

Nomination of



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In the category of

National Model Undergraduate Entrepreneurship Program

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THE BALL STATE UNIVERSITY ENTREPRENEURSHIP PROGRAM

In 1880, with a loan of \$200 from their Uncle George, five Ball brothers began making wood-jacketed tin cans for products, such as paint and kerosene, but soon they expanded their offerings to glass- and tin-jacketed containers. In 1884 the brothers began making glass home-canning jars, the product that established Ball as a household name. The brothers—Edmund, Frank, George, Lucius and William—moved the company from Buffalo, New York, to Muncie, Indiana, in 1887, ushering in an industrial renaissance in the medium-sized Midwestern city. In fact, at one point, Muncie and the surrounding Delaware County towns had the largest number of General Motors factories outside Flint, Michigan. However, Muncie is a much different place in the early 21st century. The Ball Corporation moved its headquarters to Broomfield, Colorado, and the last of the large automobile plants closed its doors in 2007. In the 20th century, the Ball State Entrepreneurship Program focused on opportunities for starting a small business. Many service-based and retail businesses in Muncie and the surrounding area were started by Ball State graduates to support the factory community. While many of those businesses still remain, there is a need for more innovative and growth-oriented companies in the community to fill the void left by the empty factories. In *The Great Reset*, Richard Florida (2010) hypothesized that communities with creative and innovative residents will thrive, and those locked into old economic models will struggle. In response to the new challenges of the 21st century, the Ball State Entrepreneurship Program is delivering a curriculum that embraces design, innovation, and applied creativity. The belief is it can have a significant economic impact on Indiana and the United States by being a hotbed for innovative talent. The program provides a channel for students to develop ideas that add value in whatever industry or situation they find themselves. The following sections illustrate how this approach has made the program innovative and unique, high quality and effective, complete and comprehensive, sustainable, and transferable.

INNOVATIVENESS AND UNIQUENESS

The Ball State Entrepreneurship Program aims to be the national leader infusing technology with business education. We accomplish this through weaving the principles of design, innovation, and entrepreneurship throughout the program. This is a unique approach for a school without engineering, veterinary, agricultural, medical, or dental schools. We are creative in how we find technology with which the students work. The vision is to provide a new type of education for today's world, where students who may not be at a large research university have access to innovative projects; however, research schools can apply these methodologies with success as well. The vision is accomplished through the following educational innovations:

1. ***Adding technical instruction and design to entrepreneurship business education:*** The Entrepreneurship Program has a strong business emphasis in its curriculum. This will never change, but to provide more ideas for innovative startups we discovered the need to include more technology training. Thus, we built a Technology Advisory Board to supplement the Entrepreneurship Advisory Board. The Technology Advisory Board is comprised of the state's leading engineers and technology entrepreneurs, ranging from industries such as motorsports (including race car manufacturers for Tony Stewart and the Indy Racing League), biomedical products, software, and military defense contractors, among others. Each student is given a technology mentor who has the ability to assist them with the unique design and manufacturing challenges each project has. Projects now have a design component as well as a business emphasis.
2. ***Cross campus support in design and manufacturing:*** Entrepreneurship students are provided opportunities to take applied technology courses specifically written to assist them with their project needs. Dr. Jim Flowers (Applied Technology, Ball State University) assists the program with machine, supply, and process needs. Students are expected to build a conceptual prototype of their idea, as well as understand what manufacturing and supply chain components must be in place to bring the business into existence. Prototypes lead to better business plans, because the ideas are less abstract and grounded in market reality. Thus, producing students who are both business and technology literate is a distinct outcome of the Ball State Entrepreneurship Program. Students learn that innovative entrepreneurship takes place when they interact with

experts from different disciplines. Supporting pedagogical material has been developed to assist the students in this process.

