

RHIT 2015 Report

What can we be best at in the world?

**The 2015 Niche Committee
(Danielle Merkel, Robert Houghtalen, and Fred Berry)**

Introduction

In the fall of 2005, Bob Bright, Chairman of the Board of Trustees, of Rose-Hulman Institute of Technology, formed three committees to continue the work on our 2015 long-range planning that was started in 2004. The “Niche” Committee was responsible for developing some ideas to answer the question, “What can Rose-Hulman be the best at in the world by 2015?” Two other committees were formed to answer the questions “What are we deeply passionate about?” and “What drives our economic engine?”

The three committees were directed to establish a team structure and process to meet their charge by December 1st, 2005. At that time, all of the committees met with Bob Bright to report on progress and coordinate planning efforts. In addition, each committee was charged with drafting a report to be shared with Board members at the February Board meeting. (This document is the Niche committee report.) Our understanding is that these reports will ultimately be put in front of the Rose-Hulman presidential candidates. The purpose in sharing these reports with candidates is to help them understand the culture and mission of Rose-Hulman, and generate some dialog on a vision for the future of the Institute that the new president will be instrumental in formulating and leading.

The “Niche” Committee, along with the other two committees, reported to and operated under the authority of Chairman of the Board of Trustees, Bob Bright. The co-chairs consisted of Danielle Merkel, Robert Houghtalen, and Fred Berry. Once again, the charge to the Niche Committee was to identify what the Institute can be the best at in the world by 2015. The primary deliverable from this committee is this draft report, which contains potential Mission Statements and associated Institute educational objectives. These will have to be vetted by the Institute and represent the initial steps to embrace the challenges that face technical higher education in the near future. There was extensive input from all of the Institute’s stakeholders since the committee’s charge involved the synthesis of comments from Phase I of 2015, “A Call to Conversation.” Some new sources of information were probed as well. Information was obtained from:

- RHIT faculty, staff, and students.
- RHIT’s Board of Trustees.
- RHIT’s Wabash Valley and Indianapolis Boards of Associates
- The Lilly Foundation.
- Literature on the subject of technical higher education in the 21st Century.
- Employers of RHIT graduates.

Activities

The “Niche” Committee fulfilled its charge by accomplishing the following activities:

- 1) Reviewed the Rose-Hulman 2015 Phase I (“A Call to Conversation”) Report.
- 2) Examined input materials to the 2015 Phase 1 Report (student forums, faculty forums, and Wabash Valley and Indianapolis Boards of Associates).
- 3) Interviewed Bill Schindel (Chair of Academic Affairs Committee) and reviewed written correspondence from other members of the Board of Trustees.
- 4) Led a focus group on technical education in 2015 with representatives from the Lilly Foundation and other Indiana education/economic development partners.
- 5) Reviewed literature on the subject of technical (engineering, mathematics, and science) higher education in the 21st century.
- 6) Examined surveys of potential employers of RHIT graduates collected by the Career Services Office. (What do they want from their future new hires at Rose?)
- 7) Generated potential new mission statements and Institute educational objectives.
- 8) Reviewed the proposed mission statements and Institute educational objectives with the Admissions Office. (Will they be able to sell Rose-Hulman to prospective students based on the vision being cast?)
- 9) Reviewed the proposed mission statements and Institute educational objectives with the Development Office. (Can they comfortably represent the vision being cast to alumni and external constituencies?)
- 10) Reviewed the proposed mission statements and educational objectives with the Institutional Research, Planning, and Assessment Office. (Are they measurable?)

Results

After careful review of all of the material at our disposal, a list of “Golden Nuggets” was composed for each of the major constituencies that engaged in the 2015 conversation. Some additional input was sought subsequent to the 2015 conversation that we thought would add depth and breadth (i.e., assessment of the literature on the future of technical education, Board of Trustee input, etc.). From this input, we composed the following list of “Golden Nuggets” which includes a reference to the source material for the list.

