

Proposal for Design Innovation Centre

From the Director's Desk

I am glad to know about the initiatives taken by Ministry of Human Resource Development (MHRD) and the National Innovation Council (NIC) towards setting up 20 new Design Innovation Centre (DIC), one open design school (ODS) and one institution for facilitating training of trainers during the 12th plan. MHRD in consultation with NIC and Planning Commission has decided to start five DICs during the year 2012-13 with emphasis on 'Hub and spoke' model. I am further glad to know that the competent authority has approved IIT Bombay as one of the lead institutions, which will be called as the 'Hub' of the first five Design Innovation Centres. Through this letter I would like to draw the attention of MHRD and NIC towards the achievements of IIT Bombay in all pervading aspects of innovation and dissemination.

Relevance of IIT Bombay as a hub/nodal centre for innovation in Western Region

Established in 1958, IIT Bombay is one of the most sought after institutes of the IIT System. IIT Bombay has 14 departments, 10 multi-disciplinary centres, 3 schools of excellence and 3 inter-disciplinary groups, which together form the backbone for innovation. The Institute cherishes the hope that its graduates will be the leaders of tomorrow. Thus the education is patterned so that alongside the regular courses, students can devote 25% of their time to inter-disciplinary studies. Thus the emphasis on Humanities helps the students to interact more positively with the society in which they live, and Design education brings in a systematic way of creating innovative products for the benefit of the society.

The Institute contributes to the industrial development and economic growth of the country through R&D support to industries. With its 'Society for innovation and Entrepreneurship', the institute also provides an umbrella to foster entrepreneurship. New high-tech collaborative labs and facilities like Centre for Research in Nano Technology and Sciences, National Centre for Photovoltaic Research and Education, Shenoy Innovation Studio are being instituted to further the cause of creating innovation with a focus on humanizing technology. Thus IIT Bombay possesses a unique synergy, wherein technology, research, design, humanities and management work cohesively, to support innovation activities.

Role of IDC in harnessing the Unique Synergy of IIT Bombay

Industrial Design Centre (IDC) at IIT Bombay is among the premiere design institutes of the country imparting multidisciplinary programs in Industrial Design, Visual Communication, Interaction Design, Animation and Mobility & Vehicle Design. The education at IDC is a unique mix of pedagogic experimentation with pragmatic design approach and blends hardcore problem solving with design research. IDC has been focusing on core areas like agriculture,

medical sciences, rural upliftment, craft development, etc. The centre interacts with various departments of IIT Bombay, industries and institutions for promotion and awareness of design by organizing seminars, conducting short-term courses, workshops and undertaking collaborative research to convert various technological advances into usable products and services.

Efforts towards Dissemination of Innovation Methodology by IDC

Various efforts are being made by IDC to disseminate innovative thinking in the academia and industry. Shenoy Innovation Studio has been setup at IDC with support from two alumni to aid industries in innovating continuously by designing methodologies tailored to their specific conditions and needs. It creates a balance between design and management thinking. The design philosophy is based on, Flexible Collaborative Design Model that seeks a synergetic consideration of the three cores: user insight, new technology and creative ideation. The methodology model has been empirically tested in more than 200 companies. A minor course in design innovation for B. Tech. students of IIT Bombay has been created at IDC to augment the academic process for the dissemination of 'culture of innovation' in budding engineers of the country. The basis for teaching innovation methodology is three folds: a case study method, hands on small assignments and live projects. A curriculum for disseminating know-how of managing innovation in a multi-disciplinary team in the industry has also been developed at IDC. A number of successful industry programmes have been conducted. A collaborative effort between IDC, DOD (IIT Guwahati) and NID has led to a new web based tool, D'source, to disseminate design thinking to all.

Proposal for Design Innovation Centre

In light of the unique synergy, experience and achievements of IDC and IIT Bombay, an approach has been conceived for developing creative thinkers in the area of design innovation. It is being proposed that the newly formed DIC will be a part of activity of IIT Bombay under the umbrella of Industrial Design Centre (IDC). The existing Shenoy Innovation Studio will now take up the 'Design Innovation Programme' through academics, research and workshops as per the need of the country. Under this model the Shenoy Innovation Studio (SIS) remains the subset of IDC as is, and the Design Innovation Centre program will be executed under SIS. IIT Bombay has all the components needed for design innovation and this attempt can be treated as a pilot attempt towards finalizing the approach.

