

## **Marketing of Geomatics Higher Education: the Hong Kong Experience**

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**Key words:** marketing, geomatics, education, marketing mix, relationship marketing, networks.

### **SUMMARY**

The potential value of educational marketing for geomatics higher education is addressed in this paper. Under a combined marketing mix (7Ps) and relationship networks approach, the marketing strategies and techniques include the use of a combination of high quality programme of study (the 'product'), easy-to-access location and attractive facilities (the 'place'), effective pricing (the 'price'), effective advertising and communication (the 'promotion'), high quality staff (the 'people'), operating system (the 'process'), evidence found by marketing research and audit (the 'proof'), exchange relationships, and networks to inform, motivate and service the markets.

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## 1. INTRODUCTION TO EDUCATIONAL MARKETING

What is educational marketing? Educational marketing is defined as ‘the analysis, planning, implementation and control of carefully formulated programmes which are designed to bring about voluntary exchanges of values with target markets to achieve institutional objectives [1, p. 6]’. Although ‘marketing is not a respectable pursuit for educationalists [6, p. 3]’, it has emerged in higher education since the early 1970s [2, 3] for the following reasons or purposes [4, Ch. 1; 1]:

- (1) Marketing management has been adopted from the commercial world as an essential element of a university’s overall strategic plan (e.g., Table 1).
- (2) The major purpose is to improve educational provision and practice through marketing and other educational management process in accordance with the quality standards in higher education.
- (3) Marketing of academic programmes is needed as institutions are competing for students and limited resources (funding) under shrinking of student population.
- (4) Marketing in higher education is needed for attracting and retaining students, staff and the financial resources.
- (5) Marketing the institution is needed to attract talents (students and staff) for producing high quality graduates and promoting institution’s image.
- (6) Marketing increases resources (e.g., tuition fees, donation and funding) by researching and approaching donor markets (e.g., individuals, education foundations, corporations and government).
- (7) Marketing expedites an exchange of needs/profits/knowledge among students, parents, staff, educational institutions, employers, government agencies, communities and other stakeholders in education.

Thus educational marketing is mainly concerned about customer satisfaction, searching new market segments, developing new services, finding new funding resources, and enhancing the institution’s image.

How to organize the marketing process for higher education? The marketing process comprises SWOT analysis, strategic and tactical planning, implementation, and control as shown in Figure 1. It has the following steps [4, 1]:

- (1) Establishment of marketing objectives and an organization framework for marketing under the umbrella of the institution’s overall strategic plan (e.g., Item (7) of Table 1).
- (2) Identification of the profiles of core customers by the systematic collection of information through marketing research and audit, and segmented them in broad demographic, geographic, psychographic and usage-related categories inside a marketing information system.
- (3) Evaluating the attractiveness of each segment.

- (4) Selection of the target segments (markets) from for example, individuals, employers, parents and community groups.
- (5) Understanding the competitors and their services.
- (6) Development of new services and programmes for the target markets.
- (7) Development of the strategic marketing plan (Table 2) and the tactical marketing plan for each of the institution's services or programmes. The planning period for the strategic marketing plan is usually three years. The tactical or operational marketing plan gives more detailed objectives, day-to-day marketing activities, schedule and costs for the achievement of each year of the strategic marketing plan [13].
- (8) Development of the marketing audit system.
- (9) Implementation of the marketing plan; continuous assessment of the strategies and tactics by the audit system.

Marketing strategies can be formulated by marketing mix approach, relationship marketing approach, networks approach, or a combination of the aforementioned approach. In the 7-Ps marketing mix approach (Table 3), a detailed analysis of the product (i.e. services and academic programmes of competing institutions), place (i.e., location of markets and the competing institutions), price (i.e., resources needed by customers and the competing institutions), promotion (i.e., advertising and communication), people (i.e., recruitment of students and staff), process (marketing) and proof (i.e., marketing audit and physical evidence of satisfying marketing objectives and market needs) allows the institution to correctly position its services in the minds of the prospects. So that, the position of a particular service that matches the specific prospect is unique and is different from the positions of competing services.

