# A TEACHING MODEL FOR INTEGRATING THE ALTERNATIVE PHILOSOPHIES OF TRANSACTIONAL, RELATIONSHIP AND ENTREPRENEURIAL MARKETING

Ian Chaston, University of Plymouth, UK Terry Mangles, University of Plymouth, UK

#### **ABSTRACT**

Observations of industrial and service sector organizations have raised questions about assuming the validity that buyer-seller behavior should continue to be considered as a transactional process. Debate has led to the emergence of the concept known as "relationship marketing." Other researchers have noted variance between classic theories and management practices in highly innovative organizations and posit a concept of entrepreneurial marketing. "Given the variety of trading circumstances facing organizations, perhaps the wisest course is to accept that transactional, relationship and/or entrepreneurial marketing all offer opportunities for firms to optimize performance.

#### INTRODUCTION

By exploiting the scale benefits of mass production to supply low priced, standardized goods such as the automobiles, refrigerators and television, the USA emerged as the dominant trading nation for most of the 20th century. This success is the reason why the USA has also become the primary source of many of the new theories of management. Alfred Sloan held the view that the secret of successful management is grounded in the concept of applying rational planning to achieve the single minded goal of maximizing profits. To assist in the normalization of this theory, Sloan and his supporters from within the academic community drew upon the conceptual rules of business established by the economist Adam Smith and the militaristic principles of the Greek and Roman empires. Described as a "Classical" approach to business, the principles of rational planning models as a path through which to optimize organizational performance have subsequently became the foundation stone upon which the syllabi of many business schools around the world have been constructed (Whittington 1993).

America's loss of market share to the new economic tiger nations of Japan and Taiwan caused a radical re-examination of the management principles being taught in Western nation business schools. Some researchers have focused their efforts on seeking to understand the nature of Pacific Rim managerial practices in the context of assessing how such nations are utilizing Classicist managerial philosophies. Others such as Mintzberg

adopted the view that there is a need to place greater emphasis on observing actual management practices when seeking to evolve new theoretical paradigms. From such thinking, alternative schools of management thought have begun to emerge. Mintzberg (1989) questioned the basic premise of Classical management theory that strategy formation is a controlled, conscious process undertaken by man acting as a rational, economic thinker. His perspective of the manager is of an individual who is reluctant to embark on unlimited searches for information and instead is more likely to form an opinion on the basis of the first satisfactory option that is presented for consideration. Known as the "Processual" approach to management, this school of thought downgrades the importance of rational analysis and instead perceives management as creating strategies through selecting those routines which within the organization can be identified as contributing to success.

Another perspective is that posited by the "Evolutionists." This school of thinking believes the destiny of the firm is determined by "the laws of the commercial jungle." The Evolutionists' view of strategic planning is to urge the manager to accept that markets control destiny and to place emphasis on selecting industrial sectors which are compatible with the identified capabilities of the organization. In contrast to the Processualist and Evolutionist approach to management, the "Systemic" school of management supports the idea of organizations placing faith in a structured planning process through which to evolve a strategy compatible with the external environment in which the firm is required to operate. Although this is clearly a philosophy which in part is compatible with the Classicists' view of the world, the Systemicists feel that the actual behavior of organizations is to a large degree determined by specific sociological contexts. This implies that decision-makers are strongly influenced by the social networks of which they are a part. Thus in examining alternative approaches for developing an effective planning philosophy, the systemicist will seek to comprehend the social roots from which the organization has emerged.

#### THE BIRTH OF MARKETING THEORY

After the Second World War the American G.I. returned home to a nation eagerly ready to adopt the mantle of being the leading economic power for the

balance of the 20th century. The expertise and wealth accumulated through acting as the manufacturing hub for the Allied Powers' military materials during the war was immediately directed towards the creation of what subsequently has become known as the "American Dream." The post-war growth of the American economy, fueled by rapidly rising consumer spending, provided the platform for the subsequent global expansion of firms such as Coca Cola, MacDonalds, and Levi Strauss.

