



Innovating  
for ***Security  
and Success***



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### Forward Looking Statement

In this Annual Report, we have disclosed forward-looking information to enable investors to comprehend our prospects and take informed investment decisions. This report and other statements - written and oral - that we periodically make, contain forward-looking statements that set out anticipated results based on the management's plans and assumptions. We have tried wherever possible to identify such statements by using words such as 'anticipate', 'estimate', 'expects', 'projects', 'intends', 'plans', 'believes', and words of similar substance in connection with any discussion of future performance. We cannot guarantee that these forward-looking statements will be realised, although we believe we have been prudent in assumptions. The achievement of results is subject to risks, uncertainties and even inaccurate assumptions. Should known or unknown risks or uncertainties materialise or should underlying assumptions prove inaccurate, actual results could vary materially from those anticipated, estimated or projected. Readers should bear this in mind. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

## FY23 IN REVIEW

(₹ IN CRORE)

**161.44**  
REVENUE FROM OPERATIONS

**58.33**  
EBITDA

**37.64**  
PROFIT AFTER TAX

**~473**  
ORDER BOOK  
(AS ON MARCH 31, 2023)

# Innovating for *Security and Success*

Every day, while the world rests, a group of humble individuals diligently safeguard borders across the world and ensure safety. Our mission is to support and bolster defense and security forces, enabling them to excel in their vital roles.

At the heart of our endeavors lies a focus on innovation. Leveraging our exceptional research and development capabilities, we have recently crafted an advanced anti-drone technology, among other cutting-edge defence training solutions. Our significant investments have led to comprehensive security against drone attacks. Yet, we remain modest and recognise that there is much more to achieve.

For us, success is synonymous with safeguarding defence forces worldwide. It serves as the bedrock from which many aspects spring forth:

- A deep passion to continue innovating for their security
- A solemn commitment to transform ideas into reality and develop defence safety solutions
- A genuine desire to expand our presence to protect more regions
- A steadfast promise to deliver superior service to our esteemed clients

As we embrace this noble endeavour, our team remains resolute in the pursuit of cutting-edge solutions, ensuring that we stay ahead of emerging threats and challenges.

Through collaboration and partnership with defense organizations, we forge a collective path towards a safer world.

Guided by the principles of humility and excellence, we recognise that our journey towards innovation and success is an ongoing process, and we shall persistently strive to reach even greater heights, ensuring the security of those who matter the most.





COMPANY OVERVIEW

# Zen Technologies - Pioneers in Defence Training Solutions

With a legacy spanning nearly three decades, Zen Technologies Limited (Zen) stands tall as a leader in the development of smart technological solutions that finds applications in the defence industry.



Soldier training is crucial, as it ensures combat readiness and significantly enhances the chances of a successful mission. At Zen, we design and develop a range of training solutions that create combat-ready soldiers. Our portfolio of cutting-edge defence training simulation solutions has earned us a trusted reputation in India and around the globe.

From land-based military training simulators and driving simulators to live range equipment and anti-drone systems, our solutions are unmatched in measuring combat readiness and creating realistic battle experiences. Our proprietary training platform integrates our entire range of products.

With a team of brilliant minds leading our R&D and state-of-the-art cutting-edge technology, recognised by the esteemed Ministry of Science and Technology, Government of India (GOI), we have applied for 130+ patents and exported over 1,000 training systems worldwide. Based in Hyderabad, we have served more than 100 institutional customers, including the Ministry of Defence, GOI, significantly contributing to the advancement of our nation's defence capabilities.