The marketing mix approach is popular in practice but criticized as a non-relationship approach of applying micro issues (7Ps) to transactions rather than satisfying consumer or societal needs in long-term [14, 15]. Since the early 1990s, the emergence of modern information communication technologies (ICT) and computer systems has made individualized relationship marketing promising in direct e-marketing and customization of products to satisfy individual needs [15, p. 152]. Further extension of relationship marketing approach to markets-as-networks approach has seen a socially constructed market to evolve among complementarities, substitutes, and cooperating and competing institutions within a business-to-business network context [15]. For example, an institution can develop its position by establishing relationships with counterparts in national nets, new to the institution. However, none of these marketing mix instruments or marketing models would typically influence the demand of higher education. Therefore, in the opinion of the author, the sustainable or holistic approach which is a combination of the aforementioned marketing approaches should be applied to better match or change the market needs. Details of the combined approach will be discussed in the next Section.

During the implementation of the marketing plan and programmes, marketing research and audit should be carried out concurrently. The main purpose is to formalise financial and non-financial measurement of marketing performance in the form of marketing profitability analysis. The audit needs to answer some of the following questions: Is the marketing expense

within the marketing budget? Is the implementation of the marketing plan and programme supported by physical evidence (proof) of increased brand equity (i.e., increased intakes of students and financial resources, better quality of graduates and research outputs, improvement of social environment and campus facilities)? Details of the marketing process and the marketing activities as applied in geomatics higher education are discussed in the following section.

## **2. MARKETING OF GEOMATICS HIGHER EDUCATION IN HONG KONG**

### **2.1 Situational Analysis**

In recent years, there has been an increase in the demand of geomatics graduates as the professionals continues to emerge from traditional land surveyors to geo-information engineers who applies geographic information systems (GIS) in almost all areas of business, homeland defence, education, engineering, government, health and human services, map production, natural resources, transportation and utilities. The increase of employers and markets is caused by a marked drop in the price of software, hardware and data for GIS. Free or open source GIS software and resources (e.g., GRASS and Quantum GIS) are now available to learners. Mini computers and expensive hardware are being replaced by inexpensive PCs for running GIS applications. The emergence of diverse courses in GIS applications for integrating with multiple disciplines reflects the demands and changing employment market of the profession.

At present, The Department of Land Surveying and Geo-Informatics at The Hong Kong Polytechnic University is the only institution in Hong Kong offering geomatics programmes at undergraduate and postgraduate levels, and has gained accreditation from professional institutions such as the Institution of Civil Engineering Surveyors (ICES), the Royal Institution of Chartered Surveyors (RICS), and the Hong Kong Institute of Surveyors (HKIS). The programmes are currently seeking accreditation from the Hong Kong Institution of Engineers (Information Engineering Discipline) so that BSc and MSc graduates will earn both the professional titles of Registered Professional Surveyor (RPS) and Registered Professional Engineer (RPE) on completion of their professional practice and training period. Competing programmes are those GIS and land surveying courses offered by other universities, local and overseas. But none of them has gained accreditation from local licensing authorities.

Currently, high school graduates from Hong Kong, China Mainland and overseas are received by the two-year full-time Higher Diploma Programme and three-year full-time BSc Programme, with preference given to those who have subjects such as mathematics, physics, geography and/or computer studies. Candidates who have a bachelor's degree with honours in geomatics or related disciplines, or who is holding a professional licence in geomatics or related disciplines are admitted to the part-time MSc programme.

## 2.2 Product, Price, and People

Product range, benefits, lifecycle and quality are significant issues pertaining to the product (i.e., educational services) being offered to the market [7]. Developing new and sustainable programmes (e.g., Table 4) is vital to the institution's future prosperity and to maintaining or improving its position in the market. Under the outcome-based curriculum and work-integrated education (WIE) requirements, the Department builds a long-term partnership with employers to nurture students in meeting future employment needs and facilitate a win-win situation of benefiting students, employers and PolyU.