Some management theorists, seeking to understand the success of such firms, concluded that performance could be linked to the adoption of a marketing orientated business philosophy. This approach to management is based on the concept that financial goals can best be achieved by firstly determining the needs of the customer and then satisfying these by providing appropriate products and/or services. Marketing, by reducing risk and improving understanding of customer needs, was presented as superior to the more traditional industrial model of constructing a plant to produce products and only then seeking sufficient customers to purchase all available output. The founding fathers of 20th century marketing (e.g., Kotler 1997) were clearly influenced by the Classicist view of management. As a consequence, many standard textbooks present marketing as a sequential, logical process designed to provide answers to the 3 questions of: (1) "Where are we now?," (2) "Where are we going?" and (3) "How are we going to get there?." To undertake this type of analysis, the marketer is advised to adopt a classicist strategic management approach. The entry point to process is to execute a detailed study of both the internal and external environments confronting the organization. This knowledge then permits definition of future performance goals, the strategy through which to achieve these goals and the elements of the plan necessary for underpinning adopted strategy. Delivery of the plan is achieved by utilizing the "4Ps" variables of Product, Price, Promotion, and Place. Concurrent with implementation of the plan is the creation of a feedback and control system which provides the manager with the knowledge necessary to effectively monitor actual versus planned performance.

In this Classicist view of the world, the marketer is assigned the task of acting as the interface between the market and the organization. The nature of role is that of matching the resources available within the firm to opportunities evident within the external environment of which the organization is a part. The proven durability of this concept is demonstrated by the fact that the brand management organizational structure is still in use to-day within successful fast moving consumer goods ("f.m.c.g.s") organizations such as Unilever and Procter & Gamble.

#### MARKETING – A TROUBLED ADOLESCENCE

The basic theories of marketing were initially evolved through studies of the battle for market share between major brands in U.S. consumer, tangible goods markets such as detergents and coffee. Researchers seeking to validate the benefits of classical theories of marketing management in other situations such as industrial and/or service markets, however, have often encountered severe difficulties in locating evidence that classical marketing concepts are widely accepted by managers within these latter industrial sectors.

Initially the apparent absence of a strategic market orientation was often attributed to this being a reflection of the inadequacies of managers who failed to appreciate the benefits of a structured, formalized approach to marketing. In the Nordic countries, however, a "grounded theory" approach of avoiding preconceived hypotheses of management process, observing actual events and seeking convergence in practice, has led to identification of alternative marketing models. Pioneering work by the Industrial Marketing and Procurement ("IMP") Group proved that firms in many industrial markets, instead of seeking to build market share through emphasis on intense competition with other brands, are often orientated towards the concept of inter-firm co-operation as a path through which to build long-term relationships based upon trust and commitment. Writers such as Nystrom (1990) posit that the classical school of marketing is based upon the economic theory of the firm in which well defined products are made available in a market where both supplier and customer are fully informed about the relative merits of competing offerings. He argues that classical marketing is founded on the assumption that access to information permits the customers to make a rational choice based upon a comparison of benefits offered by competing firms. Furthermore he feels classical marketing theory incorrectly assumes buyers are passive, reactive users who are not interested in any form of interaction with the supplier.

Studies of the marketing process in service sectors such as finance and retailing have also revealed situations where customers do not exhibit a strong transactional orientated buying behavior. Instead supplier firms seek to exploit opportunities for building long term relationships based on working in close partnership with purchasers. In manufacturing environments, added weight for a move towards closer customer-supplier relationships have been assisted by the managerial philosophies of Total Quality Management (T.Q.M.) and Just In Time (J.I.T.). Clearly a large Original Equipment Manufacturer such as IBM or Xerox can only fulfill customer expectations if their suppliers are also dedicated to the

delivery of high quality components. For this to be achieved, both the suppliers and the O.E.M. have to move away from the traditional, price-based, confrontational negotiation style towards a relationship orientated style based upon respect for each others contribution to achieving the mutual goal of optimizing product quality.

J.I.T. is a philosophy based upon adopting a highly responsive, batch-type manufacturing system in which production schedules are matched to recently received customer orders. Although as with any concept where actual achievement tends to be less than stated aspiration, for firms such as Hewlett Packard, J.I.T. has significantly reduced inventory levels and concurrently enhanced the firm's image as being able to offer a rapid, flexible response to changing customer needs. Similar to T.Q.M., however, for J.I.T. to be successful the firm must create a close working relationship with suppliers in order to implement concepts such as same day delivery, willingness to come onto the shop floor to manage restocking of component bins and automated invoice generation using Electronic Data Interchange (E.D.I.) systems.

