



REQUEST FOR EXPRESSION OF INTEREST

FOR

**Hiring of a Technology & Cluster Manager (TCM) to improve
competitiveness of the TCs and MSMEs**

through Central Public Procurement Portal (CPPP) for e Procurement

Tender ID: 2017_DC_186367

Country – India

PROJECT TITLE – TECHNOLOGY CENTER SYSTEMS PROGRAM

World Bank Loan No. 8330-IN

**Ministry of MSME,
Government of India**

**REQUEST FOR EXPRESSIONS OF INTEREST (REoI)
(CONSULTING SERVICES – FIRMS SELECTION)
(Through Central Public Procurement Portal for e Procurement)**

INDIA

TECHNOLOGY CENTER SYSTEMS PROGRAM (TCSP)

Loan No.: 8330-IN

Reference No: 21/DCMSME/TCSP/CON/TCM/2016

Assignment Title: Hiring of a Technology & Cluster Manager to improve competitiveness of the TCs and MSMEs

In order to upgrade and expand the network of MSME Technology Centres (Earlier know as Tool Rooms & Technology Development Centres), a Programme titled “Technology Centre Systems Programme (TCSP)” at an estimated cost of Rs. 2200 crore including World Bank funding of USD 200 Mn. is being implemented by the Ministry of MSME, Government of India and intends to apply part of the proceeds for appointment of Technology & Cluster Manager to improve competitiveness of the TCs and MSMEs.

The Technology Centre Systems Programme will support in upgrading the existing Technology Centres (TCs) - also referred to as Tool Rooms and Technology Development Centres - and establishing up to 15 new TCs. The TCs are to be located in various parts of the Country and cater to the needs of small and medium firms by improving their access to technologies and providing technical advisory support for entrepreneurs in the given industry cluster they serve. TCs also serve workers and youth by offering opportunities for hands-on technical training and skill development. For full details please visit http://www.dcmsme.gov.in/Toolroom_tdc.htm

The Office of Development Commissioner, Micro, Small, and Medium Enterprises intends to hire firm with relevant experience for the role providing consultancy services to improve competitiveness of the TCs and MSMEs. The following are the existing and new TC locations to be served as indicated in the table below:

S. No.	Name of the Technology Centre	Focus sector
Existing Technology Centres		
1	Central Tool Room & Training Centre (CTTC), Bhubaneswar (Odisha)	Tooling, Precision Manufacturing and Training
2	Indo Danish Tool Room (IDTR), Jamshedpur (Jharkhand)	Tooling (specialization in Automotive) & Training
3	Central Tool Room & Training Centre (CTTC), Kolkata (West Bengal)	Tooling, Precision Manufacturing, ESDM & Training
4	Tool Room & Training Centre (TRTC), Guwahati (Assam)	Tooling & Training
5	Indo German Tool Room (IGTR), Aurangabad (Maharashtra)	Tooling (specialization in Automotive) & Training
6	Indo German Tool Room (IGTR), Indore (Madhya Pradesh)	Tooling (specialization in Automotive and Plastics) & Training

S. No.	Name of the Technology Centre	Focus sector
7	Indo German Tool Room (IGTR), Ahmedabad (Gujarat)	Tooling (specialization in Automotive and Plastics) & Training
8	Central Tool Room (CTR), Ludhiana (Punjab)	Tooling & Training
9	Central Institute of Hand Tools (CIHT), Jalandhar (Punjab)	Tooling (specialization in hand tools and agriculture implements)
10	Central Institute of Tool Design (CITD), Hyderabad, (Telangana)	ESDM, Precision Manufacturing
11	Institute for Design of Electrical Measuring Instruments (IDEMI), Mumbai, (Maharashtra)	ESDM
12	Electronics Service & Training Centre (ESTC), Ramnagar (Uttarakhand)	ESDM and Training
13	Process and Product Development Centre (PPDC), Agra (Uttar Pradesh)	Foundry & Forging and Training
14	Process cum Product Development Centre (PPDC), Meerut (Uttar Pradesh)	Sports Goods and Training
15	Fragrance & Flavour Development Centre (FFDC), Kannauj (Uttar Pradesh)	Fragrance and Flavours & Agro and allied industries & Training
16	Central Footwear Training Institute (CFTI), Agra (Uttar Pradesh)	Leather Footwear & Training
17	Central Footwear Training Institute (CFTI), Chennai (Tamil Nadu)	Leather Footwear & Training
18	Centre for Development of Glass Industries (CDGI), Firozabad (Uttar Pradesh)	Designer and Decorative Glass and Training
New Technology Centres include following Projects		
1.	Sitarganj, Uttarakhand	General Engineering & Auto
2.	Baddi, Himachal Pradesh	General Engineering
3.	Bhiwadi, Rajasthan	General Engineering & Auto
4.	Durg, Chhattisgarh	General Engineering
5.	Rohtak, Haryana	General Engineering
6.	Vishakhapatnam, AP	General Engineering
7.	Bhopal, Madhya Pradesh	General Engineering
8.	Kanpur, Uttar Pradesh	General Engineering
9.	Ernakulam, Kerala	ESDM
10.	Puducherry	ESDM & General Engineering
11.	Greater Noida, Uttar Pradesh	ESDM
12.	Bengaluru, Karnataka	ESDM
13.	Imphal, Manipur	Aromatic & Medicinal Plant

Role of the Consultant

The Consultant is expected to facilitate economic development cooperation of clusters and improve the capability and service offerings of TCs such that they transform to become models of manufacturing excellence for MSME

The assignment has following three main components:

1. Create market linkages and enhance economic development to improve cluster competitiveness
2. Technology development of the TCs
3. Capacity building of the clusters and TCs

Objectives of the assignment

The key objectives of the assignment are:

- Increase business opportunities for MSMEs through new market linkages.
- Enhance competitiveness of the cluster business environment :
 - Increase access of MSMEs to a network of business development services (BDS) , R&D, Academia, which address their needs and are not covered in the domain of the TCs
 - Increase access of MSMEs to network of financial service providers
 - Increase competitiveness of supply chains of large firms by enhancing the quality, reliability and productivity of MSME suppliers
- Increase the number of MSMEs utilizing the services of TCs resulting in increase in revenues of TCs by marketing and promotion of TCs
- Develop a financially self-sustainable business model for cluster related services provided by Technology Centres before the end of the TCSP funding period
- Identifying and defining the globally competitive technological capability required by TCs in the relevant sectors keeping in view the emerging trends in Industry 4.0.
- Evaluate existing training programs and develop new training programs for roll out at the TCs
- Conduct gap analysis of manufacturing process/procedures for existing TCs and develop manufacturing process/procedures for new TCs including finalization of State of Art Machineries.
- Strengthen the capabilities of the TCs to provide technical advice to their key clients
- Increase awareness amongst stakeholders on Environmental, Health and Safety (EHS) requirements, including those related to reducing health/pollution risks, increasing resource efficiency (towards improving business efficacy) and adhering to applicable regulations/rules.

The duration of the assignment is for 3 years in which the Consultant shall serve the 18 existing TCs and 15 new TCs.

The Office of DC-MSME now invites eligible consulting firms (“Consultants”) to express their interest in providing consulting services to improve competitiveness of the TCs and MSMEs. Request for Expression of Request document and draft Terms of Reference may be downloaded from Central Public Procurement Portal (CPPP) site <https://eprocure.gov.in/eprocure/app>. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting shall be based on the information furnished by the firms in regard to the following.

1. Firm must be a registered legal entity for at least 5 years. The firm should have/open office in India to execute the contract
2. Average annual turnover in last 3 years should not be less than the equivalent of **USD 10 Million out of which USD 3 Million should be from Consultancy work.** In case of Joint Venture the requirement needs to be fulfilled by the lead Partner.
3. Experience of the firm in undertaking cluster initiatives in manufacturing/service sector during last 5 years (comprising of completed or ongoing projects). The project should showcase the expertise/ strength of the consultant for undertaking cluster initiatives/ facilitation/ development in manufacturing or service sector.
4. Experience of the firm in atleast 3 sectors mentioned below in the last 5 years (comprising of completed or ongoing projects). The sectors are as follows:
 - Automotive, Medical engineering, Industrial Robotics, General & Precision Manufacturing, ESDM, Fragrance and Flavors, Leather & Footwear and Designer & Decorative Glass

The attention of interested Consultants is drawn to paragraph 1.9 of the World Bank's *Guidelines: Selection and Employment of Consultants [under IBRD Loans and IDA Credits & Grants] by World Bank Borrowers* (January 2011) ("Consultant Guidelines"), setting forth the World Bank's policy on conflict of interest.

Consultants may associate with other firms in the form of a joint venture or a subconsultancy to enhance their qualifications and they must mention the nature of association whether Joint Venture or Subconsultancy, in their EoI.

A Consultant will be selected in accordance with the Quality and Cost Based Selection (QCBS) method set out in the World Bank's *Guidelines: Selection and Employment of Consultants [under IBRD Loans and IDA Credits & Grants] by World Bank Borrowers* (January 2011).

Expressions of Interest must be submitted online only at CPPP website: <https://eprocure.gov.in/eprocure/app> by **24th April 2017** (1100 hours Indian Standard Time). Manual bids shall not be accepted. The Expression of Interest will be opened on **26th April 2017** (1500 hours Indian Standard Time).

Consultants are advised to follow the instructions provided on the Central Public Procurement Portal for e Procurement at <https://eprocure.gov.in/eprocure/app> as well as the instructions provided to the consultants for online bid submission in Annexure 2. Foreign consultants are advised to go through the Procedure for obtaining digital signature by foreign vendors in the Download section on the website.

Interested consultants are advised to regularly see CPPP website <https://eprocure.gov.in/eprocure/app> for any updates regarding the REoI.

The following documents are to be furnished by the consultant as part of the Expression of Interest:

- a) Signed and Scanned copy of Letter for Expression of Interest
- b) Signed and Scanned copy of filled FORM 1-Organizational Details as per Annexure 1
- c) Signed and Scanned copy of filled FORM 2- Compliance to Eligibility Criterion as per Annexure 1 along with documentary evidence for eligibility criteria 1 and 2

- d) Signed and scanned copy of details of the experience against eligibility criteria 3 and 4 as per FORM 3 along with documentary evidence as indicated in FORM 2
- e) Signed and scanned copy of declarations as indicated in S.No. 5 in FORM 2

Documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

Clarifications can be obtained prior to *3rd April 2017 (1700 hours Indian Standard Time)* at the address below or by raising a query through CPPP website: <https://eprocure.gov.in/eprocure/app>.

