Title: An Analysis of PSU-EMP's Strategy

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Abstract: Resources, the environment, key success factors and alternative strategies for moving PSU-EMP forward are discussed in this paper.

An Analysis of PSU-EMP's Strategy

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EMP-P98072

TEAM PROJECT REPORT

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AN ANALYSIS

88-1

OF

PSU-EMP'S STRATEGY

STRATEGIC PLANNING
EMGT 525 - Spring 98
Professor: Dr Milosevic

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Executive Summary

The Engineering Management Program at Portland State University (PSU-EMP) is today, in 1998 (Point A), a leader in the Portland metropolitan area for graduate education in Technology Management. PSU-EMP offers two degrees: a Ph.D. and a Masters of Science. We assessed EMP-PSU's current and upcoming positions and came up with our own recommended strategy for the next two years (up to Point B).

We started with identifying the external stakeholders to the Program in both operating and broad environments. It appears that the most critical stakeholders to focus on are the students/customers and the competing programs. Then we performed an environment analysis of the Program to identify its strengths, weaknesses and looked at the industry's opportunities and threats. As mentioned, PSU-EMP is a leader in the local market and is getting ready to launch two very attractive programs: a Masters of Engineering (MENG) and a Graduate Certificate that will require less credits to complete than the two already existing programs. But despite of its leadership position the school is not very well known in the area, has limited state funding available for growth and the market is becoming more competitive. Fortunately, Portland's high tech/industrial market is large, growing and widely diversified. This is a market in which many opportunities exist and can be seized. But the Program is not alone and must continue to establish new strategies to stay ahead of the established as well as emerging competition.
We then studied the evolution in the industry's Key Success Factors from point A to point B and used Gap Analysis to extract the two most critical areas to focus on 1) partnerships, networking and marketing with the surrounding industry and 2) value of the offerings (curricula and faculty).

For the PSU-EMP to move forward, we considered three alternative strategies. The first one focuses on marketing and growth in the local market, the second one puts more emphasis on global market expansion and the third one is a combination of the first two which resembles the current strategy.

Our recommendation is to really focus on the local area by aggressively marketing the Program to the industry. We must develop an attractive value proposition (accommodating and leading edge courses) to the customers and at the same time be proactive at bridging the gap identified in our analysis between the school and the companies.

Introduction

This paper analyzes Portland State University's Engineering Management Program's (PSU-EMP) current position in the Portland Metropolitan area in the Management Education Industry. An analysis of PSU-EMP's market positioning and current strategic plan lead to recommended strategies to prepare PSU-EMP to "ring in the year 2000." The path from the 1998 strategic plan to the year 2000 is referred to as the path from point A to point B. (See Exhibit 3 for Point A information.)

The driving force for an analysis of PSU-EMP's strategic plan is the introduction of two new degree/certificate programs to the Engineering program, MENG and Graduate Certificate. (See Exhibit 5 for degree information.) Thus, at point B it is assumed Engineering Management will offer four separate degree or certificate programs: Ph.D., M.S., MENG (Masters of Engineering), and Graduate Certificate. These new programs are designed to better meet the value drivers of PSU-EMP's primary customers, industry.

The two new programs, MENG and Graduate Certificate, will enable PSU-EMP to develop new strategies aimed at targeting the Management Education Industry. In this analysis Key Success Factors (KSF), environmental factors and alternative strategies to reach point B are revised to influence PSU-EMP's competitive position in the Portland Metropolitan area. (See Exhibit 6 for information about point B.) This analysis begins with a re-definition of PSU-EMP's vision and mission based on revised environmental factors, competitive analysis and key success factors of point B.

Overall, this paper presents the anticipated environment of point B and recommended paths to retain competitive advantage in this environment. (This statement infers that new programs such as MENG, Graduate Certificate, Industry relationships, and an Alumni association will be implemented to enable PSU-EMP to retain a competitive advantage.)

PSU's EMP History

In the early 1980's, high-technology industries in the Portland area began expressing the need for technical management courses. The deans of Portland State University decided to offer a new program called Engineering Management and contacted Dr. Kocaoglu in 1984. Dr. Kocaoglu provided advice and recommended a list of potential candidates to direct the new program. However, the PSU deans decided that the best candidate for the position was Dr. Kocaoglu and together submitted a formal proposal for the Engineering Management program at PSU. In the fall of 1987, the Engineering Management program offered its first courses taught by Dr. Kocaoglu who was also teaching courses at the University of Pittsburgh.