Golden Nuggets from 2015 Phase I Report (subsequently published in the 2005 summer edition of “Echoes”)

- Create the world’s best academic programs
- Integrate professional practice experiences
- Educate great people, not just great engineers/scientists/mathematicians
- Deploy technology to optimize learning
- Become a more global institution

Source: These recommendations come from the synthesis of the 2015 Conversation that took place on the Rose-Hulman campus with input from all major constituencies. Only the major themes and a few sub-themes were used that seemed to fit our committees charge of “**What can Rose-Hulman be the best at in the world by 2015?**”

Golden Nuggets from Student Forums

- Continue to produce both great engineers and people by being a global model for undergraduate engineering, mathematics and science education
- Maintain faculty to student ratio to ensure individual student attention and attract/retain faculty focused on teaching
- Foster entrepreneurship and involve students in projects that “solve a problem and help people”; bring real-world experience into the classroom
- Attract and retain the most talented students regardless of their ability to pay (increase in financial aid)
- Admit a more diverse student population (including geographically diverse), while maintaining academic standards
- Reach out and develop relationships with the community (service projects), alumni (projects, scholarships), and other students (resident assistant, learning center tutors, other highly motivated peers, the Greek system)

Golden Nuggets from Faculty Forums

- Provide a liberal education with strong technical foundation
- Continue hands-on learning (labs-design) & faculty-student interaction
- Increase international study and work opportunities for students
- Offer more MS/MA/MEng programs
- Expand internship/co-op/design/discovery opportunities (**interdisciplinary**)
- Offer more programs vs. don't offer any more specialized program
- Integrate and update curricula to meet emerging technology

Source: These recommendations come from the Departmental Reports composed by the Department Heads based on faculty feedback as part of the 2015 conversation.

Golden Nuggets from 2015 Discussions with the Wabash Valley and Indianapolis Board of Associates

- Look for opportunities to have more global partners and students (collaborate globally with a more diverse student body)
- Slow down the rising cost of tuition
- Train RHIT graduates to become program managers who able to work in interdisciplinary and global project teams
- Address need for graduates to receive technical updates and continuing education
- Increase corporate partnerships and seek input from these partners regarding what they will require from an RHIT graduate

Source: Wabash Valley Board of Associates Focus Group (September 16, 2005) and 2015 responses from individual meetings with Indianapolis Board of Associates members, received from David Piker.

Golden Nuggets from RHIT's Board of Trustees

- Develop creative products through excellence at the customer interface to compete with outsourcing of engineering services to India/China.
- Provide opportunities to: co-op at entrepreneurial companies, invent new products (RHV gadget lab), and create new companies.
- Expand our market to professional education (Masters/continuing education): growth and opportunity are exploding and we have a product of great value.
- Build stronger relationships with industry and alumni to show the world the value of what we do (continuing/professional education would help).
- Develop technical leaders for: functional (line) management, systems engineering, project management, and general (business) management.

Source: These recommendations come from the Board primarily through the voices of Niles Noblett, Bob Compton, Bob Bright, and Bill Schindel (extensive interview).

Golden Nuggets from the Lilly Endowment

(and other Indiana educational/economic development partners)

- Plan for the future, but remain flexible and maintain your core values.
- Become the technical/educational catalyst for the state and nation as the economy becomes increasingly dependent on technology.
- Maintain a strong liberal arts background (hard sciences & soft sciences overlap).
- Reach out to K-12 education institutions.
- Collaborate with other educational institutions and industry.
- Be aware that the first professional degree may soon be a master's.
- Maintain your niche – few competitors in your market area and your strengths have great value.

Source: These recommendations are based on a focus group consisting of Clay Robbins, President of the Lilly Endowment, Sarah Cobb, Vice President of the Lilly Endowment (Education), Dave Shane, Advisor to the Governor of Indiana on Education and Workforce Development, and David Johnson, President and CEO of Bio-Crossroads.

Golden Nuggets from the Literature (by futurists and technical societies)

Group 1

- Consider the B.S. degree as a pre-engineering degree or an engineer-in-training degree with the MS as the likely “professional” degree.
- Teach students how to be lifelong learners.
- Introduce interdisciplinary learning & utilize success/failure case studies.
- Endorse research in engineering education as a valued/rewarded faculty activity.
- Recruit more 2-year technical school graduates to the BS programs, and recruit more domestic students to advanced degree programs.