Office of Development Commissioner,
Micro, Small & Medium Enterprise (MSME),
Attn: Sanjeev Chawla, Director (Autonomous Bodies), O/o DC, MSME
Room No 720 , A Wing,
7th Floor, Nirman Bhawan,
Maulana Azad Road, New Delhi – 110108
Tel: +91 11 2306 1178
E mail: tcsp@dcmsme.gov.in

Annexure 1: Format for Expression of Interest

The expression of interest must be submitted along with the following documents:

- a) FORM 1: Organization Details
- b) FORM 2: Compliance to Eligibility Criteria
- c) FORM 3: Credentials / Past Experiences for all the projects cited under eligibility criterion 4

{Note: In case, documents submitted are in any language other than English, the consultant shall submit a self-certified copy of the translated document in English (along with originals).}

FORM 1: Organization Details

Section 1: About the EoI Respondent			
I.	Name of the Organization		
II.	Details of the Organization	<ul style="list-style-type: none"> • Address of the Registered Office: • Telephone: • Facsimile: • Website: 	<ul style="list-style-type: none"> • Address of the Office in India: • Telephone: • Facsimile: • Website:
III.	Information about Organization	<ul style="list-style-type: none"> • Year of Establishment: • Status of the Organization: (Public Ltd./ Private Ltd./LLP): 	
IV.	Name and designation of the person authorized to make commitments to the O/o DC, MSME	<ul style="list-style-type: none"> • Name • Designation • E-mail • Contact Number 	
V.	Annual Turnover for the last three Financial Years	Financial Year	Annual Turnover (Million USD)
		2014	
		2015	
		2016	

VI.	Number of Personnel	<ul style="list-style-type: none"> • Total employee strengths on the payroll of the company as on 31.12.2016 • Number of professionally qualified technical personnel on its payroll or panel working in the area of cluster development or economic development or technology development as on 31.12.2016
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Section 2 The firm submitting EOI needs to mention its core business areas and any other relevant details / experience in a descriptive format. The firm needs to mention its Technical and managerial capabilities for executing each component of the indicative scope of services.

Please provide a response with details in not more than 2 pages

FORM 2: Compliance to Eligibility Criterion

Eligibility Criterion	Compliance (Yes/No)	Documentary Evidence Provided
1 Firm must be a registered legal entity for at least 5 years. The firm should have/open office in India to execute the contract.		Copy Certificate of Incorporation issued by relevant authority in country of establishment AND A self-declaration stating that the firm shall open office in India to execute the contract OR Certificate of Registration for office established in India
2 Average annual turnover in last 3 years should not be less than the equivalent of USD 10 Million out of which USD 3 Million should be from Consultancy work . In case of Joint Venture the requirement needs to be fulfilled by the lead Partner.		Statutory Auditor's certificate (for FY 2014, FY 2015, FY 2016) that provides the information explicitly as per the specific requirement of the criterion. OR Financial statements duly certified by the Chartered Accountant (for. FY 2014, FY 2015, FY 2016) clearly indicating the turnover Please note: i. The turnover quoted must be the turnover of the EoI Respondent and not its parent/child company
3 Experience of the firm in undertaking cluster initiatives in manufacturing/service sector during last 5 years (comprising of completed or ongoing projects). The project should showcase the expertise/ strength of the consultant for undertaking cluster initiatives/ facilitation/ development in manufacturing or service sector.		Details of the experience (maximum 5 projects) should be submitted as per format in FORM 3 along with the following details: For completed projects : a. Copy of Purchase Order / Contract AND b. Copy of the Completion Certificate from the client. OR Certificate from authorised signatory on company letter head indicating that the project has been completed. For on-going projects :

Eligibility Criterion	Compliance (Yes/No)	Documentary Evidence Provided
		<p>a. Copy of Purchase Order / Contract AND</p> <p>b. Certificate from authorised signatory on company letter head indicating the activities completed under the assignment and the amount of payment received</p> <p>Please note:</p> <p>i. The credentials sighted under this criterion must have been executed by the EoI Respondent and not its parent/child company</p>
<p>4 Experience of the firm in atleast 3 sectors mentioned below in the last 5 years (comprising of completed or ongoing projects).</p> <ul style="list-style-type: none"> i. Automotive ii. Medical Engineering iii. Industrial Robotics iv. General & Precision Engineering v. ESDM vi. Fragrance and Flavors vii. Leather & Footwear and viii. Designer & Decorative Glass 		<p>Details of the experience (Maximum of 6 projects where minimum of one project should be from at least 3 sectors) should be submitted as per format in FORM 3 along with the following details:</p> <p>For completed projects :</p> <ul style="list-style-type: none"> a. Copy of Purchase Order / Contract AND b. Copy of the Completion Certificate from the client. OR Certificate from authorised signatory on company letter head indicating that the project has been completed. <p>For on-going projects :</p> <ul style="list-style-type: none"> a. Copy of Purchase Order / Contract AND b. Certificate from authorised signatory on company letter head indicating the activities completed under the assignment and the amount of payment received <p>Please note:</p> <p>The credentials sighted under this</p>

Eligibility Criterion		Compliance (Yes/No)	Documentary Evidence Provided
			<p>criteria must have been executed by the EoI Respondent and not its parent/child company</p>
5	Other relevant documents		<p>a. Declaration that the consultant is not debarred by World Bank or its affiliated organisations.</p> <p>b. Declaration that the consultant does not have any conflict of interest in terms of taking any assistance / support from individual / firm / consultants who have been part of the TCSP program consultancy or the bid publication process</p>

FORM 3: Format for Credentials / Past Experiences for projects cited under eligibility criterion 4 and 5 (Maximum 2 pages per credential)

Assignment name:	Country: Location within the country
Name of Client:	Address:
Name of the Legal Entity in whose name the contract is:	Duration of assignment (months):
No. of person months of the assignment:	Start date (Month/year): Completion date (Month/year):
Approx. value of the overall contract (in USD):	Approx. value of the services provided by your firm under the contract (in USD):
Name of associated organizations, if any:	Role of JV member:
Narrative description of the Project:	
Detailed Scope of services, coverage and relevance to this project:	
Copy of Purchase Order / Contract attached?	YES / NO
Copy of completion certificate/ Certificate from authorized signatory indicating the current status of the project attached?	YES/NO

Annexure 2: Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: <https://eprocure.gov.in/eprocure/app>.

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link “**Online bidder Enrollment**” on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- 5) Foreign bidders can go through the Procedure for obtaining digital signature by foreign vendors in the Download section on the website.
- 6) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- 7) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” or “Other Important Documents” area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) There is NO tender fee for this REoI.
- 4) The server time (which is displayed on the bidders’ dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 5) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 6) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

- 7) Upon the successful and timely submission of bids (ie after Clicking “Freeze Bid Submission” in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 8) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

Draft Terms of Reference (ToR)

Draft Terms of Reference (ToR)

Hiring of a Technology & Cluster Manager (TCM) to improve competitiveness of the TCs and MSMEs

1. Background

1.1. Manufacturing Sector in India

India is one of the world's largest and most dynamic emerging markets with vast economic potential. The objective of the Government of India's, 12th Five-Year Plan (FY2013–17) is to return to Gross Domestic Product (GDP) growth rates in excess of 8 percent, with a strong emphasis placed on the manufacturing sector. Manufacturing has long been recognized as an essential driver of economic development for most countries, as it has an important economic and employment multiplier effect. The manufacturing sector will have to play an important role in taking the Indian economy to a high growth rate trajectory and achieving the planned objectives.

Despite a strong potential, India's manufacturing performance has not been encouraging. The share of manufacturing in India's GDP has stagnated at around 16 percent¹, compared to more than 30 percent (and growing) in some of the other Asian countries. India's manufacturing sector has had to face other challenges, such as low value addition, low productivity, and less-than-desirable up scaling. However, there also exist world-class production units that compete in the international market, as observed in the automotive sector.

To realize this potential, the Government of India has set the objective of enhancing the share of manufacturing in India's GDP from its current level of 16 to 25 percent within a decade and creating 100 million additional jobs in the *National Manufacturing Policy 2011*.

1.2. Micro, Small and Medium Enterprises (MSME) Sector: Overview

The Micro, Small and Medium Enterprises (MSME) sector contributes significantly to manufacturing output, employment and exports of the country. MSME sector accounts for:

- MSME output contributes to 8% of the national GDP².
- Micro, Small and Medium enterprises employ an estimated 69 million persons in over 26 million units throughout the country.
- With over 6000 products ranging from traditional to high-tech listed items³.

¹ The Manufacturing Plan - Strategies for Accelerating Growth of Manufacturing in India in the 12th Five Year Plan and Beyond

² Ministry of Micro, Small & Medium Enterprises, Annual Report 2012-13

³ Ministry of Micro, Small & Medium Enterprises, Annual Report 2012-13

Draft Terms of Reference (ToR)

In order to achieve the *National Manufacturing Policy* target of 25 percent of GDP share for the manufacturing sector, substantial support will be required by MSME sector for accelerated growth as it accounts for 45% of manufacturing output. MSME sector plays a key role in the realising the *National Manufacturing Policy* goal.

Growth and competitiveness of MSMEs are majorly constrained due to factors such as, difficulties in accessing markets (including within India); difficulties accessing finance and infrastructure deficiencies; difficulties for MSMEs to access technology and lack of skilled manpower. These constraints impact the competitiveness of MSMEs operating in both upstream and downstream manufacturing industries.

1.3. MSME Industries

Upstream industries, such as the tooling industry, that consists of developing and manufacturing dies, moulds, casts, as well as testing and prototyping, serves as the interface between product design and product manufacturing. The right tools help increase throughputs, reduce material waste, improve product quality, time to market and thus improve competitiveness. The importance of the tooling industry increases with accelerating technological developments, product sophistication/ innovation/ customization and decreasing time to market. Despite this tooling is a local industry (more than 60 percent of tools in the world are locally produced and consumed – including in India) dominated by MSMEs (more than 80% of firms in India, Europe, US and Japan). As in other countries, the private tooling industry in India has grown hand in hand with the manufacturing industry. The turnover of the Indian tooling industry is approximately US\$3 billion, with more than a thousand firms employing over 120,000 workers (TAGMA 2011). The constraints to the growth and competitiveness of the Indian tooling industry mirror the ones affecting manufacturing as a whole, as articulated above. The scarcity of skilled workers and problems related to their retention, as well as the lack of access to a high-quality design and prototyping facility, has hurt growth.

In the downstream industries, such as automotive, electronics, fragrance and flavours, agro and allied industries, glass, leather, toys etc. also, there is a shortage of skilled labour and limited access to advanced technologies. These industries include large numbers of MSMEs, often working as part of supplier networks of larger enterprises and subject to intense international competition in the connected world.