## Vision

To be a leading player globally in providing combat training and counter-drone solutions to the armed, paramilitary and police forces



## Mission

To provide combat training and anti-drone solutions through innovative and cost-effective solutions



## A GLANCE AT ZEN

3

DECADES OF EXPERIENCE

25

YEARS OF EXCLUSIVE FOCUS ON SIMULATORS AND TRAINING EQUIPMENT

5

YEARS OF ESTABLISHING THE COMPANY IN THE ANTI-DRONE SYSTEMS

An IP  
PLAYER

280+

SKILLED PEOPLE ON OUR TEAM

1,000+

TRAINING SYSTEMS SHIPPED ACROSS THE WORLD

~73

(₹ IN CRORE)  
INVESTED IN R&D IN THE LAST 5 YEARS

~473

(₹ IN CRORE)  
ORDER BOOK AS ON MARCH 31, 2023

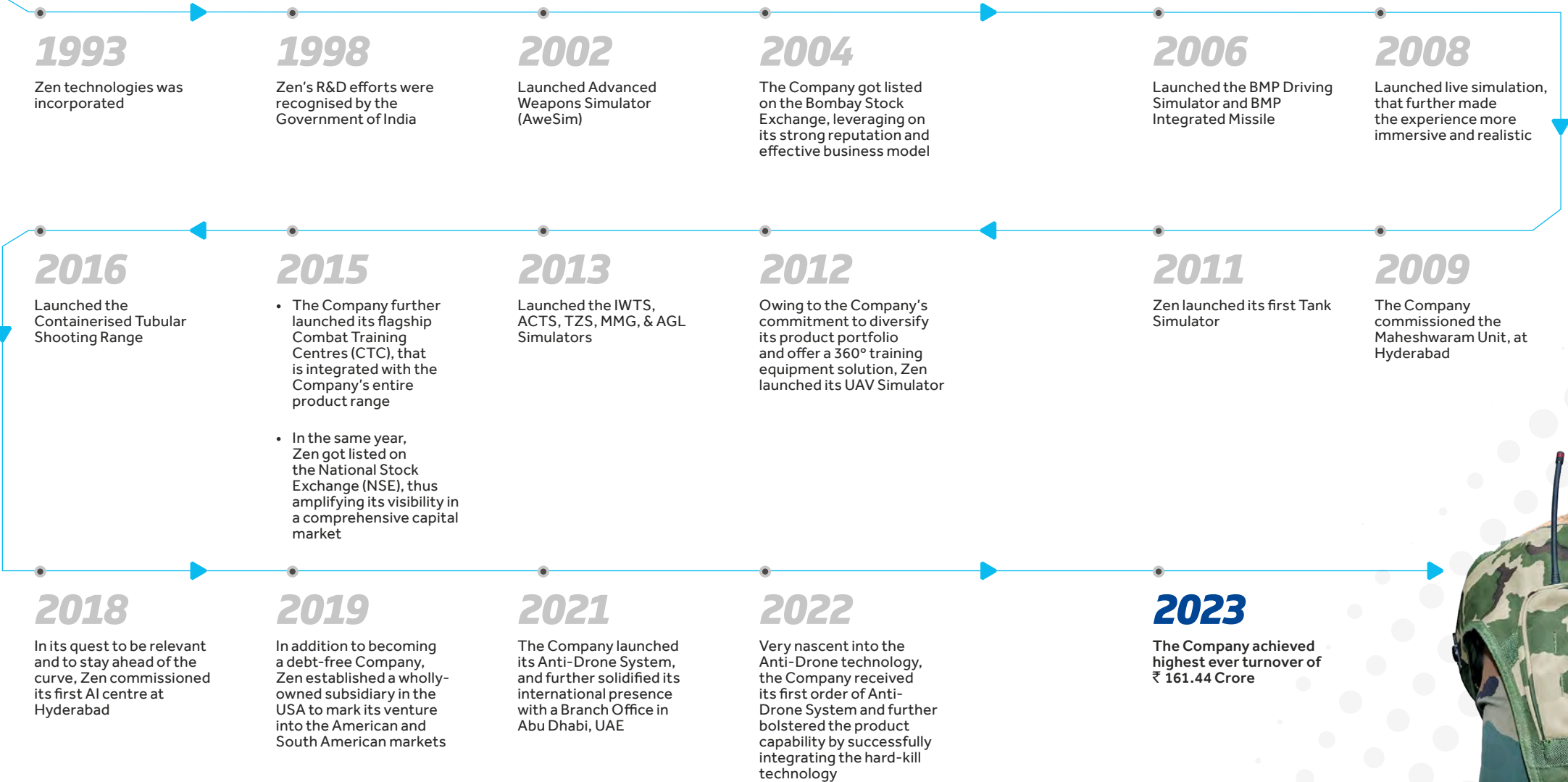


JOURNEY

# Three Decades of Delivering Security

For the initial 25 years, Zen Technologies dedicated its efforts to creating top-notch simulators and training equipment that revolutionized the defence industry. Over the last five years, we ventured into a new realm - anti-drone systems.