Similar to the marketer in industrial markets, many service marketing theorists, in seeking to evolve paradigms appropriate to circumstance, have focused on the fact that many firms instead of emphasizing single transactions should in fact be attempting to build long term relationships with customers. A strong impetus to this alternative philosophy was provided by Reichfeld and Sasser (1990) who demonstrated that the real benefits of marketing come from programs directed at achievement of "zero defections."

### RELATIONSHIP VERSUS TRANSACTIONAL MARKETING

As a result of studies of both industrial and service sector firms, a new school of thought has emerged which examines how the firm can orchestrate internal resources and processes to create and sustain customer loyalty. Collectively this new orientation, which has both American (Berry 1983) and Nordic (Gummerson 1987) roots, is known as Relationship Marketing. Supporters of this new form of marketing argue that in order to survive in markets which have become more competitive and more turbulent, organizations must move away from managing transactions and instead focus on building long lasting customer relationships (Webster 1992).

Some disciples of the "new marketing" have suggested that traditional concepts based around the approach of focusing resources on the "4Ps," which may have been appropriate in North American consumer branded goods markets of the 50s and 60s, are no longer relevant in to-day's world. Gronroos (1994), for example proposes that "the usefulness of the 4Ps as a general

theory for practical purposes is, to say the least, highly questionable." A somewhat less extreme position, however, has been proposed by Nevin (1994) who feels firms should adopt a segmentation philosophy ranging from building strong relationships with key customers through to continuing to utilize the traditional "4Ps" approach for those customers seeking a standardized, generic product proposition. A similarly balanced view is presented by Anderson and Narus (1991) who recommend that firms weigh both customer orientation towards closer relationships and the cost/benefit implications of sustaining close relationships when selecting the most appropriate strategy to suit prevailing market conditions.

The evolving view of some academics that marketing should move beyond pure economic transaction theory and incorporate social structures into their process models has been assisted by Granvotters's (1985) theory of embeddedness. Uzzi (1997) has examined the concept of embeddedness as it relates to the marketing process. In his model, he notes that there will still remain those firms who exhibit the neoclassical principles proposed by Wilson (1989) of being exchange partners linked by arm's length ties, switching between suppliers purely on of lower prices. In an embedded relationship, however, Uzzi posits that firms perceive advantages in relation to factors such as access to privileged information and receipt of preferential treatment by customers when reaching their purchase decision. In very complex embedded relationships, entire groups of firms in the same geographic location and/or industrial sector may develop such close personal ties, that they cease to behave as autonomous units and trade as marketing networks.

#### ENTREPRENEURIAL MARKETING

Another area of academic debate reflecting dissatisfaction with the traditional transactional "4Ps" approach to marketing, is that smaller firms exhibit a somewhat different approach to the management of customers. This has occurred because academics (e.g., Carson, et al. 1995) have questioned whether many of the classic large firm marketing theories can be transferred into the small firms sector. By moving away from a positivist orientation towards research and instead observing actual management practices, some researchers are beginning to evolve a different perspective of what might constitute effective marketing practices within the smaller firm (Carson, et al. 1995).

This latter type of research has prompted some writers to conclude that marketing within the smaller firm can often be viewed as an integral part of managing entrepreneurial activities. The justification for proposing that small firms adopt an entrepreneurial marketing philosophy is that they face specific constraints which set them apart from larger organizations (Birley 1982).

### AN ALTERNATIVE MODEL OF MARKETING PHILOSOPHIES

A potential hazard with emerging theories of management is that polarization of opinions may cause academics to reject alternative perspectives and at the extreme, begin to claim firms can only succeed by adopting their prescriptive solution. This can be contrasted by the views expressed by Jackson (1985) who, in the case of relationship marketing, argued that the philosophy may not be relevant to all situations. To her, transactional marketing is probably more appropriate in those cases where the customer has a short time horizon and switching suppliers is a low cost activity (i.e., Wilson's neoclassical view of firms acting in arm's length transactions). Where the customer has a long time horizon and the costs of switching are high, then the purchase decision will involve a careful search for a supplier who is prepared to invest time and money to build a strong, lasting relationship with the customer (i.e., firms exhibiting Granvotter's theory of embeddedness).