In order to support both downstream and upstream MSME industries Technology Centre (TCs) provide both technical support and training to MSMEs. Technology Centres (TCs) facilitate MSMEs in becoming more competitive by acquiring improved technology (latest and innovative technologies) and providing training to create a pool of easily employable and better skilled workers.

1.4. MSME: Skilled Workforce

While India stands to benefit from an immense demographic dividend, with the largest youth population in the world (around 66 percent of the total population is under the age of 35), it has an overall employment rate of 4.7 percent (under usual principal status approach) and an overall

Draft Terms of Reference (ToR)

labour force participation rate of 50.9 percent⁴. For the country to gain from this demographic dividend, skilling and up-skilling its youth are key priorities for the Government of India (GoI).

Out of the 470 million labour force in India, less than 10 percent has received any kind of skills training, either through formal or informal means⁵. About 13 million young people enter the labour force annually. Despite the huge expansion of skills training provision during the 11th Five-Year Plan, the country's skills development system requires massive up scaling. In its 11th and 12th Five-Year Plans, India recognized that skills development is critical to achieving faster, sustainable, and inclusive growth, on the one hand, and to providing decent employment opportunities to the growing young population, on the other. According to the National Skill Development Policy published in March 2009, India has set a target of skilling 500 million people by 2022⁶.

Global experience shows that a workforce with higher schooling and skill levels leads to higher productivity and personal income. A 2011 study showed that students who attended three-year vocational training courses at the Industrial Training Institute (ITI) earned 25 percent more than two-year course students, who earned 14 percent more than did one-year course students⁷. These results confirmed a 2007 study showing that the returns on vocational training in India have been found to be 8 percent, almost equivalent to the 8.4 percent related to an additional year of education. The same study showed that, increased educational attainment by one year is associated with 5.8 percent higher firm-level productivity in India⁸.

Against this backdrop, the Technology Centre Systems Program, a National Program that seeks to develop the technological and skill base of MSMEs and increase their business opportunities through new market linkages in selected manufacturing industries, via upgraded and new Technology Centres (earlier called Tool Rooms [TR] and Technology Development Centres) has been envisaged.

1.5. Technology Centres (TCs): Overview

Ministry of Medium, Small and Micro Enterprises (MSME) is the apex government body responsible for ensuring orderly and robust growth and development of MSMEs and through this continue to strengthen the role of MSMEs as an engine of growth for the Indian Economy.

The MSME Ministry, through the Office of the Development Commissioner (O/o DC, MSME), currently operates Eighteen (18) Technology Centres (TCs): ten for the tooling industry and eight for other industries such as ESDM (electronics system design and manufacturing), medical engineering, industrial robotics, designer & decorative glass, footwear & leather and fragrance & flavour etc. Half of these eighteen TCs are located in Low Income States (Uttar Pradesh, Madhya Pradesh, Odisha, Jharkhand and Assam).

⁴ According to the Report on the Third-Annual Employment & Unemployment Survey (2012 – 2013) of the Ministry of Labor, Government of India.

⁵ 11th and 12th Five Year Plan

⁶ <http://labour.nic.in/upload/uploadfiles/files/Policies/NationalSkillDevelopmentPolicyMar09.pdf>

⁷ Vocational Training in the Private Sector (Goyal 2011)

⁸ The Knowledge Economy and Education and Training in South Asia (world Bank 2007)

Draft Terms of Reference (ToR)

These Technology Centre are largely self-sustaining entities that have been providing:

- Technical and vocational training programs to more than 1,00,000 trainees annually. Some of these include training programs certified by the All India Council for Technical Education (AICTE) and National Council for Vocational Training (NCVT).
- They also provide design and manufacturing support to entrepreneurs alongside technical consultancies.

Technology Centres (TCs) primarily focus on improving access to technologies and providing technical advisory support for entrepreneurs in the given industry cluster they serve. TCs also serve workers and youth by offering opportunities for hands-on technical training and skill development in varied trades with a view to improve employability and livelihood opportunities.

The key services offered by the existing TCs focusing, broadly consists of:

- (i) Design & Manufacturing
 - a. Design & manufacturing of tools, dies, moulds and precision components
 - b. Product development
- (ii) Skill Development
 - a. Long & short term training programs
 - b. Areas include CAD, CAM, CNC, automation, RPT, mechatronics etc.
 - c. International, modular and customized programs
 - d. Student profile varies from HSC/SSC/10th passed outs, ITI passed outs to diploma holders and graduate engineers
- (iii) Consultancy
 - a. Inspection, calibration facilities and quality systems facilities
 - b. Turnkey assignments
 - c. Course curriculum developments
 - d. Engineering solutions for component manufacturing and process development

All services are offered by Technology Centres are on fee basis at market/cost rates. In addition, the Government of India offers various schemes/programs to subsidize the cost of services offered by the TCs to MSMEs.

Of the existing 18 Technology Centres (TCs), 4 TCs have been set-up with assistance from German Government; 3 TCs with assistance from Danish Government under bilateral agreement and 10 TCs have been set-up through support from United Nations Industrial Development Organization (UNIDO). The existing 18 TC's have been set-up between 1967 and 1999. These Technology Centres have undergone incremental transition with support from O/o DC MSME over the last decade. However, in order to support growth in MSME sector, in terms of technology advancement, expansion in geographical coverage and capacity to support more number of MSMEs, there is a need to upgrade existing TCs and set-up additional/ new Technology Centres (TCs).

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1.6. Technology Centre Systems Program (TCSP): Overview

Technology Centres Systems Program (TCSP) has been envisioned to help MSMEs in key industries become more competitive by acquiring improved technology and employing better skilled workers. This will be done directly through the services provided to them by the TCs, as well as indirectly through their linkages with larger firms (e.g. as part of the supplier network of an OEM), which will have access to the services of the TCs under the condition that it benefits their suppliers. The TCs will contribute by providing inputs to MSMEs on manufacturing technology & business advisory and by improving the skills of workers/ skill seekers who can gain better employment opportunities. The program will therefore benefit the Indian MSMEs, students and workers and help establish systems of Technology Centres in the country, where each centre will gain from the specialisation and experience of the other countries and improve the competitiveness of MSMEs.

For this purpose Technology Centre Systems Program (TCSP) intends to upgrade and expand the network of Technology Centres which have as their mission to improve the competitiveness of MSMEs in key manufacturing industries across India– with a special emphasis on Low Income States. The Program will increase the capacity and incentives of TCs to support private sector actors (as opposed to competing with them) and will consult regularly with the private sector to ensure it is not being crowded-out.

Technology Centres provide an integrated suite of services to MSMEs on a fee basis, ranging from technical and management advisory to technical training of workers. The Proposed Program will reinforce the technical capability of the Technology Centres as well as their governance, by further increasing the participation of the private sector in key decisions at both the national and local levels. In particular:

- a. TCSP seeks to establish 15 new TCs and upgrade technology capabilities of 18 existing TCs and develop linkages with Indian and international research institutes, leading manufacturers. The Program will connect leading practices that will contribute to advanced technology, knowledge and innovation that can be transferred to MSMEs served by each TC, thereby creating an ecosystem that fosters manufacturing competitiveness through a national system of technology centers across the country.
- b. TCSP focusses on building on the main strength of the current TCs, the Program will complement and reinforce hundreds of public and private providers of vocational training (e.g. the ITIs, the Polytechnics and the ATIs), helping them to improve their curricula and training their trainers by placing more emphasis on learning and problem solving skills, and being more practical and adapted to local conditions and needs. To that end the proposed program will develop linkages between the TCs and the Training Institutes being set up by other ministries (e.g. Ministry of Labor). The development of such synergies and linkages will also be supported by existing World Bank programs aimed at improving vocational training in India.

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- c. The program will leverage and complement other programs supporting MSMEs and manufacturing clusters being implemented by various organizations in public and private sector.

Technology Centre Systems Program (TCSP) is partly financed through an IBRD Loan and State Governments will contribute land for setting up new TCs. Technology Centre Systems Program (TCSP) includes the following three components:

(i) Component 1: Technical assistance to the existing and new Technology Centres

- a. *Sub Component 1.1:* Technology and Cluster Manager
- b. *Subcomponent 1.2:* National Portal Service Provider (NPSP)/Portal Development and ERP Implementation

(ii) Component 2: Investments to develop new and upgrade existing Technology Centres

- a. *Sub-component 2.1:* Buildings/ other infrastructure
- b. *Sub-component 2.2:* Equipment/Software
- c. *Sub-component 2.3:* Operating costs of new Technology Centers

(iii) Component 3: Technical assistance to the MSME Ministry for Program implementation and Monitoring and Evaluation

- a. *Sub-component 3.1:* Project Management Unit
- b. *Sub-component 3.2:* Small dedicated program management team
- c. *Sub-component 3.3:* Other technical assistance to the Office of DC-MSME and the MSME Ministry

Component 1: Technical assistance to the existing and new Technology Centres

Objective of this component is to ensure that TCs have access to technical assistance that will help them serve their cluster of MSMEs better. This will be achieved through Technology & Cluster Manager and an IT Platform service provider.

Sub Component 1.1: Technology & Cluster Manager

Technology & Cluster Manager (TCM) will specialize on specific geographic cluster(s)/ industry(s). The TCM will build capacity of the TC to enhance economic development cooperation amongst key stakeholders to improve the competitiveness of the cluster. This will include strengthening market linkages of the TCs with the MSMEs in the cluster it serves, trade and industry associations, academia, educational institutions, applied research institutions, service providers, other government support institutions, workers and skill seekers.

TCM will enhance the competitiveness of the cluster business environment by establishing a network of service providers which will address the needs of the MSMEs not served by the TC

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e.g. access to a network of financial services. TCM will also facilitate closer cooperation between the TC and MSMEs with key innovation stakeholders such as applied research institutes, autonomous institutions such as IITs, IISc, CSIR, academia, skill seekers, and students etc. to enhance product and process innovation.

TCM will specialize on specific industries/technologies and provide inputs to the TC on leading practices and techniques in proven and latest manufacturing technologies that can be adapted to the Indian MSME context. The TCM in conjunction with other stakeholders of the TCSP shall identify and define globally competitive technological capabilities which are also locally adaptable and sustainable as respective cluster requirements. Technology Roadmap and Implementation Plan for roll-out of new and relevant technologies duly endorsed by Industry Associations/Industrial Chambers and accepted by TC and O/o DC, MSME for each sector shall be prepared.

