

A STRATEGIC ANALYSIS OF THE DIGITAL CUTTER BUSINESS FOR OCÉ

by

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Masters of Engineering, University of British Columbia, 2002

PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

In the Management of Technology Program
of the
Faculty
of
Business Administration

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SIMON FRASER UNIVERSITY

Summer 2012

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Abstract

Océ, a member of the Canon Group of companies has been selling its own line of digital cutting systems, called the Océ ProCut, into the display graphics market since 2008. The ProCut is a rebranded version of an existing cutter manufactured by Zund Systemtechnik AG. To date, total placements of cutting systems have been below original forecasts, and gross margins have been low. To address these issues, this analysis proposes three alternative strategies for consideration. Using a weighted scoring system, each option is evaluated based on a set of criteria developed from an external analysis of the industry and an internal analysis of Océ's capabilities. The recommendation of this project is that Océ should stay with its current approach of selling exclusively Zund manufactured cutting systems. This option allows Océ to meet its strategic goals with respect to the cutter business, with minimal investment and risk.

Keywords: Digital Cutting Systems; Display Graphics; Digital Printing;

Executive Summary

Océ, a member of the Canon Group of companies, designs manufactures and distributes printing systems and related products. The company is made of several business units, which produce a wide range of offerings including small office printers and copiers, high-speed digital production machines, and large format systems for technical and colour display graphics. In 2008, Océ began selling its own line digital cutting systems, under the name Océ ProCut. To accomplish this Océ partnered with an existing cutter manufacturer, Zund, which now produces an Océ branded version of its existing cutter line. As of 2011, ProCut sales have been below original forecasts. In addition, overall profitability of this product line has been low, because of low gross margins.

An analysis of the cutter market reveals that the overall attachment rate of cutters to printers for the entire market is in the range of 25-50%. As of 2011, Océ has only been able to achieve an attachment rate of roughly 15%, with cutter revenues well below original forecasts. However, there has been significant success in certain countries such as France and Germany where attachment rates are 47% and 72% respectively. Ultimately, the market analysis shows that there is potential for Océ to sell significantly more cutters. An investigation into segmentation in the flatbed printer market indicates that an opportunity exists for a low-end cutter solution.

An external analysis of the cutter industry shows that, although market growth looks appealing in the near term, there is significant potential that this market will slow down in the long term because of the long serviceable life of cutter equipment and the fact that few customers will ever require multiple cutters. In addition, the fact that cutters generate very little recurring revenue makes them inherently less profitable than printers. Because the technology intrinsic to cutters is fundamentally mature and well understood, the threat from new entrants in this industry is strong. The key result of the external analysis is that the cutter industry is fundamentally less attractive for Océ than the printer business.

An internal analysis of strengths and weaknesses reveals that Océ has the necessary capabilities to be competitive in the cutter industry. In terms of strengths, Océ benefits from well-established distribution channels, a strong brand image, and established global operations. Its

only weakness with respect to the cutter business is that not all of its sales organization has specific expertise with cutters. This weakness can be overcome relatively easily with appropriate training.

In this analysis, three alternative strategies for Océ's cutter business are evaluated. The options presented are to stay with current strategy of selling only the Zund manufactured ProCut system, expand the product portfolio by finding a new partner with a lower cost product, or vertically integrate through an acquisition of a small cutter manufacturer. Each option is evaluated according to specific criteria, including potential profitability, required investment, risk, protection of the Océ brand, and strategic fit. Using a weighted scoring scheme the best option is determined.

The results indicate that the best course of action is for Océ to stay with the current strategy of selling Zund manufactured cutters. In order for Océ to increase the profitability of its cutter business substantially, it would likely need to acquire an existing cutter manufacturer. This would require a very large investment in time and resources that would almost certainly come at a cost to printer development. Although finding a new low-cost partner would allow Océ to expand its cutter portfolio to address the low-end segment, this would entail a large and relatively risky investment, which in the end would probably not generate significant profits. Although the margins that Océ receives on ProCut sales are low, this product adequately enables Océ's strategic intent to be total solution provider to its customers. At the same time, this option requires the smallest investment, with the lowest risk.

Acknowledgements

I would like to thank the following individuals for their generous assistance throughout this project:

Dale Mortimer
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Glossary

ROW Rest of World – Any region of the world outside Europe and North America

CAGR Compound Annual Growth Rate

1: Introduction

1.1 Purpose of this Strategic Analysis

In 2007, Océ made a strategic decision to launch its own digital cutting product line, the ProCut, as a complementary product to its line of flatbed inkjet printers. The business case for entering this market was based on achieving a target attachment rate of 25% meaning that one ProCut System would be sold for every four flatbed printers. As of 2011, Océ has only been able to achieve an attachment rate of roughly 15%, with cutter revenues well below original forecasts. At the same time, Océ's gross margins on cutter sales in 2011 were quite low, at around 20%. This combination of low revenues and poor margins has resulted in low profitability of this product line.

The purpose of this report is to recommend the most prudent strategy for Océ to take regarding its cutter business. First, an analysis of the overall digital cutter market is presented, including market size, segmentation and growth potential. An external analysis of the cutter industry is then developed, followed by an internal analysis Océ itself. Next, this report identifies three strategic alternatives that Océ could take with its cutter business, and evaluates them using a balanced scorecard approach. Finally, this report concludes by recommending the best alternative and outlining several important points to consider for its implementation.

1.2 Introduction to the Display Graphics Industry

For the purpose of this report, the term “display graphics industry” refers to the set of businesses associated with the manufacture and distribution of printed media for graphical display purposes. The major application areas for display graphics are: (Océ, 2004)

- **Signage:** e.g. signs at theme parks, universities etc.
- **Event Graphics:** e.g. posters/banners at trade shows or conferences
- **Mass Marketing:** e.g. billboards and posters for large advertising campaigns
- **Point of Purchase Displays (POP):** e.g. promotional displays within retail stores
- **Decorational Graphics:** e.g. decorative posters at hotel, resorts, casinos.

In addition to these core applications, the display graphics industry includes a number of niche applications such as printing on textiles or consumer goods like laptops.

Figure 1 highlights the key players in the industry's value chain. At the final stage of the chain are the end users who are the actual consumers of the printed output. Some examples of typical end users are advertising companies, corporate marketing departments or event organizers. The end users purchase printed media from print providers, which in this context refers to any company that produces and sells display graphics prints. The main inputs to the print provider are the blank media or substrate that the images are printed on, the ink that the images are printed with, and the equipment that is used to generate the prints. These inputs are frequently purchased through independent distribution networks. Print providers also purchase services such as repair and maintenance contracts for their equipment.