Pricing and costing are not significant issues to PolyU because they are set or subsidized under government education policies. Marketing perspectives suggest that pricing decisions should be customer led, and that costs should be effective and controlled within the budget [6, p.49]. Under the global trend of commercialization of higher education, institutions have more freedom to set prices with greater differentiation of products, taking the account of 'the value of the product to the customer, the price as an indicator of quality, the ability of the customer to pay, the number of courses required, the marketing saturation of the product and the price customers are prepared to pay [7, p. 80]'.

The 'people' element is concerned with the design of strategies for attracting and retaining qualified students and staff. Students are attracted by the institution's financial aid and scholarships, fields of study, academic reputation, teaching quality, academic standards, location and accessibility, social atmosphere, and careers available [16]. An effective retention programme should be designed to [1, Ch. 15]:

- (1) Assess the retention situation and determine: (a) institution's past record on retention; (b) factors related to attrition.
- (2) Determine why students leave through student panels and surveys.
- (3) Encourage an attitude of service (staff attitude) to students.
- (4) Establish a good student-institution match in recruiting and admissions.
- (5) Facilitate the student's transition into the institution.
- (6) Provide counselling and advising at Student Affairs Office.
- (7) Create a caring, responsive environment that encourages students to stay.

Since study programmes and their curricula are under the control of academic departments, the departments and staff ('people') must assume the role of salesmen and marketing manager. Salary increase or promotion and staff development should be offered to retain high quality staff and to further their knowledge and strengths in the areas of higher education and business/marketing management.

## 2.3 Place and Promotion

The 'place' element is concerned with 'the location, appearance and the facilities of the place where service is delivered which influence the accessibility and available of the services [7, p. 81]'. Detailed, well organized, ongoing promotion plan for both the institution and individual

programmes should be organized to attract students, staff and financial resources. There are many methods of promotion which may be used by institutions, including [19]:

- (1) Paid advertising in, for example, newspapers and magazines.
- (2) Free publicity; for example, public relations department provides positive information about the institution through press release.
- (3) Community and professional involvement; for example, faculty members are encouraged to speak to local community and professional groups to stimulate the 'word of mouth' which may attract a large number of prospective students and employers.
- (4) Open House, Information Day, Consultation Day and Recruitment Day to facilitate better communication with prospective students, parents and employers.
- (5) Personal selling, in which staff has been assumed the role of salesmen and marketing manager in communicating with students, parents and other stakeholders of higher education.
- (6) Free courseware, for example, a taste of distance learning on the Internet for prospective students. Short courses for a small amount of tuition fee are also effective tools for programmes.

These marketing strategies on 'place' and 'promotion' should be designed to position the institution and programmes with desired image making it realistic, attractive and distinctive in positive ways to the segments and the publics.

## **2.4 Process – a Combined Marketing Mix and Relationship Networks Approach**

The marketing mix (7Ps), exchange relationship and networks are vital parts of the marketing process. So that, the benefits of educational services, which are available at the right price, place and time, and meet the needs of prospects and staff, need to be communicated effectively in the networks of stakeholders thus enhancing relationships between key people.

The Department maintains as the only department, amongst the local tertiary institutions, offering undergraduate and postgraduate programmes in geomatics, and positions itself growing as one of the leaders in geomatics higher education and research through dedicated partnerships or networks with business, industry, the profession and the community. It has a modern suite of well-equipped laboratories for supporting the studies and research in the areas of geodetic and engineering surveys, geo-informatics and GIS, remote sensing and photogrammetry.

To market the Department's applied R&D value to the prospects, the community and China, it is actively involved in renown geomatics projects such as the 'Change I' Project - China's first Moon-exploration satellite. As added values in marketing the academic programmes, the Department offers financial aid (e.g., scholarships and sponsorship) to students and has built up a strong network with the private and public sectors to help provide students with all-round education. For example, the following WIE programmes have been organized between the Department and work organizations:

- (1) Mandatory one-week industrial safety training (Course IC251) and minimum one-month credit-bearing Course LSGI339 – Summer Survey Training Scheme are being

organized for BSc (Geomatics) Year-2 students under the Preferred Graduate Development Programme (PGDP), the International Association for the Exchange of Students for Technical Experience (ISESTE) overseas placements, and placements co-organized with geomatics firms and the Survey and Mapping Office (SMO) of Hong Kong Government Lands Department.