TCM will also assist the TCs in building this capability by planning and handholding the roll-out under this sub-component of TCSP. It is expected that the TCM with its experience shall help the TC in augmentation of its service portfolio keeping in view the identified/focused technologies including updating existing offerings for training, skill development, production and technical advisory.

Under Technology Centre Systems Program (TCSP), O/o DC MSME is in the process of selection of one TCM. The Technology Centre (TCs) specialization sectors are Automotive, Medical Engineering, Industrial Robotics, General Engineering, Precision Manufacturing ESDM, Fragrance & Flavor, Footwear & Leather and Designer & Decorative Glass sectors. The TCM is expected to develop one existing TC in each of the above mentioned sectors as Centre of Excellence (CoE). The TCM shall provide the technology and cluster development initiatives for one existing TC in each sector. TCM will also support in identifying equipment, machinery and technical requirements for 1 new TC in each sector.

The existing and new TC locations are indicated in the table below:

S. No.	Name of the Technology Centre	Focus sector
Existing Technology Centres		
1	Central Tool Room & Training Centre (CTTC), Bhubaneswar (Odisha)	Precision Manufacturing Tooling, and Training
2	Indo Danish Tool Room (IDTR), Jamshedpur (Jharkhand)	Tooling (specialization in Automotive) & Training
3	Central Tool Room & Training Centre (CTTC), Kolkata (West Bengal)	Tooling, Precision Manufacturing, ESDM & Training
4	Tool Room & Training Centre (TRTC), Guwahati (Assam)	Tooling & Training
5	Indo German Tool Room (IGTR), Aurangabad (Maharashtra)	Tooling (specialization in Automotive) & Training

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S. No.	Name of the Technology Centre	Focus sector
6	Indo German Tool Room (IGTR), Indore (Madhya Pradesh)	Tooling (specialization in Automotive and Plastics) & Training
7	Indo German Tool Room (IGTR), Ahmedabad (Gujarat)	Tooling (specialization in Automotive and Plastics) & Training
8	Central Tool Room (CTR), Ludhiana (Punjab)	Tooling & Training
9	Central Institute of Hand Tools (CIHT), Jalandhar (Punjab)	Tooling (specialization in hand tools and agriculture implements)
10	Central Institute of Tool Design (CITD), Hyderabad, (Telangana)	ESDM, Precision Manufacturing
11	Institute for Design of Electrical Measuring Instruments (IDEMI), Mumbai, (Maharashtra)	ESDM
12	Electronics Service & Training Centre (ESTC), Ramnagar (Uttarakhand)	ESDM and Training
13	Process and Product Development Centre (PPDC), Agra (Uttar Pradesh)	Foundry & Forging and Training
14	Process cum Product Development Centre (PPDC), Meerut (Uttar Pradesh)	Sports Goods and Training
15	Fragrance & Flavour Development Centre (FFDC), Kannauj (Uttar Pradesh)	Fragrance and Flavours & Agro and allied industries & Training
16	Central Footwear Training Institute (CFTI), Agra (Uttar Pradesh)	Leather Footwear & Training
17	Central Footwear Training Institute (CFTI), Chennai (Tamil Nadu)	Leather Footwear & Training
18	Centre for Development of Glass Industries (CDGI), Firozabad (Uttar Pradesh)	Designer and Decorative Glass and Training
New Technology Centres include following Projects		
1.	Sitarganj, Uttarakhand	General Engineering & Auto
2.	Baddi, Himachal Pradesh	General Engineering
3.	Bhiwadi, Rajasthan	General Engineering & Auto
4.	Durg, Chhattisgarh	General Engineering
5.	Rohtak, Haryana	General Engineering
6.	Vishakhapatnam, AP	General Engineering

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S. No.	Name of the Technology Centre	Focus sector
7.	Bhopal, Madhya Pradesh	General Engineering
8.	Kanpur, Uttar Pradesh	General Engineering
9.	Kochi, Kerala	General Engineering
10.	Puducherry	ESDM & General Engineering
11.	Greater Noida, Uttar Pradesh	ESDM
12.	Bengaluru, Karnataka	ESDM
13.	Imphal, Manipur	Aromatic & Medicinal Plants

Subcomponent 1.2: National Portal Service Provider (NPSP)/Portal Development and ERP Implementation

This component will support a National Portal (NP) and ERP Implementation for MSMEs, with the vision of “creating a vibrant, interactive, self-sustainable technology platform for the needs of stakeholders of MSME for collaboration, information dissemination, and transactions”.

The platform will act as a common platform for information dissemination, services and support across many aspects of business that will be required by an MSME from the start of their business, to successful operations and growth e.g. access to regulatory services for entrepreneurs, assistance for financing, access to list of suppliers etc. Through the National Portal, users will also be able to access (virtually) to most of the technical information and training services provided by the TCs.

This platform will extend the reach of the program to beneficiaries well beyond the TCs’ physical location through access to e-learning solutions, B2B service & product market place, e-recruitment portal and e-governance services (grievance redressal forum). In addition the National Platform will also include the Monitoring and Evaluation Platform for the TCSP program and ERP solutions for the Technology Centres.

Component 2: Investments to develop new and upgrade existing Technology Centres

TCSP will finance the development of 15 new TCs and upgrade the 18 existing TCs under the responsibility of the MSME Ministry. The development of new TCs will be phased with the first new TC development likely to commence in 2017 and construction of all new TCs likely to complete by 2018.

The investments in upgrading and building new TCs would be based on the DPR prepared by the Program Management Unit on behalf of the O/o DC, MSME with inputs from stakeholders including the Manufacturing Technology Partners and Cluster Network Managers. The DPR will be approved by the PSC.

The land for the new technology centers will be provided by the State Governments and many State Governments have already responded positively to this program.

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Sub-component 2.1: Buildings/ other infrastructure

The physical facilities of the TCs will be upgraded and developed with the following objectives in mind:

- Eco-friendly design
- Cost optimization
- Flexibility with respect to usage and future expansion/contraction
- Ensure a healthy and safe environment and user-friendly buildings for the people who work or get trained

A typical new TC may have the following pattern:

- Main institute building (including manufacturing, training, administration and other facilities): 15,000 sqm
- Hostel and residential facility: 3,000 sqm

Sub-component 2.2: Equipment/Software

The equipment required to upgrade the existing TCs and develop the new ones will be purchased based on the DPRs prepared by the Program Management Unit with input from the Manufacturing Technology Partner and Cluster Network Manager and also inputs of concerned sector experts group as appointed by O/o DC MSME. The advice/vetting of the Technical Partners and Cluster Network Managers will be taken once they are on board/contracted.

One of the key considerations would be to identify equipment and software that is in line with the technology roadmap the TC plans to embark to support its cluster. Adequate attention needs to be provided to upgrade and build technology capabilities for the future but should be proven and fit the context of the cluster and its geography at the same time.

Sub-component 2.3: Operating costs of new Technology Centers

The Government of India (through TCs and the MoMSME) will finance 100% of the operating costs of the 15 new TCs to make them fully operational and financially self-sustainable expected within four to five years of their launch, depending on the location and sector of the TC.

Component 3: Technical assistance to the MSME Ministry for Program implementation and Monitoring and Evaluation

Sub-component 3.1: Project Management Unit

The program will be implemented with a support of a dedicated Project Management Unit

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Sub-component 3.2: Small dedicated program management team

A dedicated team consisting of the National Program Manager, a Procurement Expert, and a Financial Management Expert and Information Technology Expert will be appointed during the program implementation phase. This team will report into the Program Coordinator of the O/o DC, MSME and will act as the interface between the Program Management Unit and the Program Coordinator. The Program Coordinator, the PMU and the National Program Manager and his team will form the Program Implementation Unit (PIU).

Sub-component 3.3: Other technical assistance to the Office of DC-MSME and the MSME Ministry

This will include capacity building and change management for the O/o DC, MSME and support to carry out in-depth impact evaluation studies, by O/o DC, MSME in consultation with the World Bank. Other technical assistance for the program, as and when required, will be provided under this sub-component.

The M&E system will include in particular independent surveys of customers and stakeholders (including potential private competitors to the TCs) to conduct the impact evaluation and assess the transformative impact of the program as well as to ensure there is no significant crowding-out of the private sector.

2. Technology & Cluster Manger

The Consultant is expected to enhance the competitiveness of the cluster business environment and improve the capability and service offerings of TCs such that they transform to become models of manufacturing excellence for MSMEs.

The Technology Centre (TCs) specialization sectors are Automotive, Medical Engineering, Industrial Engineering, General Engineering, Precision Engineering, ESDM, Fragrance & Flavor, Footwear & Leather and Designer & Decorative Glass sectors. **The TCM is expected to develop one existing TC in each of the above mentioned sectors as Centre of Excellence (CoE). The TCM shall provide the technology and cluster development initiatives for one existing TC and one new TC in each sector.** TCM will also support in identifying state of the art equipment, machinery and technical requirements for one existing TC (wherever required) and one new TC in each of the sectors mentioned above.

The list of TCs which shall be transformed into CoE in each sector shall be provided by O/o DC MSME during the RFP stage.

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Objectives of the assignment

The key objectives of the assignment are:

- Increase business opportunities for MSMEs through new market linkages.
- Enhance competitiveness of the cluster business environment :
 - Increase access of MSMEs to a network of business development services (BDS) , R&D, Academia, which address their needs and are not covered in the domain of the TCs
 - Increase access of MSMEs to network of financial service providers
 - Increase competitiveness of supply chains of large firms by enhancing the quality, reliability and productivity of MSME suppliers
- Increase the number of MSMEs utilizing the services of TCs resulting in increase in revenues of TCs by marketing and promotion of TCs
- Develop a financially self-sustainable business model for cluster related services provided by Technology Centres before the end of the TCSP funding period
- Identifying and defining the globally competitive technological capability required by TCs in the relevant sectors keeping in view the emerging trends in industry 4.0.
- Supporting the up gradation of the existing TCs and establishment of new TCs by providing specifications and technical requirements for equipment
- Augment services being offered by the TCs in the context of identified technologies and clusters with respect to training, production assistance (including optimization of equipment utilization) and technical advisory, resulting in increase in revenues of TCs.
- Evaluate existing training programs and develop new training programs for roll out at the TCs
- Conduct gap analysis of manufacturing process/procedures for existing TCs and develop manufacturing process/procedures for new TCs including finalization of State of Art Machineries.
- Strengthen the capabilities of the TCs to provide technical advice to their key clients
- Support TCs to increase productivity and competitiveness of MSMEs through
 - Exposure to existing and expected future manufacturing technologies
 - Skilling and training of skill seekers in the nearby clusters
 - Offering advice/recommendations to MSMEs (clients) including those who directly or indirectly supply to large OEMs
- Increase awareness amongst stakeholders on Environmental, Health and Safety (EHS) requirements, including those related to reducing health/pollution risks, increasing resource efficiency (towards improving business efficacy) and adhering to applicable regulations/rules.