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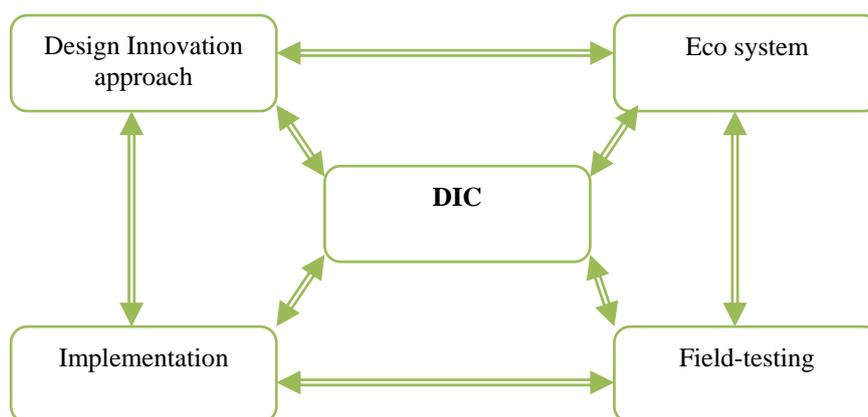
Objective

The primary objective of the program will be to **create design innovators** for India who can achieve a combination of creative and decision making abilities resulting in developing innovative products, processes and services.

Approach

IDC proposes a collaborative approach even for setting up five DICs all over India. To succeed, it is important that each DIC collaborates and complements other DICs. We propose that every DIC has a specific thrust area/s so that the overlap is less and simultaneous development in all the various sectors can take place speedily. As an example, if every DIC takes 2 thrust areas, there will be 10 thrust areas in near future and 40 thrust areas in the long run, which will address the relevant issues at the national level. It is important that all the Centres communicate, collaborate and learn from each other. An annual seminar/workshop, built within the academic programme and hosted in turn by all DICs, can be one such activity and a common platform for collaboration.

Each DIC is unique in terms of its geographical location and facilities around. Accordingly, if a Centre addresses the issues as per the people and surrounding ecosystem, the chances of success of design innovation will be very high. The underlined concept is to study the ecosystem, develop the design approach, and then arrive at a tool / product to combat the situation. It will be further field-tested and modified based on feedback and implemented through various channels. Without a specific thrust area, it will be very difficult to create an ecosystem and implement an effective hub-spoke model.



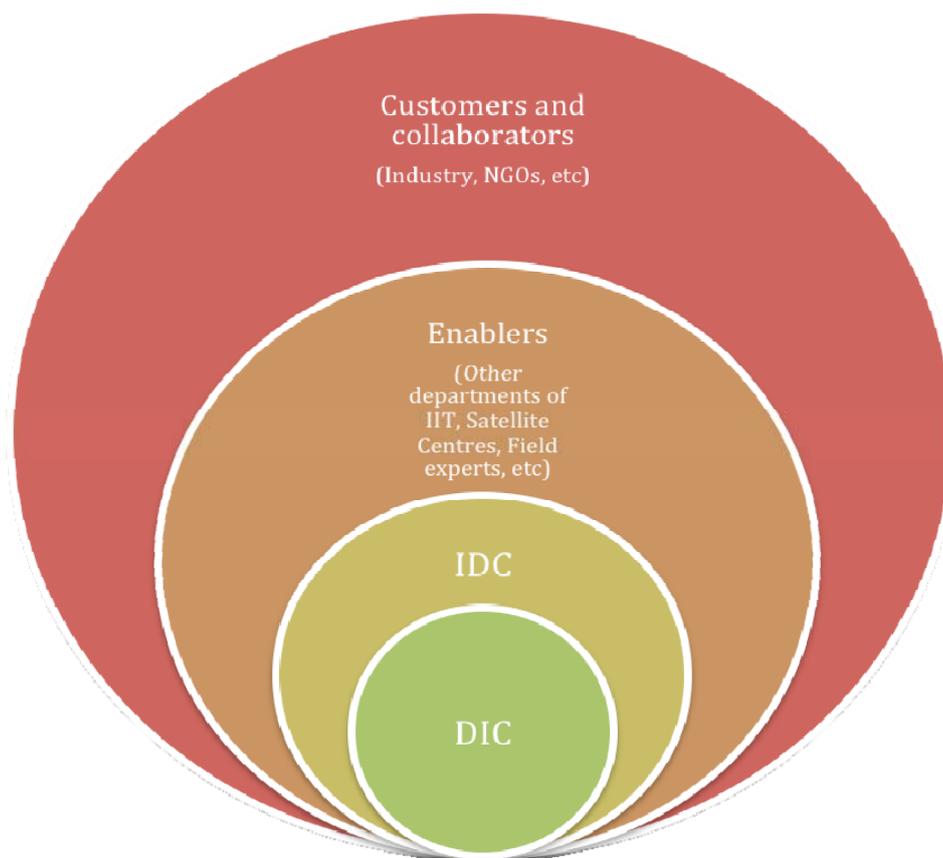
Schematic on basic DIC approach

To begin with, a meeting among the heads from the first five DICs can take place to discuss on Centre specific thrust areas and establish a model of working within a given timeframe. These thrust areas will be the sustainable long term thrust areas for each Centre. This does not

necessarily mean that a Centre that has not specified a thrust area cannot work in that area. This is also important from the viewpoint of creating a body of knowledge.