In 1994, the Engineering Management Program added Dr. Dragan Milosevic as an associate professor. Dr. Timothy Anderson joined the program the following year as the third EMP faculty member. In addition to the core faculty members, EMP has the following adjunct faculty members: Tom Long, Mani Manivannan, and Ram Pandit.

PSU's Engineering Management program currently offers a Masters of Science degree in Engineering Management as well as a Ph.D. in Systems Science/Engineering Management. The EMP is specifically designed for students with an undergraduate degree in engineering who have four or more years of "real world" work experience.

In the last thirteen years Engineering Management has offered a number of graduate degree and certificate programs. In the last two years PSU-EMP has experienced tremendous growth.

Potential/Target Markets

Referring to Exhibit 1, PSU's EMP primary target market includes engineers, local high-tech firms, and technical managers. One specific segment of customers for the program are male engineers between the ages of 25 and 30, working full time, and entering, or interested in entering a management role. The age range in the program is between 24 and 58 with an average age of about 33. Approximately 70% of the 112 EMP students are employed full time with about half from foreign countries.

Potential markets include entrepreneurs, executives, non-technical managers, business students, and international students and corporations. Often, this market segment takes one or two electives within the Engineering Management program to complement their interests.

PSU-EMP's secondary target market includes co-ed international students. The Engineering Management program does not have any formal agreements with international universities, but they have close working relationships with many other programs. These foreign relationships are fostered through the following:

- Visiting scholars who spend time in the PSU-EMP to adapt the model and develop their own program.
- Direct assistance given to other universities in the design of their programs.
- Cooperative work for PICMET.
- State of Oregon agreement with the *Universite de Poitier* in France whose students can join EMP with a special scholarship.

PSU-EMP: Organization and Primary Stakeholders

In order to remain successful, organizations have to stay in touch with external stakeholders and the broader external environment to predict trends, anticipate concerns and generate ideas. Laying out a Primary Influence Processes Diagram (see Exhibit 2) will help us identify and prioritize PSU-EMP's stakeholders belonging to the operating environment.
The most important ones are it's customers-which have been divided into two major market segments: local males and international co-ed students- and competitors that the school will have to be constantly surveying to maintain its leadership at least in the Portland metropolitan area. Other external stakeholders from the operating environment include suppliers (companies, schools and universities), venture partner companies and university and state administrations.
Broader forces such as the global economy, the society and the evolution of the technology will also impact the program and will have to be constantly monitored in order to adapt current and future strategies.

Operating environment:

- Customers: 2 market segments (local males and international co-ed)
- Suppliers: Industries and Universities
- Competitors: local and out-of-state schools proposing competitive programs
- School and State administrations
- Industrial venture partners

Global environment:

- Technology
- Global economy
- Society

Environment

For PSU-EMP, the analysis of the environment consists of a SWOT analysis and a forecast of the future threats. More details can be found in Exhibit 7.

SWOT Analysis

Internal Environment

Strengths

The Engineering Management Program is very well established within the Portland area; it has a permanent faculty of three instructors and a broad alumni base. The type of education this program provides seems to fit very well with the demand of a very fast growing Portland industrial community. Two new programs (Masters of Engineering and Graduate Certificate) will soon be offered and complement the program's offering to attract full- or part time students with shorter and more flexible options.

Weaknesses

The Program is only relying on limited funding from the State and Portland State University to finance any eventual expansion. A closer relationship with the industry could provide additional resources. Also, the EMP does not seem to have a strong perceived value among market segments like the engineers' community in the Portland metropolitan area.

External Environment

Opportunities

By adding new programs and growing the number of its students, the Engineering Management Program will also increase its revenue from public and corporate sources. There is a need among working engineers for a more flexible and progressive access to technology management. This growing market segment is seeking to maintain its marketability to move forward in their current companies or change organization. Given the dynamic industrial environment found in the Portland area, it seems like many opportunities exist for partnerships with local companies like Intel, HP, Tektronix and others. We know that such companies are looking at improving the education of their work force in order to keep or attract talented employees; this is an important point given the current employment conditions in which employers have a hard time recruiting quality people.

Threats (present and future)

Two major threats appear in the Engineering Management Program's future. First of all, changes in the hierarchy of Portland State University may redefine the current policy in terms of programs offered and financial resources. The second one is that the graduate education landscape is experiencing new competition with the arrival of foreign universities entering the local market (for example: University of Phoenix) or local institutions extending the scope of their programs (for example: new emphasis on Technology added to the MBA's curriculum at PSU).