The assignment has following three main components:

1. Create market linkages and enhance economic development to improve cluster competitiveness
2. Technology development of the TCs

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3. Capacity building of the clusters and TCs

The duration of the assignment is for 3 years in which the Consultant shall serve the one existing TC and 1 new TC in each sector.

The phased approach and timescale is illustrated in Table 1.

Table 1: Sequence of activities in timescales

		Yr 1	Yr 2 (Part I)	Yr 2 (Part II)	Yr 3
Component I	1 Existing TC in each sector	Create market linkages and enhance economic development to improve cluster competitiveness			
	1 new TC in each sector		Create market linkages and enhance economic development to improve cluster competitiveness		
Component II	1 Existing TC in each sector	Technology development			
	1 new TC in each sector		Technology Development and drafting of machine specifications and assistance in procuring machines		
Component III	1 Existing TC in each sector			Capacity Building	

Component I: Create market linkages and enhance economic development to improve cluster competitiveness

The role of the Consultant for Technology Centres is to enhance economic development cooperation of key stakeholders to improve cluster competitiveness. One of the key focus areas for selected Consultant would be to strengthen the market linkages of the TCs with the MSME clusters they serve, trade and industry associations, applied research institutes, the academia, educational institutions, business development service providers, other government support institutions, regulatory authorities, workers and skill seekers.

The Consultant will be mandated to contribute to the above objectives by providing support to TCs specialized on specific industries/clusters. This will include:

- a. **Technology Centre (TCs) Advisory:**
 - i. Carry out need assessment of MSMEs in the clusters served by the TCs
 - ii. Develop a strategy based on identification of opportunities and needs of the industrial clusters it will support and assist the Technology Centres in implementation of the same.

- b. **Cluster Advisory:**
 - i. Assistance to industrial clusters supported by TCs in identification of common opportunities (new markets, technology upgrading, innovation) as well as addressing impediments (policy, infrastructure, access to finance, compliance to regulatory requirements etc.).

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- ii. Create awareness within MSME beneficiaries about the schemes of Ministry of MSME and other relevant Ministries/Departments for availing benefits to improve their competitiveness.
- c. **Development of linkages across the TCs' ecosystem:**
Assist Technology Centres (TCs) in developing partnerships with vocational training providers, linking with research institutes and leading manufacturers in order to help TCs serve the needs of the industrial clusters.

The Consultant will be required to provide cluster and market development thought leadership, innovative thinking and pragmatic implementation of work proposed, to meet or exceed the stated objectives. The task requires the Consultant to work closely with the MSME clusters to understand their requirements and get OEMs/ buyers involved in the program

I. Phase 1: Formalizing and strengthening the MSME cluster system

a. Activity 1: Gain stakeholder commitment

The Consultant would be required to mobilize cluster stakeholder participation and support. Gaining commitment would include soft interventions that involve creating of awareness among MSMEs and large units in the cluster regarding the benefits of engaging with the TCs and sharing the overall vision of the TCSP. Participation by and dialogue with MSME, industry associations, workers, academia and academic institutions (both public and private) would be a key requirement to develop a shared vision and to gain commitment towards cluster participation in this program.

Sub -Activities:

- a. Identify the key stakeholder organizations in the cluster and their leaders.
- b. Engage the leadership of key stakeholders to gain their commitment to the process.
- c. Promote cluster participation by matching vision of cluster to address needs.
- d. Gain commitment to participate in cluster activities.

As a result, key cluster stakeholders must support and actively participate in the new clustering initiative.

Deliverables:

1. **Workshop at TC:** The Consultant will hold a workshop at the respective Technology Centre to sensitize all the stakeholders about the project, need for collaboration between the stakeholders, need of Cluster services and the benefits for MSME units, and other stakeholders.
2. **Stakeholder Register:** The consultant must list all the stakeholders for the respective Technology Centre of each sector. This should include specific cluster related stakeholders including, but not limited to, academic institution, MSMEs, OEMs and applied research. Apart from stakeholder listing, this should also include stakeholder engagement calendar for a period of next 6 months and shall be updated periodically.

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b. Activity 2: Cluster diagnostic, Benchmarking and baseline data

The Consultant would be required to conduct a detailed diagnostic study for all the clusters served (existing and new) by the Technology Centre. The study should comprise the important general characteristics of the cluster such as its dispersion, size and the resulting density, the scale of operations among the constituent MSME units, the nature of the cluster, the markets it caters to, issues in implementing the EH&S measures and the various inputs that it requires. The final criteria would be mutually discussed with the client at the time of study. This diagnostic study would comprehensively assess the existing externalities, the market prospects over the medium and long terms as well as constraints with respect to access to technology, access to skills and access to business advisory services.

This study would also validate and capture the baseline data, as per the already defined indicators of TCSP, required to monitor the progress of the outcomes of the TCSP at a cluster level.

Deliverables:

1. **Diagnostic study of cluster:** Conduct a detailed diagnostic study to develop an in-depth understanding and assessment of cluster, available technology and skilled manpower, its market, its competition and the business environment and its associated needs. Prioritize pragmatic initiatives to enable more MSME to qualify as suppliers to OEMs, and to improve access to technology and skilled human resource.
2. **Report on all relevant Central and State government schemes:** Study all relevant Government schemes/programs (pertaining to central/state governments) to see how they can be leveraged for use by TCs/ MSME units and submit a report on the same to the O/o DC, MSME. All States where TCM operates (of any sector under this project) must be studied in detail.
3. **Baseline data for key results indicators** – The Consultant during the study must capture the baseline data for the key result indicators as set out the Result Framework Document for the program.
4. **Benchmarking requirements of the cluster** – The Consultant would be required to conduct a benchmarking study of established clusters (nationally and globally). The study should focus on key intervention adopted during all the stages of the cluster and the benefits accrued thereof. The study should also focus on the technology practices adopted, process improvement, skilling workforce, management practices and associated performances, including EH&S aspects, of a sample of MSME to raise their competency consciousness and to determine their priority learning needs.
5. **Workshop on Government Policies and Initiatives and benchmarking practices** – Introduce the cluster members with the existing Government schemes/programs and encourage them to also utilize relevant schemes/ programs. Introduce the benchmarking practices (leading management, technology practices, process improvement etc.) to more MSMEs in cluster to raise their consciousness and to determine their priority learning needs.

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6. **Marketing Plan of the Technology Centre-** Prepare a marketing plan for each TC to have a roadmap on current and potential services along with implementation plan. This marketing plan would include, but not limited to, TC mission, objectives, tactical programs, target market, marketing budget, performance analysis, product and price positioning and others. The plan would also need to identify opportunities to increase the value of TCs' business generated with support of TCM.

3. Activity 3: Define the cluster interaction mechanisms

The Consultant would be required to facilitate interaction between all concerned stakeholders (such as MSMEs, TCs, industrial partners, academia, and external advisors) and should position itself in order to facilitate operational function for the cluster. This requires explicitly defining the cooperation processes, knowledge management interaction and the cluster management role. In the cases wherein, cluster-specific governance mechanism is not present, the Consultant will facilitate in defining the governance model for the cluster and cooperation with other stakeholders.

Deliverables:

1. **Enhancing/creating a new governance structure(s) within the cluster.** Prepare report on Cluster governance structure (if applicable), interaction framework and cooperation mechanism within the cluster. – This report should focus on the following activities (but not limited to):
 - Recommend partnership models – purpose, performance, and functions and define the roles of stakeholders and interaction mechanism.
 - Define and facilitate Technology Centres/ MSMEs for operative interactions within the cluster such as process flow, responsibilities, information flows, knowledge management and further interaction platforms
2. **Workshop to facilitate implementation of interaction framework and partnership model** – This workshop would include members of the cluster, associated industry associations, representatives from Technology centre, O/o DC-MSME, PMU and other key stakeholders.

4. Activity 4: Develop an Action Plan for implementation

The Consultant would be required to develop the action plan of sequential activities and milestones. The action plan will therefore unpack the work required to realize the strategy and structure of the cluster defined in the previous activities. The action plan has to be endorsed by the associated Industry Associations

Deliverable(s)

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- 1. Detailed Action Plan for the cluster** – The Consultant would prepare a detailed action plan for the cluster defining all phases to enable the successful launch of the Cluster. The Consultant is supposed to perform the following activities (but not limited to) for the preparation of the action plan:
 - Engage targeted OEMs/buyers specifically to determine demand trends and requirements for doing business with MSMEs.
 - Identify opportunities and prioritize pragmatic initiatives to contribute to strengthening and growth of the OEMs, MSME supplier base and to improve the supply of skilled human resource.
 - Engage and leverage the insight and experience of stakeholders groups by means of participatory planning.
 - Engage and leverage the insight and experience of leading Vocational Training Institutes/ ITIs/ Polytechnics to shape recommendations and build shared ownership of outcomes.
 - Engage and leverage the insight and experience of the TC leadership, to design and develop solutions to offer MSMEs in a prioritized manner
 - Facilitate MSMEs/cluster members to avail the skill development and training services of TCs
 - Promote hiring of TC trainees within the cluster and other MSMEs.
 - Engage and leverage the insight and experience of relevant BDS and financial service providers, to understand the capabilities and solutions to be offered to MSMEs.
 - Develop a detailed implementation roadmap with a schedule of improvement programmes consisting of pragmatic initiatives. These programmes/initiatives should address specific needs/opportunities jointly identified and prioritized in conjunction with the industry associations.
 - i. Identify opportunities to increase the value of TCs' business generated with support of Cluster Managers.
 - ii. Include a MSME supplier development program to capacitate more MSME to qualify as suppliers to larger firms.
 - iii. Derive and identify the required strategic partners (including TC) for successful execution.
- 2. Marketing Plan for the cluster** – The Consultant would prepare the marketing plan for the cluster to have clear picture on current and potential services along with implementation roadmap. This marketing plan would include, but not limited to, cluster mission, objectives, tactical programs, target market, marketing budget, performance analysis, product and price positioning and others. The plan would identify unique product/solution offering w.r.t. cluster competency. The plan would also need to identify opportunities to increase the value of cluster business.
- 3. Workshop on the detailed action plan for the cluster** - This workshop would include members of the cluster, associated industry associations, representatives from Technology centre, O/o DC-MSME, PMU and other key stakeholders.

