

**Defence Exhibition – 2022**

“Earlier we used to release pigeons and now we release cheetahs.” – Prime Minister Shri Narendra Modi

“This is a first defence expo in the country in which only Indian companies are participating, with only Made in India defence equipment.” – Prime Minister Shri Narendra Modi

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We visited the defence expo at Gandhi Nagar, Ahmedabad. Over 1,300 companies have participated and 451 Memorandums Of Understanding (MoUs) and agreements worth INR 1.53 lakh cr were signed during the defence expo. The MoUs are more than 2x compared to 201 MoUs signed at the previous expo in Lucknow. The expo has provided an overview of defence production capability, application of modern technologies, R&D and liberalized collaborative policies. The focus of the expo is to project the country as a manufacturing hub. The expo brings the latest technologies under one roof and provides opportunities to the Aerospace and Defence industry of India. The Indian defence industry aims to achieve technical capabilities and economies of scale to reach a \$25 bn turnover in military goods and services by 2025. The government has taken initiatives such as the extension of 100% of foreign direct investment (FDI) to the defence sector. The government also relaxed its Foreign direct investment (FDI) regulations to allow investments up to 74% in the defence manufacturing sector under its automatic route.

India focusing on new, innovative technologies which will transform the battlefield in future. The key areas are energy weapons systems, hypersonic missile systems, space-based systems, stealth submarines and advanced aircraft, multi-purpose missile systems, autonomous systems and missile defence systems.

The key fundamental driver for “Atmanirbhar Bharat” in defence will be focusing on cutting-edge areas and developing indigenous technologies & systems and holding intellectual property to produce the systems domestically and export to the world. In the 2022-23, budget announcement, 25% of the defence research budget is allocated to academia, industries and start-ups.

The capital expenditure on imports 2021-2022 was around INR 40,000 cr which is 35.3% of total procurement. The government has announced a policy that restricts 351 sub-systems and components from being imported over a period of time for indigenisation. The budget 2022-23 promotes industry participation in the development of defence systems. The indigenous defence industry received a big boost with the increase in the capital procurement budget from 58% to 68%.

Many countries are showing interest in LCA, radars, torpedoes, communication systems and missiles etc. currently, around 50 Indian private players are contributing defence exports to several countries. India has signed a \$375 million deal to export the BrahMos supersonic cruise missiles to the Philippines. By 2030, India is to become the hub of innovative defence technologies and a leading defence exporter.

Atmanirbhar Bharat focused on reducing imports and promoting self-reliance. In line with this strategy, the Capital procurement budget has increased from 58% (2021-22) to 68% (2022-23). The 10% increase in capital procurement outlay of around INR 1,52,369 cr is for the purchase of new weapons, aircraft, warships and other military hardware. The ministry of defence (MoD) has increased the allocation from INR 4.78 lakh cr (FY22) to INR 5.25 lakh cr in FY23. The defence budget excluding the pension component stands for INR 4,05,470 cr. An allocation of INR 2,33,000 cr has been made for revenue expenditure that includes expenses on payment of salaries and maintenance of establishments.

**Key takeaways from PM Shri Narendra Modi Speech:** Prime Minister Shri Narendra Modi inaugurated Defence Expo 2022 in Gandhi Nagar, Ahmedabad and laid the foundation stone of a new air base at Deesa. PM Modi announced 4<sup>th</sup> positive [indigenisation list](#) of 101 items. PM Modi emphasized India's growing influence in the international defence sector with its 'Make In India' initiative. He said, "Earlier we used to release pigeons and now we release cheetahs".

Top Quotes from PM Address in Defence Expo - 2022	
Defence Expo	1) "This is a first defence expo in the country in which only Indian companies are participating, with only Made in India defence equipment."
Relations with African nations	1) "Even for a global leader like Mahatma Gandhi, if Gujarat was his birthplace, then Africa was his first work place. This affinity for Africa is still central to India's foreign policy." 2) "During Covid pandemic, when the whole world was worried about the vaccine, then India delivered vaccines to our friendly African nations on priority." 3) "India has tried to stand shoulder to shoulder with Africa in every need, from medicines to peace missions. Now the cooperation and coordination between us in the defence sector will give a new height to these relations."
Maritime security	1) "Today, from international security to global trade, maritime security has emerged as a global priority." 2) "Today the role of merchant navy has also expanded in the era of globalization. The world's expectations from India have increased, and India has to fulfill them. Therefore, this Defence Expo is also a symbol of global trust towards India."
Mission Defence Space	1) "Looking at the future possibilities in space, India will have to intensify its preparation further. The defence forces will have to find new innovative solutions." 2) "To ensure that India's power in space is not limited, and its benefits are also not limited only to the people of India."

Source: Defence Expo, Arianth Capital Research

### Key takeaways from Defence Minister Shri Rajnath Singh Speech

- The defence expo has proved that India will be the hub of Global Defence Manufacturing.
- The government has taken many steps to be self-reliant and increase Defence exports. The government will keep promoting public and private partners. It will help to achieve the \$5 bn export target by FY25.
- Indian Ocean region (IOR) is important for India in terms of strategic importance. PM Modi has proposed the idea of security and growth for all regions (SAGAR) to maintain peace, security and economic interest in the regions.
- PM Narendra Modi has appealed for 'Make in India' and 'Atmanirbhar Bharat'. India is turning self-reliant to boost the economy and aiming to be a global supplier.

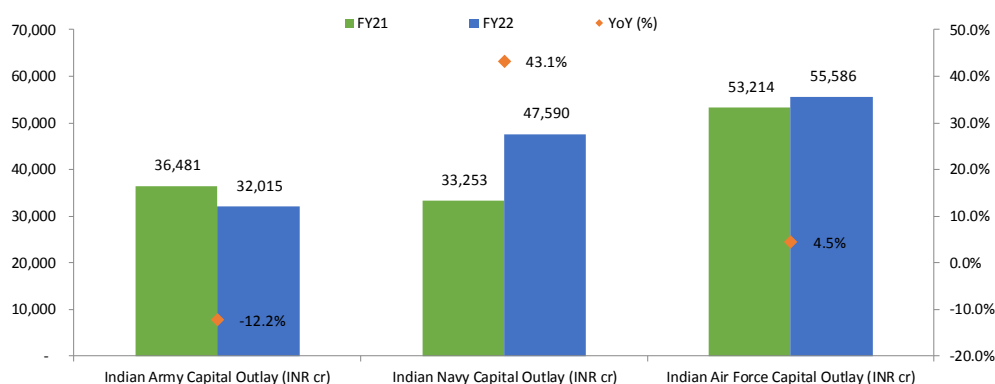
Exhibit 1: PM Modi and Defence Minister Rajnath Singh inaugurated Defence Expo – 2022



Source: Defence Expo, Arianth Capital Research

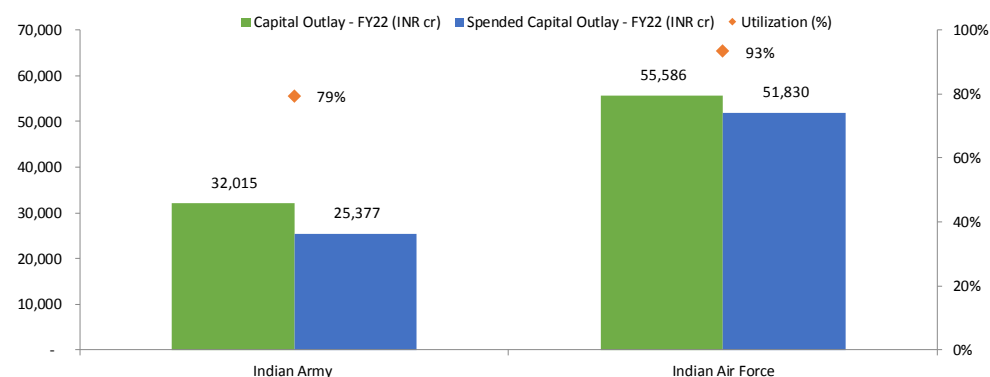
**Increase in Indian Navy Share in capital outlay:** The Indian army capital outlay decreased from INR 36,481cr (FY21) to INR 32,015cr (-12.2% YoY) in the FY22 budget. Out of INR 25,377cr, the spend amount was INR 25,377cr. The Indian navy capital outlay is increased from INR 33,253cr (FY21) to INR 47,590cr (+43.1% YoY) in the FY22 budget. The Indian Air Force capital outlay is increased from INR 53,214cr (FY21) to INR 55,586cr (+4.5% YoY) in the FY22 budget. Out of INR 55,586cr, the spend amount was INR 51,830cr.

