Minutes of the Meeting for Brainstorming Session on TechHUB at 3:30 PM on 30th December 2021 at CSIR-CSIO, Chandigarh

Participants:

- Prof. S Anantha Ramakrishna, Director CSIR-CSIO
- Prof. Baldev Setia, Director Punjab Engineering College;
- Mrs Hargunjit Kaur, Secretary Chandigarh Administration;
- Dr. H. K. Sardana, Ex-Chief Scientist, CSIR-CSIO
- Dr. Satish Kumar, Chief Scientist, CSIR-CSIO
- Sh. Dinesh Pankaj, Sr. Principal Scientist, CSIR-CSIO
- Dr. Harry Garg, Sr. Principal Scientist, CSIR-CSIO
- Dr. Sanjeev Soni, Sr. Principal Scientist, CSIR-CSIO
- Sh. Narinder Singh, Principal Scientist, CSIR-CSIO
- Dr. Manu Sharma, Professor Panjab University
- Dr. Amrinder Pal Singh, Professor Panjab University
- Dr. Y P Verma, Professor Panjab University
- Dr. Navin Aggarwal, Professor Panjab University
- Er. Ankush Gawri, Asst. Professor, Panjab University
- Dr. J D Sharma, Professor, Punjab Engineering College
- Dr. D R Prajapati, Professor, Punjab Engineering College
- Dr. S K Mangal, Professor, Punjab Engineering College
- Dr. N M Suri, Professor, Punjab Engineering College
- Dr. Puspendra Pal Singh, Associate Dean (R & D), IIT Ropar
- Dr. Hemraj, Sr. Principal Scientist, CSIR-IMTECH
- Dr. Anirban, Sr. Principal Scientist, CSIR-IMTECH
- Dr. Abhey Mishra, Principal Scientist, CSIR-IMTECH

Executive Summary

The Chandigarh Tri-city area has a great strength in terms of R&D Institutions, Academia, availability of good students and high quality scientists, an established CRIKC network, - all of which can play important role in formulation of Hub for Chandigarh. The availability of space is a deterrent for setting up and expansion of large-scale industry at Chandigarh. Hence the focus should be on deep technology Industry that don't have large space requirements and can employ the highly skilled and knowledgeable manpower in Chandigarh area. Such industry will be well placed to compete in the local as well as the global market, and the proposed center can trigger an explosive expansion of the local industry. Deep-Tech industry with high-end facilities and instruments should be created as presently most of the industries are involved in lower rank of and not at the higher end. Moreover, defence based industries are not many in this region. While IMTech Chandigarh has been catering to the needs of local pharma industries such as in Baddi, most of these Industries are mainly manufacturing in this region with the developmental efforts located elsewhere in the country. MSMEs typically do not have deep pockets, and hence cannot contribute much resources to TechHUB. Hence, the

focus should be to find small and medium scale companies that can quickly expand their activities and scope of business as partners to the TechHub.

It came out of the discussions that that the Center should enable an ecosystem to create and strongly support Industry for the development of sensors with a possible focus on chemical and optical sensors. Special purpose machines cater to a breadth of industries and the technology has not been developed till now presenting an opportunity, although this would require inter-disciplinary teams. These efforts can be strongly supported by the TechHub Center for development, testing, calibration and certification. It is also noticed that the ICAT, Manesar model for testing and certification. ICAT caters to testing and certification, but there was no institutional set-up for providing guidance in case of failure of a product. Thus, the proposed TechHub will have a more comprehensive action plan to hand-hold industry in their developmental efforts apart from the certifications. A significant market-research team can also be developed in the TechHub to enable market penetration by the industry.

The proposed Hub should target, first of all, basic quality improvement and secondly Add-ons in the identified area(s). The focus of the Hub should not be import substitution principally, in which case much of the work done will be obsolete. Rather the emphasis should be on development of export quality technologies. CSIR-CSIO can play significant role because of its initiatives and demonstrated capabilities in the recent past. PEC, IIT Ropar and Punjab University can play a significant role by channelling their academic strength and creativity of their students into the TechHub. All the participants agreed that the immediate efforts should be made to identify thrust areas with the involvement of the industry experts and realise the dream of TechHUB with a crisp plan. With the help of Mrs. Hargunjit Kaur, the interactions with industries in the region such as in Ambala, Mohali, Ludhiana, Mandi Gobindgarh, Baddi and others are to be initiated to know their requirements and for establishing an ecosystem for innovations. The vision for the need to actualise the market potential of the technologies and target the Rs 25000 crore market value realisation in the next 5 years. It was also agreed to have strict timelines for finalizing the vision and framework, otherwise the industries would lose interest. It was accepted that the proposal should be tentatively ready by the end of January 2022 and be submitted in February 2022.

