CHAPTER 1: INTRODUCTION

In one’s corporate life, such situations are encountered where people are compelled to make a choice. Albeit a decision is reached, it is not easy to prioritize responsibilities. And this is what most employees face on a regular basis in day to day life: Work-family balance. The concept has gained significance due to increasing number of women and dual-earner families into workforce. The national newspapers make us aware of the candid fact for the need of work-family balance and damage it does when life is not balanced (‘The Balancing Act’, TOI (Ascent), 2010; ‘The Balancing Act’, TOI (Ascent), 2011; ‘Balance it Right’, TOI (Ascent), 2011).

The demographic profile and job structure of labour market has changed dramatically with dual couple earners and dependent care (both children and old parents/in-laws included). Integrating work and family roles is the major challenge for the present generation of employees today (Halpern, 2005). The amount of research on work and family roles became extensive during 1980s and the 1990s and companies began to offer work-family programs (Lockwood, 2003: 2).

Certain jobs are more demanding like BPOs, IT, hospitality, and construction taking a toll on person’s sleep. The following quotation sums up neatly by Sarang Panchal (Managing Director, The Nielsen Company).

‘In the last few years we have noticed a number of new career opportunities opening up for Indians especially in the service sectors. How-ever better opportunities along with good pay package, growth prospects, brings in a long work schedule leaving individuals with very little time to balance their work and life. Demanding careers have dominated the lives of many young Indians for sometime now and it takes a toll on their family life. It is not a surprise then that most Indians consider work-family balance as their biggest concern’.
As the structure of workforce and organization culture is changing, it is imperative for work practices and people’s priority to change accordingly. In spite of availability of exhaustive amount of literature on work-family issues, the researchers ignored the positive effects of merging work and personal domains (Greenhaus and Powell, 2006). As per Kossek & Ozeki, (1998), work and family roles are vital components in people’s lives and can have a significant impact on satisfaction and psychological well-being. Shrotriya (2009) views work-family balance as a seesaw with work on one side and personal/domestic life on other and an individual has to balance the two in such a way that a balance is achieved.

Work–family balance is associated with quality of life when there is substantial time, involvement or satisfaction to distribute across roles (Greenhaus et al., 2003). Today companies are focusing their attention on work-family balance and expanded human resources policies to attain work-family balance. Job autonomy, flexibility in working (when and where), and supportive supervisor promote quality of life while job insecurity, strong job ethics and non-regular hours hamper life quality (Moen and Yu, 2000).

The researcher has tried to study the concept of work-family balance in defence CPSEs in Bangalore. The researcher has selected this sector due to limited number of studies conducted on this segment in India. In this study researcher has tried to define work-family balance in simpler terms, which is as follows “An individual attempt to do justice with both work and family roles, that are shared by his/her partner or done individually on a daily basis”. The researcher has attempted to study the various aspects of work-family balance like commuting, working hours, sleeping hours, family hours, stress related diseases, diet followed and usage of work-family balance programs among officers in defense CPSEs.

Due to surge in negative outcomes of work-family balance like stress, work-family conflict, turnover and lower job satisfaction, researchers are exploring the positive outputs of merging work and family roles. The intrusion of work roles into family roles have diverted attention to focus on both personal and professional spheres of life.
The present study explores work-family balance for employees as they progress through different life-stages (denoted by age) and total experience. Majority of research has been on married, working couples and working parents excluding singles. This study intends to include life-stages and total experience of officers irrespective of marital and/or parental statuses to examine the variation in work-family balance. This study also aims to explore impact of commuting time on work or personal domains. The literature already advocates that longer the commuting time, less is the time allocated for work and personal activities.

Adults divide their energy and time between two demanding domains: work domain and family domain (Greenhaus and Powell, 2003). Especially working women have to juggle between these two domains. The result of this work and family roles combination is stress related work-family conflict which is defined by Greenhaus and Beutell (1985) as “a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect”. Work-family conflict has negative behavioral and emotional effects on both aspects of life i.e work and family (Frone, 2003). These negative effects reduce professional motives of professionals towards family or work domains (Cinamon and Rich, 2005). Researchers who study work and family boundaries and its impact on conflict, generally study stress models: work stressors, non-work stressors and inter-role conflict.