Key Success Factors

Key success factors (KSF) "can be an important tool in ...[Management Information Systems and performance measurement]..., we contend that another beneficial application of the concept is in the strategic planning and business strategy development area."[1] Key Success Factors's (KSF) enable an institution to develop strategic plans that fit within the firm's competitive marketplace. This analysis is of PSU-EMP in its primary competitive marketplace, the Portland metropolitan area. In the analysis it was assumed that PSU-EMP competes in the Portland metropolitan area for its primary customer market segment (25-30 year old male employed in the high-tech industry.)

In Exhibit 3, the KSFs for point A are presented. The transition from point A to point B will require a revision/redefinition of PSU-EMP's KSFs. Three tools were used to evaluate KSFs for the transition from point A to point B: Analysis of Competition, Industry Business/Experts and an Analysis of Industry Structure.

Analysis of Competition of PSU-EMP in the Portland Metropolitan area

PSU-EMP's business is providing Masters level education in Management to its customers. The market was defined as Management rather than Engineering Management due to the high percentage of engineering students that pursue M.B.A.s, upwards of 30%, that could be channeled into PSU-EMP. Thus, most Masters in Management candidates, with a B.S. degree in engineering, are considered viable candidates for an Engineering Management degree.

In the Portland Metropolitan area at point A, PSU-EMP has six competitors for a Masters in Management: PSU (MBA), OCATE, OSU, University of Portland (U of P), Washington State University (WSU) and Oregon Graduate Institute (OGI.) (See exhibit 6 for Competitive Analysis at Point A.) Of these five competitors, at point A, two Universities offer M.B.A.s, the remaining offer programs similar to Engineering Management with varying degree requirements. The course requirement of WSU and OGI are most similar to PSU's EMP.

At point B the competitive matrix widens, PSU-EMP has two additional course offerings and a new competitor enters the marketplace, the University of Phoenix. (See Exhibit 6 for Competitive Analysis at point B.) PSU-EMP's new course offerings are unmatched by the local competitive marketplace. However, the University of Phoenix offers a web-based program that may be sought after by a small percentage of PSU-EMP's market segment. KSFs for each of the eight programs is shown in exhibit 6: PSU-EMP, PSU-MBA, OGI, WSU, U of P-MBA, OCATE and Phoenix University. The KSFs for each program varies a great deal; from Alumni programs, distance learning to strategic partnerships. (Note: It was assumed that the KSFs in red will be integrated into PSU-EMP by the year 2000.) This analysis emphasizes PSU-EMP development and competitive position in the marketplace.

In this analysis the course offerings were found to be most similar at PSU-EMP, WSU, OGI and Phoenix. Unfortunately limited information is available on Phoenix University. PSU-EMP was the most competitive of the programs with the widest range of course offerings and the strongest industrial relationships.

[1] Leidecker, Joel et al. Identifying and Using Critical Success Factors, Long Range Planning, vol. 17, no.1, pp 23, 1984

Porter's 5 forces for PSU-EMP

An analysis of Porter's five forces is based on the fore mentioned competitive structure. (The diagram of Porter's five forces is in Exhibit 6.)

In the competitive structure there are a number of barriers to entry in the Management industry such as:

Established department & reputation
Faculty
Industry partnerships
Program accreditation

These entry barriers enable programs such as PSU-EMP to retain its competitive advantage in its ecosystem and disable new entrants to become primary competitors. Thus the threat of new entrant is low in the short term. However, if PSU-EMP does not retain competitive advantage, the threat becomes high. The two additional forces that enable PSU-EMP to have a strong ecosystem are Co-opetition and Suppliers. The bargaining power of suppliers is high. This is particularly true of the industry supplier due to the high percentage of customers supplied from industry. Co-opetition is the force that enables PSU-EMP to meet industry suppliers needs by point B.

Industry/Business Expert Analysis

The two experts analyzed are PSU-EMP faculty and Stanford's STVP. The expert analysis of PSU-EMP was taken from the point A analysis and these KSF's stress a wide range of areas that are important for all Management programs, such as faculty, students, educational programs and reasearch. The emphasis in the Stanford program is industry partnerships. (See Exhibit 6.)

