

Technology Entrepreneurship Task Force Charter and Interim Report

Summary. The mission of the Technology Entrepreneurship task force—which was stood up in October of 2012—is to explore potential opportunities for faculty, grad, and undergrad student opportunities on campus and in the middle Tennessee region to create a culture of innovation and entrepreneurship related to advanced technology. The task force aims to find ways to grow technology companies locally, enable Vanderbilt students, faculty, and staff with entrepreneurial aspirations to start their businesses in the middle Tennessee region or to become part of the region’s entrepreneurial community, and better integrate Vanderbilt into this community. The remainder of this document motivates the need for the task force, describes the key focus areas of the initial task force charter, and summarizes progress during the past year since the inception of the task force.

Motivation. Engineering skills and sheer innovative capacity are at a premium globally, as well as nationwide, so it's no surprise that successful recruiting and retaining talented engineering professionals in the middle Tennessee region is harder than we'd like. All the most important U.S. engineering clusters, such as Silicon Valley, Seattle, Boston, and Austin, have succeeded by forging strong collaborations among local universities and industries. Such synergies not only help expand scientific and applied knowledge, they also spur private-sector productivity, innovation, and growth.

Fortunately, there is strong potential for synergy between Nashville's academic and scientific community and regional industry, particularly for those with interest in such key growth areas as health information systems, medical devices, information security, cyber-physical systems, entertainment, mobile applications, and cloud-based analytics. Vanderbilt University, in general, and VUSE, in particular, are uniquely positioned to help foster broader and deeper collaborations among local universities and companies. There is already broad consensus on this point from various groups at Vanderbilt and the Nashville technology community, but what is needed are concrete plans—and a systematic planning process—to achieve these ends.

Task force charter. The Technology Entrepreneurship task force will take a fresh look at activities that VUSE could perform collaboratively in conjunction with other parts of Vanderbilt, as well as other universities and industries in the region. Key areas of focus of the task force will include the following:

1. **Help connect engineering undergraduates with local industry and entrepreneurs.** The goal is to enrich the Nashville high-tech ecosystem by helping launch startup companies in the area and getting our students involved with these startups, as well as with other companies involved with high-tech innovation. Making this process work requires motivated students, faculty and entrepreneurs. It also requires that portions of the VUSE curriculum focus on principles, patterns and techniques in key areas, such as mobile software, cloud computing, information security and digital learning, needed to educate tomorrow’s entrepreneurs and innovators.
2. **Align with key Vanderbilt stakeholders**, such as Barbara Blackford (Director of Corporate Relations), Cindy Funk (Director of the Center for Student Professional Development), Alan Bentley (Director of the Vanderbilt Tech Transfer Office), to ensure that the entrepreneurial initiatives being pursued are consistent with Vanderbilt University strategic goals and directions.
3. **Incentivize integrated/interdisciplinary student team projects in VUSE Capstone design courses**, where graduating senior students plan and implement significant software-intensive projects for external clients. VUSE capstone projects are currently guided by faculty advisors

TETF Interim Report

and local industry mentors who jointly help the students analyze problems, plan their project development efforts, produce robust solutions, and evaluate their work. The task force will explore ways of enhancing exposure to design in earlier than the senior year for undergrad students, as well as organizing faculty-mentored interdisciplinary student (both undergrad and MS grad) team projects (the “push”) around the needs and objectives (e.g., proof-of-concept analysis, developing models and prototypes, market analysis and market plans, supply chain strategies, organizational design, designing or improving business systems, intellectual property strategy, etc.) of local technology entrepreneurs (the “pull”). The teams would extend over time, with members moving in and out as they go through school, but with continuity from core members and faculty supervisors. In executing these projects the teams would tap into the Tennessee entrepreneurial ecosystem (such as the Nashville Entrepreneur Center; the Nashville Chamber of Commerce; the Nashville Technology Council; Life Sciences, TN; Device Innovation Group; the Nashville Capital Network; the TN Technology Development Corporation, as well as regional venture capital firms) for expertise and advice.