Throughout this journey, we have experienced continuous learning and substantial growth, fueled by our unmatched commitment to serving those who protect us.





## PRODUCT PORTFOLIO

# Our Groundbreaking *and Cutting-edge* *Solutions*

From the ground-breaking anti-drone systems to cutting-edge virtual and live simulation technologies, our product portfolio showcases a deep commitment to innovation. We attribute our success to the dedicated R&D team responsible for creating top-tier products for customers.

## We offer our products under four verticals:

- Anti-drone Solutions
- Live Ranges
- Live Simulation and Virtual Simulation
- Combat Training Centre



## PRODUCT PORTFOLIO

## Anti-drone Solutions

With its ability to provide real-time monitoring and surveillance through high-quality images and video footage, drone technology is transforming the way we approach security and defence. Recognising this, we have taken the lead in developing a range of superior-quality Anti-drone solutions. With its unique combination of a soft kill and hard kill facility, our anti-drone systems are designed to provide unrivalled protection to military and private organisations alike, including oil and gas industries and various other public spaces.

### Features of our Anti-drone System

- Integrates cutting-edge features, such as RF-based drone detection and radar tracking capabilities
- Can be mounted on a vehicle, providing unparalleled mobility and reach
- Equipped with a powerful drone RF jammer

#### ANTI-DRONE SYSTEMS (ZADS)

Our next-gen Anti-drone System (ZADS) is the ultimate defence against unmanned aerial threats. With a focus on drone detection, classification and tracking through advanced passive surveillance and camera sensors, ZADS neutralises potential dangers through effective communication jamming.



## Live Ranges



#### MASTER CONTROL STATION FOR LIVE-FIRING RANGES (MCS)

This is a live-firing range control system that displays and controls all targets in the range. With a range of advanced features, the MCS provides complete control and automation of the range, thus delivering highly efficient and effective training exercises.

#### TANK TARGETS

These are ideal for range firing and tactical firing practices. At Zen, we offer both static and moving tank target systems.

#### AIR-TO-GROUND FIRING RANGE SCORING SYSTEM

This is an innovative solution designed to provide a comprehensive training experience for air-to-ground weapons delivery. The system is capable of deploying a wide array of targets, tracking their movements and recording hit-and-miss scores, thus providing a full-spectrum evaluation of the exercise.

#### TANK ZEROING SYSTEM (TZS)

For tank and Armoured Fighting Vehicle (AVF), our TZS ensures accurate bore-sighting and zeroing in on the main gun of tanks and AVFs, thus reducing the need for manpower and conserving valuable ammunition.

#### ZEN CSWS TRIKAAL

This is an advanced corner shot weapon system that enables shooting around corners, over the top or over walls, without exposing the shooter. Equipped with cutting-edge technology, this system provides precise accuracy, even in the low light conditions, allowing shooters to train in a wide range of positions and scenarios. The system was developed in collaboration with DRDO and has been awarded the Test of Time award.

#### MULTI-FUNCTIONAL TARGET SYSTEM (MFTS®)

This is an electro-mechanical system for versatile targets which are programmable from the shooters end to perform various movements for firing practices. This portable and easy to operate system is designed for use both at outdoor and indoor shooting ranges.

By providing a realistic environment to train, our Live Ranges allow troops to practice essential marksmanship, tactical situations and missions with live ammunition and ordnance, under conditions that are as close to real-world scenarios as possible.

#### CONTAINERISED INDOOR SHOOTING RANGE (CISR)

This is a self-contained, transportable live-fire shooting facility, designed with the latest acoustic and ricochet materials to create a clean, safe, and discreet environment for live-fire requirements.