The analysis techniques resulted in the following **Industry Key Success Factors**:

- Networking & marketing with industry, alumni, & community
- Industry partnerships: focus on community involvement/co-evolution & industry affiliation
- Educational programs & Research programs
- Leadership
- Established faculty in Engineering Management

Critical Issues & Gaps

The critical issues for PSU-EMP are leveraged from the Industry Key Success Factors. Ranking of critical issues are as follows:

1. Networking & marketing with industry, alumni, & community- **90%**
2. Industry partnerships: focus on community involvement/co-evolution & industry affiliation- **85%**
3. Educational & Research programs- **70%**
4. Leadership- **40%**
5. Established faculty in Engineering Management- **15%**

The Critical issues are ranked based on perceived gaps in PSU-EMP. (See exhibit 8 for diagram.) The areas that were higher than 70% are Networking & marketing, Industry partnerships, and Educational & Research programs. These gaps are issues that PSU-EMP must develop in transitioning from point A to point B. The major issue to develop is Networking and Marketing; particularly the marketing of PSU-EMP to its customers and suppliers. This was followed by Industry partnerships, which is a strategy that will be addressed by PSU-EMP in the transition from point A to point B to strengthen the ecosystem. Educational & Research programs represent another issue that will be addressed in the transition from point A to point B. (See Exhibit 3 for information on strategies for point A.)

Alternative Strategies

We have identified three main alternative strategies:

Local EMP growth and marketing

- Strategic alliances and partnerships
  (PICMET, local government, corporations)
- New educational programs
  (MENG, Graduate Certificates, Innovative Curriculum)
- Increasing marketing efforts
  (Brochure, mailings, company presentations, commercials)

With this strategy, the PSU EMP staff will focus their efforts on the internal program and growth. International contacts would be limited to PICMET and networking activities until enough resources are in place to facilitate further interaction.

Pros:

- Keep the EMP innovative and on the leading edge in the Portland area.
- Does not stretch EMP resources too thin.
- Focus on local expansion to increase recognition and authority (preparation for stage III).

Cons:

- Limited vision; not working on international goals.
- Limits networking to local community.

Global market expansion

- Establish PSU's EMP program with international partnerships
- Develop an exchange program with other professors
- EMP remote classroom technology (combine efforts – share in rewards; mixture of attending class and internet courses)

Pros:

- Draws from a large pool of potential students.
- Encourage diversity of student's origins and taught technical areas.
- Learn from experience of international partnerships.
- Increase international marketing channels through visiting professors.

Cons:

- Lack of resources to keep EMP courses innovative.
- Global expansion at expense of local growth.

Combination: Local and global market expansion

This alternative favors strategic alliances and partnerships with local and international universities. Share EMP curriculum with other universities (both local and international)

Pros:

- Aggressively pursue PSU-EMP's mission and vision.
- Draws from a large pool of potential students

Cons:

- Resources spread too thin to keep EMP courses innovative.
- Too generalized; not focussed on specific niches and needs.

Recommended Strategy

After reviewing the above-described alternative strategies, we have selected our recommended strategy. The first one of our alternative strategies was suggesting a particular effort on cultivating the local (Portland metropolitan area) market and that is just what we recommend for PSU-EMP.

Over half the students currently enrolled in the program are foreigners; furthermore, PICMET events procure a very high level of international visibility for the Engineering Management Program. We do believe that the school can gain a lot by marketing itself locally among Portland's industrial community. This will create a sustainable level of interest and growth based on a higher popularity and curriculum diversity.

What we recommend is a strategy based on:

- Focus on local market development
- Perceived value & value drivers

How to do it:

In order to implement this strategy, EMP's management will have to focus on at least the first three of the "Four **P**'s of Marketing":

- **P**roduct,
- **P**lace,
- **P**romotion,
- *Price.*

Along these lines, the following lists our recommended actions:

1. Emphasis on quality, value, and customer satisfaction for market segments
   - Perceived value & increased quality of education with new programs
   - Local market planning: drop traditional assumptions about market behavior

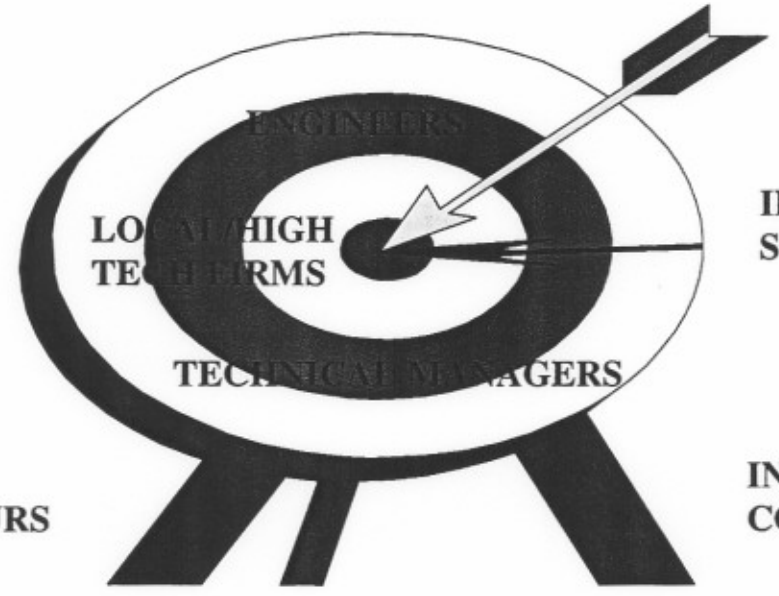
2. Strategic alliances & networks
   - International alliances (currently developing),
   - Visiting professors,
   - Networks within industry & community (courses taught by Ph.D.'s within/to companies).