- (2) Summer employment (not mandatory) is being organized for BSc/HD Year-1 students under the Preferred Graduate Development Programme (PGDP), Hong Kong Government Post-secondary Student Summer Internship Programme, Summer Survey Training Scheme of SMO, and other local WIE programmes.
- (3) Students will be employed by staff's consultancy contracts from the industry.
- (4) Student are involved in voluntary service such as setting out race course for the Dragon Boat Festival and surveying and mapping for the construction of schools and bridges in poor rural areas of China (e.g., 'Bridge to China' Charitable Foundation).

The University also develops closer links with local and overseas academic and professional institutions. The mutually beneficial co-operations include staff attachment, development of distance-learning packages, joint research projects, commercialisation of research results, and study-tours. The combined market mix and relationship networks approach has been, in the opinion of the author, recognised enthusiastically among universities.

## **2.5 Proof**

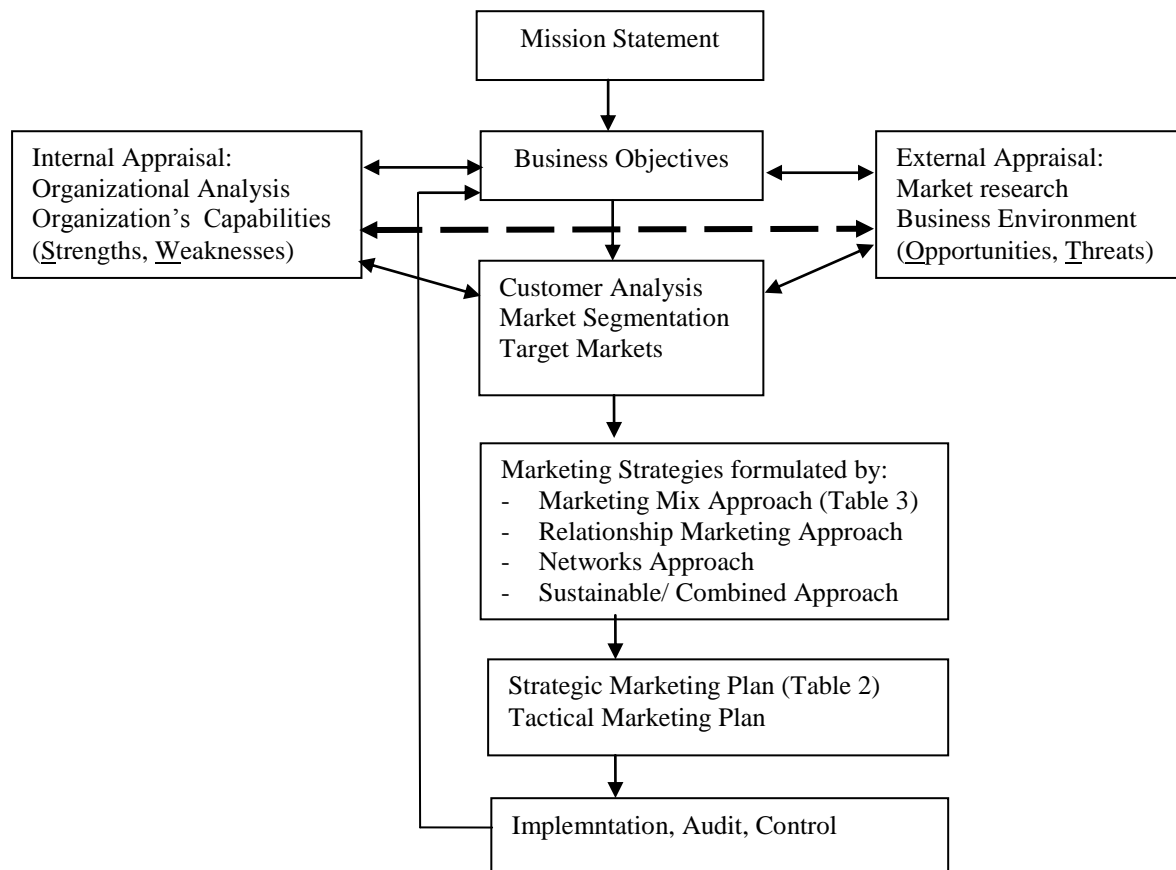
Continual improvement of marketing planning, implementation and performance relies on marketing audit which is a periodic, systematic and independent assessment of the institution's marketing performance. Major items of the marketing audit are: historical and cultural analysis; marketing environmental analysis; market planning analysis; marketing strategy analysis; marketing organization analysis; marketing information analysis; pricing analysis; administrative-department analysis; curricular-programme analysis [12; cited by 1]. In an essence, the audit focuses on the investigation of the market segmentation, product mix (i.e., product range, product benefits, product life and product quality), and the remaining marketing mix [7, 20].