#### CONTAINERISED TUBULAR SHOOTING RANGE (CTSR)

This acts as a compact and secure indoor alternative to live firing, designed to optimise space usage for a range. It additionally supports the installation of a Smart Target System and its length can be extended to add more containers, if required.

#### HAND GRENADE SIMULATOR (HE36S®)

This is a patented hand grenade simulator that trains hand grenade usage through mind-body coordination, thus reducing the risk of accidents.

#### SMART TARGET SYSTEM (ZEN STS®) – LOMAH™

This is an electro-mechanical, software-driven acoustical projectile detection and reporting system. Owing to its light-weight, user-friendly interface, it is easy to use at outdoor ranges for live small firearms shooting. The Location of Miss and Hit (LOMAH) is an advanced solution for Zen STS that addresses the challenges faced during the day and night firing.

#### SHOOT HOUSE FOR LIVE AND SIMULATED INDOOR TACTICAL TRAINING

This is a secure indoor facility designed to meet the training needs of security personnel in operations to eliminate threats in a closed environment. It is equipped with a variety of realistic features that create a dynamic and engaging training environment.



PRODUCT PORTFOLIO

Live Simulation



Our Live Simulation utilises smart technology and provides a realistic and immersive experience that closely mirrors real-world scenarios. Our offerings include:

**ARMOUR COMBAT TRAINING SYSTEM (ZEN ACTS)**

This is an electro-mechanical system for versatile targets which are programmable from the shooters end to perform various movements for firing practices. This portable and easy to operate system is designed for use both at outdoor and indoor shooting ranges.

**TACSIM® INDOOR TRACKING SYSTEM**

This system is designed to meet the training needs of armed forces tasked to combat enemy/terrorists operating from built- up area/ buildings, by physical intervention. The system is akin to the Zen outdoor Tactical Engagement Simulator (TacSim®) with additional features that enable its functioning indoors, where GPS does not work.

**TACSIM® TACTICAL ENGAGEMENT SIMULATOR**

This simulator trains soldiers to utilise the skills acquired during training in field craft, battle drills and live-fire practice while carrying out operational exercises. It is ideal for Commando Units, Special Operation Groups, Special Task Forces, Special Forces, Training Centres, Armed Battalions of Police and all Law Enforcement Agencies. This simulator enables training in near-real life scenarios and training of large troops in a cohesive manner in complete confidentiality.

Virtual Simulation



Virtual Simulation is a key offering in Zen's product basket, providing cutting-edge training solutions for defence personnel. With numerous benefits, including controlled environment training and cost-effective solutions, virtual simulation allows many people to be trained simultaneously without sacrificing the quality of learning.

**81MM MORTAR INTEGRATED SIMULATOR (81MM MIS)**

This simulator is designed to enable the soldier to gain proficiency in operating and firing the 81 mm Mortar.

**ANTI-AIRCRAFT AIR DEFENCE SIMULATOR (3ADS)**

This light-weight and user-friendly simulator is designed to train operators on laying procedures in both simulated and field conditions as well as psychophysiological training, experienced at the time of launch. It provides data of missile launch, details of target movements and hit-and-miss information for analysis.

**ANTI-TANK GUIDED MISSILE SIMULATOR (ATGM® SIM)**

This is an indoor simulator, designed and developed to meet the challenging training requirements of missile pilots. This simulator trains recruits and hones the skills of trained pilots in handling and firing missiles. The guided missile simulator enables instructor to track the performance of trainees in real time.

**ARTILLERY FORWARD OBSERVERS SIMULATOR (ARTYFOS)**

This simulator trains observation post officers, forward observers of the artillery and other officers of combat wings of army who may be required to fire long-range, indirect fire weapons like mortars, guns, howitzers, rockets and missiles.

**AUTOMATIC GRENADE LAUNCHER SIMULATOR (AGL SIM)**

This simulator offers complete training solutions to the crew of an automatic grenade launcher. The trainee-in-loop gets the benefit of life-like environment of terrain, combat situation and weapon.

**CARRIER MORTAR TRACKED SIMULATOR (CMT SIM)**

This is a fully integrated state-of-the-art in-door simulator, designed to seek total realism for operational training needs of mechanised forces.