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5. Activity 5: Launch and Formalize the cluster(s)

The Consultant is required to launch and formalize the MSME cluster formally. This would be applicable where there is dis-organized cluster, no cluster or group of MSMEs having minimum collaboration amongst. This includes cluster creation/formalization and facilitation of cooperation. This would include the compilation of the legal documentation for the cluster and launching of the other necessary initiatives required to launch and formalize the cluster.

6. Activity 6: Facilitate implementation of cluster programmes/initiatives as detailed in the action plan

The Consultant would be required to implement all the recommendations as detailed out in the action plan submitted. The Consultant would be required to facilitate partnership formation and economic development cooperation according to plans in the action plan, to improve cluster performance in areas such as:

i. **Technology:**

- a. Production Process
- b. Product Development
- c. Testing & Calibration
- d. R&D

ii. **Skilled Workers:**

- a. Course / Curricula Development (includes alignment of educational institutes and academia to facilitate industry relevant skill development)
- b. Trainer's Training
- c. MSME Work Force Training
- d. Student's Training
- e. Student Placements

iii. **Business advisory:**

- a. Supplier development
- b. Information and referrals about trusted BDS and financial services

Cluster collaboration activities are not limited to improvement of the supply of and access to these services. Increasing demand for use of these services is key to ensuring the acceptability of approach.

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Deliverables and Activities:

1. **Detailed report on increased demand for TCs' services and increase number of MSME clusters established as suppliers to large OEMs/large buyers** – The Consultant would be responsible for increasing the market demand for the TCs services. Some of the activities under this would be as follows (but not limited to):
 - a. Develop new partnerships for mutual benefit around identified programmes / initiatives of the cluster
 - b. Partner with OEMs/Large Buyers, other vocational training providers, research institutes and prospective MSME suppliers to improve the supply and use of:
 - i. Technology
 - ii. Skilled workers and
 - iii. Business advisory services and supplier development services.
 - c. Partner with vocational training providers, research institutes, MSME cluster and leading manufacturers to improve:
 - i. Course / Curricula Development
 - ii. Trainer's TrainingProof of participation will be number of modified/new courses.
 - d. Partner with government institutions to improve the utilization of schemes/services/facilities offered by these institutes.
 - e. Partner with Other BDS & financial service providers to improve the supply and use of services necessary to improve the competitiveness of MSMEs.

7. **Activity 7: Manage the cluster**

The Consultant would be required to organize, operate and manage the MSME cluster system formally. This includes organization, and promotion, facilitation of cooperation, institutional administration and periodic engagement. Some of the key activities that will be part of this would be (but not limited to):

- Organize and manage the specified stakeholder collaboration, knowledge management and further interaction platforms.
- Cluster institutional administration to ensure legal compliance, financial accountability and clean governance.
- Promote greater cluster participation by increasing awareness, affinity and trust within the cluster and with strategic partners.
- Market and promote greater use of TC services by increasing awareness, affinity and trust in TCs.
- Provide constant feedback to TCs about improvement opportunities regarding their business models and organization.
- Promote and utilize IT systems (including the national portal) to keep cluster stakeholders informed and interested.
- Market the MSME National Portal within the cluster members
- Facilitate registration of cluster members on the national portal

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As a result, the cluster collaboration will commence and grow, according to defined areas of collaboration, utilizing the interaction mechanisms established.

Deliverables:

1. **Maintain Cluster administration records** - The Consultant has to maintain all the cluster administration records.
2. **Workshops within the cluster on different areas**
 - a. **Workshop 1** – Knowledge sharing of best practices between the cluster members
 - b. **Workshop 2** - Promote and utilize IT systems (including the national portal) to keep cluster stakeholders informed and interested

8. **Activity 8: Strengthen new partnerships through a competitive business environment**

The Consultant would be required to facilitate partnership formation and economic development cooperation required for cluster partners to holistically strengthen the MSME cluster competitive advantage. In addition it will be required to increase value addition by other (non TC) stakeholders to develop a more competitive business environment that makes it easier to succeed and grow. The Consultant would need to develop new partnerships for mutual benefit around identified programmes / initiatives. The Consultant should also initiate additional programmes / initiatives including, establishing MSME cluster access to a host of business development services to support the entrepreneurs. The Consultant needs to establish the revenue streams as detailed out earlier in the section. Some of the major activities which CM can focus on additionally under this can be:

- Discussions with OEMs to increase the scope of supplier development services expanded beyond skills, technology, R&D.
- Strengthen new partnerships with all the stakeholders to enable holistic strengthening of regional competitive advantage by systematically developing a more competitive business environment

Deliverables:

1. **Self-sustainable Business model and business plan for cluster related services provided by Technology Centres** - The Consultant would prepare self-sustainable business plan and model for cluster-related services provided by Technology Centres in the future. The business plan would include, apart from the implementation schedule and approximate time taken in each step, likely yearly revenue, working capital requirement other investment required etc.
2. **Workshop to demonstrate revenue streams** – The Consultant would be required to hold a workshop with the cluster stakeholder to demonstrate the revenue streams as per the business model in the initial stages under this category.

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Component II: Technology development of the TCs

The services of the Technology Centres include having insights to the potential impact of new and relevant technologies, trainings on use of technologies/equipment, providing access to latest equipment, developing and testing new products, patenting etc. The Consultant is required to enhance the capability and service offerings of TCs such that they transform to become models of manufacturing excellence for MSME. They need to become a trusted partner for MSME to learn how to attain manufacturing excellence and attain associated excellence in skills development.

The Consultant will provide the necessary facilitation support for each system (or sub system) of TCs under the following 4 tracks:

- *Track 1: Technology development* – Identification of existing and expected future manufacturing technologies for roll out at the TCs, development of a detailed strategy/roadmap and capacity building of TC employees and MSMEs so that they can take advantage of these cutting-edge/competitive technology inputs.
- *Track 2: Human skill development* –Develop a skilling roadmap for each TC to address the skill gap in the MSMEs and evaluate existing training programs and develop new training programs for roll out at the TCs
- *Track 3: Advisory to TCs on their technical set up* –Advise on the equipment and software required to upgrade existing TCs or establish new TCs. This would include providing procurement ready specifications and support in drafting the terms of reference for the selection of suitable vendors and monitoring their progress
- *Track 4: Businesses Advisory on technology matters* – Assisting TCs provide technical advice to their key clients (e.g., industrial clusters or leading manufacturing firms/OEMs with large networks of MSME suppliers or MSMEs).

2.1. Detailed Scope of Work

The scope of work and activities to be undertaken under each track has been elaborated below.

Track 1: Technology Development

Activity 1: Identification & Selection of existing and expected future technologies in each sector

The Consultant should have an in-depth understanding of the leading global technologies, manufacturing techniques, latest innovation such as design, technology or manufacturing processes in all selected sectors. The Technology Partner shall:

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- i. Identify state-of-art/ leading and tested global technologies, manufacturing techniques and innovations (in terms of process, technology and product) in developing/developed countries
- ii. Examine suitability, replicability, scalability, ease of adoption and implementation of the above, i.e. technologies, process, techniques etc. in the Indian Context for each sector. This would be based on engaging with local industry and MSME units in the country and associated clusters supported by TCs.
- iii. Assessment of Technology Centre and sector focused MSMEs vis-à-vis global MSME market.
- iv. From technology development perspective, assess the impact of these technologies, processes and techniques etc. in each sector
- v. Prepare framework for selection and shortlisting criteria for selection of technologies for TCs and MSMEs. In the selection framework, the Consultant should consider sustainable and resource efficient technologies (in terms of Energy consumption, carbon and water footprint etc.) in order to reduce its impact on the environment.
- vi. Develop and Compile White Paper along with recommendations on adoption of technologies in each sector.
- vii. Quality of the white paper should be ensured so that the same is released and published in journals, industry forums etc. annually by the Consultant on behalf of Technology Centre or O/o DC MSME. This white paper should form the basis on which industry consultation should be undertaken for Technology Roadmap in order to ensure that it is relevant to the industry.
- viii. White paper should include but not limited to the following:
 - a. Insight into relevant global industry and provide future direction to Technology Centres (TCs) and MSMEs in respective sectors.
 - b. From technology development perspective, provide insight and future direction to TCs in order to enable them to provide best-in-market service to MSMEs for increasing their competitiveness globally and for accelerated growth of MSMEs in each sector.
 - c. Provide an implementation roadmap and business case for any investment in for Technology Centres and MSME sector at large
 - d. Recommend a minimum 10 new and relevant technologies annually for both TCs and MSMEs with detailed cost/benefit analysis, ease of adoption and implementation roadmap, environment impact etc.

Deliverables:

1. *White paper to be compiled and published annually through Technology Centre (TCs) in respective sector.*

Activity 2: Development of a Detailed Technology Roadmap and Implementation Plan for TCs in each sector

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The Consultant shall prepare Technology Roadmap and Implementation Plan for existing Technology Centres (TCs) and new Technology Centres (TCs) (as and when planned) within the respective sector.

The Consultant in each sector shall:

- i. Assess existing Technology Centre (TCs) from a technology development perspective, in terms of current technologies with TCs, YoY revenue generation, operation scalability, productivity and impact on MSMEs.
- ii. Develop framework for selection of new and relevant technologies for the Technology Roadmap for each TC and provide recommendations in Technology Roadmap based on cost/benefit analysis, technology readiness and ease of implementation, impact of adoption by MSMEs, impact in terms of Environmental, Health and Safety (EHS) requirements etc.
- iii. Develop Technology Roadmap for Technology Centres (TCs) on an annual basis for existing, new and relevant technologies. The Technology Roadmap should include implementation plan with details on key initiatives, capacity building requirement and plan for TC, business plan for the implementation of new and relevant technologies along with timelines for roll-out etc.
- iv. The Consultant shall work in close collaboration with O/o DC-MSME, General Managers (GMs) of Technology Centres (TCs), Industry leaders, Academia/ Research Institutes and Industry Associations for preparation of Technology Roadmap and Implementation Plan for roll-out of the same.
- v. Technology Roadmap and Implementation Plan prepared for each TC should be endorsed by relevant Industry Associations/Industrial Chambers through Stakeholder Workshops, Sessions and/or Meetings conducted by the Consultant and facilitated by TCs.
- vi. The Consultant shall provide technical advice, assistance and handholding for implementation of technology roadmap and implementation plan, including rollout of the new and relevant technology.
- vii. Develop plan to increase awareness amongst stakeholders on Environmental, Health and Safety (EHS) requirements, including those related to reducing health/pollution risks, increasing resource efficiency (reducing resource consumption, like energy, oil, water etc.) and regulatory requirements.

