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GTU Sectoral Innovation Council in Automobile Engineering (SIC-AE)

24th December 2011

Introduction: Industrial Shodh Yatras by young and disruptive minds have created a new dynamics of innovation in the GTU system. This was evident during a meeting of faculty members of Automobile Engineering on 24th December 2011 at GTU seminar room. While more than 500 auto component manufactures and Auto majors like General Motors, Asia Motor Works, Ceat and Tata Motors' Nano have invested nearly Rs 10,000 cores in Gujarat, the ecosystem has not tapped the innovations being developed by students, researchers, small garage workers till now. The state is expecting some Rs 16,000 crores investment in auto and ancillary domain by 2017. Only 500,000 IT Engineers at NASSCOM with average age of 28 year, contribute 10 % India's export. Can we develop a frugal ecosystem of innovation management by involving people within auto industries, students and faculty members in Engineering Colleges and polytechnics and the mechanics in garages. World leaders and believers in open innovation pedagogy like P& G expect that 50 % of the driver innovations are going to come from the contributors outside their organizations. The academia and road side garages posses a great latent capacity to foster such need based innovation models.

During the summer of 2011, under the project called GTU Innovation Council, thousands of students of automobile engineering walked through MNCs, Auto Garages, workshops, assembling stations, MSME units in auto and associated sectors to identify a real life industry based problem (called an IDP), so that the problem could be solved as a part of the Final Year project work. It has been 1st time in the world where university awarded academic credit to the students for scouting, benchmarking and identifying a problem for their final year project. This was the 1st such empathetic modeling of Auto industrial issues in large scale involving young graduate and Diploma students. It was seen that the MSMEs and Diploma students were working with unison in 100s during this summer for defining the challenges and now the MSMEs and others drop in frequently to class rooms to nurture the students' work based on the defined issues. For the 1st time, 100 plus students produced report based on behavioral analysis of floor workers in auto industries. It has been observed that many times the lead auto manufactures even cannot sense the futuristic needs of users and move forward to foster such innovations because they fail to analyze the triggering points of innovations at the bottom level. While most of the MSMEs in auto sectors were banking upon semiskilled labors and ITI trained personnel, infusion of a huge no of skilled students and faculties to industry floors was welcomed by MSMEs and auto majors of the state. The President of Naroda Industry Association, Shri Shailesh Patwari, Ex-President of Vatva Industry association, Mr. Archish Shah, President of Rajkot Eng association, Shree Bhavesh Patel and dozens of MSME persons contributed to link the GTU students with industries. Most of SMEs have shown full faith

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in the delivery capacity of the young students and faculties based on their work submission during the last 6 months.

Meeting for developing the Roadmap



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The Report: The road map for developing the Sectoral Innovation Council in automobile Engineering was chaired by Honorable VC, GTU on 24th December 2011. Some of the academicians, who participated in the meeting are as follows:

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Dr Akshai Aggarwal, Honorable VC, GTU shared his idea and action points for Sectoral Innovation Councils. . He said that at every College and Polytechnic, in February 2012, at a Seminar, the final year students should present their projects to all pre-final year students. He said that industry mentors should be invited to such a Seminar. Similarly in March 2012, he asked SIC-AE to organize a Seminar at Ahmedabad, where the 17 Master's students in AE make a presentation to the Final Year and Pre-Final Year students about their projects. This will create more vibrancy and linkages amongst minds at different places. He also wanted that during January – April 2012, a regular series of weekly lectures by mentors from the industry be organized at every Department of Automobile Engineering. He emphasized on collaborative and networked research effort by institutions connected with GTU.

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This was followed by a presentation on this model by Mr. Hiranmay Mahanta.

Prof M.R. Patel, Principal, VGEC and Co-Chair Naroda Innovation Sankul stressed on utilization of resources both in HR and other capacities in the associated branches of automobile engineering.

The 1st event of automobile sectoral innovation council will be held on 22nd January 2012 at AMA, Ahmedabad. This event will consist of students of auto in final and pre-final years and their guides both from industry and academia. HR experts from various auto industries will also address that meeting about the prospectus of placements. Prof A.D.Patel and Prof Sudheer Gupte shared their action agenda and strategies which can certainly add to the strength of the automobile innovation ecosystem.



Prof A.D.Patel, Prof. V.K.Manglik and other professors shared that by pooling mentors from industries and by linking public systems more dynamic stages can be created which will motivate students. The best innovations will be showcased in centralised exhibitions and presentations which will be visited and judged by national and industry policymakers across the nation.

This SIC will focus the innovations in automobile sectors involving both industries and academia in product, process and policies. Various teams were created to take care of various activities under SIC-AE. For benchmarking of technologies Prof Manglik, Prof R.K. Parmar, Prof D.B. Kharadi and Prof Sanjay

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Patel will lead the efforts for SIC-AE. A dedicated team of professors including Professor Sudhir K Gupte, Shyam Varghese will coordinate the industry-academia linking activities at university level under this SIC.