**INFANTRY WEAPONS TRAINING SIMULATOR (IWTS®)**

This modularly-designed wireless system facilitates marksmanship training and battle handling of weapons, both individually and up to a section of recruits/soldiers in tactical scenarios of conventional and unconventional operations.

**UAV MISSION SIMULATOR (UAV SIM)**

This is a comprehensive system developed to train external and internal pilots, mission commanders, observers/ special payload operators and image interpreters.

**ROTARY WING SIMULATOR (RWS)**

In partnership with Rockwell Collins, Zen has developed a full mission rotary wing simulator that is fully configurable to meet the varying training needs of the Indian Armed Forces. This can facilitate ab initio training, conversion training, mission training and high-fidelity Level-D training.

**MEDIUM MACHINE GUN SIMULATOR (MMG SIM)**

This is an interactive indoor training aid to train MMG detachment numbers in techniques of engagement of various targets, fire control and tactical employment of the weapon system.

**INTEGRATED AIR DEFENCE COMBAT SIMULATOR (ZEN IADCS)**

This is a state-of-the-art virtual simulator used for the training of L 70 and ZU 23-2 gun crews, with enhanced realism in weapon handling along with realistic battle scenarios. It can transform the crews to deliver accurate fire power.

**INFANTRY COMBAT VEHICLE DRIVING SIMULATOR (BMP II DS)**

This simulator has been developed to train recruits as well as special drivers to drive Infantry Combat Vehicle (ICV) or the Armoured Personnel Carrier (APC) in operational and peace time scenarios.

**BMP II INTEGRATED MISSILE SIMULATOR (BMP II IMS)**

This simulator has been developed to meet the training requirements of gunners and commanders of Infantry Combat Vehicle (ICV)/Armoured Personnel Carrier (APC). It trains recruits and hones the skills of trained gunners in handling and firing different types of weapon systems.

**DRIVING SIMULATOR FOR T-72 TANK (T-72 DS)**

This is a holistic driving simulator that provides training features that enable skill development from basic to advance levels. Features include, interactive controls familiarisation, starting and stopping drills and procedures, driving techniques, instructor and driver stations and motion platform.





PRODUCT PORTFOLIO



**CREW GUNNERY SIMULATOR FOR T-72 TANK (T-72 CGS)**

This simulator is for gunner trainees of Tank T-72. It provides multiple features such as, interactive controls familiarisation, gunnery drills and procedures, target acquisition and engagement etc. that enable skill development from basic to advance levels.

**CREW GUNNERY SIMULATOR FOR T-90 TANK (T-90 CGS)**

This is a crew gunnery training simulator for both commander and gunner trainees of Tank T-90. It provides multiple features such as, interactive controls familiarisation, gunnery drills and procedures, target acquisition and engagement, etc. that enable skill development from basic to advance levels.

**DRIVING SIMULATOR FOR T-90 TANK (T-90 DS)**

This simulator provides training features such as interactive controls familiarisation, starting and stopping drills and procedures, driving techniques, instructor and driver stations and motion platform etc. that enable skill development from basic to advance levels.

**ADVANCED WEAPONS SIMULATOR (AWESIM®)**

This is a state-of-the-art firearms simulator that recreates small arms firing range indoors and is aimed at training recruits to Special Forces and Commandos. The simulator can be adapted to a number of firearms to impart basic training, hone firing skills, improve weapon handling skills and tests the skill level of trainees in complex and war-like scenarios.

**DRIVER APTITUDE TESTING SYSTEM (ZEN DATS™)**

This is a reflex testing system that tests a driver's alertness, depth perception, peripheral vision, night vision and ability to recover quickly from the effects of glare. The system identifies individuals prone to accidents by exposing psycho-motor deficiencies.

**DRIVING TRAINING SIMULATOR (ZEN DTS®)**

This is a versatile, indoor training system for light, medium and heavy vehicle drivers. The simulator facilitates training in a 'to-scale' vehicle cabin with actual indicators and controls.