**Exhibit 2: Indian Navy capital outlay increased by 43% in FY22 budget.**



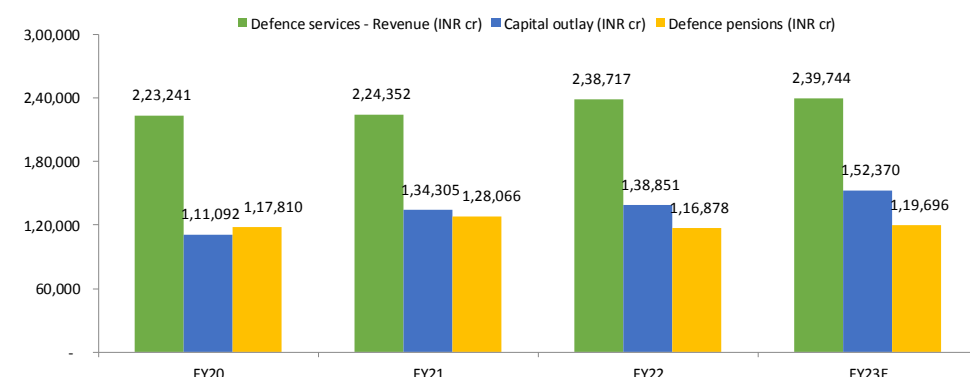
Source: Defence Expo, Arihant Capital Research

**Exhibit 3: Indian Navy & Army utilized more than 75% of allocated capital outlay.**



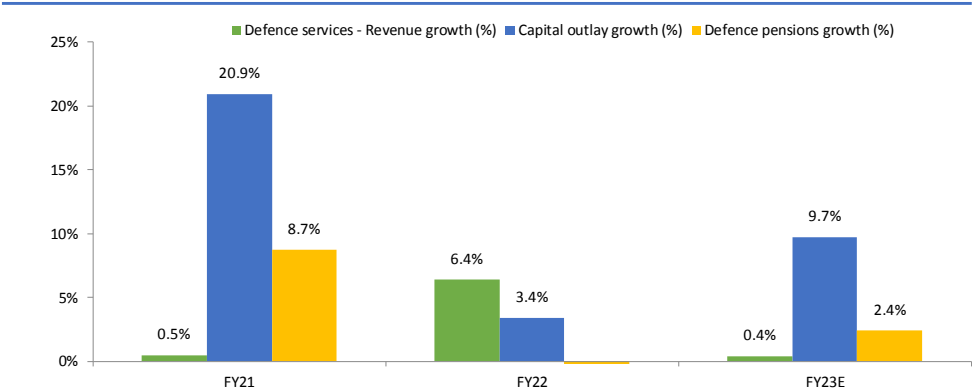
Source: Defence Expo, Arihant Capital Research

**Exhibit 4: The Defence capital outlay is expected around INR 1.52 lakh cr in FY23.**



Source: Defence Expo, Arihant Capital Research

Exhibit 5: Defence Capital outlay growth is expected around 10% in FY23.

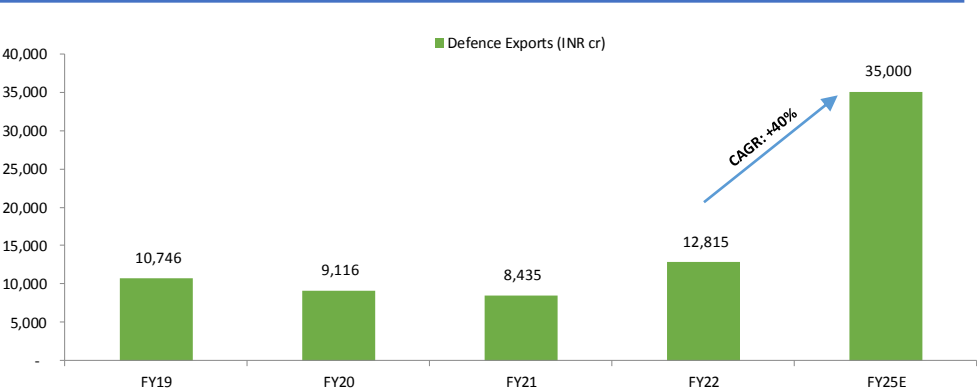


Source: Defence Expo, Arihant Capital Research

**The government aims to export a target of INR 35,000cr by FY25:** Before 2014, Indian defence exports were around INR 900 to INR 1300cr. However, Indian defence exports are at INR 8,000cr in H1FY23. India is aiming to achieve an annual export target of INR 35,000cr by FY25.

In the Defence expo, around 451 agreements related to the defence sector with proposed investments of INR 1.5 lakh cr have been signed. Gujarat companies have signed MoUs with an investment pledge of INR 5,000cr. India is helping African countries by building their capacity by using the Indian defence industry and trying to find solutions to drug trafficking, piracy and other such issues in partnership.

Exhibit 6: Indian defence exports is expected to grow at a CAGR 40% to reach INR 35,000cr by FY25.



Source: Defence Expo, Arihant Capital Research

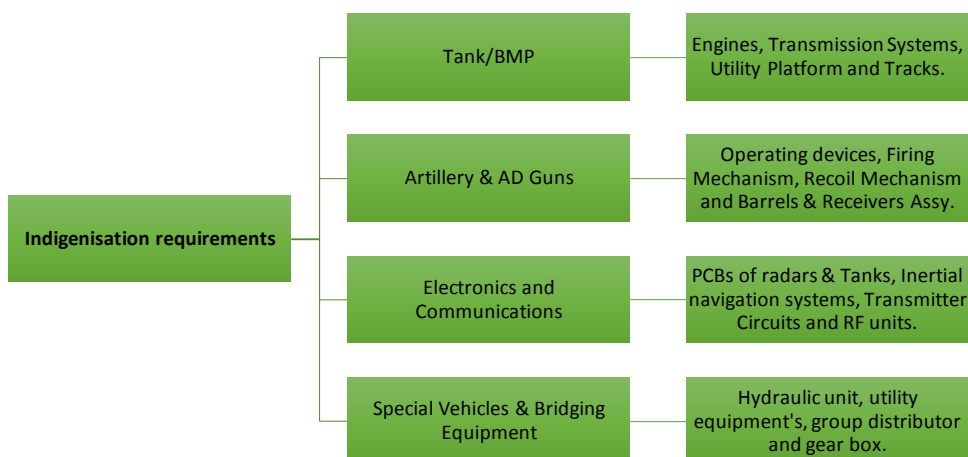
India is exporting to more than 75 countries across the world. India has the potential to supply various types of missile systems, helicopters, multi-purpose light transport aircraft, warships, artillery gun systems, patrol vessels, radars, tanks, armed vehicles, and digital warfare systems to the world.

**Government policy initiatives for the defence sector:** The government has taken several policy initiatives and reforms to encourage indigenous design, development and manufacturing of defence equipment. The policies are DAP, Positive Indigenous Lists, Liberalization of FDI investments, iDEX scheme, SRIJAN, Offset Policy, Defence Industrial Corridors, R&D, increasing the allocation of the defence budget, etc.

