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## CASE STUDY: CHOCPIX, UK

### Abstract

*Chocpix is a design and production company that makes clever use of existing technology to produce novelty chocolate confectionery moulds and rapid prototype packaging. The novelty feature is a hidden detailed picture - revealed by simply holding the translucent chocolate up to any bright light. The company operates without warehouses and storage. They plan to expand internationally by licensing producers and outsourcing manufacturing to local chocolate manufacturing companies. This case study describes the Chocpix approach, skills and expertise required to successfully move from the original concept stages to an international high-performing business.*

#### Case study fact sheet

■ Full name of the company:	Chocpix
■ Location:	Co. Durham, UK
■ Main business activity:	Manufacturing and distribution of novelty chocolate
■ Year of foundation:	2003
■ Number of employees:	3; planned circa 15
■ Turnover in last financial year:	Less than 100,000£ (148,000 euros); planned 5m £ (7.4m euros) within 5 years
■ Primary customers:	Companies, Clubs/Associations
■ Most significant geographic market:	UK; planned global
■ Focus of case study:	Innovation, constraints of complexity of technology for SMEs
■ Key words	CAD/CAM; business process innovation

### Background and objectives

Porcelain becomes translucent when it is kiln-fired at very high temperatures. An impression cast into porcelain, using only slight variations in the thickness, will produce a remarkably detailed image under the right lighting conditions. This imaging technique, first invented in France in 1872, is termed a Lithophane (Greek for "vision in stone"). The lithophane can be formed in plastics, confectionary products (such as chewing gum, candy, and chocolate), wax, soap and liquids. The image is created by light shining through the different thicknesses of the translucent porcelain; the thicker areas appear darker, and the thinner areas appear brighter.

This study describes the Chocpix approach, skills and expertise required to successfully move through to a high-performing business – from the realization that the concept of moulding translucent material in varying thickness could be applied to produce novelty chocolate. Chocpix has carved out a new niche market and is not in competition with the large chocolate companies seasonal products (e.g. Nestle, Cadburys, Mars Dove) nor with other smaller players who mainly depend on engraving techniques for their advantage. ICT has been an essential enabler of this business.

## e-Business activities

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Chocpix is a design and production company that uses the latest proven CAD/CAM technology and injection moulding equipment to produce novelty chocolate confectionery moulds and rapid prototype packaging. The novelty feature is a hidden detailed picture - revealed by simply holding the chocolate up to any bright light. The company creates the moulds and packaging for the final product, while they rely on outsourced local chocolate manufacturing companies to enable them to operate without warehouses and storage as they effectively gear up for massive order quantities.

The method of forming the novelty chocolate consists of first capturing the desired image into computer memory, dividing the image into a number of elements and determining an intensity value for each. By storing these values in memory it is possible to normalise or vary them for different materials, enlarge or reduce the image, or edit the image and then create a mould, for example by injection moulding equipment. This allows the production of large volumes of product at a relatively low cost. The mould can be made from different materials (e.g. metal, rubber or polythene). Several moulds can be formed in a solid block to allow a large number of products to be moulded simultaneously. Alternatively, the stored relative intensities can be used to form a die, punch or stamp.

## Impact

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The main value proposition is that Chocpix is able at this stage to genuinely ask the prospective customer “what do you want” and then deliver exactly to specifications in a surprisingly short time and in low volume quantities and still make a profit. This ability to delight the customer is the ultimate product and service “holy-grail” capability. There are no significant constraints. All is in place to understand the customer brief, provide complete replica prototypes and packaging for point of sale within 24 hours. The customer can then immediately see what (s)he will get in reality. This does not typically happen too often in any personalised manufacturing sector!

The potential market is huge and already well defined: over £3 billion (4.4bn euros) annually is spent worldwide in the gift and seasonal confectionery sector alone. Based on the public reception and the judgement of peers in the confectionery business, the product has “winner” written all over it. At its very first major public launch, it won outright the award for best British innovation among 1,500 trade stands at the world’s leading chocolate exhibition (ISM, Cologne 2004). As Frank Lia, Chocpix’s Managing Director, succinctly states *“I’ve launched 50 or 60 products for other companies and have always said that if I found a new product that genuinely met all of the criteria that I have tried to apply over 23 years of working with new products, ‘I would put my money where my mouth is’ – so here I am!”*

### Start-up stage

The first nine months was dedicated, by force of circumstances into small-business start-up mode. The primary concentration was on securing patent protection. The founders were not chocolate people so all this took time – longer than anticipated. The main patent is dealing with chocolate products and a second patent applies to a plastic version of the product.