**AUTOMATED DRIVING SIMULATOR (ZEN DATS™)**

This is a standalone, versatile, indoor, classroom driver training simulator for light, medium and heavy vehicles. The simulator facilitates training in a mock-up vehicle cabin with actual indicators and controls, thereby creating a realistic driving environment.

**DRIVING SIMULATOR (DS)**

This is a dynamic indoor, classroom driver training simulator for light, medium and heavy vehicles. The basic system is supplied with a single instructor station and a driver station but it has the facility to control up to 10 driver stations of various combinations of vehicles, individually or simultaneously.

**BUS DRIVING SIMULATOR (BUSSIM)**

This is a versatile indoor training system that trains bus drivers of varied skill-sets and experience. The simulator uses 'to-scale' bus cabin with all gauges, controls, transmission systems and indicators found in a bus. This software has been specially developed to recreate the real-life environment in which bus drivers operate.

**TATRA DRIVING SIMULATOR (TDS)**

This is an indoor system that transforms recruits into skilled drivers through various levels of complex exercises, in all kinds of terrain, visibility and weather conditions, using 3D computer-generated visuals.

Combat Training Centre (CTC)

Our Combat Training Centres are designed to deliver this critical training in a realistic and engaging environment. With the ability to simulate offence, defence, stability operations, and more, CTCs are the ideal platform for joint power projection, ground maneuver, air operations, fire supports, logistics, and other vital elements of combat readiness. These state of the art facilities feature instrumented range areas, simulation facilities, and a dedicated full-time military opposing force to provide a dynamic and capable adversary for training exercise.

L-LVC INTEGRATION

LIVE RANGES



**COMBAT TRAINING CENTRE (CTC)**

A soldier must always be prepared for battle and must be well-trained to do so. At Zen, we create an expansive portfolio of live, virtual, constructive and mixed reality combat training systems to develop and maintain combat-ready soldiers.

**WAR GAMING SOLUTIONS (WGS)**

Zen WGS is a gen-next constructive simulation supporting conventional and non-conventional operations. It provides doctrine-neutral solutions for joint-services/combined and standalone operations. The models consist of Air, Land, Naval exercises along with MOOTW and NBC operations in limited capacity.



VIRTUAL AND CONSTRUCTIVE SIMULATION

LIVE SIMULATION

Zen Combat Training Centre (CTC) INTEGRATES

Live Ranges, Live, Virtual & Constructive Simulation into a Common Operating Picture



FACILITIES

# Spearheading Innovation in Defence

Zen Technologies prides itself on its state-of-the-art facilities, each designed to meet the specific needs of its business.



Our R&D centre, in Sanath Nagar, Hyderabad is a hub of innovation, where our team of experts work tirelessly to develop cutting-edge solutions that meet the evolving needs of the defence industry.