Policies	Details
DAP	The priority to the procurement of capital items from domestic sources under Defence Acquisition Procedure (DAP) - 2020.
Positive Indigenous Lists	The ministry of defence earlier promulgated the 1st, 2nd and 3rd Positive Indigenisation Lists comprising of 310 items in Aug - 2020, May 2021 and April 2022. The 4 <sup>th</sup> positive indigenisation list will be procured from indigenous sources as per provisions given in Defence Acquisition Procedure (DAP) 2020. The list provides continuous impetus towards self-reliance in defence.
Liberalization of FDI investments	Liberalisation of Foreign Direct Investment (FDI) allowing 74% FDI under automatic route.
iDEX scheme	The innovative Defence Excellence (iDEX) scheme is focused on start-ups & micro, MSMEs. Under iDEX, 136 start-ups have engaged and 102 contracts have been signed for prototype development. The budget is allocated INR ~500cr over the next five years for iDEX scheme.
SRIJAN	The portal SRIJAN was launched to facilitate indigenization by the Indian industry including MSMEs. Around 21,000 defence products were imported which has been displayed in the portal. Around 388 private vendors are expressed to indigenise more than 4,700 products and around 410 products are indigenised till now.
Offset Policy	The reforms in Offset policy attracting investments and transfer of technology for defence manufacturing.
Defence Industrial Corridors	The establishment of Defence industrial corridors in Tamil Nadu and Uttar Pradesh
R&D	The defence R&D budget are 25% for start-ups and Academia to opening up Defence Research & Development for Industry.
increasing the allocation of defence budget	The progressive increase in allocation of defence budget for Military Modernisation and procurement from domestic sources.

Source: Defence Expo, Arihant Capital Research

**Exhibit 7: We have interacted with the Indian Army at Defence Expo and below are the industry requirements from the industry.**



Source: Defence Expo, Arihant Capital Research

**Expectations from Industry for Equipment's Maintenance**

- Alternative paints/ epoxy coatings to withstand extreme climatic fluctuations.
- Conduct all destructive and non-destructive tests to predict metallurgical failures.
- Design and develop of universal surge arrestor.
- Composite fibre reinforced plastic substitutes for high density mechanical components.
- Incorporation of batteries which can retain charge at low temperatures.
- Hermatic sealing of equipment to prevent ingress of water, moisture and sand.
- Seals of material withstand extreme climatic conditions.
- Oil and lubricants that can withstand extreme climatic conditions.

Company	Details
BEL	<ol style="list-style-type: none"> <li>1) Bharat Electronics Ltd (BEL) displayed hydrogen fuel cell packages has application in the mobility segments. BEL has signed MoU with Triton Electrical Vehicles for hydrogen fuel cell packages.</li> <li>2) BEL has received a purchase Lol worth INR ~8,000cr for 300 KW Li-ion battery packs for semi-truck projects. The battery packs are manufactured in the Pune plant and are expected to deliver the first-off quantity by Nov-2022. The complete delivery is expected around 24 months which is expected to commence from Jan-2023.</li> </ol>
HAL	<ol style="list-style-type: none"> <li>1) Hindustan Aeronautics Ltd (HAL) has displayed more than 200 imported items that are planned to indigenize with private players. It has displayed 29 products (17- Scaled models, 12 – display posters).</li> <li>2) In the Tejas program, more than 200 companies are involved tooling, material handling equipment, and other supports. HAL has a helicopter facility at Tumakuru which is having capacity of 30 helicopters per annum. HAL also received certification for four of its engine in the small &amp; starter category.</li> </ol>
BDL	<ol style="list-style-type: none"> <li>1) Bharat Dynamics Ltd (BDL) and Dassault Aviation Ltd have entered into an MoU for the Integration of BDL Weapon Systems like Astra &amp; Smart Anti-Airfield Weapon on Rafale Aircraft for the Indian Armed Forces and future export market.</li> <li>2) BDL has entered MoU with IIT, Ropar to work on joint research projects and technology development for all missiles and underwater weapons.</li> <li>3) BDL has launched new products such as Anti-tank guided missile for MBT Arjun, Sanharika (armored vehicle-mounted, laser-guided short-range anti-aircraft weapon system), and Sangramika (lightweight vehicle-mounted anti-tank guided weapon system).</li> </ol>
Data Patterns	<ol style="list-style-type: none"> <li>1) Data Patterns has received The Raksha Mantri Award for excellence for 2021-22. The award was given for their best innovation in the medium-scale industry.</li> <li>2) The company is in the process of building space surveillance radar for DRDO.</li> <li>3) Currently, software-defined radios (SDRs) are imported from Israel. The company has developed SDR and is under trial for modern fighter aircraft. Post successful trial, the company is expected to get orders for SDR.</li> </ol>
Paras Defence'	<ol style="list-style-type: none"> <li>1) Paras defence has displayed attack drones, high-altitude military operation drones, logistic support drones, and track &amp; detection drones.</li> <li>2) Paras defence AI technologies can solve problems like cognition, planning, learning, communications, etc. with little or no human supervision.</li> </ol>

Source: Defence Expo, Arianth Capital Research

Deal Wins	Details
IAF - HAL	The Indian Air Force (IAF) and the Hindustan Aeronautics Ltd (HAL) are concluded contract worth of INR 6,800cr for 70 HTT-40 indigenous Basic Trainer Aircraft (BTA).
BEL - TEV	Bharat Electronics Ltd(BEL) has signed an MoU with Triton Electric Vehicle (TEV), for the manufacturing of Hydrogen Fuel cells by BEL with technology transfer from TEV, to meet the requirements of the Indian market and mutually agreed export markets.
BDL - DAP	Bharat Dynamics Ltd (BDL) and Dassault Aviation Ltd have entered into an MoU for Integration of BDL Weapon Systems like Astra & Smart Anti-Airfield Weapon on Rafale Aircraft for Indian Armed Forces and future export market.
Ashok Leyland - AVNL	Ashok Leyland have entered into an MoU with defence PSU Armoured Vehicles Nigam Ltd (AVNL) for supply of mobility kits for Mine Protected Vehicle (MPV) 6x6.
Mazagon Dock Shipbuilders	Mazagon Dock Shipbuilders Ltd has entered into 24 MoUs with various national and international firms. The MoUs are focusing on cooperation in the fields of indigenized development and manufacturing of equipment's for ships and submarines and other platforms under 'Atma Nirbhar Bharat'.
CARACAL - ICOMM	CARACAL has signed MoU with ICOMM for developing and manufacturing missile and sub-systems, communications and EW systems, Electro-optics, Shelters, Composites, as well as other systems technology such as drone and counter drones.
General Atomics - Bharat Forge	General Atomics and Bharat Forge has signed MoU and will work together to develop a lithium-ion battery solution for naval platforms and submarines to meet the needs of the Indian Navy.
CSIR - Tata Advanced Systems	CSIR-National Aerospace Laboratories (NAL) and Tata Advanced Systems have signed a MoU for indigenous Mission Computer. The Mission Computer is a key electronic system on air and defence platforms for subsystem integration and control. its variants will be manufactured in India and cater to the Indian and global markets.
Centum - Indra Sistemas	Centum Electronics has signed MoU with Indra Sistemas for collaborate in high-end futuristic Radar systems and technologies for the Government of India.

Source: Defence Expo, Arianth Capital Research



**Bharat Electronics Ltd (BEL) Update**

**Revenue growth is expected at 10%-15% and EBITDA Margin is expected at 22%-23% by FY23:** BEL revenue stood at INR 15,368cr (+9% YoY) in FY22, the performance achieved despite challenges posed by the pandemic, global chip shortage and stiff competition. The company also recorded an export turnover of \$33.3 million. The revenue growth is mainly from the timely execution of the existing order book as well as new products introduced in a new financial year. The revenue growth is expected around 15% and the EBITDA margin is expected around 22% to 23% in FY23.