## **3. CONCLUSIONS AND FUTURE DEVELOPMENTS**

As universities need to receive tuition fees, government funding and donations in order to offer their services to prospects (e.g., students, government and employers), they have to apply marketing techniques to capture the attention of the prospects (i.e., the target markets), facilitate their decision-making by educating them about what they need to know, and offer them desirable options of academic or research programmes to further the procurement process. Under the combined marketing mix and relationship networks approach, the marketing strategies and techniques include the use of a combination of high quality programme of study (the 'product'), easy-to-access location and attractive facilities (the 'place'), effective pricing (the 'price'), effective advertising and communication (the 'promotion'), high quality staff (the 'people'), operating system (the 'process'), evidence found by marketing research and audit (the 'proof'), exchange relationships, and networks to

inform, motivate and service the markets. The resulting marketing strategies and plan should include decisions about the institution's current and future programmes and markets (prospects) as well as changes needed to achieve the business objectives.

The extensive use of marketing mix, exchange relationships and burgeoning networks in educational marketing will continue to grow. Nevertheless, the combined marketing approach should build upon the strengths and ethical traditions of education service, and 'should disarm critics of marketing who accuse it of polluting education with alien commercial ideas and strategies incompatible with the fundamental objectives of an education service [4, p.26]'.



**Figure 1:** The marketing process.



**Table 1:** Strategic plan of PolyU [5]

<i>Subject Areas</i>	<i>Strategies</i>
(1) Mission	<p>To pursue academic excellence in a professional context through:</p> <ul style="list-style-type: none"> <li>• <u>Programmes</u> that are application-oriented and produce graduates who can apply theories in practice.</li> <li>• <u>Research</u> of an applied nature relevant to industrial, commercial and community.</li> <li>• <u>Intellectual</u> and comprehensive development of students within a caring environment.</li> <li>• <u>Dedicated</u> partnerships with business, industry and the professions.</li> <li>• <u>Enabling</u> mature learners to pursue lifelong learning.</li> </ul>
(2) Positioning and Core Business	<ul style="list-style-type: none"> <li>• Developing all-round graduates with a high level of professional competence, social and national and international responsibility.</li> <li>• Building global leadership, innovation and entrepreneurship in: <ul style="list-style-type: none"> <li>(a) Drug Discovery and Development;</li> <li>(b) Fashion and Textiles;</li> <li>(c) Health and Wellness Enhancement;</li> <li>(d) Tourism Management;</li> <li>(e) Logistics and maritime Services;</li> <li>(f) Product Design, development and Marketing;</li> <li>(g) Smart Materials and Systems;</li> <li>(h) Sustainable Urbanization.</li> </ul> </li> </ul>
(3) Education	<ul style="list-style-type: none"> <li>• To provide educational programmes and co-curricular activities which are outcome-based, work-integrated, professional and globally-oriented, and student-centred.</li> </ul>
(4) Student Development	<ul style="list-style-type: none"> <li>• To provide co-curricular activities for the holistic student development focusing on such areas as culture, local and international affairs, moral standards and ethical behaviour and problem-solving.</li> </ul>
(5) Academic Strength and Research Development	<ul style="list-style-type: none"> <li>• To employ internationally acknowledged leaders to conduct cutting-edge research that can be applied for the betterment of people's life, social well-being and the enhancement of competitiveness of the community.</li> </ul>
(6) Knowledge Transfer, Entrepreneurship, Partnership and Service to Community	<ul style="list-style-type: none"> <li>• To reinforce leadership position in transferring knowledge to the business and professional community through mutually beneficial collaboration.</li> </ul>
(7) Branding, Marketing and Internationalisation	<ul style="list-style-type: none"> <li>• To further enhance the brand image and recognition of the university by marketing core activities to local, national and international target audiences, and to further internationalise programmes, staffing and student bodies.</li> </ul>
(8) Management	<ul style="list-style-type: none"> <li>• To further enhance and rationalize the management style, structure and processes so that the university, as a caring and responsible employer, will become a valued community where employees can pursue their career and personal growth whilst maintaining a healthy lifestyle, and students can pursue their studies and holistic development with good support and facilities.</li> </ul>
(9) Campus Development	<ul style="list-style-type: none"> <li>• To complete the construction of the planned new buildings and student hostel, and to further enhance the campus environment for the holistic development of students, quality academic activities and learning.</li> </ul>

