

Maker Faire - Promoting Regional Innovation & Entrepreneurial Ecosystem by Empowering Students



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Abstract: To encourage entrepreneurship, schools and colleges are promoting activities and curricular innovations. Make 'n' Market is one such effort to engage and transform the mindset of the student community. It differs from other entrepreneurship events in its nature as it is not a competition or a workshop or a camp. It is not an idea or business plan generator. It is a celebration of peoples' entrepreneurial skills requiring participants to conceive and market products thereby promoting making and marketing skills to bridge the gap between engineering and business disciplines. The paper describes the event, provides details of its implementation, documents the profile of participants and showcases the learning outcomes. The event has a transformative effect on the regional entrepreneurial eco-system in the long run.

I. INTRODUCTION

Entrepreneurship is emerging as a major thrust area across the globe (Carvalho et al., 2010). Many countries and movements across the world are encouraging local talent to address local needs and then grow globally (Isenberg, 2010). One such initiative from the Government of India is Make in India which was launched in 2014. The goal of Make in India is "to transform India into a global design and manufacturing hub," thereby creating new job opportunities and impacting the standard of economic and social living in the local community. Different states, districts, and institutions adopted the slogan. For instance, the state of Odisha launched the initiative "Make in Odisha." S R Engineering College (SREC) adopted "Make in SREC" to promote a culture of entrepreneurship at the institution and the region. One of the mission statements of SREC is "foster innovation and cultivate the spirit of entrepreneurship among students," and the tagline for the institution is "Innovation, Creativity and Entrepreneurship."

To foster entrepreneurship, most institutions adopted several curricular and co-curricular innovations (Liu et al., 2009). The curriculum has been redesigned to include

entrepreneurial and design thinking from the first semester. Nest for Entrepreneurship in Science & Technology (NEST) was created to foster an entrepreneurial ecosystem within the campus. While traditional entrepreneurship education was aimed at developing entrepreneurial skills and competencies, there has been a shift in its focus to encourage action-oriented initiatives (Rasmussen & Sørheim, 2006). The experiential education is prevalent and is becoming embedded in both courses and co-curricular activities (Kuratko, 2005). The focus of Science & Technology aligns closely with the academic programs and courses offered by the college by providing action-oriented programs where students learn by doing. NEST hosts an array of co-curricular activities such as weekly innovation challenge, e-club (entrepreneurship club), tinker camp, and ideation camp. Most of these programs are targeted to engage the students and faculty of SREC in translating the ideas and concepts learned in the curriculum into marketable products. It also provides incubation support. In 2017, NEST launched *Make 'n' Market* to promote entrepreneurship in the region and offer opportunities to ideate and realize in Make in SREC. This event provides a platform for the participants to exercise their creative mind and highlight their innovations. The premise of *Make 'n' Market* is "Don't wait for an opportunity. Create your own." It provides equal opportunity for everyone to leverage a small seed fund provided by SREC to commercialize their idea.

II. CONCEPT OF MAKE 'N' MARKET

In the Indian student community, one may struggle to answer the questions – "When was the last time, I built something?" "When was the last time, I fixed something?" "When was the last time, I earned some money?" and "when was the last time, I sold something?" The answers to these questions are often "Never" or "I don't remember." We at NEST believe making and marketing are two fundamental skills that can transform any society by creating plentiful products and many entrepreneurs.

The insights to understand the answer regarding making lie in the social, cultural and technical context. Due to inexpensive labor, building or repairing products or house is outsourced. With the increasing technological sophistication of products, fixing requires special skills (which may be available in DIY webpages) and replacement parts (which are not readily available). As a result, customers are forced to and got used to seeking technicians to fix even simple things. Further, culturally in Indian society, if one is making or fixing something, s/he is looked down as poor.

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As a result, most Indian students are neophytes in making while maker movement is crucial for imbibing the innovative capabilities (Hatch, 2014).

Indian society placed significant value in the medical and engineering professions. We see this emphasis by looking at the large share of public and private institutions focused on these professions, the demand to get into these professions, and high tuition fees. Culturally, marketing and sales professions are considered inferior. Thus, the Indian youth have little understanding of value for marketing. Further, they lack a good feel for money. While in the US, young children learn the value of money from selling lemonade, cookies and pizza for Girl Scouts and Boy Scouts, and working to earn money. Parents tell their children “Don’t worry about money, focus on studies.” As a result, Indian students don’t have the same value for money as they seldom work to earn money before graduation or manage money. As money is the lifeline of any business, understanding the value of money and managing it is critical for crafting a successful value proposition.