Actionable points:

- Create teams for interaction with industries and identification of thrust areas.
- All the interactions with industries to be initiated at the earliest.
- Formation of core team for the proposal.
- Proposal should be ready by the end of January 2022.
- Proposal should be submitted in February 2022.

Details of the Discussions:

Prof. Anantha: Welcomed all the participants from different institute. He stated the purpose of Brainstorming Session to identify thrust areas and realise the dream of TechHUB

Prof. Setia: Thanks Director CSIO for conducting the first brainstorming session and elaborated on the support that PEC can provide for TechHUB. Also suggested on having high-end facilities and instruments (Deep-Tech industry) as most of the industries are involved in lower rank of manufacturing not higher end.

Mr. Manu Sharma: Discussed to consider the ICAT, Manesar model for testing and certification. Also model of PGIMER where PG students play a big role. Two sectors automotive and Automation. Also possibility of developing Special purpose machines shall be looked into.

Mrs. Kaur: Welcomed all the participants and appreciated the start of brainstorming Stressed the idea of developing a crisp plan for TechHUB.

Dr. Satish Kumar: gave a detailed presentation on the complete scheme on TechHUB creation, its different components and expectations. He explained in detail about various technical issues including some technical terms typically used. He has also mentioned that CSIR-CSIO can play significant role because of its initiatives and demonstrations.

Prof. Anantha: Stated the vision for the need to actualise the market potential of the technologies and target Rs 25000 crore realisation in the next 5 years. Identification of thrust areas with the involvement of the industry experts.

Dr. Sandeep Sawarkar: Suggested that India is lacking in core technology such as Gear box for Automobile, compressor for Air-conditioners and hence a lot of royalty based on Technology transfer agreements are paid to foreign countries. Hence, a holistic approach was required and also a revenue generation model should be proposed.

Prof. Anantha: Suggested to have industry meets, visits to the industries with the help from Mrs. Kaur

Mrs. Kaur: Stressed on two areas, first of all basic quality improvement and secondly Add-ons. Also raised the concern that for example there is no truly Indian car in market and a lot of ground has been lost already. Moreover, it was suggested that everything and anything was not possible as there are limitations such as land cost is very high in Chandigarh. Hence, it was important to zero-in on areas in discussion with industries.

Dr. Harry Garg: Suggested that bigger industries do not seek the facilities of ICAT rather they have their own R&D hence it was important to identify the kind of industries that will be involved may be MSMEs and start-ups can be involved. Moreover, Baddi area should be targeted as they are importing from China.

Dr. BD Sharma: Reasoned that most of the schemes fail as deliverables are not well defined. Hence deliverables should be clearly stated and dependent on requirements and not just our capabilities. The target industries should be selected based on the revenue and its impact on

the economy. Hence 3-4 industries should be identified from different domains. Also industries should be invited with long term perspective.

Dr. Naveen Aggarwal: Mooted the idea of working on standardisation of protocols, data utilised and not rely on 3rd parties

Prof. Anantha: Queried if there were no existing BIS standards for the same and stressed that even if standardisation was taken up it would not be enforceable by us.

Mrs. Kaur: Raised the concern that lack of expertise on documentation can be an issue for standardisation.

Prof. Setia: suggested that institutes like ICAT cater to testing but there was no institutional set-up for providing guidance after failure of tests.

Mrs. Kaur: Mooted the idea of taking advantage of the disruptions

Prof. Setia and Mrs. Kaur: Stressed that there are no R&D facilities which MSMEs can leverage upon

Prof. Anantha & Mrs. Kaur: Agreed that in case of bigger firms the processes are bureaucratic and innovation is slow

Prof. Anantha: Gave an insight that the MSMEs do not have deep pockets and hence cannot contribute much to TechHUB. Hence, small and medium scale companies need to be taken into account even though they are few in number

Prof. Setia: Stressed that the density and the kind of industry selection should be made judiciously

Prof. Anantha: Suggested that manufacturing industry should not be considered as they will require large spaces and there is a limitation on spaces in Chandigarh. Hence, deep tech can be looked into with limited space and it can trigger industry explosion.

Dr. Anirban: Acknowledged Tri-city strengths in terms of R&D, Academia, availability of good students and faculties, established CRIKC network. Hence, contribution will be more for long term disruptive technologies rather than short-term wherein import substitution happens. For example, 3D printing in Biomedical industry required multidisciplinary approach and was not short-term.