**Table 2:** Major items of strategic marketing plan [1, Table 4-1].

<i>Section</i>	<i>Purposes</i>
(1) Executive summary	Presents a brief overview of the proposed plan for quick management skimming.
(2) Current marketing situation	Presents relevant background data on the market, publics, competition, distribution, and macroenvironment.
(3) Opportunity and issue analysis	Identifies the main opportunities/threats, strengths/weaknesses, and issues facing the institution/programme.
(4) Objectives	Defines the goals the plan wants to reach in the areas of enrolment, donations, quality improvement, etc.
(5) Marketing strategy	Presents the broad marketing approach that will be used to achieve the plan's objectives.
(6) Action programmes	Answers: What will be done? Who will do it? When will it be done? How much will it cost?
(7) Budget	Specifies costs and forecasts the expected financial and other outcomes from the plan.
(8) Controls	Indicates how the implementation and effectiveness of the plan will be monitored.

**Table 3:** Marketing mix for educational services [4, Table 5; 7]

(1) Product	The goods or services being offered to the market. For example, courses, research and innovation, quality of teaching and administration.	[8]
(2) Place	The location and accessibility of the services.	
(3) Price	The resources needed by customers to obtain the services. For example, fees, entry qualification and opportunities.	
(4) Promotion	The activities communicating the benefits of the goods or services to potential customers. For example, advertising, publicity and exhibitions.	
(5) People	These are internal customers (i.e., staff) who are involved in selling and performing the service; and external customers (students and other stakeholders) who receive the service.	[9]
(6) Process	The operational system by which marketing is managed within the organization.	[10]
(7) Proof	The actual or physical evidence which confirms that customers have received service appropriate to their needs.	[10, 7]

**Table 4:** Courses for geomatics higher education [16; modified]

<b>Core Courses</b>
Geodetic Engineering and Global Positioning Systems
Photogrammetric Engineering
Remote Sensing and Image Analysis
Engineering Surveys and Metrology
Cadastral Surveys and Land Registration Information Systems (LRIS)
Spatial Information Management and Geo-Information Technology (Geo-IT)
Applications of Geographic Information Systems (GIS)
Cartography and Map Production
Hydrographic Surveys and Marine Information Systems
Statistical and Adjustment Analyses for Geomatics
Geomatics Business Management
Geomatics Research Methodology, Dissertation and Projects
<b>Foundation or Elective Courses</b>
Statistics and Numerical Methods for Engineers
Computer Programming and Data Structures for Engineers
Information Systems and Internet Technology
Construction Technology and Management
Environmental Engineering Systems
Property Appraisal, Development and Finance
Quantity Surveying and Cost Engineering
Real Estate and Facilities Management
Technical Communication and Second Language for Engineers
Humanities and introductory knowledge of other professions

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## BIOGRAPHICAL NOTES

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