

# MSMEs in Warship Building towards Atma Nirbhar Bharat- National Policy Perspective

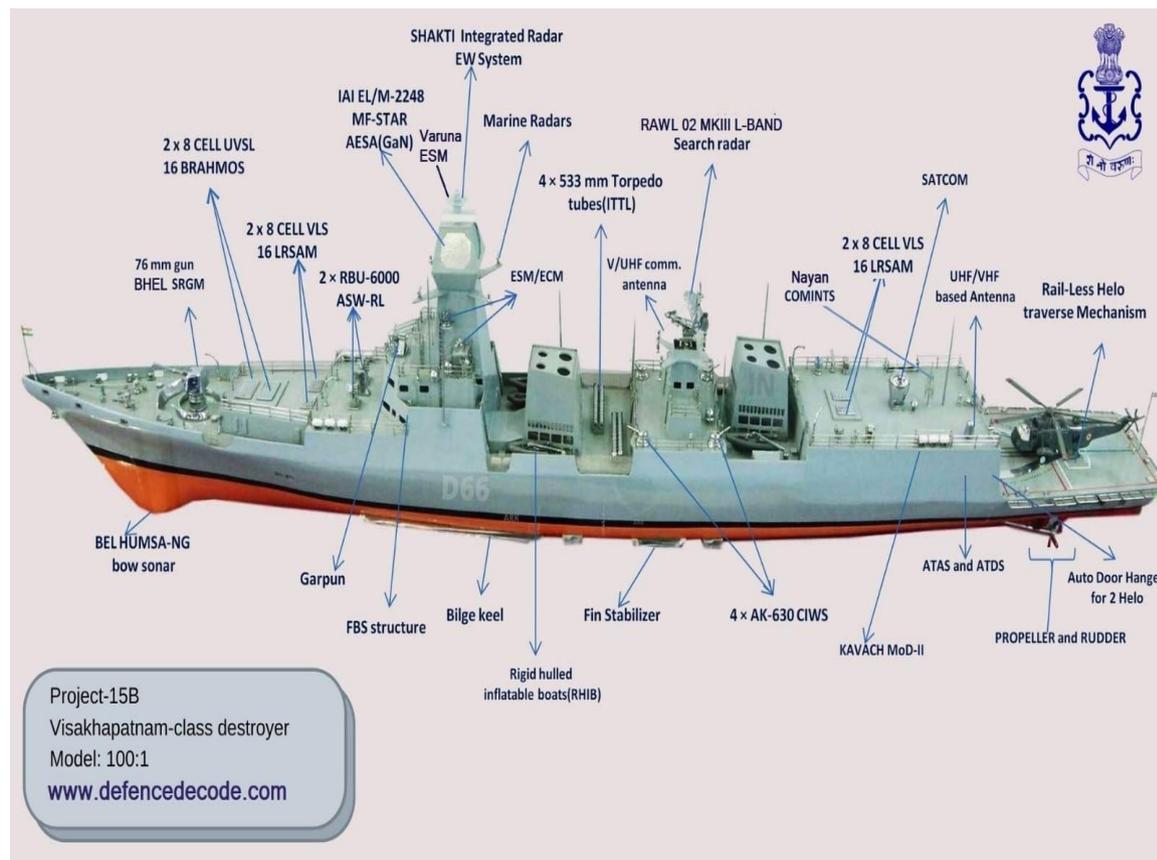
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## Abstract

Warships are being built indigenously for the Indian Navy to protect the maritime interests of the nation. Building of Aircraft Carrier Vikrant at Cochin Shipyard Ltd, commissioned by the Hon'ble Prime Minister of the Country recently, has catapulted India amongst a very few nations in the world, holding the technology and capability to build Aircraft Carriers, a feat unthinkable and unimaginable a couple of decades back, leading the Country into Atma Nirbhar Bharat in Design and construction of warships for the Indian Navy. MSMEs are the backbone of Indian Economy contributing significantly to the GDP of the Nation. The potential and the capability needs to be tapped to the hilt to achieve Atma Nirbhar Bharat dispensing with the imported equipment and systems. This paper examines the conduciveness of the National policy to promote MSMEs towards warship building to achieve Atma Nirbhar Bharat.