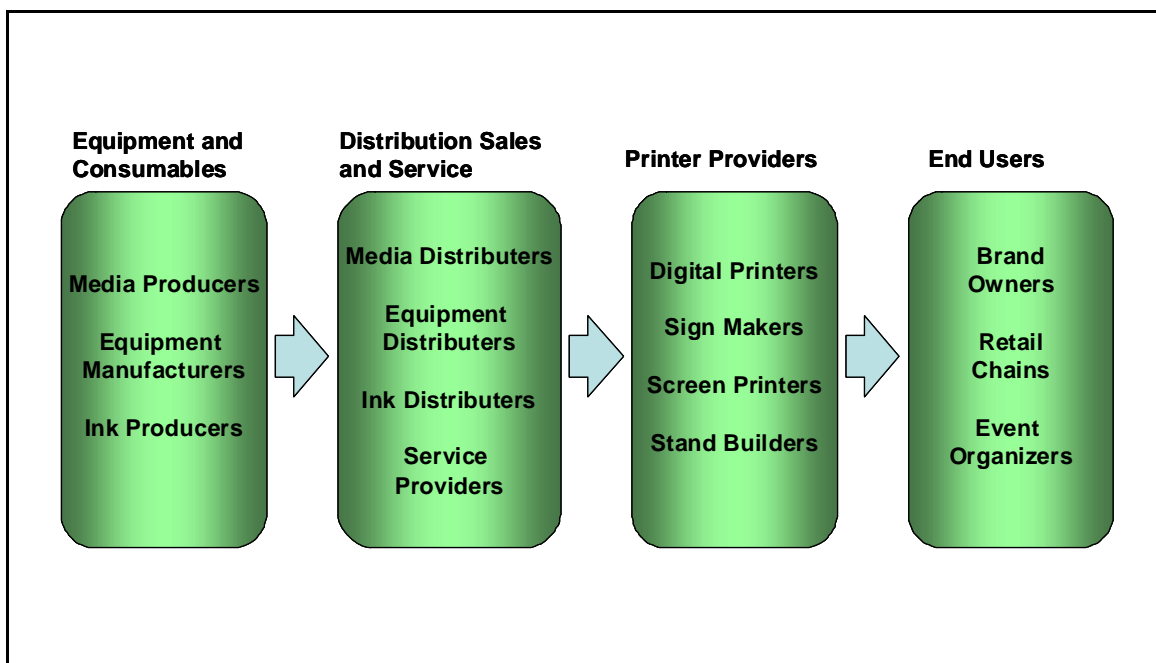


Figure 1. Display Graphic Industry Value Chain (created by author)

While Figure 1 provides a generic view of the industry, there is considerable variability in structure across different organizations. For example, some larger end users such as Wal-Mart buy their own printing equipment so they can produce their advertising material in house. Some equipment manufacturers, like Océ, also sell ink and service contracts, and some distribute their

products directly to print providers. As we will see later, the facts that Océ sells its own brand of ink and distributes its products directly are important factors to consider when assessing the company's cutter strategy.

This analysis focuses mainly on the equipment segment of the industry. Figure 2 provides a decomposition of the categories of display graphics printing equipment that are currently on the market. Display graphics printing equipment, as with all printing technology, has its origins in analog technology, in this case screen and offset presses. Both of these methods involve using mechanical methods (drums or screens) to "press" complete images onto media. These machines are well suited to jobs with medium to long run lengths, as they generally involve long setup times but yield a low cost per print.

Beginning in the 1990s digital technology began to enter the market with inkjet technology quickly emerging as the dominant technology. Ink jet is a broad term used to describe a method of printing whereby the image is created by propelling droplets of ink onto a substrate. Although digital printing is generally slower with a higher cost per print, setup times are normally very low. As a result, inkjet printers are used mainly for short production runs.

The majority of inkjet equipment falls into two categories, roll based or flatbed. Roll based units are used to print on flexible materials, such as paper or vinyl, which are held on the machine in large rolls. Flatbed systems are used to print on rigid materials such as cardboard, foam or glass. In general, flatbed systems are more versatile as they can print on a wider variety of media, although they are often more expensive for a given print width.

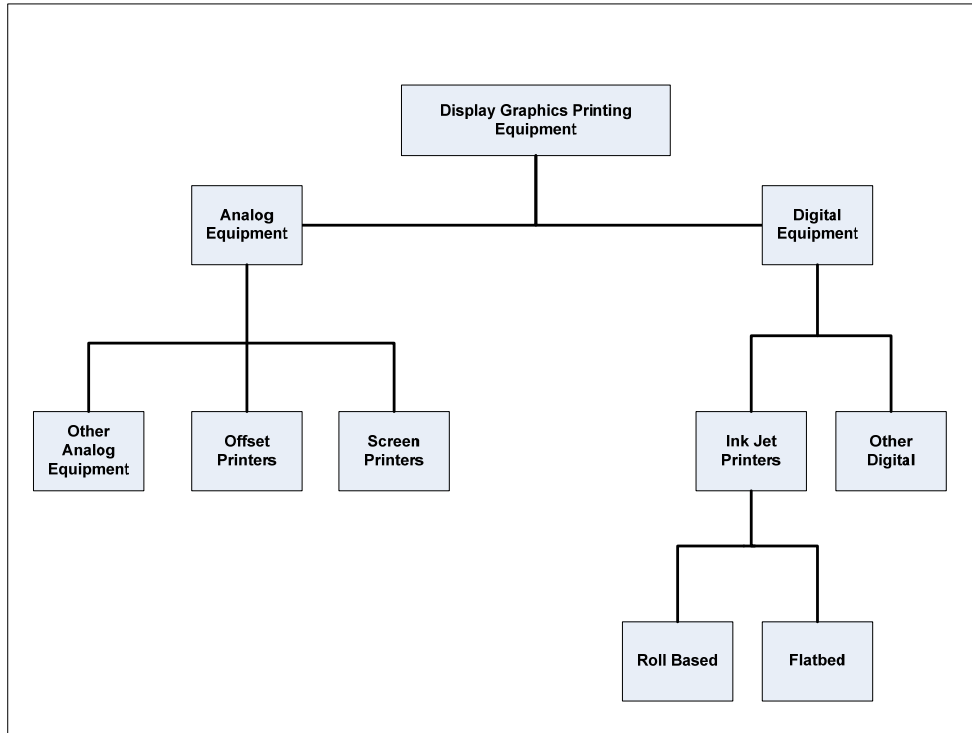


Figure 2 Display Graphics Printing Equipment (created by Author base on information from (Océ, 2004))

Having been around for over 20 years, inkjet technology is now well understood and stable. In the display graphics industry, sales of digital flatbed printers are experiencing strong growth, whereas analog equipment sales are actually declining. As we will see, this bodes well for the cutter market, since cutter sales are well correlated to flatbed printer sales.