**The order inflow is expected around INR 20,000cr by FY23:** In FY22, the major orders executed such as Long Range Surface-to-Air Missile (LRSAM), Air Defence Weapon System, Integrated Air Command and Control System, AFNET, Coastal Surveillance System Phase II, Integrated perimeter security solution, Smart City Projects, Oxygen Concentrators and Ventilators. The order book stood at INR 57,000cr in FY22 and around INR 15,000cr to INR 20,000cr further order book is expected in FY23.

**New product launches:** New products introduced include Laser Fence System, IR Jammer for Active Tank Production System, Solid State Power Controller Cards for Akash NG/QRSAM, S-Band 150 W power Amplifier, GNSS receiver and IP EPABX System.

**Continue to invest in R&D:** BEL's Investment in R&D is around INR 1,000cr (7% of sales) in FY22. The company is also investing around INR 500cr for CAPEX. BEL is continuing to maintain the same level of investment in R&D and CAPEX which will help to develop new products, indigenous, bring about design change and achieve cost reduction. It will help to create new avenues of growth, reduce costs and increase profitability.

**Strong traction in exports:** BEL has witnessed strong traction in exports. The exports order book stood at more than \$265 mn. Under the prestigious C295, aircraft programme, Airbus Defence and Space has signed a contract with BEL for the manufacture and supply of radar warning receivers and a Missile Approaching Warning System. BEL has opened overseas marketing offices in the Indian Ocean region, South East Asia, Middle East Region and the USA. BEL has 6 overseas marketing offices in Vietnam, Myanmar, Sri Lanka, Oman, Singapore and New York and BEL has further planning to expand its global footprint.

**Diversification into Civilian business:** Defence contributes to 80% on average of the company's annual sales. However, BEL has been continuously exploring diversification into allied defence and non-defence areas. The total opportunity is available in the non-defence segment around INR 2 lakh cr over the next 8 to 10 years. BEL has focused to increase its non-defence business segment. BEL has focused on non-defence areas such as solutions for the Civil Aviation sector including Air Traffic Controller Radars, Anti Drone Systems, Space/Satellite Electronics, Space Launch Vehicles, Satellite Communication Services, Spacegrade Solar Cells, Satellite Assembly and Integration, Solar Business, Railway and Metro Solutions, Software as a service, Network and Cyber Security, Energy Storage products for Electrical Vehicles, Homeland Security & Smart City businesses, Smart Meters, a range of medical electronics and health care solutions.

**C295 Aircraft deal:** BEL has signed contracts with Airbus Defence and Space for manufacture and supply of radar warning receiver and missile approach warning system for C295 aircraft. The export order worth was around \$93 mn.

Bharat Electronics Ltd (BEL) Update

Exhibit 8: Air Defence Weapon System



Source: Defence Expo, Arihant Capital Research

Exhibit 9: D-4 Antidrone System



Source: Defence Expo, Arihant Capital Research

Exhibit 10: Weapon Locating Radar



Source: Defence Expo, Arihant Capital Research

Exhibit 11: Low Level light weight radar



Source: Defence Expo, Arihant Capital Research

Exhibit 12: Software defined radio manpack



Source: Defence Expo, Arihant Capital Research

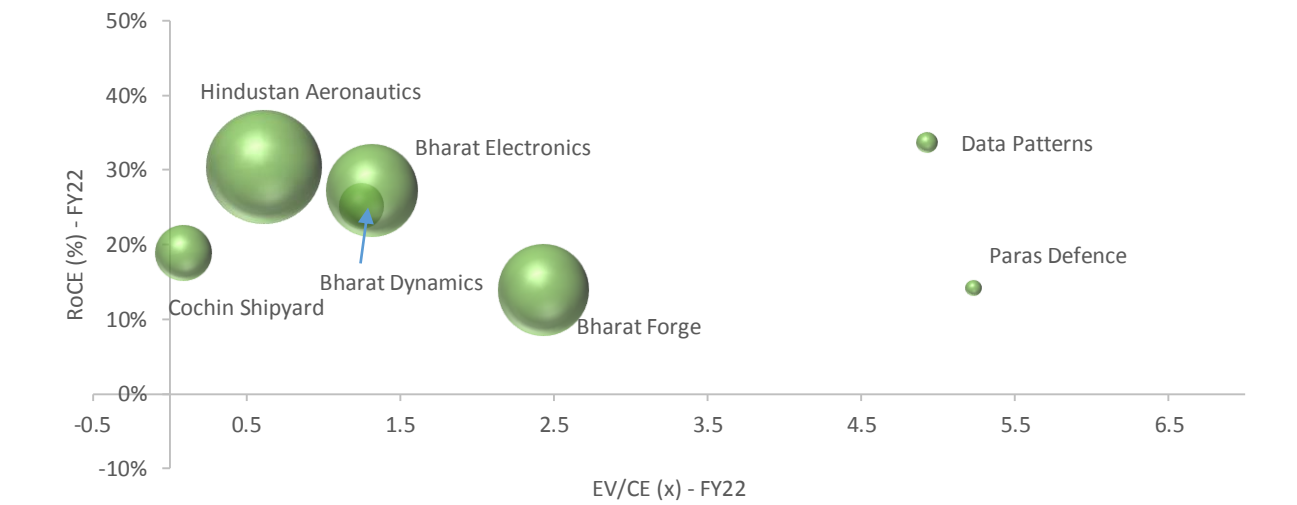
Exhibit 13: Tethered UAV



Source: Defence Expo, Arihant Capital Research

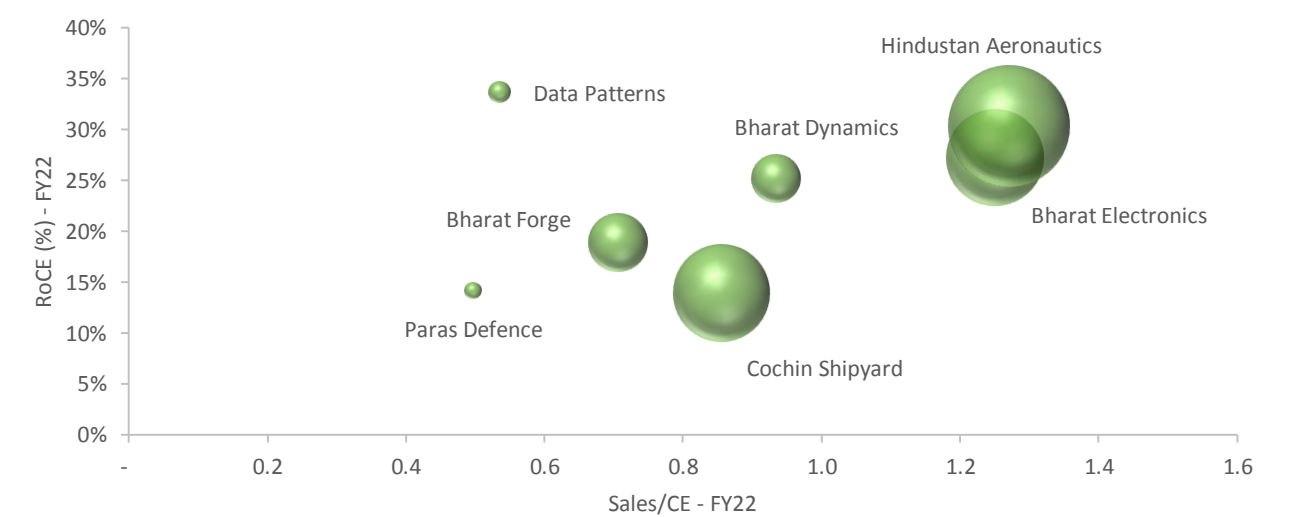


Exhibit 14: HAL has deployed lower capital in terms of Enterprise value and delivered 30% RoCE in FY22.