The outlook of India is changing. The new generation of students are showing more interest in maker movement and pursuing professions that they are passionate. According to Nation Knowledge Commission (2009), “India has been an entrepreneurial society. We had the entrepreneurial skill but suppressed it for a too long a time, and now it is thriving.” There are significant barriers to entrepreneurship culture (Rehman & Elahi, 2012).

Our goal is to accelerate this trend, demonstrate the pride and purpose in entrepreneurship by introducing youth to the two fundamental skills of making and marketing. To this end, Nest for Entrepreneurship in Science & Technology (NEST) which is the center for entrepreneurial activities at SR Engineering College initiated *Make'n'Market* in 2017, an Innovative program to engage the Indian youth in the maker movement. The primary objectives of *Make'n'Market* are to nurture:

- The design thinking – identifying user needs and creating appropriate products
- The entrepreneurial spirit – crafting appropriate value proposition to various stakeholders, learning the value of money, and leverage resources including time and money
- The marketing skills – understanding and relating to the customers, making the sale.

Make 'n' Market is a gateway to an entrepreneurial experience for thousands of minds not only from the host engineering college but also for students from the other educational institutions from the local community. *Make 'n' Market* gives the innovative student teams an opportunity to transform their creative dreams into real products which must be sold before *Make 'n' Market Demo Day*. All the teams are funded with the same seed capital of Rs. 500.

While one may argue the level of entrepreneurship and innovation that can be expected from untrained students, Gupta (2012) describes how inclusive innovation by the poor for the poor. These grass-root innovators described by Gupta are not traditional entrepreneurs or innovators, but common people are identifying and fixing local problems.



Fig. 1. *Make 'n' Market* Flier

1. Logistics

3.1. Organizational Structure

NEST center is directed by a director, two faculty coordinators overseeing academics and operations respectively, and one student coordinator. For the event organization, NEST center has the following organization structure (shown in Fig. 2)

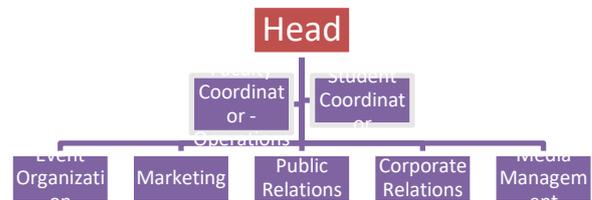


Fig. 2. Organizational structure for the *Make 'n' Market* event

A typical team consists of 3-4 students. A total of 42 students volunteered to this event. The specific roles of the teams are:

- Event Organization
 - Coordinates Kick start day and Expo day of *Make 'n' Market*
 - Logistics to support other activities
- Marketing
 - Design and produce marketing material including posters, web material, pre- and post-newsletters, and fliers for promoting the event
 - Promote of the event within the campus and outside institutions across region
- Public Relations
 - Direct all participating teams during the two key events and in-between.
 - Coordinate with the leads at various institutions for visits by the marketing team as well as arranging transportation to the participating teams
- Corporate Relations
 - Identify and attract corporations and industry leaders to attend the event
 - Attract sponsorship of the event to increase its visibility
- Media Management

- Publicizing the event on Web, Social media marketing and content development to post on web

3.2. Mentoring – A Way to Energize Teams

To improve the learning outcomes, the teams were mentored by 30 senior undergraduate engineering students. Some schools and colleges provided additional mentors at their institutions to help the teams on a daily basis. These mentors were selected based on the recommendation of faculty attesting their making and entrepreneurial skills. They were trained in the basics of mentoring, making and marketing in a two-day boot camp. Each mentor was assigned ten teams to mentor for the period of the competition (six week). They met with the teams for about 30 minutes each week. The total time commitment for each mentor is about 5-6 hours per week. Mentors meet as a group with the director and faculty coordinator on weekly basis to discuss the status of the teams, problems in implementation, and discussion of the strategy for the next week. The expectations for the team and the mentors are laid out in Table 1.

Table 1. Mentoring guideline

Week	Team	Mentor
0 (Kick off)	Teams and mentors attend a common day-long workshop. They also learn about the expectations, exchange contact information, and make arrangements for regular meetings.	
1	Identify potential customers, the jobs these customers need to get done, the current pain points with the existing solutions, and innovative ideas to solve these problems.	Guide in framing the problem with a focus on the customer, the jobs to be done, and their pain points.
2	Conceive several alternative product concepts that address customer painpoints.	Guide in selecting an appropriate concept with an understanding of the resources available including time, money and team capabilities.
3 - 5	Focus their effort on building the product.	Help in connecting with appropriate resources (machine shop facilities). Also, focus on simplifying the overall concept so that it can be realized in the timeframe.
6	Work on their presentation and selling pitches before coming to the expo.	Counsel the teams in improving their pitches. On the expo day, guide teams to their spaces and help in setting their product displays.