1.3 Introduction to the Digital Cutter industry

A typical job undertaken by a print provider will normally require some type of cutting operation subsequent to the actual printing process. Some typical reasons for cutting are as follows (Océ, 2007):

Automated Trimming

Flatbed printers are not normally able to print all of the way to the edge of the media, which can result in a blank border around the printed image. This border may need to be trimmed away for certain applications. Automating this process reduces labour costs and material waste.

Nesting

For some jobs, printer operators place multiple smaller images on a larger piece of media and then cut the individual images out afterward. This reduces costs to print providers by allowing them to use standard media sizes, and by reducing material waste.

Contour Cutting

Many specialty jobs involve cutting irregular shaped graphics. By performing this operation in-house, print providers are able to accept a greater variety of specialty jobs, and thus obtain better margins.

Although each of the aforementioned activities can be performed with manual cutting tools, this can be slow, labour intensive, and generally inaccurate. In order to achieve higher throughput, lower unit costs and better quality many print providers employ digital cutting tables, which can perform these tasks automatically.

Digital cutting tables have been around since the early 1980s. They are used in a variety of different industries including textiles, leather and graphical markets. In terms of technology, they are very similar to the CNC routers and milling machines used in the manufacturing industry. Simply put, a digital cutter is as a computer controlled knife that can cut arbitrary paths through a variety of media types. Typical systems include a table to hold the media, a cutting head with a variety of cutting tools, and sometimes a conveyer to move the media through the system.

For many print providers a strong business case can be made for purchasing a digital cutter. By saving costs and allowing greater application versatility, cutting systems are generally profitable for their owners. As demand for this equipment within the display graphics industry grows, it will become increasingly important for Océ to be able to offer its customers viable cutting solutions.

1.4 Océ Corporate Background

Océ was founded in 1877 originally as a manufacturer of butter colouring. In the years since then it has grown into a global leader in fields of printing and document management.

Headquartered in Venlo, The Netherlands, Océ has operations in over 100 countries and has over 20,000 employees globally. In 2011, Océ was acquired by Canon, a large Japanese manufacturer of imaging and optical products. Today Océ produces a wide range of product offerings including small office printers and copiers, high-speed digital production printers, and large format systems for technical and colour display graphics. Organizationally Océ is composed of four strategic business units which are Business Services, Document Printing, Production Printing and Wide Format. Océ's display graphics business is part of the Wide Format unit ("Océ Organization", n.d).

In 2005, Océ released its first significant product into the display graphics market called the Arizona 250. This product quickly gained a reputation with customers as a reliable machine with first-in-class image quality. Océ has subsequently released several model versions of the Arizona platform with different sizes and speeds. All printers in the Arizona family are inkjet based flatbed printers. Since 2005, annual sales of Arizona printers have grown steadily and as of March 2012 over 3,000 units had been sold. Océ also sells ink and service for its flatbed printers, which provides a significant source of recurring revenue. In 2011, revenues from the Arizona line were 57.8 million from equipment sales and 15.2 million from ink sales. Figure 3 shows a picture of a flatbed printer from the Arizona line.



Figure 3. Arizona 550XT (reproduced with Permission from Océ Display Graphics Systems)

In 2008, Océ entered into a partnership with Zund, which at the time was the clear leader in the digital cutter field. Zund was and still is a well-established company with a strong brand and a high quality family of products. The result of this partnership is that Zund now produces a re-branded version of their existing cutting table, called the Océ ProCut, which Océ sells through its own sales channels. This arrangement creates a win-win situation for the two companies. Océ is able to bring a cutter solution to market quickly thereby adding an additional source of revenue with relatively little investment. At the same time, adding the ProCut to Océ's product portfolio increases the company's ability to provide complete application solutions to its customers. Zund, on the other hand, benefits from increased cutter placements delivered through Océ's strong reputation in the display graphics market as well as its global distribution network.

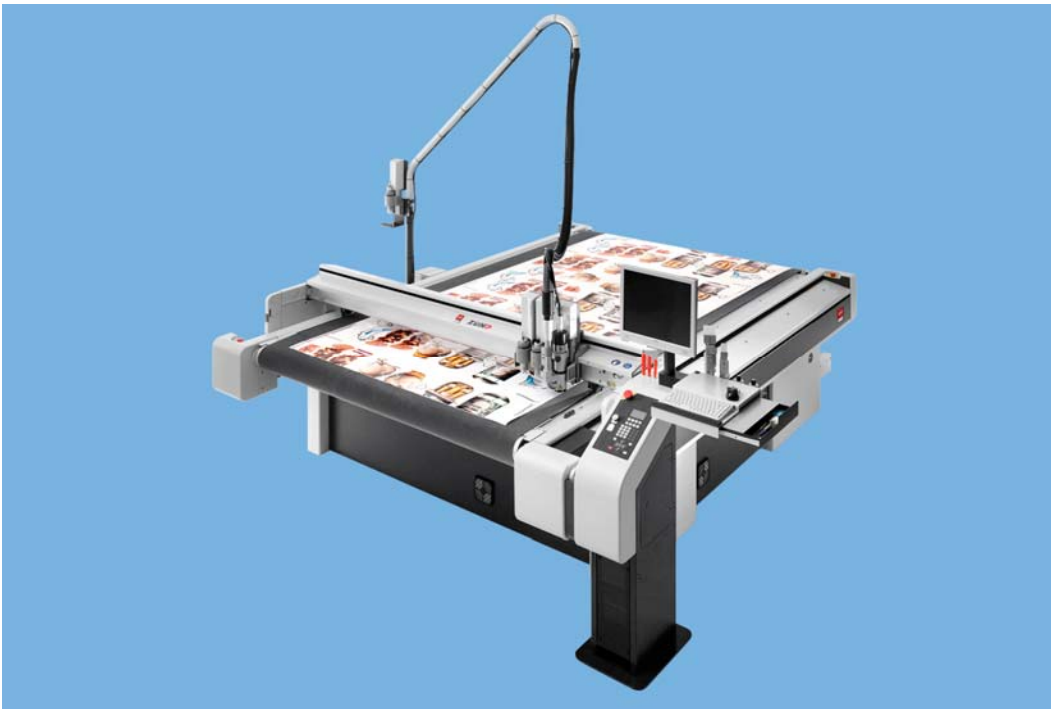


Figure 4. Océ ProCut (reproduced with Permission from Océ Display Graphics Systems)

Since entering the display graphics market Océ has achieved great success with its flatbed printer and ink sales. However, as we will see later, the cutter business has not been able to match this success. As a result, the company is currently investigating how to proceed with the cutter business in general.