Deliverables:

1. *Technology Roadmap and Implementation Plan for roll-out of new and relevant technologies duly endorsed by Industry Associations/Industrial Chambers and accepted by TC and O/o DC, MSME for each sector and the identified TC annually.*
2. *EHS Plan to increase awareness amongst stakeholders on Environmental, Health and Safety (EHS) requirements.*

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Activity 3: Facilitate exposure to global leading MSMEs

The Consultant shall facilitate the exposure of Indian MSMEs to world's leading MSMEs. All activities for engagement with Indian MSMEs will be facilitated by TCs.

- i. Prepare a Technology Adoption framework for benchmarking the current status of MSMEs in relevant sector (in terms of technology, quality, integration with national and global value chains etc.).
- ii. Provide recommendations for adoption of new and relevant technologies by MSMEs. Prepare an engagement plan for exposure of Indian MSMEs to leading global MSMEs.
- iii. The Consultant shall organize specialized technical workshop and focus group based workshops on leading practices, emerging market trends, issues and challenges in the current system to sensitize them on the changing trends in the sector.
- iv. Prepare a detailed Study Tour plan long with details on the technologies, practices, processes or innovation planned for observation during the study tour. Study Tour shall be undertaken in developed/developing countries with leading industries and R&D institutes for relevant TC officials and Indian MSMEs to help gain insights on the leading practices. Study Tour should be planned based on suitability, replicability and ease of adoption and relevance to Indian MSMEs. The Consultant shall organize and conduct a post-visit workshop. Expenses for TC officials including travel, lodging, and boarding will be borne by the client while expenses for MSMEs will be borne by the MSMEs themselves.
- v. Promotion of technical collaboration between MSMEs in India and MSMEs in the developed countries based on assessment of technical capabilities of the Indian MSMEs. The Consultant shall provide technical assistance for joint product development facilitated through concerned Technology Centre and also assist in promotion of joint product development ventures.

Deliverables:

1. *Benchmarking framework for technology adoption by MSME units in the each sector along with recommendations on technology development perspective.*
2. *Engagement plan for exposure of Indian MSMEs to leading global MSMEs*
3. *Organization of specialized technical workshop and focus group based workshops for Indian MSME leaders (on a bi-annual basis)*

Track 2: Human Skill Development

Activity 1: Strategy and roadmap to address skills gap

Based on assessment carried out by the Cluster team and input received from the Technology Centres, the Consultant shall undertake the following activities:

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- i. Develop strategy and roadmap for introduction of new/ augmented training programs to address the skill gaps identified by the Cluster team . The roadmap should also include business plan for training programs along with detailed implementation plan.
- ii. Assess and identify gaps with regards to equipment and software available at the TCs with respect to training program requirements. The Consultant shall provide technical advice and assistance for preparation Bill of Material (BoM) for hardware, equipment and software requirements for Technology Centre enhancement to address the skill gaps identified.

Deliverables:

1. *Strategy and roadmap for new/ augmented training programs (including implementation plan, business case etc.)*
2. *Preparation of BoM required implementation of existing and new training programs to address skill gap*

Activity 2: Enhancement of existing training programs and development of new training programs

Existing Technology Centers provide training programs which have already been developed by Technology Centers and are operated as modular training programs. The Consultant shall assess and evaluate existing training programs for augmentation and enhancement required to transform them in to world-class or international certificate level programs. Based on its assessment, the Consultant should also recommend and implement new training for existing TCs as identified in the skill development roadmap. This will entail the following sub-activities:

- a) Assessment and evaluation of the existing training modules offered by Technology Centres in relevant sector
- b) Recommendations for curricula enhancement of existing training programs including training course, syllabus, lesson plan, instructor manuals, student manuals, exercise manuals, questions banks, examination / validation/ certification systems etc.
- c) Recommendations for development of curriculum for new training programs including training course, syllabus, lesson plan, instructor manuals, student manuals, exercise manuals, questions banks, examination / validation/ certification systems etc.
- d) Detailed Implementation Plan and business case for enhancement of existing training programs and new training programs for technologies identified in technology Roadmap from a training perspective. Implementation plan should also contain rollout strategy and plan including scalability of training programs.
- e) Undertake evaluation and validation of the examination systems and provide recommendations so that the examination systems are at par with the best in the world.
- f) Based on the above, prepare a skill development roadmap (including the evaluation report and implementation plan)

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- g) Preparation of training program framework for existing and new training programs and training of trainers from TCs, Vocational Training Institutes/ ITIs/ Polytechnics etc.
- h) Preparation of training content and material for enhanced existing training programs and new training programs.
- i) Preparation of training content and material for Training of Trainers (TCs, Vocational Training Institutes/ ITIs/ Polytechnics).
- j) Providing static content for development of e-learning modules for existing as well as new training programs. The conversion of static content to e-learning content will be undertaken by the IT partner (i.e. Portal Development & ERP Implementatio-Provider).
- k) Organization of pilot training for enhanced existing training programs and new training programs.
- l) Refinement and modification of training program content based on the assessment of feedback received. Support TCs in engagement with institutions and statutory bodies (such as AICTE, Universities, state technical education boards etc.) for appropriate certification of the courses.
- m) Facilitate in development of Faculty Exchange Program including process document (governance structure, MoUs, agreements etc.) and identification of international universities and institutes for the program
- n) Assist the TCs in collaborating with international institutions to develop joint training programs
- o) Develop guidelines for the instructors and students to better understand and implement the EHS requirements
- p) Provide regular training for continuous capability enhancement
- q) Support TCs in developing the courses which can help MSMEs to be part of hi-quality global supply chain (international quality requirement)

Deliverables:

1. *Skill Development Roadmap along with Evaluation Report and Implementation Plan (along with recommendations for enhancement current training modules and new training modules for identified technologies with detailed roll-out plan and business case for each)*
Evaluation Report should also include assessment of examination system along with recommendations for transforming training programs equivalent to world-class programs
2. *Training curricula and training content/ material for existing training programs at TCs*
3. *Training curricula and training content/ material for new training programs*
4. *Organize pilot trainings for enhanced existing training programs and new training programs*
5. *Static Content for e-learning modules of existing and new training programs*

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6. *Training of Trainers plan and training content/ material*
7. *Process document and list of potential partners for Faculty Exchange Program*
8. *Module informing instructors and students of EHS guidelines and its implementation*

Track 3: Advisory on Technical up gradation of existing TC and set-up of new TCs

Activity 1: Gap analysis manufacturing process/procedures for existing TC and development of manufacturing process/procedures for new TCs

The Consultant shall undertake current state assessment of the manufacturing processes/procedures in existing TC to evaluate and provide recommendation to increase the efficiency of the TCs and ensure that there is optimal utilization of the existing/new technology. In addition they would be responsible for development of manufacturing processes/procedures for the new TCs. Following is a list of activities to be undertaken:

- a) As-is assessment of the manufacturing processes and techniques for all service offerings of the existing TC
- b) Undertake gap analysis for manufacturing process & techniques and EHS requirements with respect to leading practices and global industry standards
- c) Provide recommendations for improving manufacturing processes and techniques to help increase efficiency, productivity and quality of the existing TC's outputs keeping time and cost effectiveness in mind
- d) Analyze and provide recommendation on Standard Operating Procedures for existing TC.
- e) Develop manufacturing processes & techniques and Standard Operating procedures for new TCs
- f) Develop and implement standard processes to provide production and design support for MSME for existing and new TCs.
- g) Develop and implement standard processes to provide technical advisory on designing, prototyping, testing & calibration and applied research for existing and new TCs.
- h) Evaluate the requirement for relevant quality certifications for the TCs and assist the TCs in undertaking the relevant quality certifications
- i) For key EHS issues for the relevant sector, develop a plan for implementation of mitigation measures while adhering to the industry standard and the regulatory requirements
- j) The Consultant will also provide training and documentation for support on all new processes developed for existing and new TCs.

Deliverables:

1. *Assessment and Gap Analysis Report for existing TC*

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2. *Recommendation on manufacturing process and techniques for existing TC and development of manufacturing processes and techniques for new TCs along with training and documentation*
3. *Standard Operating Procedures for existing/new TCs along with training and documentation*
4. *Process for TCs to provide production and design support for MSME along with training and documentation*
5. *Process for TCs to provide technical advisory on designing, prototyping, testing & calibration and applied research along with training and documentation*

Activity 2: Selection of equipment, software & hardware provider for existing and new TCs

The Consultant will be responsible for developing list of machines and equipment (as part of the Bill of Material) and preparing vendor neutral specifications and support the selection of equipment, software & hardware providers for the modernization and up gradation of the existing and establishing new TCs as and when the procurement is undertaken by the O/o DC, MSME. This will include the following activities:

- a) Undertake as-is assessment of the technology infrastructure at the existing TC and perform a gap analysis based on the technology roadmap developed
- b) Prepare a list of new equipment and Bill of Material (BoM) for up-gradation of each existing TC and setup of new TCs based on the market requirement, technology roadmap developed for the TC and need identified by the Consultant in the Component I.
- c) Prepare cost estimates for proposed Bill of Material and validate the viability of the investment so that the investment proposed can be recovered in the next 3-5 years
- d) Provide inputs on the Technical infrastructure and Technical Investment Plan sections in the Detailed project Report of each TC
- e) Assess & advise existing TC regarding obsolescence of plant & equipment for condemnation.
- f) In conjunction with the IT partner, provide domain knowledge for setting up of ERPs and MIS for the technology centers
- g) Market research and analysis for preparing vendor neutral specifications.
- h) Define Terms of Reference for the vendor
- i) Define Minimum Technical Requirements and Service Level Agreement for vendors after undertaking a market analysis for establishing the criterion for selection
- j) Guidance on the design layout / Infrastructure requirement for the machinery and equipment for existing and new TCs:
 - Production Facility Dimensions including structural requirements
 - Training Room Dimensions
 - Classroom Dimensions
 - Tool Trying out facility

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- Utilities facility including the specification for tenders (HVAC, Gen Sets, Water, Compressed Air, Safety, Fire Fighting etc.)
 - Waste disposal process
 - Assembly layout
- k) Assist in addressing vendor queries and techno-commercial evaluation of proposals

Deliverables:

1. *Bill of material for existing TC and new TC along with cost estimates*
2. *Technical Infrastructure and Technical Investment Plan for Detailed Project Report of each TC*
3. *Technical Specification for the equipment, software and hardware requirement (including Minimum Technical Requirements and Service Level Agreement) for vendors*
4. *Design layout / Infrastructure requirement for the machinery and equipment for existing and new TC*
5. *Addressing vendor queries and technical & commercial evaluation of proposals*

Activity 3: Assistance and monitoring the installation, trial, quality testing & commissioning and approval of the new equipment and technology setup.