The following points were debated and suggestions were taken as the basic protocol:

1. Focusing Innovation in particular Sector or sub sectors at GTU Innovation Council and creating that sector specific mindset.
2. Exploring lateral innovation linkages in interdisciplinary areas keeping corresponding sector as a key role player
3. Mapping the verticals of probable innovations in a particular sector by need based evolution process.
4. Monitoring every single project thoroughly with monthly real time progress benchmarking and feed based improvement process in product and process innovations.
5. Identifying innovations/innovators and agents who facilitate in doing so within this sector both in academia and MSMEs in particular or in all the Sankuls and meaningfully engage them.
6. Disseminating such success stories within and outside this sector periodically to drive competitive insertions.
7. Linking seminars-workshops-lectures-debates from both MSMEs and Professors of this particular sector as per system (2 hours per class per week based on taken IDPs/UDPs).
8. Locating sustainable drivers to sustain each single attempt to develop innovation mind and mindset by pooling sustainable motivations within and outside the university and Sankul ecosystem.
9. Fostering policy innovations in respective departments in colleges of particular sector by students, faculties and administration. Empowering Innovation clubs to accelerate each single effort at grass root level involving each single student of the sector across the Sankul.
10. Developing pathways to break policy bottle necks and sustainably change the curriculum to give additional space in each attempt at each class room at every hour of attempt so

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that the random innovation ecosystem may convert into a strategic ecosystem for innovations having planned ways to appreciate failures and promote glorious even partly successful attempts.

11. Converting each individual (student, faculty, industry mentor, policy driver and others) of this sector to a capable institution of change by self. Specific approach is to be developed to sustain this process by polling sentiments, cooperation, hopes and possible resources within and outside the Sankul ecosystem.
12. Segmenting the MSMEs in each Sankul under this sector or associated sectors and maintaining vibrant linkages involving the grass root minds at every class room level - the young students and faculties. Involving them as external evaluate /benchmarking standard at every stage of project to strengthen the user centric innovation model.
13. Developing empathetic ways of IDP/UDP mapping and solving not only targeted innovations which can be visualized in this sector in coming days but also to sense future technology trend by analyzing the empathetic observations in each single industrial Shodh yatra.
14. Creating enough scope in the minds and mindset to grow discrete individual innovations and team lead innovations. Modularising the national/ social socio-technical missions and looking to possible fabric segment in which this SIC can play a critical role. Creating mindset of virtual lateral knowledge linkages among departments in different Colleges in different Sankuls linked to similar issues from different GIDCs to cherish the perfect vision of transforming national laboratories to nation as a laboratory inclusively.
15. Targeting to link all MSMEs to colleges related to this sector in 3-5 phases in 24 months. A detailed road map is to be designed in cooperation with each Sankul/ GIDC.
16. Developing research based future policy guidelines from learning of all the above and sharing it amongst all stake holders involving each single student of the branch or

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associated branch. These policies will directly orient the academic curricula and other requisites at management level.

17. To produce a periodic mouthpiece in e-format and share the happening-genesis of new stuffs and learning from success and failures with all stake holders to make awareness. Sharing developments at national and other policy stages and orient national agenda based on inference of own learning system.
18. A specific agenda including HR is to be designed with an objective of research to revenue by taking IPR seriously. The SIC has to explore learning and applying ecosystems for technology transfer/ virtual incubation of ideas, hopes/products or end solutions. Innovation Council has to incorporate sector specific strategies for both IPR and prototype incubation/validation and that may vary from context to context.
19. Protecting, displaying and disseminating each innovation as and when possible with frugal and ethical IPR policies taken care by Innovation Council and coordinated by SIC. To network other such existing or proposed ecosystem in and outside GTU Innovation Council ecosystem to harness optimum efficiency.
20. Interlinking and banking upon each single tech/innovation event during whole year to foster dynamic stages of innovation management where the young receptive minds may foster particular sector innovations in frugal ways. (like robotics in IIT-B tech fest) (we can streamline our fests and events) . Streamlining all efforts from bottom to top and the reverse by segmenting role with respect to each College, Sankul, Department and UDISHA Innovation Club.

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Participants from various automobile engineering departments participated and a committee was formed keeping target of various activities under sectoral innovation council in automobile engineering.

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Mr. Hiranmay Mahanta, MD Techpedia presented the activities at innovation sankuls and strategies which have been decided to be implemented under each SIC in contextual sectors. The following points were widely discussed a strategy is being developed for implementation of the policies for

1. Thoroughly designed Industrial Shodh Yatra
2. Technology Benchmarking in automobile sector
3. IPR and allied domain
4. Technology transfer and licensing
5. Knowledge management in automobile sector involving all type of stakeholders and keeping students as top priority.
6. Lateral knowledge linkage- interdisciplinary and inter departmental innovation networks
7. Crowd sourcing of auto innovations and formal value additions in existing semi furnished ideas and innovations.
8. Dynamic innovation development /events/conferences to enlighten the young minds to provide them a stage and drivers to carter their needs.

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9. Empathetic innovation model with inverted algorithm for scouting-value addition-benchmarking of each single IDP in every automobile department.
10. NMN- Mentoring Network (pooling mentors from CSIR labs, industries and creating virtual mentoring platforms to carter the need of remote colleges)
11. Social Media as next generation too of Innovation (national laboratory to nation as laboratory) . Via open source methods more and more interdepartmental-inter year linkages to be developed and every single good innovations must be projected properly so that industries/users can take benefit of that.