The researcher has covered various aspects of work-family conflict like types, source, outcomes and management techniques. The present study will focus on inter-role conflict as one of the stressors of stress models. Inter-role conflict occurs when pressures in one role are incongruent with pressures in another role. As early as 1964, Kahn et al. found that one-third of males reported their work to be interfering with family lives. Later in a study of non-professional employees, Grant-Vallone and Donaldson (2001) found that there were no significant differences between unmarried or married on experience of work and family conflict. This study showed that work-family conflict is not limited to married people or parents. Thus, the present study includes officers with traditional families as well as unmarried officers not included in traditional family arena.
Research has identified several personal and professional outcomes of work-family conflict. As per Kossek and Ozeki (1998), there is negative relationship between work-family conflict and life satisfaction. Work-family conflict has given rise to many symptoms like high stress; high depression and lower energy levels (Googins, 1991); lower life satisfaction and quality of family life (Higgins et al. 1992); and physical ailments like depression, poor health and hypertension (Frone, Russell and Cooper, 1997: 330). Work-family conflict has been linked to outcomes like lower satisfaction, high absenteeism rates, reduced career commitment, increased marital distress, low job satisfaction and performance (Eby et al., 2005; Lapierre et al., 2008: 104; Madsen, 2003).

Additionally, the vast literature addressing work and family role management points at the negative impacts of balancing work and family roles i.e. work-family conflict and positive impacts of balancing work and family roles i.e., work-family enrichment (Hennessy, 2007). The literature throws light at several work-family conflict management techniques like flexible work schedule, fewer children, crèche facility at workplace and limited working hours.

Literature shows that little attention has been paid in linking personality traits with various aspects of work-family balance. Noor (2006) examined the influence of locus of control on the association between organization’s policies and work-family conflict and found that locus of control has both direct and moderating effect on work-family conflict and no mediator effect was observed. Personality differences such as motivation can play an important role in balancing work and family domains and hence, should be implemented at workplace. For example, as per Senécal, Vallerand, and Guay (2001), level of intrinsic motivation were found to be strong foster of balance.

Locus of control is the extent to which an individual determine the outcomes by internal factors (ie. personal competency and ability) as contrary to external factors (ie. fate or chance). Locus of control is categorized into two as internals and externals. Julian Rotter (1966) has defined "Internal control" as the concept embodying the belief that control of future consequences lies primarily with oneself while "external control" is defined as the concept that control is beyond one’s reach, either in the hands of powerful people or in the hands of
fate/luck/chance. Because of lack of empirical research on personality traits related to work-family balance, the researcher has tried to link locus of control with work-family balance.

1.1 Problem Statement

The study aims to investigate work-family balance in defence CPSEs in Bangalore. Generally the impact of commuting time on work or personal domains is not considered while studying work-family balance. In the present study the researched has included the attribute ‘commuting’ and has tried to study the effect of longer commuting time on work or personal domains. The study aims at exploring work-family conflict issues among officers by adopting two directions of conflict ie. work interference with family (WIF) and family interference with work (FIW). In addition, little research has been done on personality traits with respect to work-family balance. Keeping this in mind, the researcher has tried to link locus of control with work-family balance.

The participants of this study include full time officers working in defence CPSEs in Bangalore. The managerial level employees were used for study because it is found that executives and professionals face more workload and work for longer hours. The study includes those defence manufacturing companies that are serving market for more than four decades and are making defence equipments on a regular basis. The companies that met these criteria were BEML, HAL, and BEL and none of private player came into outlined framework. The respondents were either married, married with at least one dependent child under the age of 18 living at home or single (without partner or children). The reason for including singles in the survey is that even singles face other demands in life and do not receive enough family support (Young, 1999; Grant-Vallone and Donaldson 2001: 223; Waumsley et al., 2010: 4-10; Valk and Srinivasan, 2011: 41-47 and Darcy et al., 2012: 112-118). The researcher also investigated the important factors affecting the work-family balance of these respondents. The working hours were defined: standard as 48 - 50 hours per week, long as 51 - 60 hours per week and very long as more than 60 hours per week. The average sleeping hours was defined as 7 - 8 hours per day. Optimum family time is defined as 21 – 30 hours per week. The data was collected by convenience sampling method by personally handling the questionnaire to the respondents. The
data collected were analysed using standard statistical procedures such as correlation, regression, analysis of variance (ANOVA), ‘t’ test and Structural Equation Modeling (SEM). Different types of scales were used to measure various hypothesis proposed by the researcher. Each of these scales was tested for adequate reliability and validity by conducting pilot survey. The present study provides recommendations for improving work-family balance. These recommendations would be beneficial for human resource professionals, management consultants and other managerial level employees.