2: Market Analysis

The goal of this chapter is to define the market for cutters, estimate its size and distribution, and identify any applicable market segmentation. This analysis serves three key purposes. First, it provides point of reference for evaluating the current performance of Océ's cutter business. Second, it provides a baseline for assessing the economic potential of proposed improvements to Océ's business strategy with respect to cutters. Third, it can be used to identify which geographic regions within Océ's global distribution network are performing well in terms of cutter placements and which regions are not. This allows Océ to focus its improvement efforts on regions that have the greatest opportunity for sales growth.

In the display graphics industry, digital cutters are purchased almost exclusively as a complementary product to a printer, typically a flatbed printer. The number of customers who purchase a cutter but do not own a printer is assumed negligible. For this analysis, the customer base is defined as the subset of flatbed printer owners who also choose to buy a cutter. Throughout this analysis, we will use the term attachment rate, which is defined as the percentage of cutters sold per flatbed printer, as a way to quantify the sales penetration of cutters in the market.

It should be noted that digital cutters also are used in a variety of other industrial applications such as textiles, leather goods and composites. As the vast majority of Océ's sales are to customers in the display graphics industry, these industries are excluded from this analysis. It must also be assumed that some percentage of cutters will be sold to owners of analogue graphical imaging equipment like screen or offset presses. Again, since Océ does not manufacture or distribute products of this variety, this market is not considered here.

2.1 Market Segments

Because a cutter is essentially a complementary product to a flatbed printer, we will assume for this analysis that the two products are subject to the same market segmentation. The flatbed printer market is often divided into three segments: low-end, mid-range and high-end. These segments are described further in Table 1

Table 1 Market Segmentation for Flatbed Printers (Source: Océ Internal Documentation)

Market Segment	Price Range	Description of a Typical Customer
Low End	< 100,000 USD	<ul style="list-style-type: none"> • Typical customers are small shops that produce one-off or very short runs • Customers cannot afford to spend over 100,000 USD on a printer • Focus is more on price and print quality than speed
Mid-range	100,000 – 200,000 USD	<ul style="list-style-type: none"> • Generally produce lower to medium run length jobs and specialty output • Benefits from flexibility in the hardware • Focus is on marketing capability to provide unique output to customers
High End	> 200,000 USD	<ul style="list-style-type: none"> • In general will produce larger volume jobs • Typically offer a reduced range of unique applications • Focus is more on production speed capabilities and overall productivity of the solution

In order to identify the relative size of each of the market segments we will consider worldwide placements of flatbed printers for 2011.

Figure 5 shows a breakdown of printer placements by segment as a percentage of total sales. In all three regions, the high-end segment is about the same proportion of total placements, at about 20-23%. However, there is considerable difference among the regions in the low and mid-range segments. In Europe, mid-range units represent 54% of total placements as compared to 23% for the low end. On the other hand, in the ROW the mid-range makes up 23% of total placements with the low-end at 46%. North America is more balanced, but with sales still favouring the low end of the market.

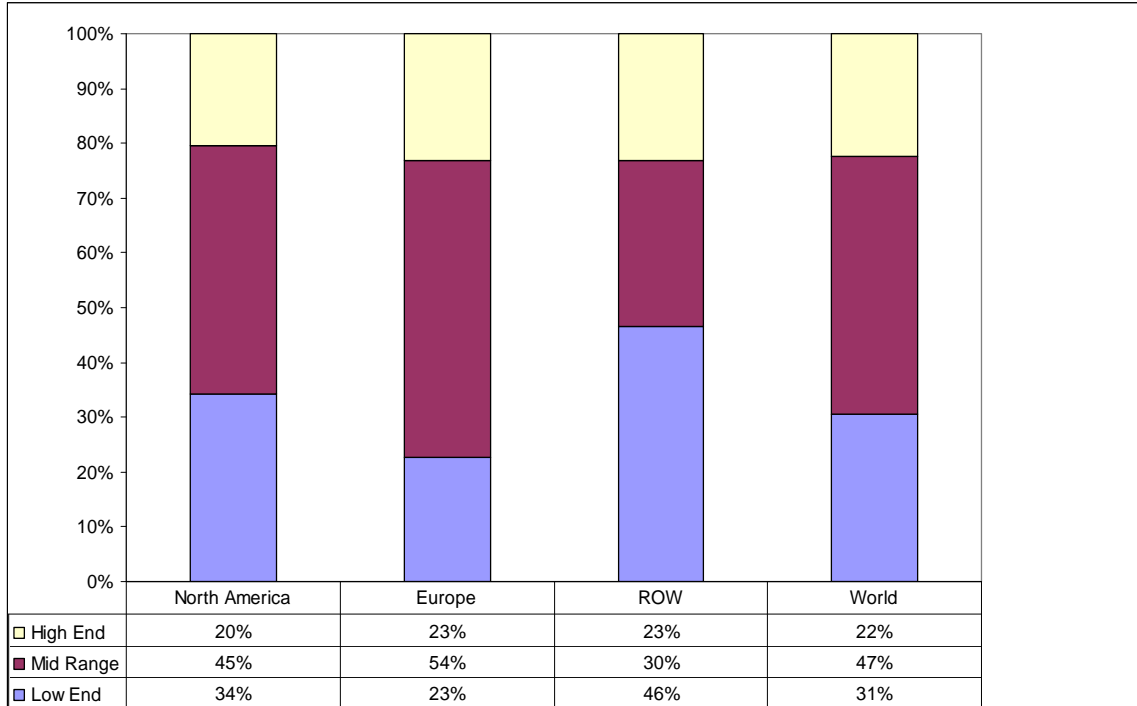


Figure 5 Flatbed Printer Market Segmentation– 2011. (Source: External Consultant IT Strategies)

Because cutters and printers are different products that are used for different purposes, the flatbed printer segments cannot be directly applied to the cutter market. However, looking at the printer market does provide two important insights. The first point to notice is that the low-end segment represents a sizeable portion of the market, particularly in ROW regions and in North America. The other important implication is that Océ’s current cutter offering, which is priced in the range of 150,000 to 200,000 USD, is likely too expensive for the low-end customers. Although prices of cutters and printers cannot be compared directly, it is safe to say that if a customer cannot afford to spend more than 100,000 USD on a printer, then he will not spend that much on a cutter either, since a cutter is more of a nice-to-have piece of equipment that does not generate much revenue on its own.

These results show that up to 31% of display graphics equipment customers would not be able to afford an Océ branded cutter. If Océ wants to access this customer segment, it will need to offer a cutter at a significantly cheaper price. This will be particularly important in countries outside of Europe and North America.

2.2 Market Size and Growth

In the field of display graphics, the widespread use of digital cutting systems is still a relatively new phenomenon. As a result, there is virtually nothing in the way of published information regarding the size and growth of the digital cutter market. To obtain a workable estimate of this market, a model is constructed using information from a variety of sources including retained consultants with expertise in the display graphics industry, applicable manufacturers' websites, and accounts from sales professionals in the field.