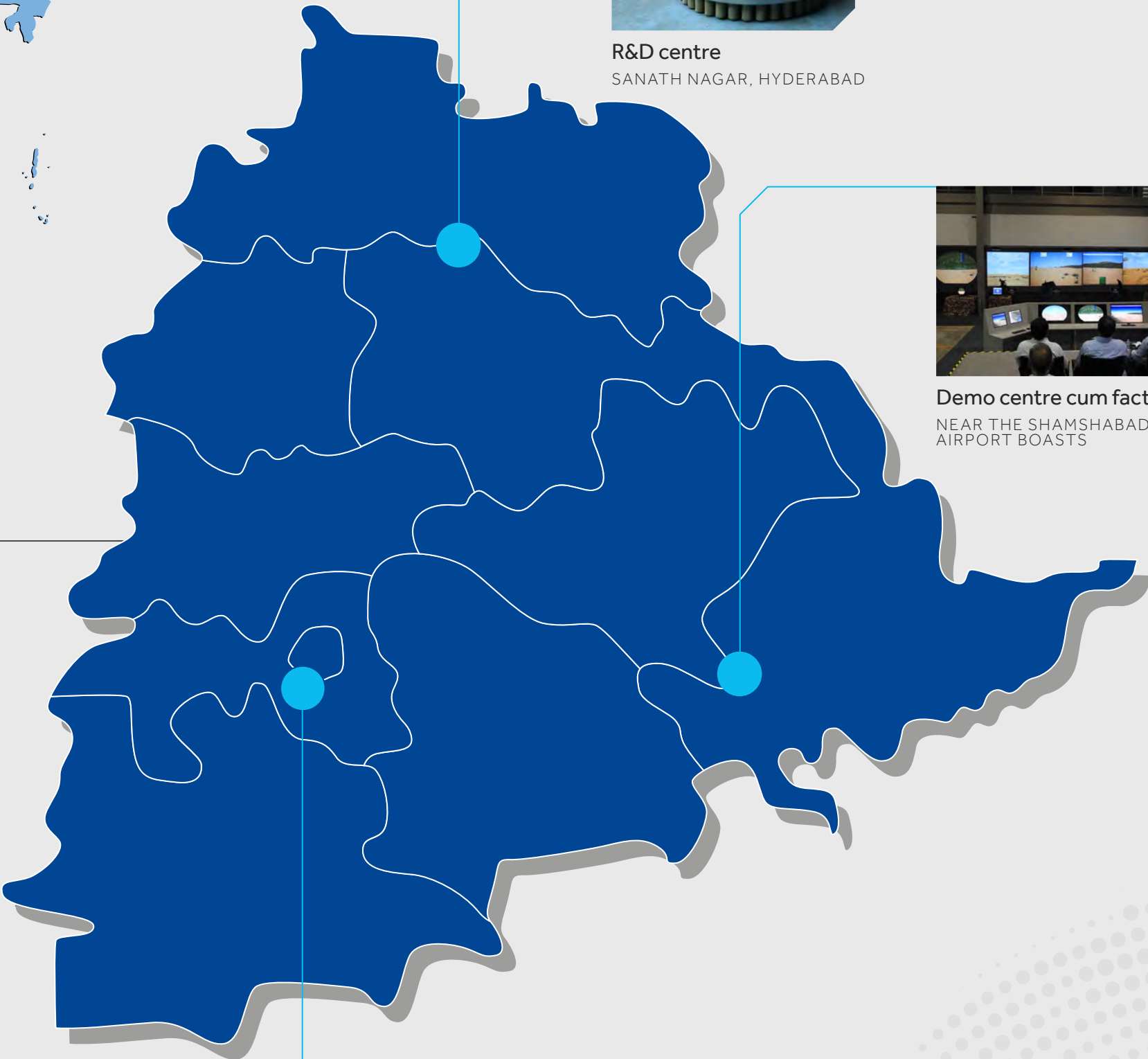
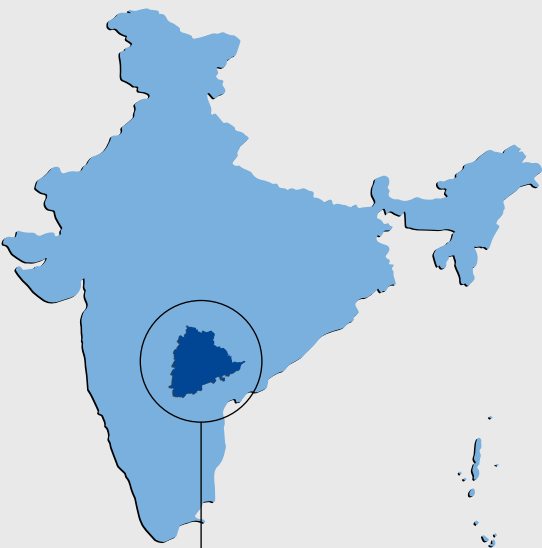


Our demo centre cum factory located near the Shamshabad Airport boasts a built-up area of about 15,000 ft<sup>2</sup>. This facility allows us to showcase our products to the world, thus taking our clients on an immersive journey that helps them understand the unique value we offer.



Further, our Artificial Intelligence (AI) centre, situated in Hi-tech City in Hyderabad is a testament to our commitment to staying at the forefront of technological advancement. Here, we collaborate with the esteemed University of Hyderabad to explore the latest frontiers of AI.

With these facilities, we are well-equipped to deliver superior solutions that meet the diverse needs of our clients, thus providing them with best technology solutions that paves the way for a safe, secure and smart future.