In addition, the production of the first prototypes was expensive and drew down heavily on the investment funds. Happily, the costs of prototyping have since dropped to less than one tenth of that original cost and prototypes can also be completed together with sample packaging in a fraction of the time.

### Funding

Obtaining sufficient investment to get to production mode while covering the substantial initial set-up costs is not an easy matter for any high-technology small enterprise start-up<sup>1</sup>. The high costs in the start-up phase were met by founder investments and some very welcome and timely funding grants from organisations chartered to support innovative businesses in the North East of England. In addition the product was promoted and investment funding sought via the BBC Dragon's Den.

This latter foray proved to be a disappointing experience overall, primarily it is felt because the “sound-bite” nature and public game show format of the programme actively militated against reasoned discussion. The recent investment by Evolve Finance (<http://www.nel.co.uk/evolve/>) is a very positive development, much in line with the overwhelming positive reception of the products by the public.

### Licensing

Licensing Chocpix is a simple matter. Companies wanting to develop their own ranges work with Chocpix on designing the mould. Producers can take the mould and use it in their own processing facilities, or those owned by a third party supplier. The mould is simply added to the production line like any other for chocolate, so there is no additional technology needed. The cost of the licence is covered by a percentage of sales, so the up-front costs are very small. Chocpix will help companies with their design, but they can use the technology however they want.

The business case for licensing is clear according to Frank Lia: *“The more chocolate our licensees sell, the more commission Chocpix makes. It is in everyone's interest to stimulate as much growth as possible!”* Chocpix has already been approached by interested firms from over 20 countries including Australia. Given the distances and travel involved, the opportunity costs per new subcontracting partner average between £5-10,000 (7,400-15,000 euros). It includes a market visit, evaluation of their capabilities, product testing, contracts and compliance with all relevant national regulations. The latest financing round investment from Evolve will help to make this expansion possible.

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<sup>1</sup> See *e-Business W@tch* Special Study (2006): The Role of New Companies in e-Business Innovation and Diffusion. Available at [www.ebusiness-watch.org](http://www.ebusiness-watch.org) ('resources').

## Local manufacturing

Chocolate, even when sold under the same brand name, is generally manufactured and flavoured to suit local tastes. In addition, some retailers have particular preferences for the source of their chocolate products. For example in the UK, large retailers like Tesco, Lakeland, and BHS will only deal with companies that comply with their quality standards. Thus local expertise is needed. By subcontracting the chocolate manufacturing and packaging processes, Chocpix further avoids costs of warehousing, transport, storage and, where relevant, the fluctuating impact of tariffs for milk/cocoa beans - for example, US chocolate made in Canada can avoid the US import duties on raw materials. Another important consideration is that subcontracting manufacturing enables Chocpix and other licensed providers to easily gear up for massive orders by simultaneously contracting with several manufacturers.

## Conclusions and Projected Growth

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The technology used is proven, robust and very scalable. The production machinery can be big or small depending on the volumes and cost between £30-50,000 (44-74,000 euros). The small unit is so unobtrusive and silent that it could be placed in the sitting room or lounge of a private home. It does not need to be sited in a factory.

The next stage of commercial and technical expertise to be put in place has commenced. Plans and expectations are that the company will expand to 15 staff and projected growth is for a turnover of £5m (7.4m euros) within 4 years. The new staff profiles will mainly be national sales development executives in UK and abroad, specialist CAD/CAM designers highly skilled in the aesthetics of design relating to the product and packaging, and trainers to support and train operators in the licensed and subcontracted companies in the use of the production machinery.

## References

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*Research for this case study was conducted by Henry J F Ryan, Lios Geal Consultants, on behalf of e-Business W@tch. Sources and references used:*

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