Prof. Anantha: Responded that IMTech was catering to the needs of local pharma industries such as in Baddi.

Dr. Anirban: Reasoned that most of the local industries were satellite of the main industries located in Gujarat and are least interested in R&D as well as act as quality control centres.

Prof. Anantha: Suggested that industries are there to make money and if we help them make profits then they are with the team

Mrs. Kaur: Agreed that industries adopt the technologies if it is financially beneficial

Dr. Anirban: Suggested that PhD students should work on industry problems and the industry involvement in the projects should be from the beginning as that leads to commitment.

Dr. Satish: Suggested that this ecosystem should support the development of sensors and set-up centres such as for Chemical sensing and Optical sensing, connected with testing facility. Moreover, defence technologies are not available in this region hence give them platform and do handholding.

Dr. Manu Sharma: Agreed that space is an issue and hence the focus should be on deep technologies that are well priced for local as well as global industries. Also ICAT support should be sought in getting the leads and sharing of requirements. Moreover, the proposals need to be brainstormed after assessing the needs and create the required infrastructure. As the MSMEs will only dig into the pockets if the proposals are compelling and the only missing component is money

Prof. Anantha: Queried that can help be provided with the special purpose machines as there can be lot of supply chain issues.

Mrs Kaur: Stressed on finding a niche area available only with TechHUB and not with any other institution in the region. Moreover, there is a locational disadvantage of not having big industries such as heavy industries in the region. Also gap analysis should be done well.

Dr. Sardana: Suggested that special purpose machines cater to a breadth of industries and the technology has not been developed till now, this would also require inter-disciplinary teams. Although testing and facilities centre such as based on ICAT model can be the fastest cash-cow.

Mrs. Kaur: raised the concern that ICAT was having only 15% share in its domain

Dr. Sardana: Suggested that it should not be looked upon as an industry but rather as industry facilitator

Mrs. Kaur: Agreed to arranging interactions with the industries located in the region or outside

Prof. Anantha: Suggested including industries in the region such as in Ambala, Mohali, Ludhiana, Baddi and others

Mrs. Kaur: Raised the concern that the TechHUB should not be mired in bureaucratic processes rather it should be able to establish its brand within 1-2 years.

Member from IIT Ropar: There is a need to target short-term goals, have the right connect with the industries, identification of the problem is a crucial process and dedicated meetings should be held for the identification of the gaps. Moreover, the solution need to be cost-effective and workable. It was important to have interfacing with the industries and work for technological growth of the R&D and academia. Moreover, supply chain is a big issue.

Dr. Sandeep Sawarkar: Suggested on focusing on the technological cycle, work on the latest technologies as there is lack of awareness and most of the work is done on obsolete technologies. There should be substitutional start-ups for imported technologies. Academia should act as Technology developer and seller. IOT, sensor, ML, Ai, data analytics and other such technologies should be worked upon as bigger industries have huge corpus and have own

R&D set-up for these technologies hence small-scale industries should be targeted and awareness among them should be created. Moreover, joint research programs for PhD students should be started as the skill based gap should also be dealt with.

Prof. Anantha: Suggested that import substation should not be the goal as in that case the work done will be obsolete. The focus should be to export the technologies. Moreover, the centre needs a marketing partner.

Dr. Harry Garg: Stressed on the need to have simple procedures at TechHUB so that time is not wasted in them. Moreover, the system can be sustained only with the support from the industry.

Dr. Manu Sharma: Suggested on having need assessment team that can do market research.

Dr. Satish Kumar: Suggested on having strict timelines for finalizing the vision and framework, otherwise the industries would lose interest.

Dr. Sardana: Suggested that since the financial year was ending hence this needs to be expedited

Prof. Anantha: Agreed that the meetings with the industry should be winded up within next 2 weeks and the proposal should be floated by the end of the January as well as submitted by the end of February 2022.

Mrs. Kaur: Suggested that TechHUB would be a special purpose vehicle.

Prof. Anantha: Raised the concern that if it is Government mode then chances are that it might get bureaucratic

Mrs. Kaur: Suggested on locating TechHUB in PEC and it being a section 8 company or a society

Prof. Setia: Agreed to offer the space

Mrs. Kaur: Suggested that the Thrust area needs to be developed for example packaging innovation. Moreover, teams need to be identified for interaction with industries from different sectors apart from the creation of core team.

Prof. Setia concluded that interactions with industries are to be initiated to know their requirements and for establishing an ecosystem for innovations. He mentioned that collective efforts are to be made for industrial growth in the region.

Meeting ended with Thanks