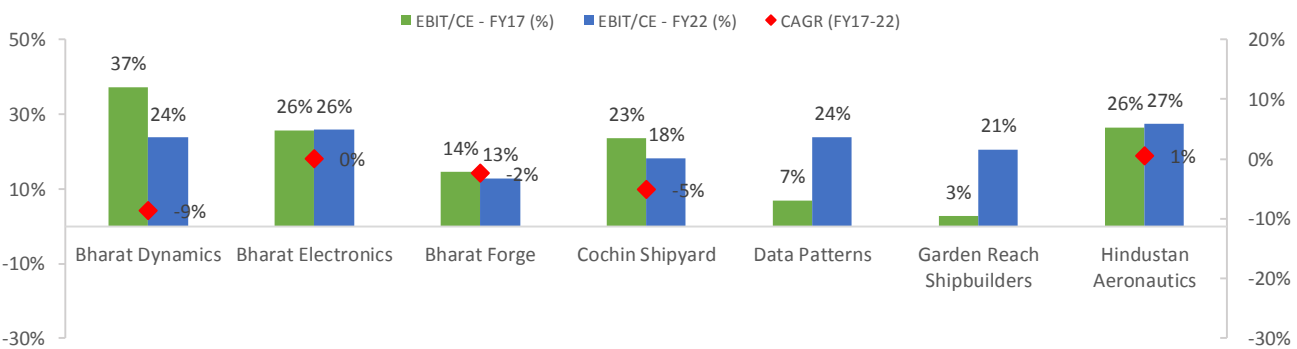
Source: Ace Equity, Arihant Capital Research; Bubble size represents Capital Employed (CE)

Exhibit 15: Bharat Electronics and Hindustan Aeronautics has earned INR 1.3 per Capital Employed of INR 1, which is higher than industry.



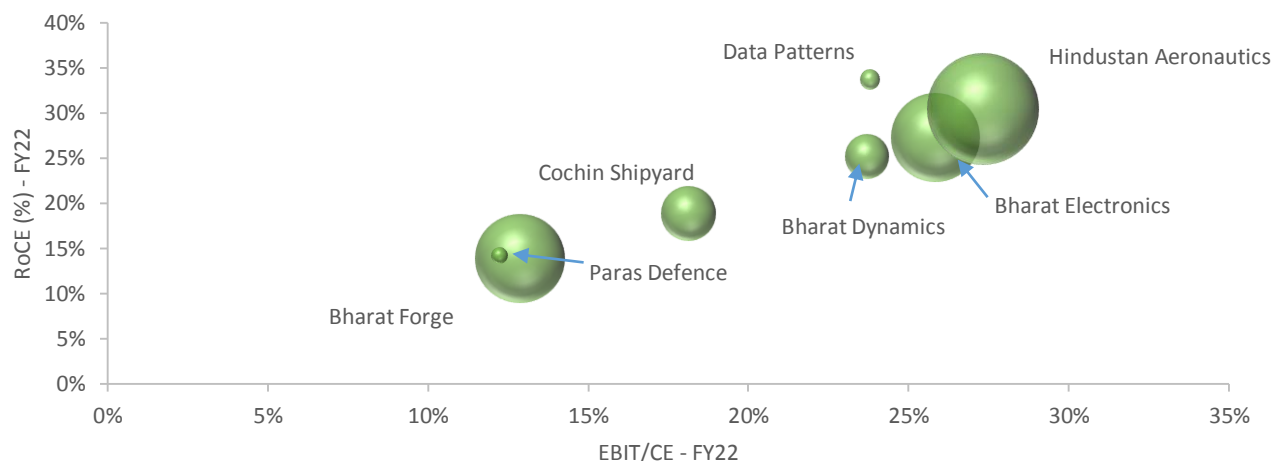
Source: Ace Equity, Arihant Capital Research; Bubble size represents Capital Employed (CE)

Exhibit 16: Bharat Electronics and Hindustan Aeronautics are consistently delivered profitability in terms of capital employed. Data patterns witnessed strong growth of EBIT/CE over the period of FY17-22.



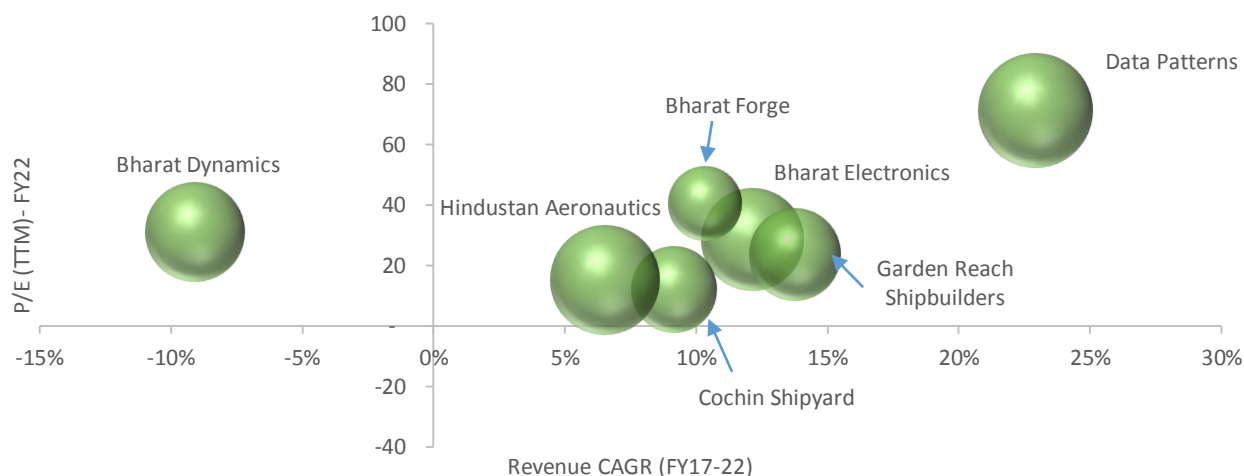
Source: Ace Equity, Arihant Capital Research

**Exhibit 17: Bharat Electronics & Hindustan Aeronautics has generated 26% & 27% of EBIT/CE which is healthy operating profit in terms of capital employed in the industry.**



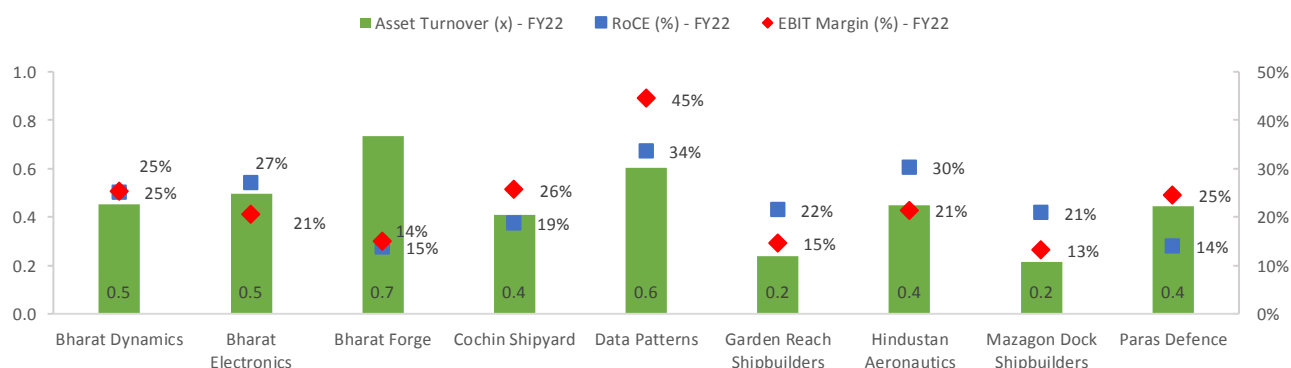
Source: Ace Equity, Arihant Capital Research; Bubble size represents Capital Employed (CE)