The mentoring helped to improve the successful outcomes as well as reduced the dropout rate between the kickoff and expo days. For instance, 296 of 340 teams registered for the second *Make 'n' Market* event returned for the Expo day compared to 167 of 242 during the first year.

3.2. Kickoff Day

The goal of the kickoff day is to inspire the participating teams, teach specific design techniques and also, connect to the mentors. To this end, at the kickoff day, the participating teams learn about the *Make 'n' Market* information, register their teams, meet the mentors, listen to two inspiring entrepreneurs, and attend a design thinking workshop. They also see grassroot innovations such as coconut climbing device from a local NGO “Palle Srujana.”

3.4. Expo Day

Expo day was conducted to encourage and promote participants by exhibiting their innovations(products or

prototypes)at the end of six weeks. The teams are expected to sell their products to the visitors. It is scheduled on Saturday to make it easier for participants to attend as well as to attract more visitors, prospects and buyers. Expo day starts at 9 am where the operations department allots tables for each team to exhibit their product and public relations team makes travel arrangements from various parts of city and communicates the same to teams of various institutions.

A brief inauguration ceremony opens the Expo. All teams display, demonstrate and sell their products till 2:00 PM. Visitors go through the stalls, interact with participants, and purchase products.

Judging panel go through the exhibits and judge the exhibits. Every 25 teams are judged by 2 Judges, who are experienced in design, cognitive skills and entrepreneurship. Teams are judged on criteria; Identifying pain point, solution designed, design of Product / Prototype and presenting their product

2. Impact

4.1. Profile of the Participants

*Make'n'Market*event attracted the attention of student community with an overwhelming response from 28 and 42 institutions and 242 and 350 teams respectively in the first and second years. Make N Market attracted 1023 students from 120 km radius of Warangal. The profile is shown in Table 2.

Table 2. Profile of the participants

Participant profile			
Educational Background	216 students – 8-10 th grade	86 – 11 th & 12 th grades	721 – Undergraduate Students
Gender	418 Female		605 Male

In a survey before entering the competition, the participants were posed four questions (shown in Table 3.)

The first two questions relate to their engineering experience where the last two questions demonstrate their business abilities.

A total of 2000 participants completed the survey over the two-year period. The combined results show that more than 50% of the participants exercised the ability to fix things in the last month. On the other hand, the participants were severely limited in their exposure to selling with more than 75% never or don't remember selling. Overall, the event seemed to attract participants with greater engineering abilities (developed or exercised) than their business skills.



Fig.3. Profile of participants' select engineering and business skills



4.2. Reviews

In the exist survey, the participants found *Make'n'Market* is a good learning experience. The key trends identified in learning experiences are –

1. Idea generation – innovation, creativity
2. Making aesthetic products as opposed to functional products
3. Marketing strategies
4. Learning from failure – learning from criticism, customer interaction
5. Peoples skills - Team dynamics, collaboration, interactions with customer
6. Time management – time commitment, efficiency
7. Following the process – making decisions and moving continuously along the process

The judges found the event energizing for the participants and the overall entrepreneurial ecosystem. The key observations from the judges are –

1. School kids are more creative, energetic and represented the idea better than the college students.
2. Mentoring at the institution makes a significant impact on the quality of the product.
3. Several undergraduate college teams focused on developing products that don't address any real needs.
4. While teams have an understanding of the time spent and cost of raw materials, they were unable to gauge the price of the product or articulate the value proposition to the customer.
5. Some teams were restricted by the funding. Several teams spent their own funds in addition to the seed money provided and produced quality products.
6. While school students focused on handicrafts and non-electronic aesthetically appealing products, college students had more functional prototypes as opposed to finished products.

4.3. Make 'n' Market Collage



4.4. Making a Movement

Make 'n' Market started as an event to catalyze the spirit and culture of entrepreneurship in districts of Northern Telangana. Like a startup, it grew beyond the target market of engineering college students, attracting high-school and other non-engineering college students. Media found the event attractive and popularized the event. As one can see from the statistics, the media coverage resulted in a significant increase in the participation rates. During the second cycle, the event was restricted to first 350 teams. In the exit survey, the participants found marketing is harder compared to making. For the question “How likely are you to recommend *Make 'n' Market* to your friends & family,” the participants were positive with an average of 4.6 out of 5 either strongly recommend or recommend. Based on the feedback, we believe that this event together with other supporting activities can create an entrepreneurial ecosystem in the region. In the paper, we share our learning experience, organizational details, and expected outcomes, so that other institutions across the world can conduct and energize the new generation of students.





Media Coverage of the Event

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