3. A dynamic promotion strategy based on:
   - aggressive personalized mailings supported
   - use of eye-catching brochures
   - Relationship building (industry & students) and customer retention (students & alumni)
   - Organizing events at local companies to generate interest in the school and its different offerings among targeted employees. Examples include:
     - Hosting industry dinners/lunches with PSU guest speakers,
     - Faculty members giving a preview of classes taught by the school.

Exhibits

Exhibit 1: Potential target markets

PSU'S EMP



CEO'S AND EXECUTIVES

INTERNATIONAL STUDENTS

ENTREPRENEURS

INTERNATIONAL CORPORATIONS

NON-TECHNICAL MANAGERS

BUSINESS STUDENTS

Exhibit 2: Portland State University's EMP and Primary Stakeholders

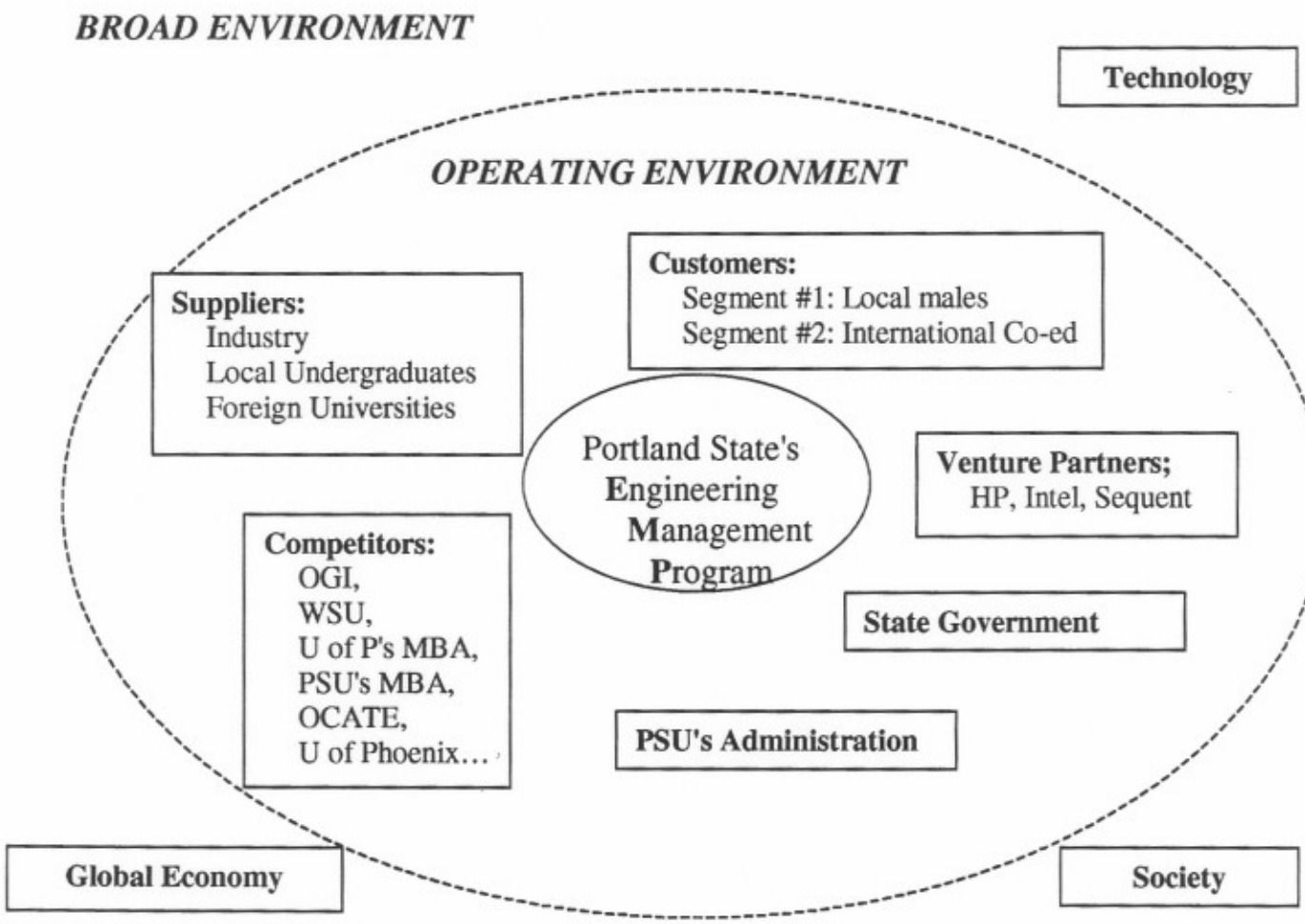


Exhibit 3: Vision, Mission, KSF and Environment Analysis at Point A

(Today-taken from EMP's Strategic Plan)

The following information is taken from EMP's strategic plan and is used as a point of reference

Vision:

Provide leadership in generating and dissembling knowledge for solution of engineering and technology management problems.

Mission:

Help Portland develop as a nationally and internationally recognized center for research, education and implementation of engineering and technology management.

Competitive Analysis

Key Success Factors & Objectives for EMP

KSF	*Objectives*
❖ Faculty	5 tenure track faculty members
❖ Staff	full time administrative…
❖ Educational Programs	
❖ Research	
❖ Industry Relations	
❖ Leadership	
❖ Resources	
❖ Students	

Environment Analysis for the PSU's EMP

Internal Environment

Strengths

- ❖ Teaching Quality
- ❖ Faculty
- ❖ Leadership in the field
- ❖ Strong industry relationships
- ❖ Good students

Weaknesses

- ❖ Lack of resources
- ❖ Inadequate research

External Environment

Opportunities

- Program growth
- Technology Management Research Center (TMRC)
- Partners in Industry
- International recruitment
- Regular PICMET
- Funded research projects
- Summer degree program
- In-company training

Threats:

- Losing students
- Growth of competitors programs
- In-ability to respond to industry needs
- Identity of Engineering Management field not established yet.
- Lack of resources

Objectives in Strategic Plan

1. Increase Faculty size
2. Develop Grants & Industry partners
3. Develop New Educational Programs
4. Increase Promotion & Enrollment of Students

Strategies:

- High priority: Research grants, PICMETS & Industry partnerships
