

Dear Sir,

Please find the minutes of the PRMC meeting on I4.0India@IISc CEFC and AM - CoE@IISc on 30th June, 2018.

PRMC Team Members: Mr Sanjay Chavre (DHI), Prof Bhujanga Rao (NIAS), Mr Prabhat Kiran (TKM), Prof B Gurumoorthy (IISc –on phone)

IISc Team present : I4.0India@IISc CEFC : Prof. Amaresh Chakrabarti, Prof Dibakar Sen, Prof Pradipta Biswas, Mr Venu Allam

AM-CoE @ IISc : Dr. Anurag Srivastava, Prof Dipankar Banerjee, Prof J E Diwakar, Prof G Mohan Rao, Dr Thulasi Raman

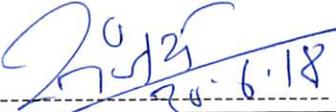
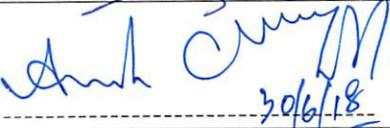
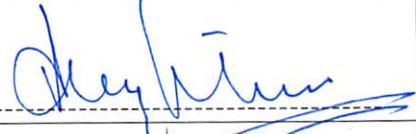
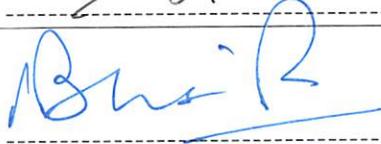
- **Facility Visit**
 - Sri. Sanjay Chavre visited the newly constructed facility for I4India@IISc CEFC and AM CoE@IISc, as part of PRMC review meeting
 - Demoes on the technical progress wrt low power E-Beam metal printing in AM-CoE and various smart manufacturing research projects were done.
- **PRMC Overall comments**
 - IISc team shared the objectives of the I4.0India@IISc CEFC and AM-CoE@IISc to the PRMC members and briefed about both the project details, given that this was the first meeting.
 - Sri. Sanjay Chavre briefed about the SAMARTH Udyog scheme and Capital good scheme giving importance of the two programs to the PRMC external expert members.
 - Prof Bhujang & Mr Prabhat appreciated the goals of DHI and the two programs
 - Prof Bhujang Rao mentioned that GANTT charts should be prepared for both the projects. It was shared that the Excel sheet based progress charts exist however, we will ensure that the Gantt charts are created with tool.
 - The external reviewers and Shri Sanjay Chavre mentioned that industry partner should be invited for PRMC meetings.
 - Key Comments from Mr Sanjay Chavre after both reviews:
 - Physical progress of both projects is good.
 - Technical progress of both the projects is good.
 - Expenses speed to procure needs to go up given the progress achieved on above two
- **Financial comments for both projects**
 - Important to align all expenses to the Grant in Aid category.
 - Interest earned needs to be returned
 - All project expenses must be passed through the EAT module of the PFMS.
 - It is important that both the projects increase the speed of procurement so that the Expenses gets aligned to the progress as per the project plan.
 - It was shared that as per the scheme the POs and payments must be processes in INR

- **CEFC Progress Review comments: Presenter - Prof. Amaresh Chakrabarti, Team – Prof Dibakar Sen, Prof Pradipta Biswas**
 - Number of projects being done & proposed by the industry partner was shared.
 - TCS, BOSCH, Ashok Leland, and Faurecia are the industrial partners and the financial commitments from the industrial partners were mentioned.
 - Shri. Sanjay Chavre highlighted that even MSMEs should also do projects on how to adopt the I4.0 concepts
 - It was mentioned that IISc is already working on PCB inspection tools and some other projects with few MSME's.
 - Shri. Sanjay Chavre emphasized to increase the number of awareness programs for MSME about the I4.0 activities
 - IISc was asked to speed up the financial progress in the CEFC program and complete procurements before July/August. The second installment would be released based on the first installment progress.
 - IISc team shared that various academic institutes will have their own procurement regulations as well and therefore it is requested that GoI should provide some flexibility in the PFMS based mandates wrt way the expenses needs to be passed wrt

