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"AT THE FUZZY FRONT END" INTRODUCING FOUR STAGES OF INNOVATION TO SOLO CUP EUROPE: A KNOWLEDGE TRANSFER PARTNERSHIP WITH TEESSIDE UNIVERSITY

Introduction

This case study paper describes a two year Knowledge Transfer Partnership (KTP) between Teesside University and Huntingdon based foodservice and food packaging manufacturer Solo Cup Europe. The project focused on "fuzzy front end" innovation including early problem definition, idea generation and screening methodologies as the first stages in a Stage-Gate process. It introduced, developed and embedded a new creative working culture centred on New Product Development (NPD) as a core activity. The project was successfully completed in October 2010.

The Situation

Solo Cup Europe (SCE) manufacture or import and distribute disposable paper cups, thermo-formed rigid plastic containers and expanded polystyrene articles to the foodservice and food packaging markets. SCE is a UK limited company operating from a 13 acre site in Huntington, Cambridgeshire. In 2009 SCE produced over 3.5 billion units with sales of £70 million and it is one of the world's largest manufacturers of disposable foodservice packaging.

At that time, SCE had an American parent, the Solo Cup Company who had limited knowledge of the UK market and no knowledge, skills or resources to identify UK/European markets or the most appropriate strategies, products or materials to succeed in these markets.

Prior to the commencement of the KTP, SCE's core competencies were in the manufacture of food service and retail packaging products from paper, plastic and foam.

SCE was one of the first food packaging companies to implement an effective Environmental Management System (EMS) system based on the International Standard ISO14001. The company had an existing and strong engineering CAD design capability allowing technical refinements and alterations to products at a customer's request but had limited collaborative product development experience.

This centred on tailoring products to customer requirements and often stemmed from a customer's own initiation. Engineering expertise was supported by a graphic design service which allowed Solo to offer a wide range of print services from stock prints and specialty designs, to custom design and printing. As might be expected, Sales and Marketing were also existing areas of strength with a high level of product knowledge and market expertise for foodservice and packaging products. This enabled advise to customers on a wide range of disposables and the industry as a whole. Product ranges centered on:

- *Plastic Thermoforming*—e.g. Polyethylene terephthalate (PET) tumblers and containers and thermoformed dairy pots and lids.
- *Paper Conversion*—converting various papers into ranges of products e.g. cups and containers.
- *Foam Extrusion and Forming*—Expanded Polystyrene (EPS) products from cups to containers and bowls.

SCE had previously relied upon decreasing polystyrene usage as its base material as a means of innovation and in order to comply with increasing environmental pressures and customer demands. The KTP challenge was to decrease the UK dependence on this single monomer material in a single market sector. This would be achieved by entering new food/foodservice packaging markets with innovative, value added products which accounted for environmental factors.

The Opportunity

The project was to design and implement a market driven, new product development facility to enable the commercialisation of new, innovative and environmentally responsible products. The purpose of the project was to:

- *Predict* changes in the marketplace.
- *Enable* SCE to be responsive to these changes.
- *Ensure* that SCE products meet and/or exceed customers' changing needs and expectations.
- *Protect* SCE's existing market share from its competition
- *Drive* increased sales.

Innovation would be at the core of the activity. This would be achieved by:

- *Understanding* SCE capabilities, the competitive market environment, strengths, weaknesses and areas for competitive advantage.
- *Implementing* an NPD strategy, systems and procedures to identify new customers, product and market gaps and to deliver suitable designs that would have protectable IP.

- *Embedding* NPD best practice and protocols in SCE within a continuous research and NPD facility.

The Problem

Bringing "change" to a company is never an easy task and developing a cultural shift within a long established organisation is always challenging. This KTP has been an effective tool in bringing about a shift in approach which has enabled seven new products to be developed as well as new processes and new thinking to emerge. This was accomplished by applying a structured methodology, utilising, developing and refocusing the considerable expertise that already lay within the company. The KTP associate was embedded within the company to act as the creative lead, to manage the process and to instil design thinking as a normal working practice.

The Method

A staged approach was implemented which developed capacity over its duration.

Internal Audit

An internal auditing process was undertaken. The associate gathered information from across the organisation (marketing, supply chain/production, sales and innovation, environment and packaging). The overarching corporate business strategy was also discussed with directors. The audit set out to familiarise the associate with the company and bring an external "consultant's" eye to current procedures. Areas examined included:

- Company vision and strategy
- Organisational structure and business plan
- Core competencies
- Internal SWOT analysis
- Key personnel, their roles, and the relevant skills and experience that they could bring to NPD
- Potential for efficiency gains

External Audit

An external audit was designed to build a threshold level of market knowledge from which a continuous research process would deliver sustained intelligence into the business. Its purpose was:

- To understand and contextualise the marketing environment

- To rate competitors objectively against the company
- To assess opportunities, threats & potential for new business by forecasting the future

The NPD Strategy

The NPD Strategy was developed and implemented with key personnel which had been agreed at the directorate level. This was later refined into a document which gave:

- A platform for continuous Research & NPD including checkpoints for management decisions taking
- A roadmap setting clear expectations and deliverables
- Clarity of thinking between the NPD activity and the corporate strategy
- Resourcing needs were also identified and
- Sustainable design was to be given greater emphasis

Based on the skill sets identified from the internal audit and the opportunities defined from the NPD strategy, project initiations were identified and flexible teams were created to contribute to their development. Here, in "the innovation space", the associate was tasked with:

- Managing & facilitating NPD
- Developing NPD, design thinking & capacity across the organisation
- Utilising knowledge & expertise effectively.