- Med. Priority: Establish TRMC, New educational programs, Engineering management solutions for industry

Exhibit 4: Mission and Vision at Point B (the Year 2000)

Mission and vision statements are formulated to build on EMP's strengths and opportunities while minimizing EMP's weaknesses and neutralizing the strengths.[2]

Vision

Create strategic partnerships with government agencies, corporations, and international organizations to teach, learn, implement, and foster the development of engineering and technology management practices throughout the world.

Mission

To make PSU's EMP a nationally and internationally recognized leader in the field of engineering and technology management through:

- Research and innovation
- Education and learning
- Partnerships and implementation
- Providing EM solutions to industry
- Establishing new educational programs

[2] Class discussion.

Exhibit 5: PSU's Engineering Management Programs Degree or Certificate Opportunities at Point B

Degree or Certificate	Minimum # of credits beyond a B.S. degree	Comments
Ph.D. in Systems Science/Engineering Management	72	Comprehensive examinations; Research and dissertation
M.S. in Engineering Management	51	13 courses including capstone or 12 courses including thesis option
Master of Engineering (MENG)	45	9 credits from internship (work related projects); 9 courses including capstone
Graduate Certificate	16	4 courses in specific area: Tech. Mgmt., Proj. Mgmt., Civil Engr. Mgmt.

Exhibit 6: Competitive Analysis and Key Success Factors at Point B (the Year 2000)

Competitive Analysis diagram

Point A	**EMP-PSU**	OCATE	OSU	University of Portland	Washington State University (Vancouver)	OGI
Master's of Engineering Degree in Manufacturing Eng'g Joint Masters (OSU-PSU)	X (51 cr.)	X	X			
M.B.A.	X			X		
M.S. Civil, Mech., Electr.	X			X		
Engineering Management					X (32 cr.)	
M.S. in Management in Science and Technology						X (52 cr.)

Point B	**EMP-PSU**	OCATE	OSU	University of Portland	Washington State University (Vancouver)	OGI	University of Phoenix (Portland Campus)
Master's of Engineering Degree in Manufacturing Eng'g Joint Masters (OSU-PSU)	X (51 cr.)	X	X				
M.B.A.	X			X			**X**
M.S. Civil, Mech., Electr.	X			X			
Engineering Management					X (32 cr.)		
Graduate Certificate	X						
Master of Engineering (Meng)	X						
Master of Arts in Organizational Management							**X** (39 cr.)
M.S. in Management in Science and Technology						X (52 cr.)	