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## I. Introduction

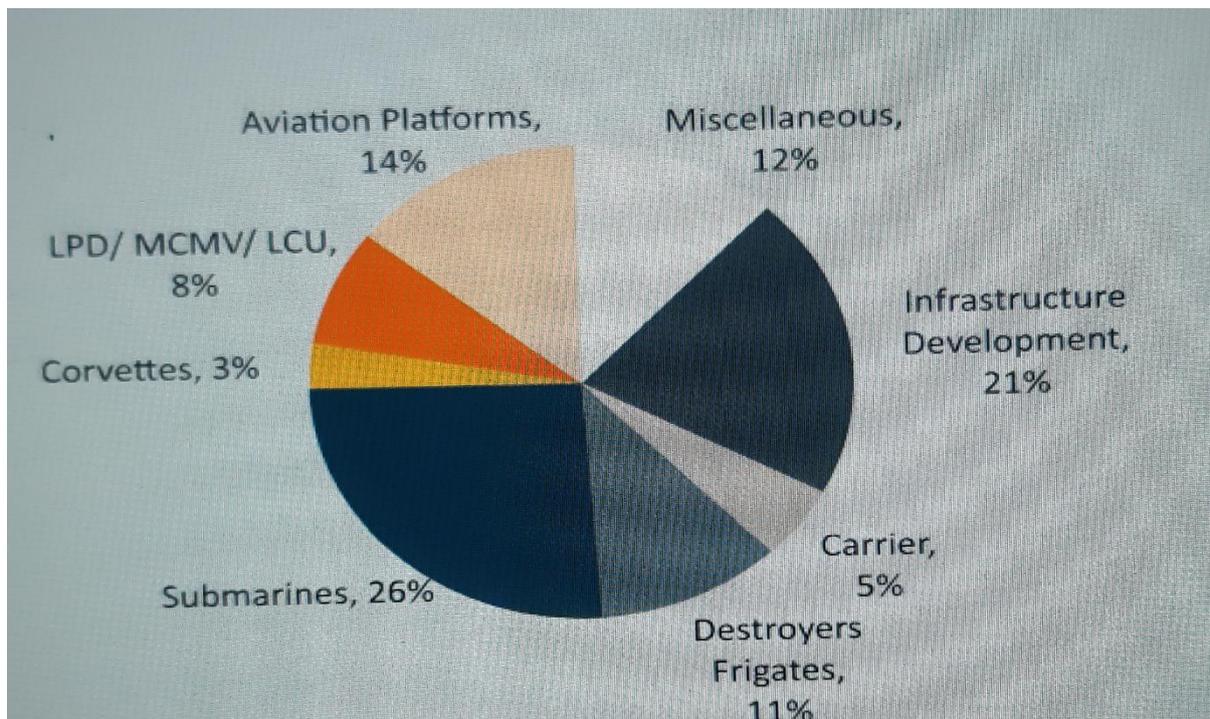
Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy providing the much needed boost to the GDP of the Nation. MSMEs not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more

equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country. Synergy between MSMEs and large scale industries provides domino effect in industrialisation boosting the economy of the country.

Worldwide, MSME have been accepted as the engine of economic growth and for promoting equitable development with low investment requirements, operational flexibility and the capacity to develop appropriate indigenous technology. MSMEs have the power and potential to propel India to scale new heights for totally home grown products, achieving self-reliance through indigenisation. They have the potential and capacity for innovative work, development of skills, enhance technological knowhow , which ought to be harnessed to maximise tangible benefits. The Govt. focuses on Atma Nirbhar Bharat which entails self-reliance through indigenisation. It is important and imperative to understand the various parameters that configure the MSME and boost the economy like inclusive growth, promoting creativity and innovation, export potential, contribution to GDP, employment generation, financial inclusion, and Research & Development efforts.

