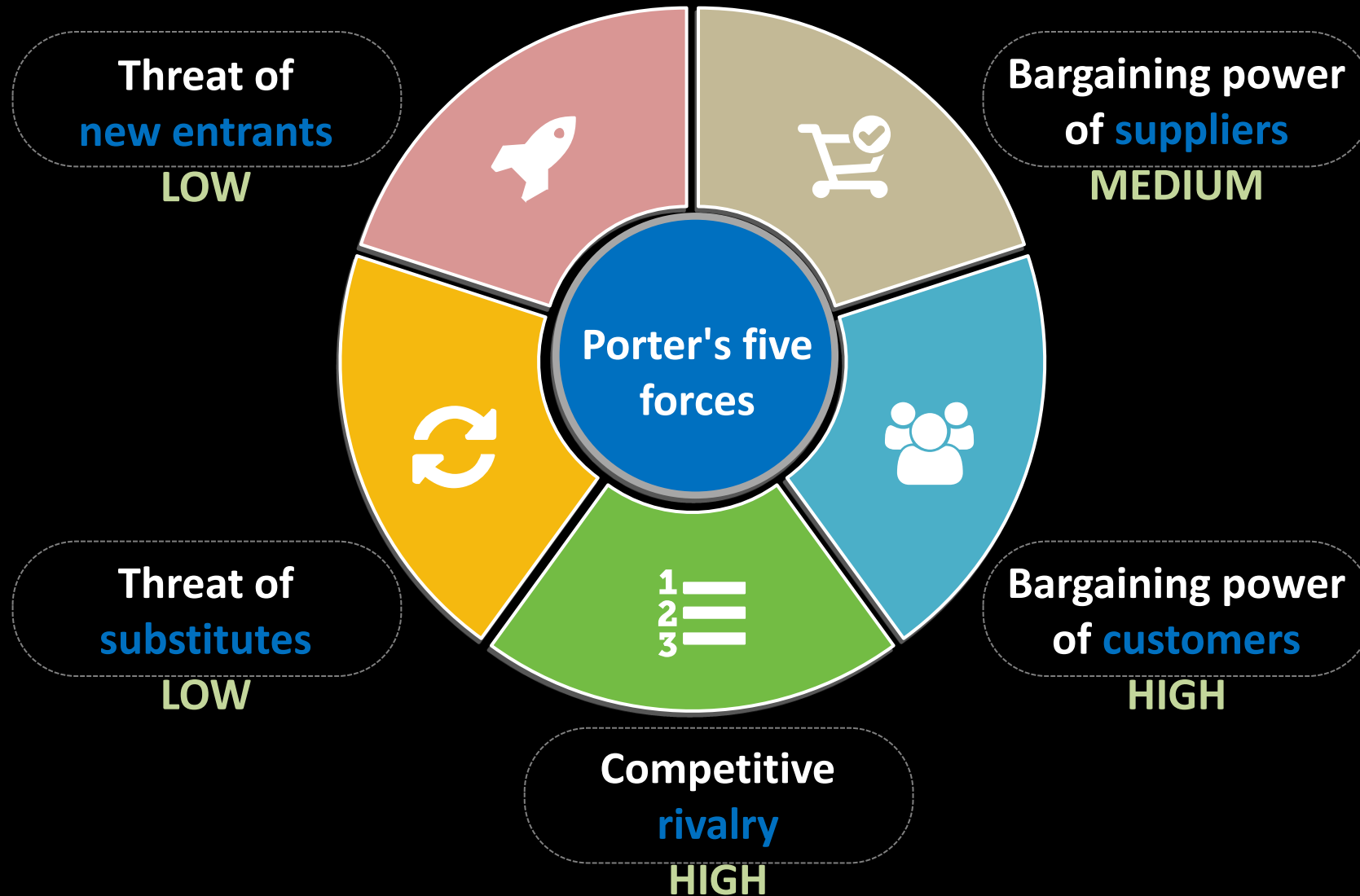


Opportunities

Rise in Indian And Worldwide
Market Since There's
A Large Base Of Customer
Looking For Skin Rejuvenation
Treatments, Huge Untapped
Market, Rising Disposable
Income, Urbanization,etc.