The ultimate purpose of the model is to use available information about the industry to estimate total unit sales of cutters, and correlate that to flatbed printer sales. The model also provides a forecast for cutter placements for the period of 2012 to 2016 and a breakdown of sales by geographic region. Next, by comparing Océ's cutter sales to the model results, we are able to evaluate Océ's performance relative to the overall market. The following sections explain in the model and its assumptions in detail.

2.2.1 Model of the Cutter Market

The first step in analysing this market is to identify the major companies that produce cutting systems and to determine each of their cutter-specific revenues. This task is made difficult by the fact that nearly all of the companies in this space are private and do not publicize their financial information. While it would be virtually impossible to determine precise revenue figures, reasonable estimates were obtained with the help of an external consulting agency, IT Strategies, a firm that specializes in market research for the display graphics industry. IT Strategies was able to compile revenue estimates using information from various databases such as the Dun & Bradstreet Database as well as the company's extensive network of contacts within the industry. IT Strategies has stated that it is reasonably confident in these revenue figures, claiming a confidence level of about 80%. Figure 6 and Figure 7 show revenue estimates for the cutter industry for 2011.

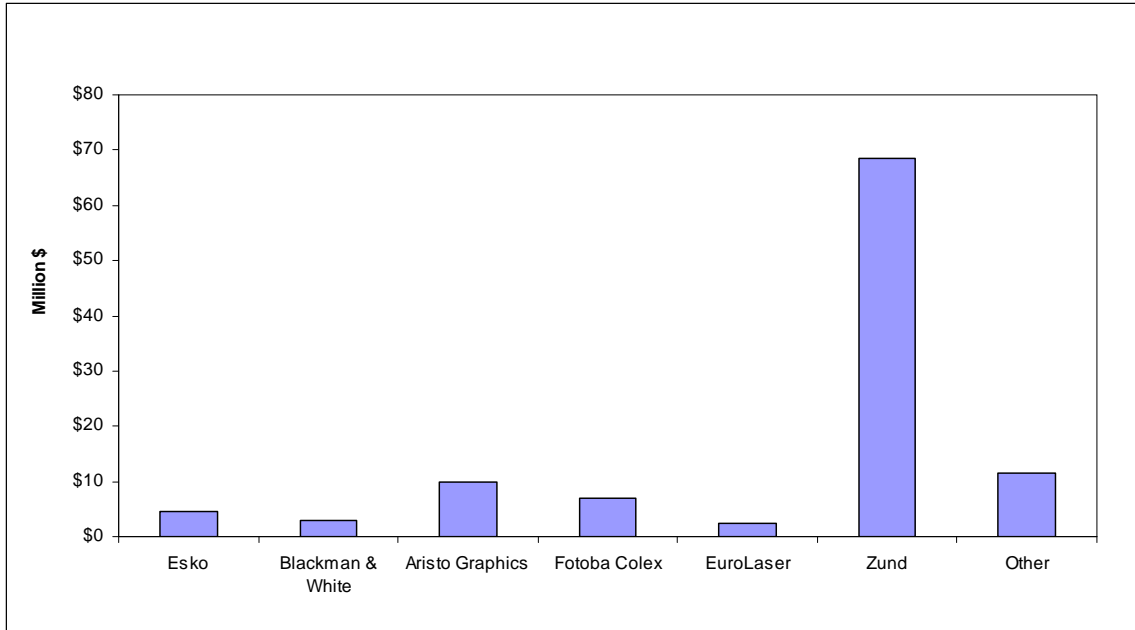


Figure 6 Worldwide Revenues for Cutter Manufacturers -2011 (Source: External Consultant IT Strategies)

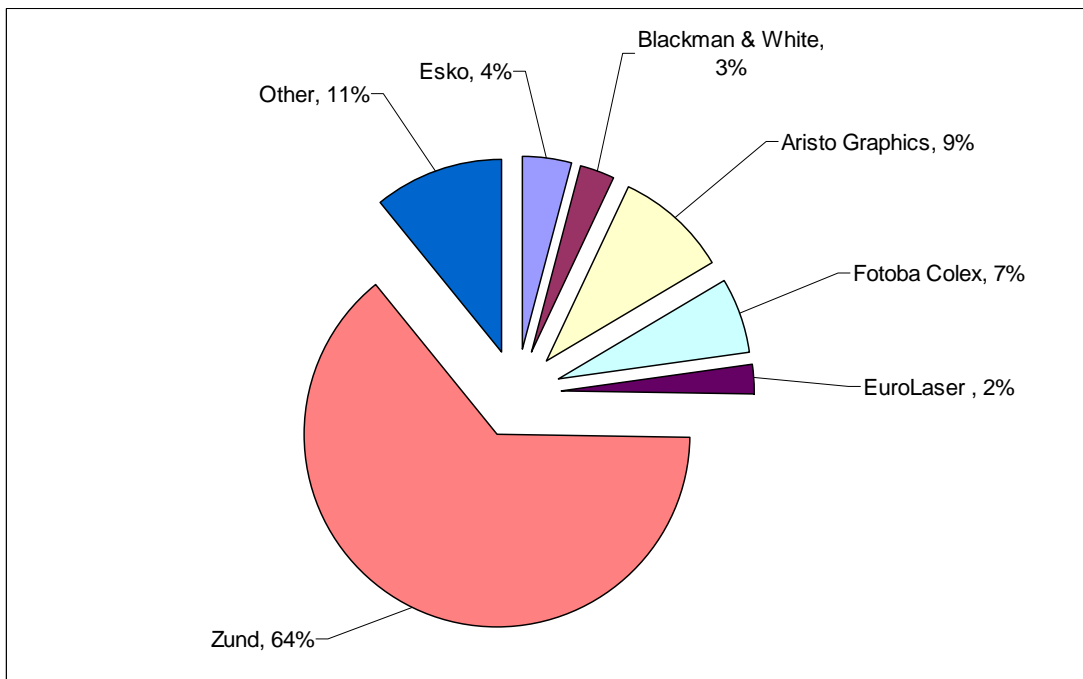


Figure 7 Market Share for Cutter Manufacturers – 2011 (Source: External Consultant IT Strategies)

As can be seen in Figure 7, the market for digital cutters is dominated by a single company, Zund, which claims a total market share of 64%. This is not particularly surprising as Zund systems are currently the standard for cutters in the display graphics industry. The other 36% of the market is divided among the remaining competitors. Note that, in this case, the “Other” category consists of over 20 companies, indicating that the market for cutters is highly fragmented. In the longer term it is probably not sustainable for there to be this many competitors in this industry. As this market matures, it is very possible that one or two larger competitors will form as some of the smaller players either drop out or are acquired by larger players. As a comparison, this type of consolidation has taken place in the flatbed printer market over the last 10 years.