**Exhibit 18: Hindustan Aeronautics has delivered 7% CAGR revenue growth over the period of FY17-22 and valued PE of 15x, while Bharat Electronics has delivered 12% CAGR revenue growth over the same period and valued at PE of 28x.**



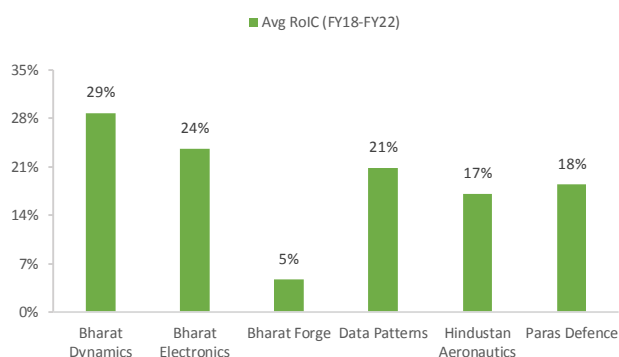
Source: Ace Equity, Arihant Capital Research; Bubble size represents RoCE

**Exhibit 19: Bharat Electronics, Hindustan Aeronautics and Data Patterns has efficiently used its assets to generate profitability compared to peers.**

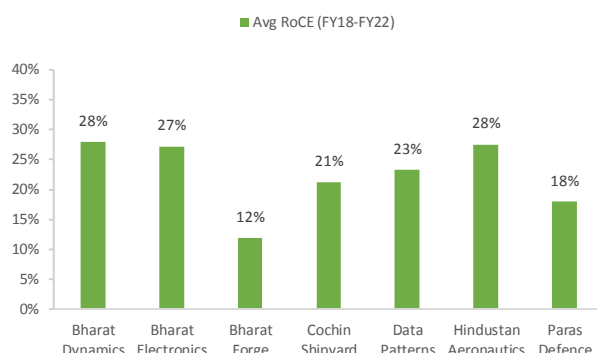


Source: Ace Equity, Arihant Capital Research

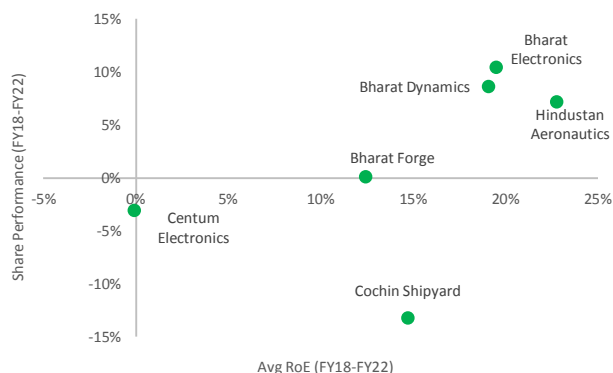
**Exhibit 20: Bharat Electronics has generated 24% RoIC over the period of FY18-22. Bharat Dynamics RoIC has witnessed decline from 32.3% (FY18) to 25.4% in FY22.**



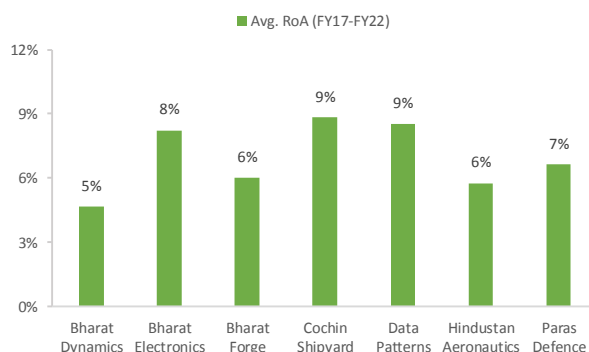
**Exhibit 21: Bharat Electronics and Hindustan Aeronautics has generated above 25% of RoCE over the period of FY17-22. Bharat Dynamics RoCE witnessed decline from 38% (FY18) to 25% in FY22.**



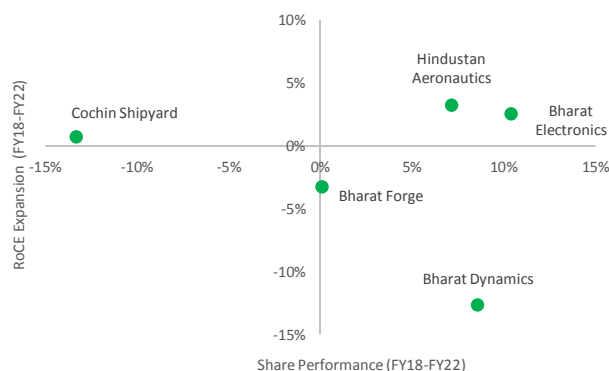
**Exhibit 22: Bharat Electronics has generated 10% CAGR return over 20% of ROE during the period of FY18-FY22.**



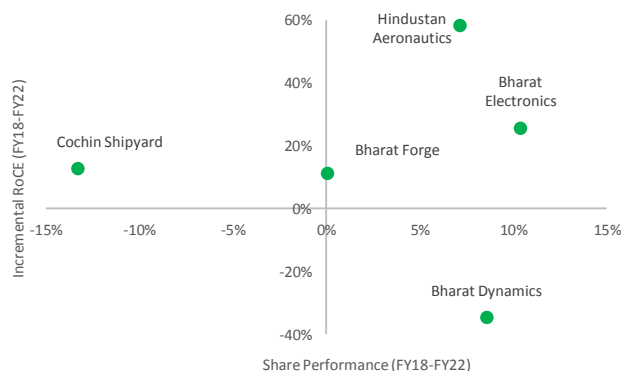
**Exhibit 23: Bharat Electronics has generated 8% Return on assets over the period of FY17-22 which is healthy in the industry.**



**Exhibit 24: Bharat Electronics and Hindustan Aeronautics has witnessed RoCE expansion over the period of FY18-22.**



**Exhibit 25: Bharat Electronics and Hindustan Aeronautics has witnessed Incremental RoCE over the period of FY18-22.**



Source: Ace Equity, Arihant Capital Research

## Financial Performance

## Bharat Electronics

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	8,668	10,401	12,164	12,968	14,109	15,368
EBITDA	1,713	1,783	2,768	2,527	3,185	3,322
EBITDA Margin (%)	19.8%	17.1%	22.8%	19.5%	22.6%	21.6%
PAT	1,497	1,407	1,848	1,793	2,069	2,354
PAT Margin (%)	17.3%	13.5%	15.2%	13.8%	14.7%	15.3%

## Hindustan Aeronautics

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	17,950	18,520	20,008	21,445	22,882	24,620
EBITDA	3,263	3,449	4,551	4,914	5,344	5,416
EBITDA Margin (%)	18.2%	18.6%	22.7%	22.9%	23.4%	22.0%
PAT	2,608	1,976	2,328	2,876	3,241	5,080
PAT Margin (%)	14.5%	10.7%	11.6%	13.4%	14.2%	20.6%

## Bharat Forge

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	6,396	8,358	10,146	8,056	6,336	10,461
EBITDA	1,251	1,717	2,021	1,110	862	1,968
EBITDA Margin (%)	19.6%	20.5%	19.9%	13.8%	13.6%	18.8%
PAT	698	754	1,044	392	-97	1,110
PAT Margin (%)	10.9%	9.0%	10.3%	4.9%	-1.5%	10.6%

## Bharat Dynamics

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	4,535	4,577	3,069	3,105	1,914	2,817
EBITDA	417	489	620	756	346	721
EBITDA Margin (%)	9.2%	10.7%	20.2%	24.4%	18.1%	25.6%
PAT	524	528	423	535	258	500
PAT Margin (%)	11.6%	11.5%	13.8%	17.2%	13.5%	17.7%