From academic perspective, this study would contribute to the vast body of literature and giving scope for further research. From organizational perspective, the results of the study would be helpful for the organisations to design specific work culture and policies to address work-family conflict thereby promoting work-family balance by reducing conflict. The organisations would also look for means to improve internal locus of control to benefit the organisation. From research perspective, the results of the study will help to fill the gaps that were encountered during literature review. Since limited studies have been conducted on defence CPSEs in India, this study would throw some insight into the work-family balance aspects, work-family conflict and locus of control prevailing in defence CPSEs in Bangalore.

1.2 Introduction to defence industry

Defence industry is generally considered to be a mechanism of national independence and pride. Defence industry consists of all industrial undertakings involved in the production of equipments, machinery and services for use by the defence forces. The impetus for upgrading India's defence manufacturing capabilities is provided country's exhaustive modernisation plans, an increased focus on nation’s security, and India's growing impetus as a 'home market' defence sourcing hub.

Post-independence, India had a limited defence capability. There were several attempts towards undertaking corrective action including diversification of defence procurement beyond the UK, focusing on licensed manufacture of defence equipment to boost self reliance in defence
production, establishment of Defence Public Sector Undertakings (DPSU’s) such as Bharat Electronics Limited (BEL), Hindustan Aeronautics Limited (HAL), Bharat Earth Movers limited (BEML) and Goa Shipyard Limited (GSL).

In recent years many private companies have come up to meet defence equipment requirements. The Indian private sector is estimated to have a relatively small share - about five per cent - of the Indian defence equipment market. Some large volume contracts are with the nine defence public sector undertakings (PSUs), which account for about 20 per cent of the market. Over 70 per cent of the equipment needs is met through imports. India's total defence imports were a mammoth Rs. 40,000 crore in 2013 and it is a big domestic market for private companies to tap into. Further with the Indian government stressing indigenous development and self reliance in production in the defence procurement policy announced in 2013. Between 2004 and 2013, the government issued 209 licences to Indian companies to manufacture defence equipment domestically.

Globally too there is a big opportunity for Indian companies. This is partly due to the labour arbitrage opportunities in India. Indian companies have also developed the ability to manufacture accurately to specifications, particularly in aerospace, metalworking and electronics. Indian companies have taken big strides forward technologically in recent years and can now match international standards. But the problem isn't getting contracts. It is in doing original R&D, and thereby creating completely new capabilities.

The following are the main organizations under the Department of Defence Production:

1) Ordnance Factory Board (OFB)
2) Hindustan Aeronautics Limited (HAL)
3) Bharat Electronics Limited (BEL)
4) Garden Reach Shipbuilders & Engineers Limited (GRSE)
5) Goa Shipyard Limited (GSL)
6) Hindustan Shipyard Limited (HSL)
7) Mazagon Dock Limited (MDL)
8) BEML Limited (BEML)
9) Bharat Dynamics Limited (BDL)
10) Mishra Dhatu Nigam Limited (MIDHANI)
11) Directorate General of Quality Assurance (DGQA)
12) Directorate General of Aeronautical Quality Assurance (DGAQA)
13) Directorate of Standardisation (DOS)
14) Defence Exhibition Organisation (DEO)
15) National Institute for Research & Development in Defence Shipbuilding (NIRDESH)

With the goal of achieving self-reliance in defence production, the Ordnance Factories and DPSUs have been continuously modernizing and upgrading their potential and broadening their product range. They have also developed a large number of major products on their own apart from developing capabilities in various fields through transfer of technology.

The production and turnover of Ordnance Factories and Defence PSUs have been increasing steadily, in response to the increasing requirements of armed forces as well as the nation’s security and strategic concerns. Details of turnover for the last three years are given below:

Table 1.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sales Ordnance Factories</th>
<th>Total Sales Public Sector Undertakings</th>
<th>Grand Total (Rs in Cr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>8715.26</td>
<td>25899.64</td>
<td>34614.90</td>
</tr>
<tr>
<td>2010-11</td>
<td>11215.01</td>
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</tr>
<tr>
<td>2011-12</td>
<td>12390.72</td>
<td>28667.28</td>
<td>41058.00</td>
</tr>
</tbody>
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Source: Department of Defence Production

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1.3 Defence manufacturing companies in Bangalore

The Department of Defence Production was set up in November 1962 with the objective of developing a comprehensive production infrastructure for the defence of the nation. Over the years, the Department has established wide ranging production facilities for various defence equipments through the Ordnance Factories and Defence Public Sector Undertakings (DPSUs). The products manufactured include arms and ammunition, tanks, armoured vehicles, heavy vehicles, fighter aircraft and helicopters, warships, submarines, missiles, ammunition, electronic equipment, earth moving equipment, special alloys and special purpose steel.