NEW

NEW

Key Success Factors for Primary Market segment: Local Universities

Portland State's EMP

- Leadership: Department was established by Dr. Kocaoglu
- Faculty Flexibility: Range of courses available (Technical & Management)
- Faculty involvement with IEEE & PICMET
- Location
- Teamwork: Industry relationships & partnerships
- Alumni association
- Innovative & Time leadership (Programs: Ph.D., MS, MENG, & Graduate Certificate)

(Key Success Factors in red are new factors in the year 2000.)

PSU's MBA program

- Markets to range of students (Business & Engineering (34%))
- Alumni association
- Course offerings: well rounded degree program
- Overlap of Business & EMP coursework (Technology management option)

Oregon Graduate Institute

- Technical Reputation
- Focus on science & technology
- Student to Faculty ratio
- Location
- Short course or seminars
- Alumni

Washington State University's Branch Campus

- University affiliation: WSU's main campus
- Industry relationships of main WSU campus
- Attracts Washington State students (96%)
- Growing program (15%)

University of Portland MBA program

- Private University & Religious affiliation
- Engineering school is nationally ranked (USNews & World Report, #36)
- Small classes

OCATE: Manufacturing Management

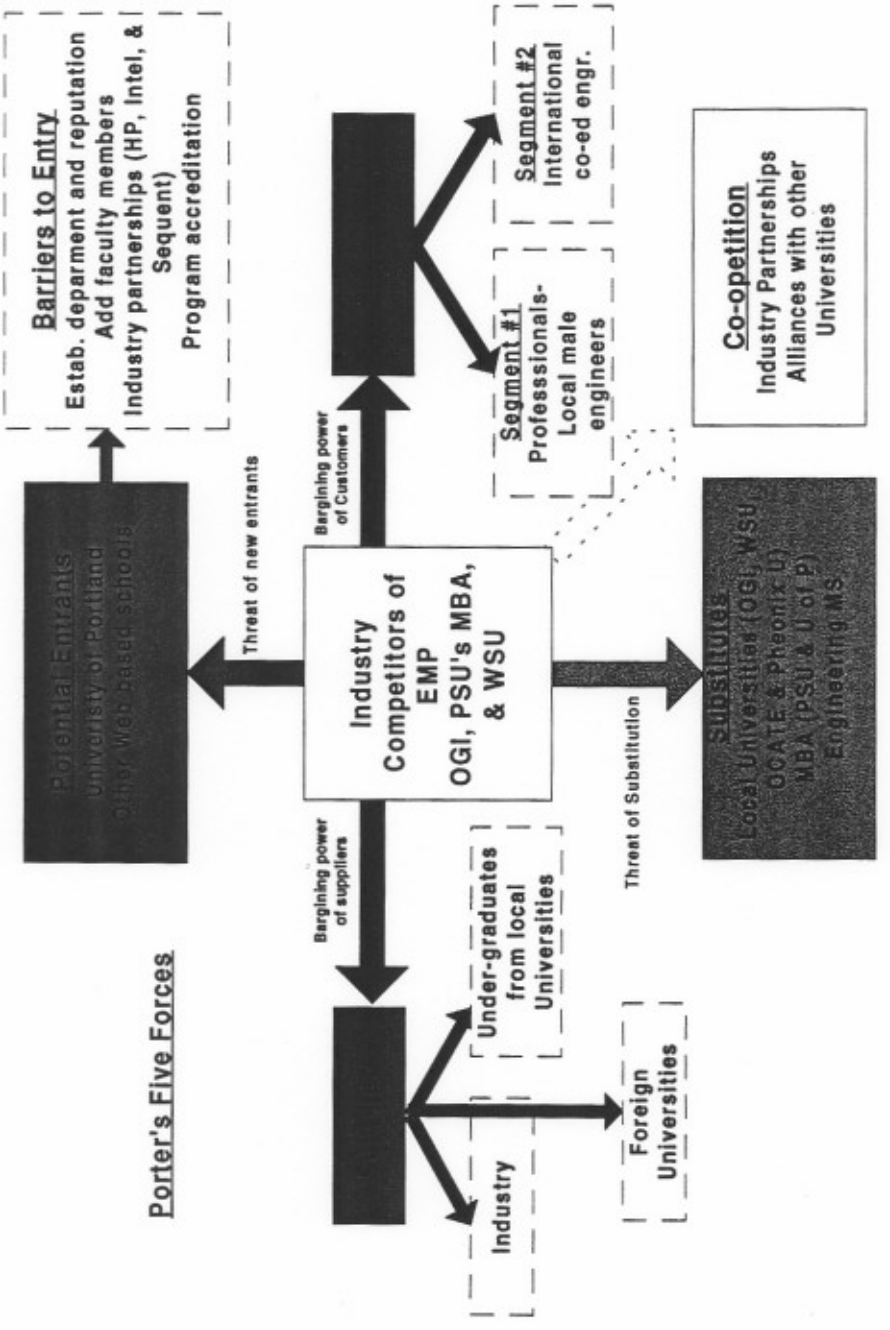
- Academic Partnerships with PSU, OSU, OGI, & U of O
- Technical track
- Industry partnerships