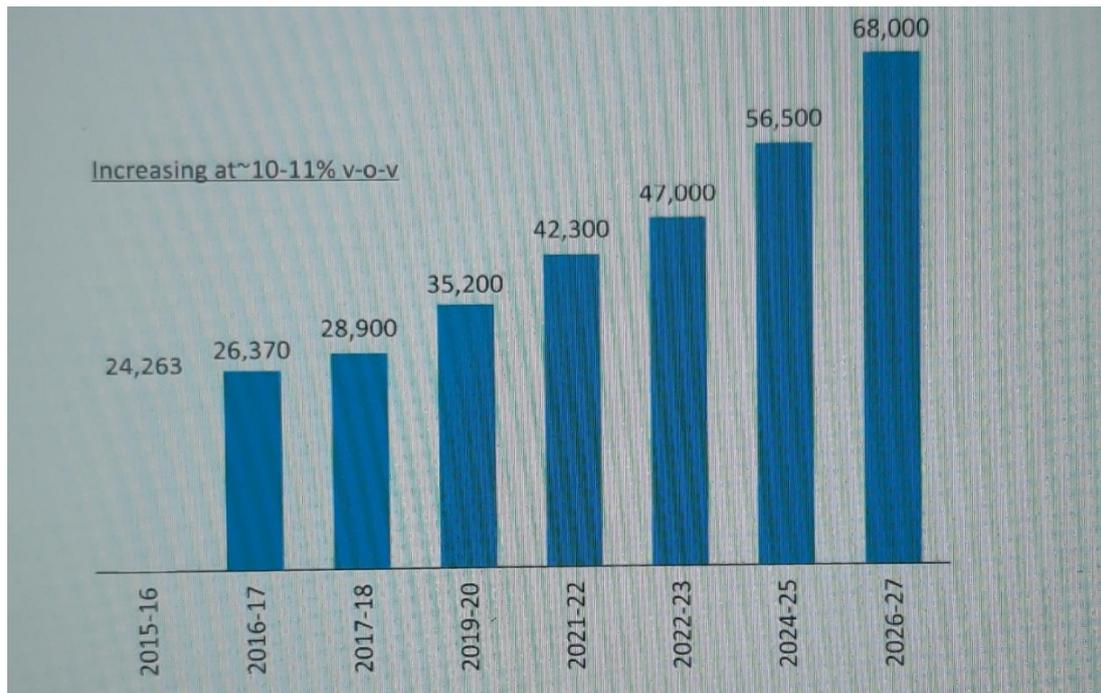
## **II. Warship Building in India**

Warship Building in India has gone through a phenomenal sea change in indigenous building of ships to cater for the ever-changing maritime strategy in consonance with the Nation's Defence policies. From Buyers Navy to the Builders Navy in 1970's, building warships indigenously with a team of designers, at multiple Govt. owned shipyards and Private ship builders. The building of Aircraft Carrier Vikrant at Cochin Shipyard Ltd, commissioned by the Hon'ble Prime Minister of the Country recently, has catapulted India amongst a very few nations in the world, holding the technology and capability to build Aircraft Carriers, a feat unthinkable and unimaginable a couple of decades back, leading the Country into Atma Nirbhar Bharat in Design and construction of warships for the Indian Navy. The Indian Navy in its Maritime Capability Perspective Plan (MCPP) envisages a 200 strong combat fleet by 2027. Fig 1 depicts various classes of ships planned to be indigenously built as per the MCPP. There is a steep growth in business potential from about 24000 crores in 2015-2016 to 68,000 crores in 2026-2027 with an average yearly order placement of over 3000 crores, as depicted in Fig 2.



**Fig 1 - Maritime Projections 2014 – 2027**

Source FICCI Padhi & Ajin GK, 2019



**Fig 2 - Business Potential in Warship Building in India**

(Amount shown in crores)

Source FICCI Padhi & Ajin GK, 2019

### III. Intricacies of warship building

Building warships is a totally different domain with technology driven equipment and systems packed onto a floating platform. The warship being a multi-dimensional platform with fabrication of hull to withstand stringent environmental conditions of seas, Propulsion systems, power generation and distribution systems, weapons and sensors involving missile systems, Gun controlled systems, advanced Radars for all possible situations, underwater sensors and weapons, Electronic warfare systems, Command and control systems with extensive software Engineering, data bus and allied auxiliaries call for extensive potential and wherewithal by the MSME. The workforce and skill levels are exacting to undertake the complex task of building hull, installation of equipment and systems and their integration.

**3.1** The Defence PSU shipyards in India – Mazagaon Shipbuilders Ltd, Mumbai, Garden Reach shipbuilders & Engineers, Kolkata, Hindustan Shipyard, Visakhapatnam, Goa shipyard, Goa contribute to the major warship building programmes for the country, Mazagaon Shipbuilders being the lead player. Cochin shipyard, Kochi is the only non-PSU shipyard which has catapulted this country in the comity of the nations in building Aircraft carriers. Private shipyard - Larsen & Toubro, Chennai has also been awarded contracts to build auxiliary vessels.