The following are the main organizations contributing to defence production in Bangalore:

1) Bharat Earth Movers Limited (BEML)
2) Hindustan Aeronautics Limited (HAL)
3) Bharat Electronics Limited (BEL)
4) Tata Power Strategic Engineering Division (SED)
5) Centum Group

1.3.1 Defence CPSEs

1.3.1.1 Introduction to BEML. BEML Limited (formerly Bharat Earth Movers Limited) was established in May 1964 as a Public Sector Undertaking for manufacture of Rail Coaches & Spare Parts and Mining Equipment at its Bangalore Complex. The Company has partially disinvested and presently Government of India owns 54 percent of total equity and rest 46 percent is held by Public, Financial Institutions, Foreign Institutional Investors, Banks and Employees.

BEML Limited, a ‘Miniratna-Category-1’, plays a pivotal role and serves India’s core sectors like Defence, Rail, Power, Mining and Infrastructure. The Company started with a modest turnover of Rs.5 Cr during 1965 and today, thanks to its diverse business portfolio, the
company has been able to achieve a turnover of more than Rs.3,500 Cr. Its three major Business verticals viz., Mining & Construction, Defence and Rail & Metro are serviced by its nine manufacturing units located at Bangalore, Kolar Gold Fields (KGF), Mysore, Palakkad and Subsidiary - Vignyan Industries Ltd, in Chikmagalur District. BEML’s products are sold and serviced through its large Marketing Network spread all over the Country. BEML’s products are exported to more than 56 countries. As part of company’s globalization strategy, the company has expanded its global reach by opening local company at Indonesia and Brazil recently in addition to Malaysia and China offices.

The company operates under three major Business verticals - viz. Mining & Construction, Defence and Rail & Metro. Each of the above Business is headed by a Director who acts as CEO of the Business and reports to the Chairman & Managing Director of the company, in addition to the above, Trading Division deals in non-company products. BEML manufactures and supplies Defence Ground Support Equipment such as Tatra based High Mobility Trucks, Recovery Vehicles, Bridge Systems, Vehicles for Missile Projects, Tank Transportation Trailers, Milrail Wagons, Mine Ploughs, Crash Fire Tenders, Snow Cutters, Aircraft Towing tractors, Aircraft Weapon Loading Trolley. The company also plans to take up overhaul and upgradation of Battle Tanks with a view to assemble and roll out the products. Under Mining and Construction Business, the company manufactures and supplies Mining & Construction equipment like Bull Dozers, Excavators, Dumpers, Shovels, Loaders and Motor Graders to various user segments and under Rail & Metro Business, manufactures and supplies Rail Coaches, Metro Cars, AC EMUs, OHE Cars, Steel and Aluminium Wagons to the rail sector. The company has a dedicated R&D infrastructure and team in line with consistent policy of the company to meet the technological demands through in-house R&D and strategic technical tie-ups with global players.

BEML operates on three major business verticals for associated equipment manufacturing:

- Mining & Construction
- Defence
- Rail & Metro
1.3.1.2 Introduction to HAL. Hindustan Aeronautics Limited (HAL) came into existence on 1st October 1964. The Company was formed by the merger of Hindustan Aircraft Limited with Aeronautics India Limited and Aircraft Manufacturing Depot, Kanpur.

Today, HAL has 19 Production Units and 10 Research & Design Centres in 8 locations in India. The Company has an impressive product track record - 15 types of Aircraft/Helicopters manufactured with in-house R & D and 14 types produced under license. HAL has manufactured over 3658 Aircraft/Helicopters, 4178 Engines, upgraded 272 Aircraft and overhauled over 9643 Aircraft and 29775 Engines.

HAL has been successful in numerous R & D programs developed for both Defence and Civil Aviation sectors. HAL has made substantial progress in its current projects:

- Advanced Light Helicopter – Weapon System Integration (ALH-WSI)
- Tejas - Light Combat Aircraft (LCA)
- Intermediate Jet Trainer (IJT)
- Light Combat Helicopter (LCH)
- Various military and civil upgrades.
- Dhruv was delivered to the Indian Army, Navy, Air Force and the Coast Guard in March 2002, in the very first year of its production, a unique achievement.