Porter's Five Forces Analysis for Picocare



COMPARISON

CONVENTIONAL LASER

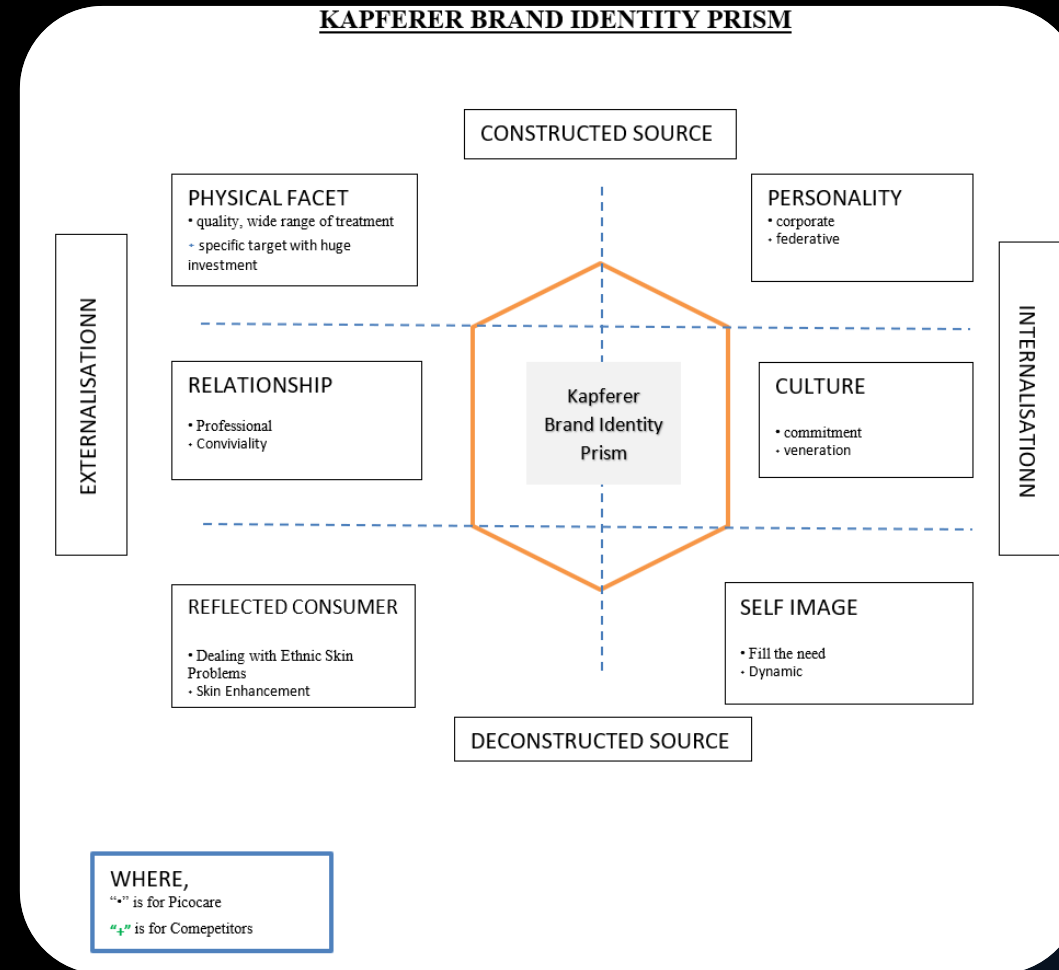
- More Side Effect
- More Discomfort
- More Treatment
- Nano Pulse Width
- Not Clearance Tattoo Removal

PICO CARE PICO SECOND LASER

- Less Side Effect
- Less Discomfort
- Fewer Treatment
- Pico Pulse Width
- Clearance Tattoo Removal

COMPARISON

KAPFERER'S BRAND IDENTITY PRISM



Kapferer's Brand Identity Prism dissects the notion of brand identity and explains its elements in detail.

WHY PICO CARE- PICO SECOND LASER?

EFFICACY

- Picocare -Picosecond laser is unmatched the best when it comes to speed (Picocare deliver 450 picosecond pulse duration)
- High Peak strength of 1.33 G.
- HEXA focus lenses concentrate up to 15 times more energy at each point.

SAFETY

- Pigments break down into very small particles, which can be more easily removed from the body.
- A laser-induced second optical breakthrough only breaks the target.

TREATMENT POSSIBILITIES

- Picocare has a wavelength of 1064 nm and allows you to easily remove a variety of tattoo colors, including harsh green and blue.
- Laser Treatment through Picocare - picosecond lasers can treat various skin diseases, unwanted permanent tattoos, Ota nevus, dyspigmentation, permanent lesions, etc.

“

CONCLUSION

The Global Aesthetic Market is expected to grow by \$7.64 bn during 2020-2024 progressing at a CAGR of 7% during the forecast period.

The increasing population in India and rising disposable market makes India as one of the best markets to invest in, Indian market is dominated with people with ethnic skin which is highly susceptible to skin problems. Hence, advanced aesthetic laser like Picocare can prove to be a revolution in improving the life of the people by helping them get rid of their permanent problem lesions, mole, nevus, freckles, melasma, age spots, hyperpigmentation, birthmarks etc, with a permanent solution, all because of advancement in technology.

Picocare have added advantages over other pico second laser system. It is better in terms of efficacy, safety and scope of treatment range

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