## Data Patterns

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	111	113	131	156	224	311
EBITDA	16	18	22	43	92	141
EBITDA Margin (%)	14.3%	15.9%	17.2%	27.6%	41.1%	45.4%
PAT	3	4	8	21	56	94
PAT Margin (%)	2.4%	3.9%	5.9%	13.5%	24.8%	30.2%

## Paras Defence

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	NA	143	154	147	143	183
EBITDA	NA	41	43	40	44	52
EBITDA Margin (%)	NA	28.8%	28.0%	27.0%	30.7%	28.7%
PAT	NA	25	19	20	16	27
PAT Margin (%)	NA	17.5%	12.3%	13.4%	11.0%	14.8%

## Centum Electronics

Particular (INR cr)	FY17	FY18	FY19	FY20	FY21	FY22
Revenue	692	852	1,111	927	817	780
EBITDA	56	26	88	72	90	74
EBITDA Margin (%)	8.1%	3.1%	7.9%	7.8%	11.0%	9.5%
PAT	37	-11	28	17	13	-49
PAT Margin (%)	5.3%	-1.3%	2.5%	1.8%	1.6%	-6.3%

Source: Ace Equity, Arihant Capital Research

## Financial Performance

Particular	CMP* (INR)	Mcap* (INR cr)	P/E (x)	EV/EBITDA (x)	RoCE (%)	RoE (%)	RoIC (%)
Bharat Electronics	108	51,376	28	12	27%	20%	33%
Hindustan Aeronautics	2,520	49,727	15	6	30%	29%	27%
Bharat Forge	821	32,680	40	17	14%	19%	15%
Bharat Dynamics	992	10,018	31	10	25%	18%	25%
Data Patterns	1,335	3,650	71	24	34%	24%	30%
Paras Defence	645	2,440	75	43	14%	11%	13%
Centum Electronics	594	574	-	10	30%	29%	-7%

Source: Ace Equity, Arihant Capital Research; \* - as of 27-10-2022; Valuation data's - as of FY22

Revenue growth (%)	FY17	FY18	FY19	FY20	FY21	EBITDA growth (%)	FY17	FY18	FY19	FY20	FY21
Bharat Electronics	20%	17%	7%	9%	9%	Bharat Electronics	4%	55%	-9%	26%	4%
Hindustan Aeronautics	3%	8%	7%	7%	8%	Hindustan Aeronautics	6%	32%	8%	9%	1%
Bharat Forge	31%	21%	-21%	-21%	65%	Bharat Forge	37%	18%	-45%	-22%	128%
Bharat Dynamics	1%	-33%	1%	-38%	47%	Bharat Dynamics	17%	27%	22%	-54%	109%
Data Patterns	2%	16%	19%	43%	39%	Data Patterns	14%	25%	92%	113%	53%
Paras Defence	-	8%	-5%	-3%	27%	Paras Defence	-	5%	-8%	11%	19%
Centum Electronics	23%	30%	-17%	-12%	-5%	Centum Electronics	-53%	238%	-18%	24%	-17%

Source: Ace Equity, Arihant Capital Research

Source: Ace Equity, Arihant Capital Research

PAT growth (%)	FY18	FY19	FY20	FY21	FY22	EBITDA Margin (%)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	-6%	31%	-3%	15%	14%	Bharat Electronics	19.8%	17.1%	22.8%	19.5%	22.6%	21.6%
Hindustan Aeronautics	-24%	18%	24%	13%	57%	Hindustan Aeronautics	18.2%	18.6%	22.7%	22.9%	23.4%	22.0%
Bharat Forge	8%	38%	-62%	-125%	-	Bharat Forge	19.6%	20.5%	19.9%	13.8%	13.6%	18.8%
Bharat Dynamics	1%	-20%	27%	-52%	94%	Bharat Dynamics	9.2%	10.7%	20.2%	24.4%	18.1%	25.6%
Data Patterns	65%	73%	174%	164%	69%	Data Patterns	14.3%	15.9%	17.2%	27.6%	41.1%	45.4%
Paras Defence	-	-24%	4%	-20%	72%	Paras Defence	-	28.8%	28.0%	27.0%	30.7%	28.7%
Centum Electronics	-130%	-356%	-40%	-21%	-473%	Centum Electronics	8.1%	3.1%	7.9%	7.8%	11.0%	9.5%

Source: Ace Equity, Arihant Capital Research

Source: Ace Equity, Arihant Capital Research

PAT Margin (%)	FY17	FY18	FY19	FY20	FY21	FY22	RoCE (%)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	17.3%	13.5%	15.2%	13.8%	14.7%	15.3%	Bharat Electronics	23.4%	24.7%	30.5%	25.7%	27.9%	27.2%
Hindustan Aeronautics	14.5%	10.7%	11.6%	13.4%	14.2%	20.6%	Hindustan Aeronautics	29.1%	27.2%	29.3%	24.5%	26.2%	30.4%
Bharat Forge	10.9%	9.0%	10.3%	4.9%	-1.5%	10.6%	Bharat Forge	14.9%	17.2%	20.1%	7.1%	1.1%	13.9%
Bharat Dynamics	11.6%	11.5%	13.8%	17.2%	13.5%	17.7%	Bharat Dynamics	40.4%	37.9%	32.3%	30.9%	13.1%	25.2%
Data Patterns	2.4%	3.9%	5.9%	13.5%	24.8%	30.2%	Data Patterns	6.9%	8.5%	11.1%	23.8%	39.1%	33.6%
Paras Defence	-	17.5%	12.3%	13.4%	11.0%	14.8%	Paras Defence	0.0%	25.5%	21.3%	14.9%	14.2%	14.2%
Centum Electronics	5.3%	-1.3%	2.5%	1.8%	1.6%	-6.3%	Centum Electronics	16.7%	2.3%	12.3%	11.1%	9.4%	-4.2%

Source: Ace Equity, Arihant Capital Research

Source: Ace Equity, Arihant Capital Research



## Financial Performance

RoE (%)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	17.6%	17.9%	21.5%	18.6%	19.6%	20.2%
Hindustan Aeronautics	22.1%	17.9%	21.6%	22.7%	22.6%	29.2%
Bharat Forge	18.5%	17.2%	20.8%	7.4%	-1.8%	18.5%
Bharat Dynamics	26.3%	25.8%	20.2%	22.2%	9.8%	17.6%
Data Patterns	2.2%	3.6%	5.9%	16.2%	30.7%	24.0%
Paras Defence	-	30.6%	19.7%	16.3%	10.7%	10.8%
Centum Electronics	18.3%	-5.5%	13.9%	7.9%	6.1%	-

Source: Ace Equity, Arihant Capital Research

RoIC (%)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	30%	21%	21%	19%	24%	33%
Hindustan Aeronautics	19%	14%	13%	14%	17%	27%
Bharat Forge	15%	15%	18%	8%	-32%	15%
Bharat Dynamics	55%	52%	32%	22%	11%	25%
Data Patterns	8%	10%	12%	20%	31%	30%
Paras Defence	-	39%	15%	15%	12%	13%
Centum Electronics	17%	4%	18%	13%	10%	-7%

Source: Ace Equity, Arihant Capital Research

EV/EBITDA (x)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	14.1	15.1	7.3	5.8	7.6	12.3
Hindustan Aeronautics	-2.3	7.6	5.6	4.5	4.6	5.5
Bharat Forge	19.7	19.1	12.2	11.3	31.3	17.1
Bharat Dynamics	-1.9	-	-	3.2	10.3	9.7
Data Patterns	3.0	1.6	1.0	1.3	0.3	24.0
Paras Defence	-	1.6	1.9	3.1	2.8	43.2
Centum Electronics	11.5	22.0	8.9	6.8	7.8	9.6