In the next step of the analysis, we estimate the number of cutter placements per company or group of companies. To do this we must first estimate the average manufacturer price for each company. The average manufacturer price refers to the average amount that the manufacturer itself receives per unit sold. Average manufacturer prices are calculated based on a rough knowledge of each company’s sales prices (to the end customer). For the companies that use independent distribution it is assumed that a discount of about 30% is given to dealers. For example, a customer can purchase a typical Zund cutter for about 150,000 USD, which after applying a 30% dealer discount yields an average manufacturer price of 102,000 USD. To obtain the number of placements we simply divide revenues by average manufacturer price. Table 2 shows the resulting placements per company.

Table 2 Cutter Units Sold per Manufacturer-2011

Manufacturer	Placements	Average Mfg Price (1000 USD)	Revenue (1000 USD)
Esko	53	\$85	\$4,500
Blackman & White	47	\$63	\$3,000
Aristo Graphics	70	\$143	\$9,975
Fotoba Colex	77	\$91	\$7,000
EuroLaser	50	\$50	\$2,500
Zund	673	\$102	\$68,550
Other	145	\$79	\$11,500
Total	1115		\$107,025
-20% to Non Inkjet Customers	-223		\$-21,045
Total Inkjet Placements	892		\$85,980

Adding up the units sold for each company yields 1115 cutter placements worldwide in 2011. However, one must consider the fact that not all cutter systems are sold to owners of inkjet equipment, and that a certain percentage of units are placed either to owners of analog equipment or in other application areas. The model assumes that only 80% total cutter sales are to inkjet customers, which corresponds to 892 units worldwide.

Worldwide placements of flatbed printers are known much more accurately. As can be seen in Table 3, 2372 flatbed printers were placed in 2011, a number that is forecasted to grow at a CAGR of 5% until 2016. Using the previously derived cutter placements figure yields an overall attachment rate of 38% for 2011. By assuming the attachment rate stays constant, we can then forecast cutter unit sales up to 2016 based on annual printer sales.

Table 3 Sales Projection for Cutters and Printers (IT Strategies, 2012)

	2011	2012	2013	2014	2015	2016
Total Flatbed Printer Sales	2372	2533	2680	2810	2947	3091
Total Cutting Systems Sold To Inkjet Customers	892	902	928	945	961	977
Cutter Attachment Rate	38%	38%	38%	38%	38%	38%

Because the revenue figures used here are global revenues, they cannot be used directly to determine cutter placement on a regional basis. In order to obtain a regional breakdown, we will assume that cutter sales follow a similar geographic distribution to flatbed printer sales. In 2011, the breakdown of flatbed printer sales by region was, 33% in North America, 43% in the European Union and 24% in the rest of the world. Table 4 shows the results of applying these same ratios to the global cutter sales figure derived previously.

Table 4 Regional Breakdown of Cutter Placements based on Printer Placements

Region	% Cutter Placements by Region	2011	2012	2013	2014	2015	2016
North America	33%	294	298	306	312	317	323
European Union	43%	384	388	399	406	413	420
Rest of World	24%	214	217	223	227	231	235

In actuality, it is improbable that cutter placements follow the same geographic distribution as flatbed printers. In reality, there are likely more placements in Europe and less in the ROW, since the cutter market is much older and better established in Europe. Thus, an alternative way to model the geographic breakdown of cutter placements is to skew the placement numbers toward Europe while reducing placements to the ROW. The results of this modification are shown in Table 5. A key implication of this is that the attachment rates end up being different for each region, which is much more plausible. An explanation for the assumptions made here is provided in section 2.2.2.

Table 5 Modified Regional Breakdown of Cutter Placements

Region	% Cutter Placements by Region	2011	2012	2013	2014	2015	2016
North America	28%	250	267	282	296	310	325
EU	56%	495	529	559	586	615	645
Rest of World	17%	147	157	166	174	183	192

Table 6 Modified Attachment Rate by Region

Region	Attachment Rate
North America	32%
EU	49%
Rest of World	26%

2.2.2 Justification of Assumptions

This section explains the assumptions made in constructing the cutter market model.

Average Sale Price

Virtually all cutter manufacturers offer a range of product models, each with different selling prices. Since it is unknown how many of each model each cutter manufacturer sells, we must select a best guess value for the average manufacturer price. If the assumed average manufacturer prices are too high then the resulting values for unit sales and thus attachment rate will be too low. Conversely, if average manufacturer prices are estimated too low then total unit sales will be too high. A sensitivity analysis using extreme values reveals that this estimate can influence the resulting attachment rate by about plus or minus 7% (see Appendix A).

Percentage of Cutters Sold to Inkjet Customers

Digital cutting systems are sold as complementary products to both inkjet printers as well as analog presses. However, it is not well known how many units are sold to each customer base. The model in this analysis assumes that 80% are sold to inkjet owners, which the author believes to be conservative. The reasoning behind this argument is that the inkjet market is relatively new and growing whereas the analogue market is stable and well established. Most analogue print shops would likely have purchased a cutter by now if they needed one. There are also other applications, such as leather cutting and textiles, which account for some of the cutter sales. A sensitivity analysis using extreme values reveals that this estimate can influence the resulting attachment rate by about plus or minus 7% (see Appendix A).

Another potential issue is that this ratio is applied broadly to the total cutter placements, rather than on a per company basis. This may not accurately reflect reality, as some companies probably attribute a greater percentage of their total sales to inkjet customers than others do. Because of this, it may be necessary to perform more research in this area in the future.

Uniform Attachment Rate

The model assumes that the attachment rate for 2011 will remain constant for the period of 2012 to 2016. This may be optimistic. Because the market for flatbed printers is more mature than the market for cutters (specifically for display graphics applications), there is a significant installed base of printers. It is possible that as cutters sales achieve greater penetration into this installed base the rate of new sales will drop over time. The model also assumes that the attachment rate is uniform across the different market segments discussed in section 2.1. It would be reasonable to think that the attachment rate would somewhat be lower for the low-end segment, which would have the effect of reducing the overall market attachment rate somewhat.

Geographic Breakdown of Cutter Placements

While it is likely that the geographic distribution of cutter sales is different from that of printers, it is difficult at this time to estimate what that breakdown is. In this analysis, the average of the ratios of printer placements and Océ's 2011 cutter placements is used (see Table 7). While,

the author acknowledges that this is somewhat arbitrary, it does provide an order of magnitude approximation based on the best information currently available.