3. **Bringing technology experts into pedagogical development.** Experts on intellectual property and technology provide guidance to the program, and take active roles in participating in the classroom. Students have the choice to work on their own ideas or develop an idea for one of the program partners. For the partnership projects, an IP attorney and technology transfer officer meet with the faculty and technology board to mine ideas on which the students can work. Decision criteria for selection of an idea are: 1) availability of an engineer or scientist who has the expertise needed to work with the student on the idea, 2) market potential, 3) "coolness" factor, and 4) complexity of the technology (can the student and faculty reasonably understand the technology and work with it?). One of the key partners is the Department of Defense. Projects with the Navy and Air Force are granted Collaborative Research and Development Agreements that provide additional engineering and design support for the students. Students give presentations every week to a panel of faculty, students, and outside experts on the state of their projects. Each session is video-recorded, so that the student can address all the feedback from the session outside of class. The student is expected to have answers to all the questions that were given to them when they return for their next presentation.

4. **Prototyping facilities and courses.** We have a laboratory for idea conceptualizing and conducting research for business plans (the Entrepreneurship Design Lab). We have also acquired space to prototype student ideas as well. Ted Baker, Executive Director of the Innovation Connector in Muncie provides space at the incubator for use as a prototype workshop. Students are expected to build mockup versions of their products at the Innovation Connector before moving onto the Applied Technology labs at Ball State where fused deposition modeling, laser cutting, CNC milling and lathing, and other design methods are used. Conceptual and working prototypes are made in the Applied Technology lab and the machine shops of technology mentors. A new addition to the curriculum is a Design for Manufacturability course offered by Dr. Pankaj Patel, which provides support in building a supply chain, coordinating processes, and addressing any manufacturing needs. The course is suited to develop the many operational and design components of either a product or service idea.

5. **Course Integration Using the Simplex[®] System for Creative Problem Solving (CPS).** At Ball State, the entrepreneurship curriculum (both at the undergraduate and graduate levels) utilizes the Simplex[®] creative problem solving system developed by Basadur Applied Creativity LLC. Every introductory class centers on "problem definition" and "solution development." All Ball State entrepreneurship faculty and staff are extensively trained in the Simplex[®] methodology. When there is an obstacle with a student project, Simplex is one of the tools used to find a solution to it.

QUALITY AND EFFECTIVENESS

No undergraduate program in the country matches the entrepreneurship curriculum at Ball State University. Students who choose this major embark on a path that is exciting, engaging, and pressure-packed. It begins with the cultivation of a viable business idea and ends with a breathtaking all-or-nothing capstone course, in which students experience first-hand the pressure faced by real-world entrepreneurs. They are literally forced to put graduation on the line just four days prior to commencement with a business plan that must pass muster before a panel of business experts. We call it "senior sweat" and approximately 25% of the students do not pass. The Ball State Entrepreneurship Program has given each student a "Shark Tank" experience for 30 years.

This feature has distinguished Ball State's program for the past three decades and fosters its top 15 ranking (according to *U.S. News & World Report*) since 1999 (see Exhibit 10 for current ranking). It is believed it also distinguishes the program by developing innovative curricula. The program has a university-wide minor, which allows students across campus to merge their artistic and scientific passions with business opportunities. The entrepreneurship major utilizes design principles and practices for students to bring new value into the customers' lives. This is not an abstract exercise. Students must make the idea real and test it in the field. They are required to build a prototype of their idea. The prototype helps students get better feedback and

guidance on their ideas. The student acquires deep understanding of their product and business by building the prototype. Manufacturing, operations, and marketing sections are greatly improved as a result. The program also contains milestones, checkpoints, and incentives designed to increase student accountability and performance in business plan competitions and on E-Day (Evaluation Day). Finally, Ball State's Entrepreneurship Program features unique and nationally recognized extracurricular initiatives, including the Disney Entrepreneurial Experience, Military 2 Market Technology Transfer Program, and the Innovation Connector, that make it an exceptional program.