If one accepts Jackson's perspective, then the debate between transactional versus relationship marketing is one of choice. Thus in virtually every industrial and/or service sector situation, there are price oriented customers who respond well to a transactional marketing philosophy; whereas there are other purchasers with whom a strong long-term relationship can be created. The objective for the marketer under these circumstances is to select the marketing philosophy for their organization which is most suited to their firm's internal capabilities and/or the nature of the product proposition they desire to offer to the market.

The same proposal on internal capability and nature of product offering can be made in the context of an entrepreneurial versus a non-entrepreneurial marketing orientation. Some firms are best suited to manufacturing standardized goods at a competitive price. Other firms are extremely competent at managing "leading edge" technology and clearly this skill can be best exploited by adopting an entrepreneurial orientation of regularly launching new, innovative products.

If one accepts the perspective that both transactional versus relationship and entrepreneurial versus conservative marketing are not mutually exclusive concepts, then this permits consideration of hybrid management models. The latter approach seems eminently more likely to be of greater benefit to the evolution of new theories of marketing than the trait of exhibiting an unchanging allegiance to a single, purist philosophy. Acceptance of alternative views of the world then permits the suggestion that all of the following approaches to marketing present equally valid choices:

- Conservative-transactional style firms who operate in markets where the customer is seeking standard specification goods or services at a competitive price and has little interest in building a close relationship with suppliers (e.g., double glazing firms bidding on Local Government replacement window contracts).
- 2. Conservative-relationship style firms who operate in markets where the customer is seeking standard specification goods or services but is willing to work closely with suppliers to optimize quality and/or obtain mutual benefits from creating an effective purchase and delivery system. (e.g., engineering firms supplying components to OEMs who operate J.I.T./T.Q.M. manufacturing philosophies).
- 3. Entrepreneurial-transactional style firms who operate in markets where customers are seeking innovative products or services which can be procured without forming a close relationship with suppliers (e.g., software houses using direct mail to market low cost, customized spreadsheet packages which solve sector specific management accounting problems).
- Entrepreneurial-relationship style firms who operate in markets where customers work in partnership with suppliers to develop innovative new products or services (e.g., producers of low volume, customized microprocessors utilized by specialist machine tool manufacturers).

One way of presenting these alternative market positions is to assume there are two dimensions influencing marketing strategy; namely closeness to customer and level of entrepreneurial activity. By using these two dimensions, it is possible to create a matrix of the type shown in Figure 1 to visualize the 4 alternative marking styles that might offer alternative strategic choices to a firm.

In using the model with both students and practioners, it is critical to note that it exhibits the same weakness of all matrix models; namely that the 4 styles may incorrectly be perceived as "black or white," mutually exclusive market positions. Hence a presenter of the model should emphasise that in fact both dimensions are actually each a continuum. At one extreme of "Closeness to Customer," the firm will behave in a totally transactional marketer. Firms nearer the mid-point may have a mixed strategy of being close to customers in some ways (e.g., offering detailed pre-purchase advise), but act in a more transactional way over another variable such as delegating post-purchase services to another organization. Furthermore at the end of the continuum, firms may be so committed to close relationships that they cease to be

## FIGURE 1 An Alternative Marketing Style Matrix\*

Innovation Orientation	High	Entrepreneurial- Transactional Marketing Philosophy	Entrepreneurial- Relationship Marketing Philosophy
	Low	Conservative- Transactional Marketing Philosophy	Conservative- Relationship Marketing Philosophy

\*Source: Chaston, I. (1999), New Marketing Strategies, Sage, London.

autonomous trading entities and become highly integrated marketing networks.

Similarly on the innovation continuum, at one extreme the firm may only concentrate on the sale of existing well established goods or services. Nearer to the mid-point on the dimension, the firm may have a mixed porfolio comprising both long established and relatively new products. At the extreme, the firm may only seek to be perceived as highly innovative and has a policy of withdrawing from any new market sector as a new item's position on the Product Life Cycle moves into the Growth/ Late Growth phase.

#### RESEARCHING THE HYBRID CONCEPT

This author feels it is inappropriate to present alternative theories in the teaching environment without firstly testing their existence in the real world. Hence a research study was undertaken to determine whether it is possible to demonstrate that firms can be identified which fit all of the 4 cells in the alternative hybrid marketing matrix.styles and to assess whether style influences the overall performance of the firm.