Source: Ace Equity, Arihant Capital Research

Inventory days	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	407	305	275	204	233	230
Hindustan Aeronautics	854	838	882	815	602	608
Bharat Forge	161	151	160	177	249	235
Bharat Dynamics	276	254	380	222	636	534
Data Patterns	-	-	646	517	382	508
Paras Defence	294	204	281	304	483	299
Centum Electronics	216	295	225	242	205	272

Source: Ace Equity, Arihant Capital Research

RoA (%)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	8.5%	7.9%	9.5%	8.1%	7.8%	7.6%
Hindustan Aeronautics	4.8%	4.0%	4.7%	5.6%	6.2%	9.3%
Bharat Forge	8.1%	8.0%	9.7%	3.4%	-0.8%	7.8%
Bharat Dynamics	5.9%	-	-	9.7%	4.5%	8.0%
Data Patterns	1.2%	1.8%	2.9%	9.2%	17.8%	18.2%
Paras Defence	-	9.8%	6.5%	5.8%	4.5%	6.6%
Centum Electronics	5.5%	-1.1%	2.6%	1.5%	1.3%	-5.2%

Source: Ace Equity, Arihant Capital Research

P/BV (x)	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	4.5	4.3	2.5	1.8	2.8	4.2
Hindustan Aeronautics	-	4.0	2.0	1.3	2.2	2.6
Bharat Forge	5.9	7.0	4.4	2.1	5.1	5.0
Bharat Dynamics	-	-	-	1.3	2.3	3.3
Data Patterns	-	-	-	-	-	6.4
Paras Defence	-	-	-	-	-	7.3
Centum Electronics	3.6	3.5	2.6	1.5	2.2	2.8

Source: Ace Equity, Arihant Capital Research

Debtor days	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	184	176	161	189	170	145
Hindustan Aeronautics	86	133	227	191	90	69
Bharat Forge	77	85	77	68	81	75
Bharat Dynamics	12	61	63	40	62	39
Data Patterns	-	-	287	270	254	233
Paras Defence	87	65	197	242	261	247
Centum Electronics	99	113	108	103	96	93

Source: Ace Equity, Arihant Capital Research

Payable days	FY17	FY18	FY19	FY20	FY21	FY22
Bharat Electronics	108	91	89	126	155	139
Hindustan Aeronautics	62	69	113	164	76	96
Bharat Forge	127	148	118	105	167	141
Bharat Dynamics	186	129	115	83	322	171
Data Patterns	-	-	118	112	62	162
Paras Defence	187	107	232	135	100	69
Centum Electronics	144	205	138	183	115	138

Source: Ace Equity, Arihant Capital Research

### Defence Expo Clicks

**Exhibit 26: Drone delivered unguided bombs – Bharat Dynamics Ltd**



Source: Defence Expo, Arianth Capital Research

**Exhibit 27: Fighter Plane – Bharat Dynamics Ltd**



Source: Defence Expo, Arianth Capital Research

**Exhibit 28: AKASH Weapon System – Bharat Dynamics Ltd**



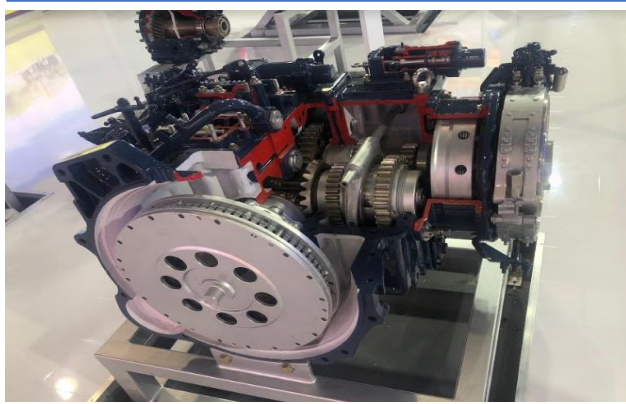
Source: Defence Expo, Arianth Capital Research

**Exhibit 29: ASTRA Weapon System – Bharat Dynamics Ltd**



Source: Defence Expo, Arianth Capital Research

**Exhibit 30: BMP Transmission – BEML**



Source: Defence Expo, Arianth Capital Research

**Exhibit 31: TEJAS – HAL**



Source: Defence Expo, Arianth Capital Research



### Defence Expo Clicks

**Exhibit 32: Drones – HAL**



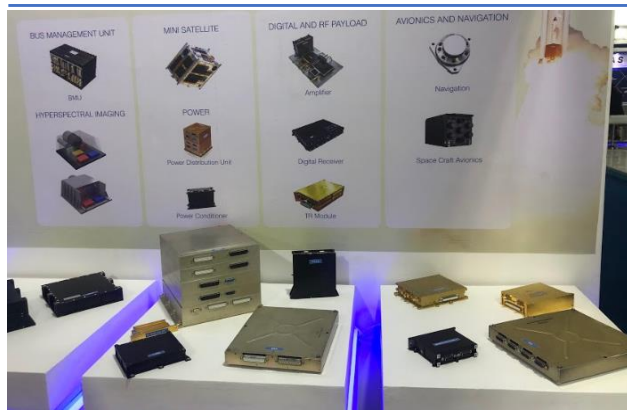
Source: Defence Expo, Arihant Capital Research

**Exhibit 33: Armed Vehicle – TATA Defence**



Source: Defence Expo, Arihant Capital Research

**Exhibit 34: Defence Electronics – BEL**



Source: Defence Expo, Arihant Capital Research

**Exhibit 35: TAPAS – BEL & HAL**



Source: Defence Expo, Arihant Capital Research

**Exhibit 36: Fighter Jet – HAL**



Source: Defence Expo, Arihant Capital Research

**Exhibit 37: Amogha-III is a third generation fire-and-forget Anti-Tank Guided Missile – Bharat Dynamics**



Source: Defence Expo, Arihant Capital Research

### Defence Expo Clicks

**Exhibit 38: Konkurs M – Bharat Dynamics**



Source: Defence Expo, Arihant Capital Research

**Exhibit 39: Brahmos**



Source: Defence Expo, Arihant Capital Research

**Exhibit 40: Medium Bullet Proof Vehicle (MBPV) – BEL**



Source: Defence Expo, Arihant Capital Research

**Exhibit 41: Electronics Ware Fare System – Centum Electronics**



Source: Defence Expo, Arihant Capital Research

**Exhibit 42: Defence Electronics – HAL**



Source: Defence Expo, Arihant Capital Research

**Exhibit 43: Maya & Amogh – LT**



Source: Defence Expo, Arihant Capital Research



Defence Expo Clicks

Exhibit 44: Rafale



Source: Defence Expo, Arihant Capital Research

Exhibit 45: Tracking Plane – HAL



Source: Defence Expo, Arihant Capital Research

Exhibit 46: Dhruv – HAL

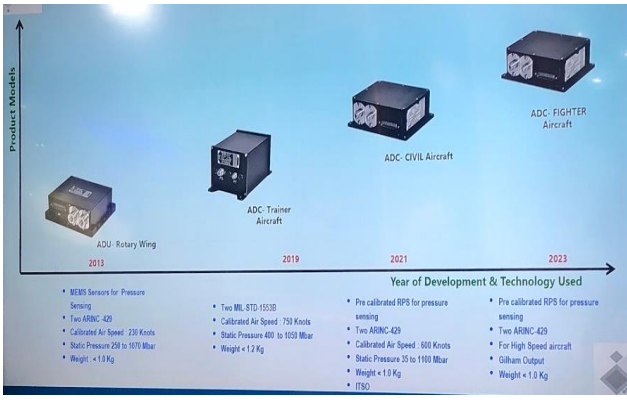


Source: Defence Expo, Arihant Capital Research



Source: Defence Expo, Arihant Capital Research

Exhibit 48: Air Data Unit – HAL



Source: Defence Expo, Arihant Capital Research

Exhibit 49: Helicopter – LT



Source: Defence Expo, Arihant Capital Research



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NEUTRAL	-5% to 5%
REDUCE	-5% to -12%
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