Table 7 Calculation of Geographic Distribution of Cutter Placements

Region	% Global Printer Placements by Region	% Océ Cutter Placements by Region, 2011	Average
North America	33%	23%	28%
EU	43%	68%	56%
Rest of World	24%	9%	17%
Total	100%	100%	100%

2.2.3 Discussion of Results

The market model discussed in the preceding section incorporated a number of estimated figures. In order to obtain a nominal value for the overall market attachment rate we used “best guess” values, resulting in a rate of 38% for the year 2011. To get an impression of the range of uncertainty associated with this result, a sensitivity analysis was performed, which is shown in detail in Appendix A. By using conservative estimates for all assumed quantities, the low end of the range is found to be about 26%. Conversely, using optimistic estimates reveals the high end of the range to be about 50%. Thus, for this analysis 38% will be used as the overall market attachment rate with the understanding that this figure could reasonably lie anywhere between 26 and 50%. The model also attempts to provide a perspective on how the attachment rate may vary across different regions of the world. Results show that the attachment rate is most likely higher in Europe and North America than the ROW.

2.2.4 Future Use of this Model

Despite the numerous approximations that are incorporated into the model, the author believes that its results are sufficiently accurate to be used to inform Océ's cutter business strategy. However, there is certainly room to improve the accuracy of the model, thus making it more useful in the future. To that end, the author recommends that primary research be conducted. This involves surveying both cutter manufacturers and customers in the field in order to obtain information such as:

- Firmer estimates for annual cutter placements per company.
- The number of cutters sold in different geographic regions.
- The number of cutters sold in various customer segments (low end, mid range, high end)
- The number of cutters sold to inkjet customers as opposed to other application areas

Because manufacturers will almost certainly not share this type of information with a potential competitor, an independent market research company will need to be engaged. Although Océ normally has a market research consulting company on retainer, the current arrangement does not explicitly cover primary research, so this would entail an extra cost. In the end, it may turn out that the cost to obtain a more accurate market estimate is not justified.

2.3 Océ's Performance Relative to the Market

Using the preceding analysis of the cutter market as a baseline, we are now in a position to assess the performance of Océ's cutter business. This assessment is performed by comparing Océ's cutter placements to the overall market, on a per country basis. Table 8 provides figures for unit sales of printers and cutters, and the corresponding attachment rate for each country where Océ has direct sales.

Table 8 Océ Cutter Placement by Country 2011

Country	Flatbed Printer Placements	Total Cutter Placements	Attachment Rate
Netherlands	5	2	40%
Germany	39	28	72%
U.K./Ireland	45	Not Sold	
France	34	16	47%
Italy	14	Not Sold	
Belgium	13	Not Sold	
Switzerland	7	1	14%
Spain/Portugal	7	Not Sold	
Norway	6	Not Sold	
Sweden	8	Not Sold	
Denmark	4	Not Sold	
Finland	2	Not Sold	
Austria	4	Not Sold	
Poland	16	Not Sold	
Czech/Slovenia	4	Not Sold	
TOTAL EUROPE	208	47	23%
USA	94	10	11%
Canada	20	6	30%
Mexico	6	Not Sold	
TOTAL NORTH AMERICA	120	16	13%
Direct Export	47	0	
Australia	24	6	25%
Japan	1	Not Sold	
Singapore	13	Not Sold	
PRC-China	14	Not Sold	
China-cons.	14	Not Sold	
Malaysia	7	0	0%
Brasil	20	Not Sold	
TOTAL REST OF WORLD	140	6	4%
TOTAL OCÉ	468	69	15%

Looking first at the overall numbers, we can see that a total of 468 flatbeds printers were sold in 2011. The total number of cutters sold was 69, which yields an overall attachment rate of 15%. This is significantly less than the overall market attachment rate of 38%, which indicates that Océ is underperforming relative to the overall market. To achieve an attachment rate of 38% Océ's sales offices would have needed to place 178 cutters, which is over 2.5 times the amount that were actually placed. On a more positive note, this indicates that there could be a substantial opportunity for Océ to grow its cutter business in the future.

Considering only aggregated sales numbers ignores that fact that cutters are only sold in 7 out of 24 regions where Océ sells printers directly. If we consider only the countries that sell cutters the numbers are substantially better. France and Germany, for example have achieved attachment rates of 47% and 72% respectively, which is well in excess of the market. Canada, the Netherlands and Australia have also been relatively successful. Just a few countries, such as the USA and Switzerland are achieving attachment rates that are noticeably below the market rate. In fact, if only the countries that actually sell cutters are included in the calculation, the average attachment rate for Océ turns out to be about 30%, which is within the uncertainty range determined previously.

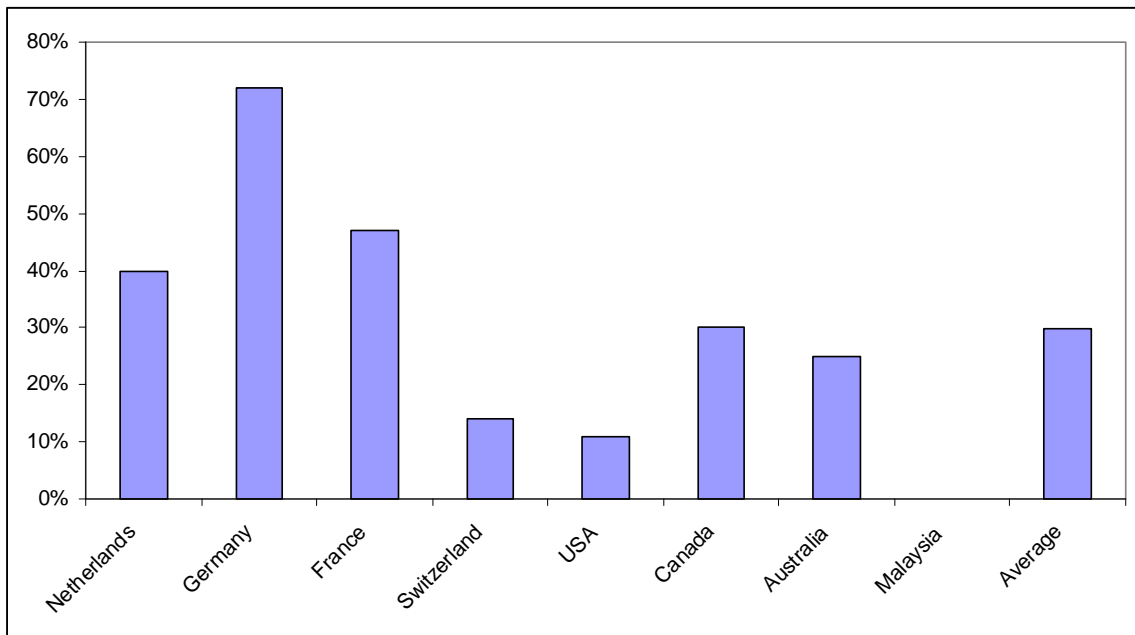


Figure 8 Océ Attachment Rates in Countries Where Cutters Are Sold - 2011

In conclusion, Océ's has two main areas in which it can improve its performance in terms of cutter placements. First, it can improve performance in countries with relatively low placement rates such as USA. Second, it can expand its distribution network and start selling cutters in regions where it currently does not. However, as we will see in Chapter 5, a decision on how to improve Océ's cutter business involves more than just increasing sales. Other key issues such as profit margins and opportunity costs are extremely important considerations.