For example, DIC-IITB proposes to take agriculture as a long term thrust area because of its close association with the Indian Council of Agricultural Research. In principle, therefore, DIC-IITB will be primarily focused towards developing all the facets related to agricultural activities. To fulfill this objective DIC-IITB will collaborate with other laboratories, institutions, industry and satellite Centres that are working in all the relevant areas like seed technology, soil technology, agronomy, irrigation, implement, storage, supply chain management, etc. The Centre's focus will be towards product development in the domain of 'farm-tech prosperity' and collaboration with all players in the relevant fields. This will bring in a holistic approach resulting in higher success rate. Such collaborative approaches will create complete ecosystems for development, validation and implementation of innovative products in specific thrust areas.

It is understood that developing an ecosystem will require time and efforts and hence it will be preferred to identify one thrust area for each DIC at the beginning. This will further help in defining the spokes in the hub and spoke model.



Ecosystem structure for DIC

Apart from the long-term thrust area, Centres will be free to take short-term thrust areas. Short-term thrust areas will have outside to inside approach. Any industry or laboratory or any other body may approach DIC with certain requirements. Centre will work in collaboration with outside agencies towards developing the ecosystem based on short-term

requirements. Experience from this will result in developing appropriate recourses in industries, NGOs, institutions and extension centres towards innovation. This may/ may not overlap with the thrust areas of other DICs, but will help address specific industry requirements/ needs. For example, certain industry may send their sponsored candidate/s with a specific problem statement / area of work and during their academic tenure candidate/s will work specifically in the specified area, with support from industry and DIC. Under such a model the industry will need to express their interest well in advance so that the supporting ecosystem in the respective field can be developed for further collaboration.

To fulfill our objective the approach from DIC-IITB will be divided primarily in two major phases:

Phase-1 – Conducting minor programme in design for undergraduate students across disciplines in IIT and organizing short-term workshops and national conferences on methodology for innovation.

- 1) Currently, 104 students are registered for ID 401 course which focuses on problem solving and coming up with innovative solutions in the field.
- 2) In the past, a national conference Abhikalpana 2012 was conducted, and eminent designers and practitioners were invited to present and deliberate on ‘how innovation education can be achieved.’

Phase-2 – Starting a special five semester (two and half years) M.Des programme on design innovation wherein multiple disciplines of design converge to develop products, services and systems which can be field tested. The students will necessarily work in groups so that synergy can be developed within given project schedule to complete the projects. There will be collaboration with industries, NGOs and institutes of repute to make the programme very effective as the mandate is to solve field problems.

Budget (Project Duration: 3 Years)

S No	Budget Head	Budget in Lakhs of Rs	Comments
1	Innovation Programmes, Student Fellowships and Internships	80	Developing an innovation academic programme, Expenses towards student internships, fellowships to students who stay for additional semester or year after graduation to take innovation to people and postdoctoral fellowship.
2	Fablab Equipment for the Innovation Studio	100	Equipment for prototyping and product realization, user interaction equipment, audio-visual equipment for labs and for recording and analysing user trial data, Computer hardware, software & accessories, acquiring products for product repository;
3	Concept Development, Mock-up models and Prototyping Expenses.	150	Expenses towards consumables for building prototypes, test rigs, mechanical and electronic prototyping charges, acquiring design gadgets, materials, electronic components and chemicals; sensors & transducers. Use of manufacturing services not available with the institute
4	Staff salary and honorarium for visiting faculty	110	Honorarium for visiting/guest faculty, design consultants, consultants fee for domain experts. (Faculty and associated faculty salaries are not included in this)
5	Tooling cost for user trials	70	Preparing of tools for pilot production for testing the innovative product in the field.
6	Travel & Field Trial related expenses	50	Travel for interaction with partnering institutions, travel to national events/seminars/workshops/conferences, travel for market surveys, user trials.
7	Workshops, Training & Outreach	60	Joint workshops with partnering institutions, Focus area workshops, Innovation promotion events, student/faculty participation in national events pertaining to design and innovation including registration fee; Manpower training charges, etc.
8	Creation of innovation Nodes at partner institutes under hub & spoke model	380	Creation of Innovation Nodes at different user locations (4 locations).
Total Budget		1000	(Rupees Ten Crores Only)