R&D centre  
SANATH NAGAR, HYDERABAD



Demo centre cum factory  
NEAR THE SHAMSHABAD AIRPORT BOASTS



Artificial Intelligence (AI) centre  
KONDAPUR, HYDERABAD



## MESSAGE FROM THE CHAIRMAN AND MANAGING DIRECTOR

# Progressing with Foresight and Prudence



//  
*There are  
decades where  
nothing happens;  
and there are  
weeks where  
decades happen.*

## Ashok Atluri

CHAIRMAN & MANAGING  
DIRECTOR

Dear Fellow Shareholders,

In an essay, "That Which Is Seen, and That Which Is Not Seen", the French theorist Frédéric Bastiat says "...an act, ..., gives birth not only to an effect, but to a series of effects. Of these effects, the first only is immediate; it manifests itself simultaneously

Looking ahead, we are confident of securing several orders before the end of September 2023 and have already crossed the ~ ₹ 1,000 Crore mark as of August 2023.



## Embodying #Atmanirbharbharat

It was in 2015, that the late Mr. Manohar Parrikar immediately got the concept of how Indigenously Designed, Developed and Manufactured (IDDM) can completely alter the Indian defence landscape and included it in the Defence Procurement Procedure 2016 by the category Buy Indian IDDM. I think this was the seminal moment that flipped the defence efforts of the industry from only seeking foreign partnerships for #MakeInIndia and being glorified coolies to establishing indigenous innovative and IP-focused companies developing Indian-owned IP, thus symbolising true #Atmanirbharbharat (self-reliance).

This focus on IDDM has helped Zen win new tenders. The IDDM procurement process, thankfully, is very rigorous and companies that want to fake the category are backing out due to the various parameters being tested and severe possible penalties.

In many of the tenders, with few companies spending serious R&D money, Zen has emerged as a resultant single vendor. This is helping us not only win Indian orders but also establish ourselves as a global leader for army simulators. Even in the case of anti-drone systems (ADS), we have got orders after being a resultant single vendor. While we are a very serious player in ADS in India, we are putting in extraordinary efforts to gain global leadership too. We plan to continuously invest massive R&D resources in our effort to give absolutely the latest to the Indian and friendly foreign forces. We expect ADS to be a blockbuster product in the coming years.

Now that the context is set, let me take you through our performance in the year gone by.

## A strong FY2023

The year has been unusually strong and memorable for us as our efforts have resulted in your Company recording its highest-ever revenue of ₹ 161.44 Crore (standalone), marking a stellar increase of ~200% over the previous year. Exports

with its cause — it is seen. The others unfold in succession — they are not seen: ... Hence it follows that the bad economist pursues a small present good, which will be followed by a great evil to come, while the true economist pursues a great good to come, — at the risk of a small present evil." For us, at Zen Technologies, the "small present evil" has cost our shareholders, in the short term, a tremendous amount of earnings and resulted in "lost" profits as Zen deployed precious current resources in R&D.

## Emerging as trailblazers

Over the past 3 decades, we have spent hundreds of Crore in R&D to build great products and develop a unique set of capabilities that makes Zen a rare beast in Indian defence. What makes it rare is that, unlike most companies that conduct research funded by DRDO against guaranteed orders, Zen chooses its products, finances its research, and shoulders the complete risk of failure. Remarkably, the IP developed here is 100% owned by Zen. For the first 25 years of its existence, Zen remained laser-focused on simulators, cultivating exceptionally deep expertise in this domain. By contrast, in most other organizations, the IP is either owned exclusively by DRDO, shared jointly with DRDO, or held in collaboration with another partner. Today, in most categories of army simulators, Zen has arguably the world's best simulators.

These products and our capabilities are now helping us benefit from the opportunities provided by the new environment. Almost 2 decades ago, when Zen proposed that indigenously designed and manufactured products be given preference over products that were just manufactured in India, the idea was laughed at. One remark particularly stuck with me "Pehle chalna seekho, baad me udne ki baat karenge" (First learn to walk, then we will talk about flying)". When most people disagree with you, you know you are on to something.