HAL has played a significant role for India's space programs by participating in the manufacture of structures for Satellite Launch Vehicles like:

- PSLV (Polar Satellite Launch Vehicle)
- GSLV (Geo-synchronous Satellite Launch Vehicle)
- IRS (Indian Remote Satellite)
- INSAT (Indian National Satellite)

Apart from these, other major diversification projects are manufacture & overhaul of Industrial Marine Gas Turbine and manufacture of Composites.
HAL has formed the following Joint Ventures (JVs):

- BAeHAL Software Limited
- Indo-Russian Aviation Limited (IRAL)
- Snecma-HAL Aerospace Pvt Ltd
- SAMTEL-HAL Display System Limited
- HALBIT Avionics Pvt Ltd
- HAL-Edgewood Technologies Pvt Ltd
- INFOTECH-HAL Ltd
- TATA-HAL Technologies Ltd
- HATSOFF Helicopter Training Pvt Ltd
- International Aerospace Manufacturing Pvt Ltd
- Multi Role Transport Aircraft Ltd

1.3.1.3 Introduction to BEL. Bharat Electronics Limited (BEL) was established at Bangalore, India, by the Government of India under the Ministry of Defence in 1954 to meet the specialised electronic needs of the Indian defence services. Over the years, it has grown into a multi-product, multi-technology, multi-unit company servicing the needs of customers in diverse fields in India and abroad. BEL is among an elite group of public sector undertakings which have been conferred the Navratna status by the Government of India.

The growth and diversification of BEL over the years mirrors the advances in the electronics technology, with which BEL has kept pace. Starting with the manufacture of a few communication equipment in 1956, BEL went on to produce Receiving Valves in 1961, Germanium Semiconductors in 1962 and Radio Transmitters for AIR in 1964.

In 1966, BEL set up a Radar manufacturing facility for the Army and in-house R&D, which has been nurtured over the years. Manufacture of Transmitting Tubes, Silicon Devices and Integrated Circuits started in 1967. The PCB manufacturing facility was established in 1968.

In 1970, manufacture of Black & White TV Picture Tube, X-ray Tube and Microwave Tubes started. The following year, facilities for manufacture of Integrated Circuits and Hybrid
Micro Circuits were set up. 1972 saw BEL manufacturing TV Transmitters for Doordarshan. The following year, manufacture of Frigate Radars for the Navy began. Under the government's policy of decentralization and due to strategic reasons, BEL ventured to set up new Units at various places. The second Unit of BEL was set up at Ghaziabad in 1974 to manufacture Radars and Tropo communication equipment for the Indian Air Force. The third Unit was established at Pune in 1979 to manufacture Image Converter and Image Intensifier Tubes.

In 1980, BEL's first overseas office was set up at New York for procurement of components and materials. In 1981, a manufacturing facility for Magnesium Manganese Dioxide batteries was set up at the Pune Unit. The Space Electronic Division was set up at Bangalore to support the satellite programme in 1982. The same year saw BEL achieve a turnover of Rs.100 crores. In 1983, an ailing Andhra Scientific Company (ASCO) was taken over by BEL as the fourth manufacturing Unit at Machilipatnam. In 1985, the fifth Unit was set up in Chennai for supply of Tank Electronics, with proximity to HVF, Avadi. The sixth Unit was set up at Panchkula the same year to manufacture Military Communication equipment. 1985 also saw BEL manufacturing on a large scale Low Power TV Transmitters and TVROs for the expansion of Doordarshan's coverage. 1986 witnessed the setting up of the seventh Unit at Kotdwara to manufacture Switching Equipment, the eighth Unit to manufacture TV Glass Shell at Taloja (Navi Mumbai) and the ninth Unit at Hyderabad to manufacture Electronic Warfare Equipment.

In 1987, a separate Naval Equipment Division was set up at Bangalore to give greater focus to Naval projects. The first Central Research Laboratory was established at Bangalore in 1988 to focus on futuristic R&D. 1989 saw the manufacture of Telecom Switching and Transmission Systems as also the setting up of the Mass Manufacturing Facility in Bangalore and the manufacture of the first batch of 75,000 Electronic Voting Machines.

The agreement for setting up BEL's first Joint Venture Company, BE DELFT, with M/s Delft of Holland was signed in 1990. Recently this became a subsidiary of BEL with the exit of the foreign partner and has been renamed BEL Optronic Devices Limited. The second Central Research Laboratory was established at Ghaziabad in 1992. The first disinvestment (20%) and listing of the Company's shares in Bangalore and Mumbai Stock Exchanges took place the same
year. BEL Units obtained ISO 9000 certification in 1993-94. The second disinvestment (4.14%) took place in 1994. In 1996, BEL achieved Rs.1,000 crores turnover. In 1997, GE BEL, the Joint Venture Company with M/s GE, USA, was formed. In 1998, BEL set up its second overseas office at Singapore to source components from South East Asia.