Miller (1983) has proposed that entrepreneurial style encompasses the elements of risk-taking, innovation and proactiveness. Covin and Slevin (1988) applied this definition to evolve and validate a 6 item tool which uses statements aspects of the innovation managerment process to measure the degree to which respondent firms exhibit an entrepreneurial style. The overall mean score for the 6 items is used to classify the respondent firms. If a firm's mean score is equal or below the overall sample

mean, the organisation is considered to be a conservative firm offering standard goods or services. The firm which has a mean score higher than the overall sample mean is considered to be enttrepreneurial.

Although a review of the literature provides a number of different descriptions of the characteristics exhibited by relationship orientated organizations, no appropriate scale appears to exist which can be used as research tool. Anderson and Narus (1991) have suggested that marketing strategy can be considered as a continuum ranging from transactional through to a relationship orientation. By adopting the same research design as in the Covin/Slevin study, it may be possible to determine a firm's position on a strategic continuum by seeking owner/managers' level of agreement with descriptive statements concerning management of customer relations.

Gummesson's (1987) and Gronroos's relationship (1994) models permitted the generation of twenty descriptive statements which were reviewed in focus group meetings with manufacturing firms. From this list the following six statements were found to most clearly differentiate between firms which operate in markets where the customer is seeking standard components at a competitive price and those in which the customer seeks to build close working relationship with suppliers (Chaston 1988):

 Revenue is primarily generated from repeat sales from customers with whom the firm has developed long term, close personal relationships.

- In-depth understanding of customer needs is achieved through building close working relationships over a number of years.
- New and improved products are developed by working in close partnership with customers.
- The firm's quality standards are specifically tailored to meet the individual customers needs.
- Staff are strongly committed to meeting the needs of others both inside and outside the organization.
- Staff at all levels within the firm interact with customers in seeking solutions to identified problems.

A survey 300 SME sector UK manufacturing firms across the SIC codes 3400 – 3600 (selection profile from a UK Dun and Bradstreet data base of firms with-25 – 100 employees) was undertaken in which the owner/managers were asked to respond to statements concerning entrepreneurial and relationship management style. Sales growth is measured using a point scale ranging from "sales declined by > 10 percent over the last 3 years (value 1) to "sales have increased by over 30 percent" (value 7).

Responses were received from 104 organizations, representing a response rate of 34.7 percent. Firms were classified into the 4 styles of conservative-transactional, conservative-relationship, entrepreneurial-transactional and entrepreneurial-relationship marketing style according to whether their entrepreneurial and relationship scores were above or below the mean value for each of these two indices.

Summary statistics for the performance of the 4 marketing styles are shown in Table 1. It can been seen from these data that the entrepreneurial-transactional firms have the highest overall sales growth rate, entrepreneurial-relationship and conservative-relationship firms

have slightly lower, but similar, growth rates and conservative-transactional firms have the lowest growth rate.

The results of this study do appear to support the possible existence of 4 different marketing styles which reflect a merger of the concepts of relationship and entrepreneurial marketing. In terms of commenting upon which is the most appropriate style for small UK manufacturing firms, on the basis of the significantly lower average sales revenue reported for conservative-transactional style firms, it does appear that this is the least appealing strategic option. This is in contrast with entrepreneurial-transactional, conservative-relationship or entrepreneurial-relationship marketing styles, all of which, on average, achieve higher revenue growth.

The results of the study should not, however, be used to make prescriptive recommendations about which is the best style for a firm to adopt. It is clearly very necessary to recognize that market circumstances and/or the orientation of the management will influence this decision. For example a firm may operate in a market where customers are essentially transactionally orientated and/or the benefits of moving closer to customer are greatly outweighed by the costs a firm would encounter in implementing such actions. Alternatively if the personal aspirations of management are to develop radically innovative new product, then building extremely close links with customers might limit the firm's ability to become a leading edge supplier of technology because the pace of innovation might be constrained by the conservative nature of the average customer in their industrial sector.