4. **Strengthen talented student-run VUSE organizations**, such as Vandy Mobile, which educates and trains students in advanced mobile development, giving Vanderbilt and local industry a ready pool of capable developers that can help advance middle Tennessee’s bellweather technological capabilities and advance its mobile, Web, entertainment, and social media presence. Many Vandy Mobile alums are already active in the Nashville high-tech startup community and have close connections with the Nashville Entrepreneur Center.
5. **Leverage innovation acceleration centers**. The task force will explore ways to better connect VUSE faculty with innovation acceleration centers (such as the Nashville Entrepreneur’s Center), e.g., by offering symposia, training, and mentoring to the residents in these centers. Another approach would involve better leveraging of VUSE-affiliated research institutes, such as the Institute for Software Integrated Systems (ISIS) and the Institute for Space and Defense Electronics (ISDE) that routinely work with the best US universities (such as UC Berkeley, CMU, Cornell, Harvard, MIT, and Stanford), National Labs (such as Sandia National Labs, Oak Ridge National Labs, the Air Force Research Lab, the Army Research Lab, and the Office of Naval Research), and companies (such as Boeing, GM, Lockheed-Martin, Siemens, and Microsoft Research) on cutting-edge applied research projects.
6. **Enhance the VUSE entrepreneurial ecosystem** – The task force will explore ways to make it easier for technology entrepreneurs to get established and build/grow their businesses locally by enabling them to easily tap into an ecosystem of partners, suppliers, technical talent (including Vanderbilt faculty, staff, and undergraduate and graduate students), customers, channels, providers of specialized services (e.g., software developers, applied research labs, rapid prototyping), etc. Local industry leaders have traditionally found it easier to tap into other local universities (such as Belmont University) than Vanderbilt, so it’s important to identify tangible and achievable ways to make Vanderbilt an easier, more user-friendly place to do business with.
7. **Tap VUSE alumni chapters**. The task force will explore ways to make better use of strong alumni chapters for recruiting our student talent, offering projects and internships, and perhaps even relocating to Nashville to start a business.

These ideas just scratch the surface of the potential collaborations between VUSE and middle Tennessee’s companies, other universities, and scientific communities. The VUSE Technology Entrepreneur Task force will be committed to fostering such ideas and furthering productive collaborations.

Progress to Date

This update summarizes progress of the Technology Entrepreneurship Taskforce (TETF) from its inception on Oct. 10, 2012 through the end of August, 2013. It covers progress to date, planned and proposed future effort, and decision items for the Dean.

Progress is summarized on seven action areas included in the TETF's initial charter.

1. Help connect engineering undergraduates with local industry and entrepreneurs

Members of the TETF met with numerous to help connect engineering undergraduates the local industry and entrepreneurs. Examples of these stakeholders include incubators/accelerators (e.g., Michael Burcham from Nashville Entrepreneur Center, Ray Capp from ConduIT Corp, and Eric Satz from the Distillery), Jim Stefansic from Launch TN, Chris Parham and Yiaway Yeh Chief Innovation Officer from the Nashville Mayor's Office, Neil Reitzer from Healthcare Management Systems, and Philip Schmerling from InCrowd Capital. The VUSE Computer Science program is also revising its undergraduate curriculum to integrate courses that emphasize innovation and entrepreneurship.

2. Align with Vanderbilt stakeholders

Members of the TETF participated in meetings with many leaders and representatives of Vanderbilt stakeholders, including Germain Boer and David Owens from the Owen Graduate School of Management; Alan Bentley from the Center for Technology Transfer and Commercialization (CTTC); Cindy Funk, Tim Grubbs, and Nancy Sibole from the Center for Student Professional Development; Barbara Blackford and Ed Thayer from Corporate Relations; Cynthia Cyrus from the Provost's Office; and board members from student organizations, such as the Vanderbilt Innovation and Entrepreneur Society and VandyMobile.

3. Incentivize integrated/interdisciplinary student team projects in VUSE capstone Design Courses

Members of the TETF bundled packages of projects from our three Engineering Management project courses with Senior Design and Computer Science Software Engineering project courses.