The year 2000 saw the Bangalore Unit, which had grown very large, being reorganized into Strategic Business Units (SBUs). There are seven SBUs in Bangalore Unit. The same year, BEL shares were listed in the National Stock Exchange. In 2002, BEL became the first defence PSU to get operational Mini Ratna Category I status. In June 2007, BEL was conferred the prestigious Navratna status based on its consistent performance.

1.3.2 Private companies

To achieve the goal of self-reliance in the Defence sector, continuous efforts are being made to indigenise Defence industries wherever it is technologically feasible and economically viable. In May, 2001, the Defence Industry sector, which was hitherto reserved for the public sector, was opened up to 100% for Indian private sector participation, with Foreign Direct Investment (FDI) upto 26%, both subject to licensing.

Consequent to opening up of the Defence Industry Sector for Indian private sector participation with Foreign Direct Investment (FDI) permissible up to 26%, subject to licensing, 25 joint ventures have been formed so far between Indian private companies and foreign companies.

1.3.2.1 Tata Power SED. Tata Power Company Limited through its Strategic Engineering Division (Tata Power SED) has been a leading private-sector player in the indigenous Design, Development, Production, Integration, Supply and Life-cycle Support of mission critical Defence Systems of Strategic importance. It has partnered the Ministry of Defence (MoD), the Armed Forces, DPSUs and DRDO in the development & supply of state-of-
The high-tech nature of the design and development work requires Tata Power SED to have a state-of-the-art development environment. The Development environment comprises high-end PCs and SPARC workstations. Extensive use is made of CASE and various testing and debugging tools. Languages supported include C, C++ and Visual C.

Through its expertise in Technology Management and the effective utilization of its wide range of competencies, Tata power SED is well on the path of nurturing substantive self-reliance for Indian Defence by developing, integrating and supplying systems in niche areas such as Command and Control, Electronic Warfare, Tactical Communications, Weapon Delivery, Artillery & Armour, Air Defence and Servo Control & Drive Electronics for platform positioning and tracking.

Today, Tata Power SED, provides comprehensive solutions in Strategic Electronics of Embedding Intelligence in Sensors & Weapon Systems and has core strengths in the areas of:

- Engineering and Packaging of large structural payloads for launch platforms up to compact electronic units for airborne applications
- Robust and Real Time Software for Embedded Applications
- Rapid Prototyping & Simulation
- Development of advanced algorithms for Platform Servo Control, Target Data Processing / Tracking / Fusion for Radars & other Sensors
- Artillery Ballistics
- Night Vision devices & IR-Based Weapon Sights.

1.3.2.2 Centum Group. Centum Electronics was founded in 1994 by Mr. Apparao Mallavarapu in Bangalore, India. Since then, Centum has rapidly grown into a diversified electronics company operating across different industry segments and offering a broad range of products and services. It has continuously invested in strengthening its design & product
development capabilities and has established truly world-class manufacturing facilities. Centum is a globally recognized electronics company with strong presence in the Defence & Aerospace, Space, Industrial, Medical and Telecom industry segments. It design and manufacture customized, high-reliability products in the Analog, Digital, Mixed Signal, Power, RF & Microelectronics domains. Centum also offers a broad spectrum of manufacturing and test solutions that are driven by robust quality management processes and systems. It includes Box Builds, System Integration, PCBA and electromechanical assemblies.

Centum is India’s leading Electronics Industry partner for Defense Electronics and is engaged with all the major Global and Indian customers in Defense Electronics. Products are developed and delivered in Built to Specification (BTS) and Built to Print (BTP) mode. Centum is eligible for the Defense offsets and has the Industry license for the manufacture of Electronics and Communication products for military use. Since 1998-99, Centum has been engaged in the development and production of modules, subsystems for missiles, radars and military communication applications for DRDO laboratories and Defense PSUs.

Centum is India’s leading Electronics Industry partner for Indian Space Research Organization (ISRO) and is engaged with all the major centres of ISRO. With the successful line qualification, Centum has been delivering modules, subsystems and high-end components to ISRO since 2001, in both BTP (Built to Print) and BTS (Built to Spec) mode. The products are successfully flown in mission critical applications of all Satellites and Launch Vehicles since 2003 including Chandrayaan.