#### **CONCLUSIONS**

At the end of the 80s, marketing as a management discipline in the Western world entered a period of crisis. Academics, having noted the failure of many firms to embrace classical strategic marketing, began to express doubts about the future prospects for the survival of their subject. Some academics were so disturbed by these

TABLE 1 Summary Statistics By Style of Management				
Number	Mean Growth	SD Growth		
22	5.71	0.644		
31	5.06	1.202		
23	5.09	0.811		
28	3.59	1.803		
	Number  22  31 23	Number Mean Growth  22 5.71  31 5.06  23 5.09		

trends that conferences were held to ponder the proposition that "the end of marketing is nigh." Thankfully after a lengthy period of debate, wiser heads have prevailed. with their conclusion being that marketing is not coming to the end of its useful life, but instead that a new alternative vision is beginning to emerge. The basic tenets of the new vision are that variation in circumstance across areas such markets, customer behaviors, process technologies and organizational competencies are combining to require marketing to move away from a single, purist managerial concept towards a multi-faceted approach in which strategic decisions are influenced by whether the organization has adopted a transactional, relationship and/or entrepreneurial orientation to manage process.

The concept of a multi-faceted approach to marketing should not be interpreted as a proposal that marketers should reject all aspects of classic strategic marketing thinking. In highly transactional markets where customers seek standardized goods (e.g., many of the fast moving consumer goods markets such as coffee, HbAs or detergents) then many of the basic principles of marketing as practiced for many years by the multi-national branded goods companies will probably remain totally relevant for the foreseeable future. Instead what is being proposed is the philosophy of "Flexi-Marketing" where the marketer first determines the nature of customer need and then selects a marketing style most suited to prevailing circumstance.

#### REFERENCES

- Anderson, J.C. and J.A. Narus (1991), "Partnering as a Focused Market Strategy," California Management Review, (Spring), 95-113.
- Berry, L.L. (1982), "Relationship Marketing," in Emerging Perspectives on Service Marketing, L.L. Berry, G.L. Shostack, and G.D. Upah, eds. American Marketing Association, Chicago, 25-28.
- Birley, S. (1982), "Corporate Strategy and the Small Firm," *Journal of General Management*, 8 (2), 82-86.
- Carson, D.J. (1985), "The Evolution of Marketing in Small Firms," *European Journal of Marketing*, 19 (5), 7-16.
- , S. Cromie, P. Mcgowan, and J. Hill (1995), Marketing and Entrepreneurship in SMEs. London: Prentice Hall.
- Covin, J.G. and D.P. Slevin (1988), "The Influence of Organizational Structure on the Utility of an Entrepreneurial Top Management Style," *Journal of Man*agement Studies, 25, 217-237.
- Granvotter, M. (1985), "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology*, 91, 481-510.
- Gronroos, C. (1994), "From Marketing Mix to Relationship Marketing," *Journal of Academic Marketing Science*, 23 (4), 252 -254.
- Gummesson, E. (1987), "The New Marketing-Develop-

- ing Long-Term Interactive Relationships," Long Range Planning, 20 (4), 10-20.
- Jackson, B.B. (1985), Winning and Keeping Industrial Customers: The Dynamics of Customer Relationships. Lexington, MA: D.C. Heath.
- Kotler, P. (1997), Marketing Management: Analysis, Planning, Implementation and Control, 9th Edition. Upper Saddle River, NJ: Prentice Hall.
- Mintzberg, H. (1989), "Strategy Formation: Schools of Thought," in *Perspectives on Strategic Management*, J. Fredickson, ed. San Francisco: Ballinger.
- Nystrom, H. (1990), Technological and Market Innovation: Strategy for Product and Company Development. Chichester: Wiley & Sons.
- Reichfeld, F.F. and W. Sasser (1990), "Zero Defections: Quality Comes to Services," *Harvard Business Review*, (September/October), 301-307.
- Uzzi, B. (1997), "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness," *Administrative Science Quarterly*, 42, 35-67.
- Webster, F.E. (1982), "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, 56 (October), 1-17.
- Whittington, R. (1993), "What Is Strategy and Does it Matter?," *Thomson Business Press*, London.
- Wilson, R.B. (1989), "Exchange," in Allocation, Information and Markets, The New Palgrave: A Dictionary of Economics, J. Eatwell, M. Milgate, and P. Newman, eds. New York: Norton.

For further information contact:

Ian Chaston
Business School
University of Plymouth

Plymouth PL4 8AA, UK Phone: +44 (0)1752 232810

FAX: +44 (0)1752 232853 E-Mail: Ian.chaston@pbs.plym.ac.uk