The Consultant shall be responsible to assist TC for the installation and commissioning of the new machines, equipment and technology setup at the TCs and implementation of new manufacturing processes along with the vendor wherever applicable. Therefore the Consultant will need to undertake the following activities:

- a) Facilitate and Monitor installation and commissioning of the new and relevant technology infrastructure
- b) Undertake trial and testing of the new hardware/software and equipment installed in the TC
- c) Provide approval for the commissioned hardware/software and equipment so that payments may be processed by the TC.
- d) Undertake capacity building for TC employees on procured equipment/software so ensure high utilization
- e) Assist TCs for implementation of recommended manufacturing processes and provide handholding during the initial roll-out.

Deliverables:

1. *Testing and Approval report for installation and commissioning of all new machinery/equipment and software*

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2. *Certification of bills for processing payment by TCs*
3. *Capacity Building of TC employees on procured equipment/software*

Activity 4: Assistance in Operations and Maintenance

The Consultant should provide assistance in the operations and maintenance of the TCs with reference to the new technology infrastructure installed

- a) Support senior management in TCs in manpower planning for the newly installed equipment and identification & cross-skilling of existing manpower to gain new expertise:
 - Design Expertise (Product / Process)
 - Manufacturing Process including Quality Assurance Expertise
 - Training Expertise (Practical & Theory)
 - Functional or Technical Expertise
- b) Development of training plan & recommendation on the curriculum and training to be imparted to workers and students on new technology
- c) Development of the Standard Operating Procedures and EHS guidelines for the production process.
- d) Establishment of the production cost estimates for appropriately pricing the services at the TCs
- e) Establishment of Maintenance Department (including maintenance schedules) in the context of the newly identified technology
- f) Assist TCs in the enforcement of AMC for newly installed equipment and introduction of TPM (Total Productive Maintenance) concept at the TC.

Deliverables:

1. *Manpower Plan for newly identified technologies and installed equipment planned/ installed.*
2. *Standard Operating Procedures for the production processes.*
3. *Production cost estimates*
4. *Maintenance schedule*

Track 4: Technical Advisory

Activity 1: Strengthen the capabilities of TCs to provide Technical Advisory Services to their clients

The Consultant shall assist the TCs to provide technical advice to their key clients (e.g. industrial clusters or leading manufacturing firms/OEMs with large networks of MSME suppliers) and also support in capacity building of TCs to provide such advisory on a long term basis. The key activities under this track will include:

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- a. Support market opportunities for TCs to provide a bouquet of technical advisory services (in products, process, layout and implementation) to MSMEs approaching TCs for technical assistance for
 - Product design
 - Manufacturing processes and techniques,
 - Selection of cost effective technology including life cycle costing
 - Quality assurance
 - Plant layout
 - EHS requirements and guidelines
 - Applied research and development
 - Setting up new enterprises from technology or global value chain perspective
 - Sources for specialized raw material for manufacturing assignments
 - Development of patents etc.
- b. Assist TCs in providing advice to MSMEs on cost effective technology including life cycle costing.
- c. Support TCs in providing consultancy to prospective entrepreneurs for setting up new enterprises

Deliverables:

1. *Technical advisory for MSMEs approaching TCs for assistance in each sector*
2. *Deployment of specialized skilled resources on short term basis with subject matter expertise*

Component III: Project Management and Exit Transition (Knowledge Transfer and Handholding, Capacity Building, Self-sustainable system)

a. Project Management

Activity: Monitor, evaluate and facilitate learning

The Consultant would be required to monitor and evaluate cluster performance including the performance indicators of the program. This information will serve to keep the TCSP informed about the health of the program and to enable cluster leaders to learn and adapt to improve performance.

While the role of the PMU would be to put in place a robust M&E framework which will include monitoring the results framework, the Consultant is also expected to assist this process by

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conducting annual market studies at each cluster to obtain qualitative feedback and endorsements on experiences by:

- MSMEs engaging with the TCs, including proposed areas of improvement.
- Trainees / skill seekers on the content, methodology and facilities for training.
- Potential employers on the quality of skilled / trained workers.
- Industry academia, industry associations on the role of TCs in improving the competitiveness of the MSMEs.
- All cluster partners including MSMEs on the experience of engaging with the Consultant and the benefits derived from cluster participation.

Prepare report based on Result Framework Document (RFD) deliverables (such as number of technology strategies developed and endorsed, number of leads supported by the Consultant to create incremental advisory service revenue for the TC, number of new skill development / training curriculum developed) etc.

The progress of the clusters and the Consultant will be monitored and appraised by the PMU and O/o DC, MSME on a regular basis and the success of the program can be established using a statistically proven methodology

Other Project management activities (not limited to)

- a. Develop the TC's business through the MSME cluster activities.
- b. Understanding the benchmarks of the OEMs/large firms and facilitating the MSME units /cluster members in qualifying those by improvement in their processes, technology practices, standards, quality systems and others.
- c. The Consultant would also be required to engage with industry associations to facilitate endorsing of developed technology strategies/roadmaps.
- d. The Consultant would also be required to seek information technology related support required by MSMEs and the same would have to be provided to the NPSP to ensure the functionality of the National Portal addresses the same.

Deliverables:

1. **Reporting Formats** – The Consultant would need to develop the reporting formats, for monthly and quarterly reports, for approval by PIU.
2. **Workshop on reporting requirements**- The Consultant would need to conduct a workshop to develop value addition in key result areas to keep stakeholders (including Cluster governance members, cluster stakeholders etc.) informed and for M&E prepare reports to PIU and cluster governance structure.
3. Monthly Report- input and activity reporting
4. Quarterly Report- input, activity and output reporting
5. Annual Report- input, activity, output, outcome and impact report
6. Cluster annual sustainability report for stakeholders
7. Monthly reporting against RFD deliverables.

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b. Exit Transition (Knowledge Transfer and Handholding, Capacity Building, Self-sustainable system)

Activity 1: Development of knowledge sharing framework and organization of workshops and training programs for knowledge sharing amongst TCs

The Consultant shall play the role of a knowledge partner for Technology Centres (TCs). The Consultant shall enable and facilitate knowledge sharing and collaboration within TCs for existing/new technologies, leading manufacturing practices and other activities related to technology adoption critical for all TCs along with the systems (and sub systems). For this the Consultant shall

- i. Conceptualize and develop Knowledge Sharing Framework for existing and new TCs.
- ii. Prepare calendar of events for Knowledge Sharing programs such as workshops/ seminars/ training programs on annual basis and upon approval of O/o DC, MSME, organize these events for complete period of engagement.
- iii. Collaborate with National Portal Service Provider (NPSP) and facilitate design and development of Knowledge Sharing Portal which is a sub-component of the Nation Portal for MSMEs

Deliverables:

1. *Knowledge Sharing Framework for existing and new TCs*
2. *Detailed Knowledge Sharing Plan and Event Calendar of events for knowledge sharing activities (on annual basis)*
3. *Organize knowledge sharing workshops/seminars/training programs*

Activity 2: Capacity building of TCs to ensure support to MSMEs

The Consultant shall be responsible for the training and capacity building of the TCs for the use of identified new technologies, equipment, manufacturing processes and techniques, identified improvements in Environment Health and Safety requirements etc. to enhance support provided by TCs to MSMEs. The Consultant shall:

- i. Undertake capacity building exercises for creating Subject Matter Experts in the TCs to ensure that greater number of leads may be supported by the TC. This will be achieved through development of Training content and structured delivery document for Employees of TCs and undertake training for TC employees
- ii. Develop skill mapping framework and undertake skill mapping exercise for employees of TCs.
- iii. Undertake detailed Training Need Assessment and Training/ Capacity gap assessment for TC employees and staff

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- iv. Based on the above, develop training content and structure delivery documents for employees of TCs.
- v. Prepare yearly calendar of workshops, training programs which should be approved by O/o DC, MSME, aimed at improving the capacity of the TCs.
- vi. Organize workshops/ training programs for the employees of the TCs as per approved calendar through a system of certified Training of the Trainers program. These programs will be organized at venues provided by the respective TCs.
- vii. Develop and implement processes at TCs to provide production and design support to MSMEs. The Consultant shall also provide training and documentation for support on new processes developed.
- viii. Develop and implement processes at TCs to provide technical advisory on designing, prototyping, testing & calibration and applied research. In addition the Consultant will also provide training and documentation for support on the new processes developed.
- ix. For key EHS issues, develop a plan for implementation of mitigation measures while adhering to the industry standard and the regulatory requirements

Deliverables:

1. *Training Need Assessment report (including training requirements, gap analysis, recommendations etc.)*
2. *Capacity Building Plan for the TCs (including capacity building framework, training schedule etc.) The plan should include training and capacity building calendar (along with details of training initiatives such as conceptualization, pre and post training assessment details, roles and responsibility for TCSP stakeholders)*
3. *Training content and structured delivery document for employees of TCs*
4. *Training of TC employees as per the agreed training calendar*
5. *Training modules for capacity building of MSMEs*

Activity 3: Capacity building of TCs for cluster management activities

The Consultant will undertake the following activities:

- Capacity Building of TC employees to help carry forward activities of Consultant post completion of the project through development of training material and delivery of a structured training program.
- Organization of knowledge transfer workshops on a monthly basis for Cluster Governance members and relevant TC employees

Deliverables:

1. **Handover and Capacity Building Plan** – The Consultant would develop a plan for handover of Cluster management activities to Cluster members and TCs.

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- 2. Workshops on Knowledge transfer** – The Consultant would conduct workshops within the cluster members for knowledge transfer.

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Key Personnel

The tentative list of key personnel required for the project are as provided below. The list is provided for the bidder to understand the kind of profiles required.

1. Team Leader
2. Cluster Managers
3. Cluster Development Expert
4. Contemporary Manufacturing Process Expert
5. Tool Design Expert*
6. Precision Manufacturing Expert
7. Embedded Systems Expert
8. Electronic Design Expert
9. Testing and Calibration Expert
10. Electronic Manufacturing Process Expert
11. Robotics and Automation Expert
12. Fragrant material and Herbal Extracts expert
13. Fragrance Development Expert
14. Fragrance Application Expert
15. Fashion forecasting & Trend Analysis Expert
16. Shoe Design Development
17. Shoe CAD/CAM Expert
18. Specialized Glass Manufacturing Expert
19. Glass Product Design & Decoration Expert
20. Training Expert
21. Support Consultants

*One expert each for specialization in tool design for “Plastic Moulds”, “Sheet Metal Dies” and “Die casting Dies”

The list is indicative and the number of experts and person-months required shall be provided at the RFP stage.