### IV. Self-reliance through indigenisation – Atma Nirbhar Bharat

Development of shipbuilding sector boosts the economy and is a major contributory factor for the GDP by promoting the industry and the services sector. While there has been a total import of equipment and systems in the early 70s along with the warships imported, a significant shift has been made to build the ships indigenously with indigenous equipment and systems. In pursuance of the Government of India's "Make in India" initiatives to achieve Atma Nirbhar Bharat, the Indian Navy has embarked on indigenization plan with a long-term vision and promulgated a guideline document titled "Indian Naval Indigenisation Plan (INIP) 2015-2030". The document aims to synergise the Indian industries including the Micro Small Medium enterprises (MSME) to meet the requirements of the Indian Navy to completely equip the combat platforms with 100 % indigenous equipment and systems, to achieve Atma Nirbhar Bharat. The Government ban list on import of equipment and systems is on the raise, with the compulsion to proliferate indigenisation to attain 100 % sustainability indigenously, without any collaborative efforts from foreign sources.

### V. Role of MSMEs in Warship Building Programme

MSMEs are aptly poised as a major contributor in India's warships building programmes and its potential should be harnessed and tapped significantly to boost the indigenisation efforts. The Micro, Small and Medium Enterprises (MSME) Act 2006 was constituted for facilitating the promotion and development and enhancing the

competitiveness of micro, small and medium enterprises. The MSME Act has the following key provisions: - (MSME Act 2006)

- (i) Establishment of a National Board for Micro, Small and Medium Enterprises headed by the Minister for MSME. The role of the Board is to examine the factors affecting the promotion and development of MSMEs, review the policies and programmes of the Central Government and make recommendations in regard to facilitating the promotion and development and enhancing their competitiveness.
- (ii) It provides the legal framework for recognition of the concept of “enterprise” which comprises both manufacturing and service entities. It defines medium enterprises for the first time and seeks to integrate the three tiers of these enterprises, namely, Micro, Small and Medium.
- (iii) It empowers the Central Government to undertake programmes and issue guidelines and instructions to develop and enhance the competitiveness of MSMEs

**5.1** To achieve a high degree of indigenisation of equipment and systems to equip warships in ever changing global dynamics and scenario and achieve Atma Nirbhar Bharat, a number of contributory factors – national Policy, Technology, Research & Development, skill levels, Quality control, growth and sustainability of the MSMEs are involved. The National policy is a dominant factor, which has to be conducive and MSME friendly to boost the MSME involvement in the warship Building programmes. Since the enactment of Act, the Government of India has released a slew of schemes to support the MSME towards easier access to funds, credit guarantee schemes & facilities, access to modern technology, improving Quality Assurance levels with a view to ensure sustainability of MSMEs. This paper examines the effectiveness of National Policies towards conducive growth and sustainability of MSMEs in the context of building warships.

## **VI. Research Gap**

- There is a definite gap existing between what MSMEs in the country can offer and do and the ground reality of how much they deliver for sustainable indigenisation to achieve Atma Nirbhar Bharat, which needs to be addressed and bridged.
- There is not a single Research paper which uniquely identifies Involvement of MSMEs in the warship building programme for the Indian Navy.

## **VII. Research Problem**

MSMEs involvement in Warship building calls for a sound National policy to provide the necessary fillip and impetus to the MSMEs to achieve self-reliance through indigenisation, the ultimate objective of Atma Nirbhar Bharat. There has been no indicators or scale developed so far to measure the effectiveness of the National Policy for MSMEs for their involvement in the shipbuilding programme. The problem is to identify the measurement indicators and evolve suitable scales for studying the effectiveness of National Policy. Such a study is being undertaken for the first time and unique in nature.

### **7.1. Research Questions**

- (a) Whether the National Policy can positively influence effectiveness of MSMEs in the warship building programme?
- (b) What are the measurement indicators and scale to be evolved in National Policy for involvement of MSMEs in warship building programme?
- (c) What are three indicators that will be rated high in terms of Excellence?

### **7.2. Research Objectives**

- (a) To study whether the National Policy can positively influence effectiveness of MSMEs in the warship building programme.
- (b) To evolve the measurement indicators and scale for National Policy for involvement of MSMEs in warship building programme.
- (c) To identify three indicators that will be rated high in terms of Excellence.