By forming loose and flexible teams from within the company's existing workforce the company benefited from more fully utilizing the existing expertise. Participants also gained new skills and approaches which would benefit the company in the long term. The role of the associate was to act as a catalyst for this creative thinking and bring together the right teams for specific projects and project stages.

Teams within the innovation space came from four divisions of the company – Marketing, Sales, Innovation & Environment and Production. Whilst there were some crossovers each area had key areas of contribution:

Marketing:	International Lifestyle New/Emerging Markets Competitor Activity Possible Futures
Innovation and:	Intellectual Property
Sales:	International Current Needs Customer Interface Trade Intelligence
Environment:	Sustainability Legislation Materials & Processes

Production: Materials & Processes
Future Investment
Current Capability
Production and Distribution
Tooling and Technical

Innovation Funnel

Market opportunities were examined and a variety of design processes, models and protocols were trialled. This approach led to the evolution of a four stage *Innovation Funnel* which was specifically tailored to the company:

1. *Discovery*— Ideas into the Concept Funnel. Led by a research and intelligence feed. Ideas are proposed and screened against the NPD strategy. A *Product Idea Net* invites contributions from across all areas and levels of the organisation submitted via a widely internally advertised, product idea form.
2. *Ideation*—Shaping the Idea into a Realised Concept. A number of different creative tools are used to develop an idea or realise a concept in the process. These include brainstorming, scenario setting, sketching, experience prototyping, form prototypes and consumer trials. This feedback is fed back to multidisciplinary teams which help shape the idea to the best configuration
3. *Development*—Concept to Feasible Product. At this stage the brief is finalised for the detailed design of the product. Tooling design and manufacturing prototypes for testing can be outlined together with risk analysis and outline specifications for the product. At the end of this stage detailed financial analysis takes place and Intellectual Property is filed.
4. *Launch Process*—Taking the Product to market after resource assessment. Full production tooling is produced, customers are targeted, marketing materials are developed and the sales team trained.

Throughout this collaborative process effective internal communication is critical. This is important to:

- *inform* and ensure staff understanding of the project benefits
- *rally support* and gain "buy-in" from key staff
- *educate staff* in new ways of working and thinking

Effective control of external communications is needed in order to avoid early disclosure of designs which could threaten Intellectual Property Registration.

Measuring Success

Over the 2 year duration of the project a number of key changes were introduced at SCE. These included:

A new innovation department

Headed by a new innovation management (the former KTP associate)

Innovation team now operating

- NPD procedures and protocols in place.
- A creative culture has been developed.
- Cross functional inputs enhance the creative process and the quality of decisions making.
- Improved efficiency (time to market).

Enhanced design process model in operation

- A deeper understanding of competitors and the marketplace based on on-going research.
- A steady stream of new product initiations.
- Creative and evaluative techniques have been adopted.
- A project timeline management process enables project progression to be monitored and efficiency enhanced.
- Reduction of risks for NPDs has been achieved due to greater understanding of market dynamics and applied metrics evaluations.

Presentation capability has been enhanced

- Improved visual coherency across presentation materials.
- 2-D (sketches), 3-D (CAD Visualisation and prototyping) and moving image (video demonstration).

In*creased customer focus*

- Key customer requirements are now more clearly understood.
- Customer facing materials and interaction has improved (including briefing sheets and non disclosure documents).
- Proactive development of products anticipates customer needs.

- Customer involvement in the innovation process has enhanced customer loyalty.

NPD Strategy document implemented

- A platform now exists for continuous research & NPD with checkpoints for management decisions
- A roadmap with clear expectations
- Future resourcing needs have been identified
- Greater emphasis is now placed on sustainable design

Concluding remarks

By the end of the project, SCE's measurable deliverables included a series of seven new products, (including protected IP) which were nearing market readiness. A number have subsequently been successfully launched with customer feedback being very positive. The Associate won a prestigious 2010 National KTP Business Leader of Tomorrow Award and a North East Knowledge Transfer Showcase best poster award. He gained a Chartered Management Institute (CMI) Level 5 Diploma in Management and Prince 2 Foundation and Practitioner certificates. The associate was offered and accepted a full time, permanent position as innovation manager, in October 2010. The Teesside University has benefitted from supported, live student projects, support for teaching through associate presentations, case study materials and dissemination of best practice to university colleagues. The project has increased the profile of the university and presented public relations opportunities as well as helping to fulfil its key performance indicators for enterprise engagement. Research from this project is also building on the university's previous KTP experience in New Product Development.

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