COMPLETENESS AND COMPREHENSIVENESS

Entrepreneurship Major for Undergraduate Business Students

- Nine classes (27 credits), eight of which are unique to entrepreneurship (See Exhibit 1)
- Two cohorts of approximately 75 business undergraduates (i.e., 44 juniors and 50 seniors)
- Courses in the major are offered in lockstep over a two-year period, culminating in the famous “senior sweat” (New Venture Creation) class that is only offered as a pass/fail. (The introductory course is the only course open to non-entrepreneurship majors. It is offered three times and enrolls a total of 500 students per year)
- Majors also consult with companies through a statewide partnership with the Indiana Economic Development Corporation

Entrepreneurship Minor for All Undergraduates

Ball State's minor in entrepreneurship is open to all undergraduates campus-wide. It includes:

- Seven classes (21 credits), five of which are unique to entrepreneurship for business majors (See Exhibit 7)
- Eight classes (18 credits), five of which are unique to entrepreneurship for non-business majors (for all Syllabi see Exhibit 8)

Immersive Learning

Immersive learning—the hallmark of a Ball State education—pulls together interdisciplinary student teams guided by expert faculty to create unique, high-impact learning experiences that result in real-world solutions.

Distinctive characteristics synthesize disciplinary knowledge with application. Students and faculty turn knowledge into judgment and judgment into action through projects and programs that benefit business, community, and government partners across the state and around the world.

Milestones, Checkpoints, and Incentives

The Ball State entrepreneurship major includes a series of initiatives designed to provide coaching and feedback to students, and encourages early and successful business plan completion.

Seize Opportunity...No Excuses! is the mantra of the entrepreneurship faculty and staff. Students are held personally accountable for their progress in preparing for E-Day. A pedagogical approach based on deliberate practice is utilized to coach students through their senior year. Fundamental components of a solid business model and plan are broken down into many checkpoints to provide the student an opportunity for rapid feedback and additional coaching. This approach reduces student procrastination and improves the quality of the final product. A reverse scholarship is also given at the end of the year to the student who best meets the checkpoints.

Deliberate Practice and Design Iterations. Coaching and feedback are continuously provided to students throughout their entire experience in the program. Professors, staff, and an expert board have final approval on whether an idea is reasonably feasible for further development. Ideas are evaluated on the criteria of customer desirability, technical feasibility, and business viability. Courses are structured to provide guidance on reaching

these criteria. All student presentations are video recorded and provided to the students for their review. Students are expected to refine their ideas with the ongoing feedback given to them.

The Director's Cup, Concept Challenge, Spring Training, Winter Warm-up, and the Bird Cage are events that allow each entrepreneurship student to present his/her ideas to panels of recent entrepreneurship alumni, board members, and friends of the program. The purpose of these events is to motivate students and provide constructive criticism for development of their ideas.

Support for involvement in National Business Plan Competitions (both financial and consulting) is available for any entrepreneurship major deemed to be competitive in such contests.

Professional Business Assistance - Each student is provided a business mentor to give them advice and support, access to a graduate accounting student (available by appointment), and 4 hours of individual contact time with a CPA/entrepreneurship alumnus. A technology advisory board provides students guidance on technical feasibility and conceptual prototyping.

A. Umit Taftali Center for Capital Markets and Investing - This technology-centered classroom/laboratory immerses students in a real-world financial environment, providing opportunities for hands-on training in the workings of capital markets and entrepreneurial financing. This 36 seat facility features the latest computer technology with dual monitor displays, four large digital displays indicating the latest financial news, and access to the Bloomberg network. Entrepreneurship students have 24/7 access to the facility and can retrieve industry standards and norms, key business ratios, and sample financial statements of leading public and private companies throughout the world.

SUSTAINABILITY

For 30 years, Ball State University has been a pioneer in entrepreneurship education, outreach and research. Since the University first offered an undergraduate course in small business management in 1983, an ever-growing stream of students in the Miller College of Business have been trained to innovate, write business plans, and pursue entrepreneurial dreams. In addition, hundreds of existing businesses have been assisted on the road to reaching their full potential. Finally, a team of leading scholars has been assembled for the purpose of investigating the process of entrepreneurship. From the very beginning, the Entrepreneurship Center at Ball State University has been the nexus for this activity.