4. Strengthen talented student-run VUSE organizations

Members of the TETF helped to initiate and advice several student-run VUSE organizations, including

- The Vanderbilt Innovation and Entrepreneurship Society (VINES), which was formally approved as a VU student organization on Apr. 1, 2013; with guidance from faculty adviser John Bers. VINES has roughly ~50 undergraduate members from VUSE and other schools. Its active program includes guest talks by technology entrepreneurs, linkage to ongoing entrepreneurial initiatives (Hackathon, Tech Venture Challenge, Entrepreneur Boot Camp).
- VandyMobile, which continues to thrive and grow, both within VUSE and beyond (see <http://anchorlink.vanderbilt.edu/organization/vandymobile> for more information on VandyMobile). Members from VandyMobile recently participated in the "Make with Moto" event (see <http://makewithmoto.com/vanderbilt> for more info).

5. Leveraging innovation acceleration centers

Members of the TETF have been involved in the planning of an Entrepreneurial Web Portal, which was proposed by Michael Burcham (CEO of the NEC) as a peer-to-peer web portal and database that entrepreneurs can tap into to quickly assemble their own business/technical

TETF Interim Report

ecosystems. This portal will link to existing portals. The proposed rollout schedule is

- F'13: Design by ENGM 272 (Enterprise Systems Design) student project team
- S'14: Development by CS 279 (Software Project) team

The initial host for the portal will be the Nashville Entrepreneur Center (NEC). Multiple opportunities for Vanderbilt linkages

- Portal to Vanderbilt IP (CTTC site)
- On-line match-making service between entrepreneurial community and VU faculty talent
- Expanded entrepreneurial section in CSPD CareerLink for jobs, internships
- Portal for entrepreneurs to engagement with VUSE – guest lecturing, mentoring, sponsoring a student team project
- Portal to professional development opportunities for entrepreneurs

6. Enhance the VUSE entrepreneurial ecosystem

Members of the TETF participated in the following activities associated with enhancing the VUSE entrepreneurship ecosystem.

- **Innovation roundtables with local industry and government**

The first roundtable was held on 7/15 at the NEC. The focus was on ISIS research/researchers. This meeting resulted in an op-ed publication in the Tennessean (see <http://www.facebook.com/l.php?u=http%3A%2F%2Fwww.tennessean.com%2Farticle%2F20130807%2FOPINION03%2F308070090%2F2071&h=fAQEONi13&s=1> for the op-ed piece).

- **Proposed an Engineering Leadership Institute (ELI)**

- Series of technical/professional/leadership development short courses, workshops, seminars, symposia, networking opportunities for
- VU researchers (faculty, graduate students, post-docs) seeking innovation commercialization pathways via entrepreneurship
- Recent VUSE alumni who join local entrepreneurial community and need professional development support
- Local entrepreneurs seeking to upgrade technical management, leadership skills as their enterprises grow
 - Small/medium enterprises seeking become world-class
 - Sources of financial support
 - Initial endowment from donor
 - Participation fees to medium/larger enterprises
 - Professional services providers (sponsorship, exposure)
 - Investment community – support for their start-ups
 - Local, state business development organizations (Launch TN, NTC, EC, Mayor's Office, etc.)

7. Tap VUSE alumni chapters

Members of the TETF conducted an initial meeting with Teresa Rogers from the Vanderbilt Development and Alumni Relations Office. Further activities will be pursued in 2013-2014.

Proposed and Planned Future Effort

In the remainder of 2013 and in the spring of 2014 members of the TETF plan to engage in the following activities, subject to approval from the Dean of VUSE:

- Continue the VUSE Innovation Roundtable Series at the NEC (next round – Vanderbilt Initiative in Surgery and Engineering, as well as faculty from BME and EE).
- Plan VUSE technology entrepreneurship event (mid/late Spring '14) in conjunction with the Cindy Funk and the Center for Student Professional Development. The goal of this event is to raise awareness of VUSE-developed technologies, exchange ideas/opportunities for closer collaboration with local companies, entrepreneurs.
- Coordinate with forthcoming Vanderbilt-wide Entrepreneurship Task Force, which is being organized under the auspices of Cynthia Cyrus and Cindy Funk.
- Connect with other centers of entrepreneurship (e.g., Life Sciences TN, Cumberland Emerging Technologies, Nashville Health Care Council, Nashville Technology Council).
- Further develop other proposals for VUSE (e.g., Engineering Leadership Institute).