Group 2

- Recognize that global competition for engineering services will be fierce in the near future with developing powers like India and China. (Other professional services, such as accounting and medical diagnoses, are migrating overseas at unprecedented rates.)
- Be willing to abandon or alter significantly what made us successful in the past in order to remain successful in a “flat world.”
- Be aware that when memories of past accomplishments exceed dreams for the future, the end is near.
- Continue to get feedback from all constituencies, especially your direct customers to make them take ownership (eBay model).
- Embrace the world, welcome competition, and motivate our students to dream big as they imagine their future.

Group 3

- Develop leaders for the workforce of the 21st century.
- Expand opportunities for students, faculty, and staff to partner with each other, industry, etc.
- Identify our true competition; this will tell us where we want to be.
- Establish a work ethic better than your true competition.
- Watch closely for an environment that may change quickly.

Sources: The first grouping of recommendations comes from the National Academy of Engineering report entitled “The Engineer of 2020.” The second grouping of recommendations comes from Thomas Friedman’s book, “The World is Flat.” The third group of recommendations comes from David Heenan’s book, “Flight Capital: The Alarming Exodus of America’s Best and Brightest.” Another assorted comment from our research: Pursue Hispanic students as an avenue for diversity; they represent the fastest growing minority pool in the U.S.

Golden Nuggets from Prospective Employers

- Continue to provide a practical education (this is of great value to employers along with the Rose work ethic and the drive to succeed).
- Exhort students to take full advantage of co-ops and internships.
- Provide students with exemplary communication skills, particularly in the context of salesmanship, business acumen, and management savvy.
- Deploy students prepared for lifelong learning (they may need advanced degrees).
- Prepare students for the global market (foreign language, international work, etc.).
- Produce workplace difference makers (innovators, managers, and leaders).
- Focus students’ attention on quickly becoming professionals (in ethics, demeanor, professional society membership, and licensure/certification).
- Integrate an appreciation for civic involvement in students’ education.

Source: These recommendations come from employers of Rose-Hulman graduates based on feedback from employers to Kevin Hewardine and the CE and ECE Departments.

Prospective Mission Statements

The following mission statements have been formulated by the Niche Committee and Bill Schindel to capture the commonality of the golden nuggets presented in the previous section. They have also been formulated to cast a vision as to where the Institute wants to go in the years leading up to 2015. We recognize that the presentation of these prospective mission statements may very well just initiate the process of developing a new mission statement that will take time to crystallize.

- *RHIT is crafting technological innovators, managers, and leaders that will embrace the global marketplace.*

- *RHIT will provide the world's most valued education of a technically-dependent world's future leaders, through a Community of Learning spanning their professional lives.*
- *RHIT develops leaders that are driving the technology advancements of tomorrow and are intellectually enlightened today.*
- *RHIT is developing the intellectual and technical leaders of tomorrow, today.*
- *RHIT provides the world's most valued education for professional and academic leaders in the fields of science and engineering.*
- *RHIT prepares graduates for careers in science and engineering by providing a strong technical education, professional practice experience, and a lifelong professional network.*
- *RHIT produces innovators, managers, and leaders capable of providing technological service to the global community.*
- *RHIT provides students with the world's best undergraduate education in engineering, mathematics, and science in an environment of individual attention and support. (Current Mission Statement)*

Bill Hybels, in his book “Courageous Leadership,” suggests that mission statements should be clear, brief, and memorable. All of your constituents should be aware of your “main thing,” which should be captured in your mission statement. He also suggests only having a mission statement, not a mission, vision, and purpose. It is too confusing.

The proposed mission statements were drafted as a launching point for discussions on the Institute’s strategic planning. They are not a reflection of uncertainty in who we are or where we want to go. Rather, we recognize that engineering education at Rose-Hulman (and the rest of the country) is at a crossroads, and we want to meet the challenges ahead.

Prospective Institute Educational Objectives

The Accreditation Board for Engineering and Technology (ABET) defines program educational objectives (PEOs) as broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve within three to five years of graduation. The PEOs are for individual degree programs, not the Institute. However, ABET requires PEOs to be consistent with the Institute’s mission. Therefore, it may be helpful to have Institute educational objectives (IEOs). In addition, a longer timeline than 5 years may be appropriate to assess the achievement of the Institute’s mission and IEOs, perhaps 10 years would be sufficient.