Phoenix University: Engineering Management & MBA

- Distance Learning
- Phoenix University Faculty
- Aggressive Marketing

Analysis of Industry Structure: Porter's 5 Forces at Point B

An analysis of Porter's five forces for PSU's EMP is based on the work of Michael Porter. This analysis provides a basic methodology to understand the structure of PSU's EMP in the graduate engineering management industry. In this analysis six forces were analyzed: Porter's five forces and the sixth force, Co-option, proposed by Andy Groove.



Industry/Business Expert Analysis at Point B

The two Universities that were used as industry experts were the EMP department goals and the Engineering Management program at Stanford University.

EMP Goals

- Faculty
- Staff
- Educational Programs
- Research
- Industry Relations
- Leadership
- Resources
- Students

Stanford's STVP (Stanford Technology Venture's Program)

- Entrepreneurship focus for research, programs, & curricula
- Serve Stanford community = Stanford Center for Professional Development
- Network with entrepreneurs = Industry Affiliates Program
- Collaborate with other departments, programs & Universities

Industry Key Success Factors

- Networking & marketing with industry, alumni, & community
- Industry partnerships: focus on community involvement/co-evolution & industry affiliation
- Educational programs & Research programs
- Leadership
- Established faculty in Engineering Management

Exhibit 7: Environment Analysis for PSU-EMP at Point B

SWOT Analysis

Internal Environment

Strengths

- Experienced faculty = Teaching Quality + Faculty
- Currently established program leadership in Portland & vicinity
- Industrial growth in the Portland metro area
- New programs (MENG & graduate certificate)
- Adjunct faculty

Weaknesses

- Dependence on ecosystem relationships (university funding process) for survival & growth.
- Little involvement from local industry
- Low level of funding from State/University for new endeavors (hiring, new programs, joint ventures?)
- Inadequate Research funding

External Environment

Opportunities

- State funding for new programs & faculty (Funded research projects)
- New programs (MENG & graduate certificate)
- Partnerships with industry
- Seminars & Short courses for Industry (In company training)
- Visiting professors (Domestic or International)
- Technology Management Research Center (TMRC)
- International Recruitment
- Regular PICMET

Threats:

- Highly competitive academic environment may emerge (Growth of competitors programs)
- Hierarchical Business structure of University, for funding & development (TMRC)
- State cut-backs in educational funding
- Inability to respond to Industry needs
- Identity of Engineering Management not established yet
- Lack of resources

(Texts in blue are environmental factors extracted from the Engineering Management Program's Strategic Plan.)

Future Threats at Point B

The following threats could have a significant impact on the PSU-EMP's program:

Social

- Loss of current students or lower enrollment.

Economic

- Decreased State funding from the Oregon State legislature.

Competitive

- Portland and Portland Metropolitan area Universities with EMP or MBA programs.
- Out-of-State Institutions or Universities entering local market through Internet or video classes.

Exhibit 8: Critical Issues and Gaps at Point B

Critical Issues

The critical issues for Portland State's Engineering Management program are leveraged from the Industry Key Success Factors. The ranking of these issues for PSU EMP is as follows:

1. Networking & marketing with industry, alumni, & community
2. Industry partnerships: focus on community involvement/co-evolution & industry affiliation
3. Educational programs & Research programs
4. Leadership
5. Established faculty in Engineering Management

Gaps

Based on the presented critical issues a number gaps were found in the current strategy for Engineering Management. These gaps and the corresponding percentages are in the shown in the table below.

Gaps in PSU's EMP

Gap	*Percent Gap*
Networking & marketing	90
Industry partnerships	85
Educational programs & Research programs	70
Leadership	40
Established faculty in Engineering Management	15

From the table above the largest gaps are Networking and marketing, followed by Industry Partnerships.

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