### **7.3. Hypothesis**

H<sub>0</sub>: The National Policy parameters do not differ in terms of Excellence (magnitude).

H<sub>1</sub>: The National Policy parameters differ significantly in Excellence (magnitude).

#### 7.4. Research Methodology

The National policy in vogue was studied vis-a vis its impact on the MSMEs with a view to ascertain its effectiveness in promoting and sustaining them in the warship building programmes; with an ultimate objective to achieve total self-reliance towards Atma Nirbhar Bharat. The following eight measurement indicators of National Policy with five-point interval scale was formulated to undertake the study: (a) Ease of Registration of MSMEs (NP1)

- (b) Adoption of modern Technology with cost element (NP2)
- (c) Infrastructure development of MSMEs with cost factor (NP3)
- (d) Promoting competitiveness of MSMEs about cost factor(NP4)
- (e) conduciveness towards cost of Procurement of product for warship building(NP5)
- (f) Promoting “Research & Development” taking cost factors into account (NP6)
- (g) Helpfulness In collaborative efforts with Public Sector Undertakings(NP7)
- (h) Catering to marketing & distribution platforms (NP8)

#### 7.5 Data Collection & Data Analysis

7.5.1 Having identified the measurement indicators and scales, a pilot study was undertaken. Data collection was done by farming out the questionnaires containing the eight indicators for response on 5 point Likert scale, to 50 MSMEs involved in the warship building programmeme. In order to obtain representative samples, the questionnaires were farmed out to all the Government owned ship yards, PAN India; which includes Mazagaon Ship builders, Mumbai, Garden Reach Shipbuilders, Kolkata, Cochin Ship yard Ltd, Goa ship yard Ltd, Hindustan Shipyard Ltd, Visakhapatnam and as well to a private shipyard owned by L& T.

7.5.2 To ensure that the instrument is usable and effective, the data collected from 50 MSMEs was tested for Reliability and Validity. Since every item is measured using 5 point interval scale, Cronbach Alpha was used to confirm Reliability and construct validity used to examine the accuracy of the instrument. Construct validity includes Factor Loading and average variance extracted. The responses were tested for Reliability and Validity. Cronbach Alpha of .889 achieved showing a very high reliability of measurements. Confirmatory Factor Analysis indicated factor loading of above 0.5 and the Average Variance Extracted to be 0.57, proving the validity of the measurements.

Having found that the measurement indicators evolved are reliable and valid, the questionnaire on the National Policy was farmed out to 100 more MSMEs. Responses were collated and statistically analysed, with reference to the Mean, Coefficient of variation, frequency distribution and Histograms. Freidman Test was carried out to ascertain the Mean Ranks.

#### 7.5.3 Hypothesis Testing

##### Freidman Test

Hypothesis was tested using Friedman Test, results of which is follows:-

##### Friedman Test

Ranks			
	Mean Rank		
NP1	6.06		
NP2	5.08		
NP3	4.37		
		Test Statistics	
NP4	4.06	N	139
NP5	4.50	Chi-Square	134.674
NP6	3.93	df	7
NP7	3.97	Asymp. Sig.	.000
NP8	4.02		

As the p value is less than .05, the Hypothesis was rejected. From Friedman Test it is concluded that indicators differ in Excellence. To find where the difference lies, the Rank Table has to be referred to. It can be seen from

the Rank Table that Ease of Registration of MSMEs has the highest mean rank of 6.06. The order of Mean Rank is as follows:-

Measurement Indicator	Mean Rank
Ease of Registration of MSMEs (NP1)	6.06
Adoption of modern Technology with cost element (NP2)	5.08
conduciveness towards cost of Procurement of product for warship building (NP5)	4.5
Infrastructure development of MSMEs with cost factor (NP3)	4.37
Promoting competitiveness of MSMEs with regard to cost factor (NP4)	4.06
Catering to marketing & distribution platforms (NP8)	4.02
Helpfulness In collaborative efforts with Public Sector Undertakings (NP71)	3.97
Promoting “Research & Development” taking cost factors into account (NP6)	3.93

The top three indicators that will be rated high in terms of Excellence are:-

- (A) Ease of Registration of MSMEs
- (B) Adoption of modern Technology with cost element
- (C) conduciveness towards cost of Procurement of product for warship building