With that in mind, the Niche committee has formulated the following IEOs leading up to 2015. These IEOs attempt to capture the commonality of the golden nuggets presented in this report and to amplify the mission statement. They also attempt to project where we would like our alumni to be 10 years into their careers. Each IEO is accompanied by supporting Institute directions and programs to under gird them. Again, we recognize that the presentation of these IEOs may very well just initiate the process of developing Institute educational objectives that will take time to crystallize.

- RHIT graduates are “difference makers” in the global marketplace.
 - Build stronger relationships with industry and elicit feedback regarding the knowledge, skills, and attitudes required in the new global economy.
 - Continue to provide a practical education augmented with internships, co-ops, project-based learning, and client-sponsored design/research projects.
 - Train students to be innovators, managers, and leaders. (Utilize Ventures.)
 - Strive to make the RHIT education affordable to attract the best/brightest.
- RHIT graduates work in interdisciplinary and global project teams.
 - Establish a sister school in India to collaborate with on senior projects.
 - Teach students how to work effectively in interdisciplinary teams.
 - Provide students with global knowledge and overseas opportunities.
- RHIT graduates maintain contact with their alma mater through the alumni association, boards of advisors, and RHIT sponsored professional courses.
 - Maintain the community of learning that exists at Rose-Hulman.
 - Enhance opportunities for alumni to contribute to the education of our students through program advisory boards, employment opportunities (including co-ops and internships) at their companies, and other special programs (practitioner days, entrepreneurs-in-residence, etc.).
 - Build a strong course-based master’s program appealing to our alumni.
 - Develop professional education opportunities (continuing education and certificate programs, webinars, etc.) for alumni and other professionals.
- RHIT graduates are life-long learners and possess confidence in their ability to quickly gain expertise to meet the challenges and opportunities they encounter.
 - Promote self-learning in the undergraduate curriculum through project-based learning, client-sponsored design/research projects, and alternative learning environments (a few large class sections and web-based classes).
 - Monitor educational trends and react proactively to prepare graduates.
 - Build a strong course-based master’s program appealing to our alumni and make them aware of other graduate educational opportunities.
 - Develop professional education opportunities (continuing education and certificate programs, webinars, etc.) for alumni and other professionals.
- RHIT graduates enrich the lives of their communities through service.
 - Continue to promote faculty, staff, and student service to the broader community through the student affairs office, student professional societies, and faculty and staff role-models.
 - Enhance opportunities for alumni to contribute to programs that engage students, faculty, and staff in service to the broader community.
 - Provide more opportunities to students in the arena of technical service (like Engineers without Borders, service learning projects, etc.)

Summary

In summary, Rose-Hulman is at a critical juncture in its history. As we look to the future, we must focus on an educational market niche that we can uniquely fill based on our attributes and passions, and through this niche, launch our students into gratifying and productive careers serving the needs of a technological world. The prospective mission

statements and Institute educational objectives presented in this report are meant to focus our attention on the educational niche that appears most suited to our attributes and passions. They were formulated based on input received from all of RHIT's major constituencies, and from additional sources that provided a broad perspective of technical higher education in the 21st century.

The prospective mission statements and Institute educational objectives were vetted with the Admissions Office (Will they be able to sell Rose-Hulman to prospective students based on the vision being cast?), the Development Office (Can they comfortably represent the vision being cast to alumni and external constituencies?), and the Office of Institutional Research, Planning, and Assessment (Are they measurable?). None of these departments had serious issues with the prospective mission statements or Institutional educational objectives. However, their feedback on minor issues was incorporated into the final draft of this report.

References:

Friedman, Thomas L. (2005). *The World is Flat: A Brief History of the Twenty-first Century*, Farrar, Straus, and Giroux Publishers, New York, NY.

Heenan, David. (2005). *Flight Capital: The Alarming Exodus of Americas Best and Brightest*, Davies Black, Mountainview, CA.

Hybels, Bill. (2002). *Courageous Leadership*, Zondervan Publishers, Grand Rapids, Michigan.

National Academy of Engineering, Committee on the Engineer of 2020. (2005) *Educating the Engineer of 2020*, the National Academies Press, Washington, D.C.