Basic operations and faculty salaries for Ball State University's Entrepreneurship Center are supported as line items in the university's budget. The Entrepreneurship Design Lab was funded by \$1.25 million grants by the Department of Education and Housing and Urban Development. Programming is primarily financed by sponsorships and individual donations. The Center is fortunate to have an engaged alumni base and dynamic advisory boards. Grants from the Charles G. Koch Charitable Foundation, the U.S. Department of Defense, and the U.S. State Department also provide significant support for the program.

The Entrepreneurship Program has hired three new professors over the last three years: Dr. Pankaj Patel, mentored by Dr. Jim Fiet in the University of Louisville Ph.D. program in entrepreneurship; Dr. Susan Clark Muntean, hired from the London School of Economics; and Dr. Marcus Wolfe, a graduate of the Indiana University doctoral program in entrepreneurship. Permission has been given by the university to hire a senior level professor in entrepreneurship in the next year. The Ball State Entrepreneurship Program continues to grow and thrive even in challenging budgetary conditions for public universities.

TRANSFERABILITY

Human capital is the biggest challenge Indiana (and many other states) face in building an economy that is adaptive to the uncertainty in today's markets. Simply put, if communities are not comprised of innovative

talent, they stagnate and decay. Universities are the chief provider of that talent. The Entrepreneurship Program has become a talent hotbed for developing tomorrow's innovative leaders. By training students who not only understand business but are also comfortable with innovation, the Entrepreneurship Program can be a model for other universities who aspire to offer a more applied business education.

The Military 2 Market Technology Transfer Program (M2M) has proven very successful. The Ball State Entrepreneurship Program has a Partnership Intermediary Agreement (PIA) with the Crane Naval Base and Innovation Connector (Muncie, Indiana) to create opportunities for students to work with government research scientists and engineers on technology transfer. Entrepreneurship students are given access to government patents and intellectual property and challenged to find commercial opportunities for the technologies. Seniors write their business plans for E Day and national competitions based on the technology. Coaching is provided by Navy technology transfer officers, laboratory scientists, and entrepreneurship faculty. We are now able to leverage this program to other partners across campus, state, and country. Any new faculty or partners can be added to projects as needed and trained on the program methodologies. As a result, we have developed an entrepreneurship channel (see Exhibit 2) that can be replicated at other universities, since the process is explicitly documented and communicated and not simply inside the professors' heads. Evidence of this transferability recently occurred when the Ball State Entrepreneurship Program became the recipient of the 2013 Outstanding Technology Transfer Professional Award from the Federal Laboratory Consortium (FLC). This award--one of the FLC's highest honors--recognizes an organization which has demonstrated outstanding achievement transferring technologies significantly over and above what was called for in the normal course of their work.

U.S. News & World Report also recognized the Ball State Entrepreneurship Program as a national model for other universities when it featured M2M as first among 10 "College Classes That Impact the Outside World" in 2011 (see Exhibit 10). The program was further highlighted in the August issue of the *National Defense Magazine* and *Technology Transfer Tactics* (see Exhibit 10). It also won Best Advocacy and Best Partnership awards from the Federal Laboratory Consortium in 2011.

CONCLUSION

Ball State does not have an engineering, medical, dental, veterinary, or agricultural school, and yet we have developed a curriculum that is training students to become literate in entrepreneurship and innovation. The students are well trained to pursue and facilitate opportunities wherever they may arise. We have developed, recorded, and documented the pedagogy and can share the practice with anyone interested in this approach. Through this process, we have developed general principles and deliberate practices that can be applied at any university, whether it is a small, private college or a large land grant institution. Ball State has developed a National Model Undergraduate Entrepreneurship Program training innovative and entrepreneurial leaders who are well-prepared to succeed in the 21st Century creative economy. It is the mission of the program to immerse the students in their communities, so they may become positive change agents and create a better tomorrow for their customers and neighbors.