#### 7.5.4 Mean Values

From the Mean value calculations, it is inferred that:-

Measurement Indicator	Result
Ease of Registration of MSMEs(NP1)	Most Agree
Adoption of modern Technology with cost element(NP2)	Most Agree
Infrastructure development of MSMEs with cost factor(NP3)	Most Agree
Promoting competitiveness of MSMEs with regard to cost factor(NP4)	Most Agree
conduciveness towards cost of Procurement of product for warship building(NP5)	Most Agree
Promoting “Research & Development” taking cost factors into account (NP6)	Neither agree nor disagree
Helpfulness In collaborative efforts with Public Sector Undertakings (NP7)	Neither agree nor disagree
Catering to marketing & distribution platforms(NP8)	Neither agree nor disagree

#### 7.5.5 Coefficient of variation

The Coefficient of variation calculated taking the individual group Mean and standard deviation is tabulated below:-

Measurement Indicator	CV
Ease of Registration of MSMEs(NP1)	20%
Adoption of modern Technology with cost element(NP2)	20%
Infrastructure development of MSMEs with cost factor(NP3)	26%
Promoting competitiveness of MSMEs with regard to cost factor (NP4)	25%
conduciveness towards cost of Procurement of product for warship building (NP5)	29%
Promoting “Research & Development” taking cost factors into account (NP6)	31%
Helpfulness In collaborative efforts with Public Sector Undertakings (NP7)	31%
Catering to marketing & distribution platforms (NP 8)	34%

The Coefficient of variation is on the permissible side and hence the Mean has a meaningful value; except “Catering to marketing & distribution platforms” is slightly higher.

#### 7.5.6 Frequency Distribution

Measurement Indicator	Result
Ease of Registration of MSMEs (NP1)	Majority rated as “Excellent”
Adoption of modern Technology with cost element (NP2)	Majority rated as “Very Good”
Infrastructure development of MSMEs with cost factor (NP3)	Majority rated as “Very Good”
Promoting competitiveness of MSMEs with regard to cost factor (NP4)	Majority rated as “Very Good”
conduciveness towards cost of Procurement of product for warship building (NP5)	Majority rated as “Very Good”
Promoting “Research & Development” taking cost factors into account (NP6)	Majority rated as “Very Good”

Helpfulness In collaborative efforts with Public Sector Undertakings (NP7)	Majority rated as “Very Good”
Catering to marketing & distribution platforms (NP8)	Majority rated as “Good”

Frequency distribution shows about 20 % of MSMEs are not entirely satisfied with the marketing and distribution platforms and there is scope for improvement.

#### 7.5.7 Skewness

Data set for all the indicators shows a negative skew. Negative skew indicates long tail on the left of the distribution meaning more values are concentrated on the right side of the graph, which is what it should be, indicative of higher satisfaction levels in the National policy.

### VIII. Inference

The following inferences are drawn, meeting the Research objectives:-

- (a) The measurement instrument formulated for the National Policy towards involvement of MSMEs in warship building is reliable and valid.
- (b) The analysis indicates that the National Policy is indeed conducive and effective for the MSMEs towards warship building.
- (c) The indicators of National Policy differ in Excellence. The top three indicators in terms of Excellence are :-
  - (i) Ease of Registration of MSMEs
  - (ii) Adoption of modern Technology with cost element
  - (iii) conduciveness towards cost of Procurement of product for warship building
- (d) From the frequency distribution, it is seen that majority of the MSMEs has rated against all the indicators as Very Good & above; signifying the MSME National Policy is conducive and effective for their involvement in Warship building.
- (e) From the analysis of means it is inferred that majority of MSMEs has maintained a neutral position on Promoting Research & Development taking cost factors into account, Helpfulness In collaborative efforts with Public Sector Undertakings, Catering to marketing & distribution platforms; signifying concerted efforts needed in this regard by the Government agencies.

### IX. Conclusion

Evolving reliable and valid measurement indicators for the effectiveness of National Policy in the involvement of MSMEs in warship building is a unique one, never ever been done before. The measurements reveal that the National Policy is in tune and amply supports the MSMEs in the involvement in Warship building. The indicators provide a good tool for integrating the MSMEs in warship building programmes, with the ultimate objective towards Atma Nirbhar Bharat. MSMEs can quickly step into Warship building arena by following the indicators evolved as it serves as a good bench mark.

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