- **AM-CoE : Presenter - Dr. Anurag Srivastava, Team : Prof Dipankar Banerjee, Prof J E Diwakar, Prof G Mohan Rao, Dr Thulasi Raman**
 - It was shared that based on the industrial inputs, IISc discussions, secondary research, analyzing various existing vendors, technology availability in the country and future differentiation, it has been concluded that AM-CoE will be building the Selective electron beam melting powder bed based additive manufacturing prototype machine. In the DPR various options were provided.
 - The submitted DPR was having different components and subsystem milestones given that the energy source technology was not frozen. The project plan needs to be revised based on the final SEBM technology chosen now. PRMC mentioned that IISc needs to re-submit the revised project plan with technical milestones by August 10th.
 - PRMC team was briefed about the electron gun procurement process, as that is the most critical component of the prototype being built. It was shared that out of the 5 global vendors who were involved, 3 did not provide formal response to the RFI in spite of discussions with team, citing various strategic reasons.
 - Given the strategic dependence on the chosen vendor, Shri. Sanjay Chavre mentioned that we need to ensure that the final PO should mandate that the vendor would in future is bound to supply four or five electron guns for further machine development at a mutually agreed price at that time.
 - Shri Sanjay Chavre also mentioned that given the challenges in procuring such electron gun technology, it is important that IISc find out a suitable industry partner and submit the new proposal for the electron gun development.
 - Other prototype AM machine specifications were also shared, given the electron gun chosen.
 - PRMC emphasized that industry partner must formally sign on the final specifications on the prototype AM machine development as a tri-party so that there are no disconnects in future, given the strategic nature of the project.

- Shri Sanjay Chavre mentioned that, based on current market scenario for Indian industry, 250X250X250 mm powder bed size would be enough and larger bed size could be built in next phases of the projects.
 - IISc cautioned the PRMC that inspite of IISc team putting most optimistic efforts for the revised project plan, given the criticalities in the AM-CoE-SEBM machine process/sub-systems development, 2 year completion of the project may be a challenge.
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- **Next PRMC meeting**
 - Shri Sanjay Chavre mentioned that the next PRMC meeting would be with some more officials from DHI and the projected dates would be in the month of October 2018.
 - During the October 2018 PRMC meeting, the new set-up for both the CEFC and AM-CoE centers will be formally inaugurated by DHI officials. Other necessary events/activities need to be planned accordingly.

ATTENDANCE SHEET FOR THE PRMC MEETING FOR CEFC - I4.0 INDIA @ IISc & AM-COE HELD ON JUNE 30, 2018.
VENUE: SOCIETY FOR INNOVATION AND DEVELOPMENT, INDIAN INSTITUTE OF SCIENCE, BANGALORE
DATE: 30TH JUNE 2018, 4.30 P.M. TO 6 P.M.

MEMBERS		MEMBERS	
<u>NAMES</u>	<u>SIGNATURE</u>	<u>NAMES</u>	<u>SIGNATURE</u>
MR. SANJAY CHAVRE, SDO, DHI, NEW DELHI	 ----- 30-6-18	PROF J. E. DIWAKAR IISC	 -----
PROF. AMARESH CHAKRABARTI IISC	 ----- 30/6/18	DR. PRADIPTA BISWAS IISC	 -----
MR. D. PRABHAT KIRAN TOYOTA KIRLOSKAR MOTORS	 ----- 30/6/18	DR. ANURAG SRIVASTAVA SID	 -----
PROF. BHUJANGA RAO NIAS	 -----	PROF. G. MOHAN RAO IISC	 -----
PROF DIPANKAR BANERJEE IISC	 -----	PROF. DIBAKAR SEN IISC	 -----