3: External Analysis

The purpose of this section is to identify and analyse the external factors that influence the cutter industry. First, to provide some background, the relevant characteristics of the cutter business are described in terms of technology, economics, and distribution. This information is then used as input to a Porter's Five Forces analysis (Porter, 1985), which is performed in order to assess the competitive intensity of the industry. Finally, a conclusion is drawn regarding the overall attractiveness of this business.

3.1 Characteristics of the Cutter Business

There is considerable overlap between digital cutting and digital printing products. They are both pieces of capital equipment that are purchased by businesses that produce printed output for profit. Additionally, both products incorporate similar technology. As complementary products, they are subject to the same economic and market trends. They are also frequently distributed through the comparable channels. Despite these similarities, there are a few notable differences, which are highlighted in the next few sections.

Technology Factors

Fundamentally, the technology behind digital cutting systems is quite mature and well understood. Much of this technology has been inherited from other computer controlled (CNC) machinery, which has been used since the 1960s. Digital cutters on the market today are essentially CNC routers that have been adapted to the display graphics industry. This means that the R&D investment required to develop cutters is probably not large enough to dissuade most new entrants from developing their own products.

It is worth noting that the situation is quite different for digital printers. Because the human eye is extremely sensitive to visual imperfections, digital printing systems must be very precise and use sophisticated schemes for accurately locating ink droplets on substrates. As it turns out, designing printers that can produce images with an acceptable quality level is something of a black art that is difficult to replicate. A company that is able to manufacture printers that have superior image quality can enjoy a substantial competitive advantage over its

competitors. For example, a major reason why Océ has been successful in the field of display graphics equipment is the fact that its products are well known in the industry for having excellent image quality.

Even though the core technology used in cutters is quite basic, there are a few areas where innovative technology is being incorporated. For example, most major manufacturers, sell a camera vision option, which can automatically locate and cut media. This addition increases cutting accuracy and throughput, both of which are desirable to the customer. Software tools that allow print providers to integrate cutters into their production systems are also becoming increasingly common. While these technologies provide some opportunity for differentiation, they are not difficult to imitate and as a result, they cannot, provide a sustainable competitive advantage on their own.

Economic Factors

To a customer a cutter is simply a means to generate more profit, by either reducing the costs associated with existing processes or increasing sales revenues. As most print jobs involve some form of cutting, a digital cutter can reduce operating costs by eliminating manual cutting or the need to sub-contract cutting operations. Cutters also allow print shops to accept a wider variety of unique jobs, which normally results in increased revenues and higher margins. Obviously, a customer will only decide to purchase a cutter if he believes that the increase in profits will provide an adequate return on the capital investment. In many cases, a print shop will be able to pay off a cutter purchase within 1 year (Aranoff, 2008).

As a manufacturer, the economics of selling cutter equipment can be quite different from that of printer equipment for two reasons. The first difference is that printers consume sizable quantities of ink. Because Océ's printers can only use Océ supplied ink, this represents a significant source of recurring revenue. To put this in perspective, Océ received approximately 15 million in revenues from flatbed printer ink sales in 2011. Cutters on the other hand generate very little in the way of recurring revenue, requiring only infrequent items such as tool-bits. This ability to generate relatively predictable recurring revenues is a key advantage of printers.¹

¹ Both printers and cutters can also be a source of recurring revenue through the selling of service contracts. Because both types of equipment are similar in this respect, the service aspect of the industry is not specifically considered in this analysis.

The other downside of the cutter business is that the equipment itself has a very long serviceable lifetime. Lifetimes of 12-20 years are common, as compared to printers, which are typically used for about 7 years. Because of this difference, there is the potential that the growth of the cutter market will level off before that of printers, as the market becomes saturated. In this case, the only way to create churn in the market is by releasing new products with new desirable features. However, because cutter technology is quite mature, this may be difficult.

The cutter business is also subject to the same macro-economic influences that affect other equipment manufacturers. Economic uncertainty can make customers wary of making large capital investments. The availability of credit is also important. As both printers and cutters are often purchased through a lease or with a business loan, sales volumes can be drastically reduced because of problems in the credit market. For example, during the global credit crunch of 2008, sales of flatbed printers dropped significantly. Clearly, the continuing level of economic uncertainty in world today represents a risk to the cutter business.

The rise of emerging market economies, such as Asia and Latin America, represents an opportunity for growth in this business. IT Strategies forecasts that the installed base of wide format printers will experience an average annual growth 5% in Asia and 7% in Latin America for the period of 2011-2016. Traditional markets, like North America and Europe, are only expected to sustain growth of 3%. Since cutter placements are highly correlated to printer placements, this indicates that there is potential for strong growth in the cutter business in these regions. As discussed in Chapter 6, achieving this growth will require that appropriate product offerings and distribution systems be put in place for these markets.

Table 9 Worldwide Installed Base Growth Forecast for Wide Format Inkjet Printers (IT Strategies, 2012)

Region	Installed Base CAGR 2011-2016
North America	3%
Europe	3%
Asia	5%
Latin America	7%
World	4%

Distribution

Establishing the personnel and infrastructure required to sell cutting systems profitably is involved. Selling a cutter requires a very hands-on approach where sales people work closely with the customer to select a system that meets his businesses needs. In addition, the knowledge and expertise required to sell cutters differs substantially from what is required to sell printers. Hence when Océ expands its cutter business into new regions, it will not be able make immediate use of its existing printer sales staff without a major investment in training, and in some cases, the local sales office may need to hire dedicated cutter sales staff. This increase in overhead is an important consideration that must be taken into account when deciding which countries to branch into. Obviously, a given market must be able to generate enough sales revenue to offset any overhead incurred.

By examining the key characteristics of the cutter industry, we obtain valuable insight into the most important factors that influence the strategies of firms in this field. In the following sections, we discuss the specifically how these characteristics influence competition in this industry, how they can be sources of opportunities and threats.

3.2 Porter's Five Forces Analysis

Although Océ has been involved in the cutter business since 2008, it is worthwhile reviewing the overall attractiveness of this industry, as this information can be used to inform strategic decisions for the future. For Océ specifically, the decision of whether to increase, decrease or maintain the current investment level in this business is influenced by the attractiveness of the industry in general. In the following section, Michael Porter's Five Forces framework is used to gain a fresh understanding of the competitive forces that shape the cutter industry. These forces are rivalry among existing competitors, the threat of new entrants, bargaining power of buyers and suppliers, and the threat of substitutes (Porter, 1980).

3.2.1 Rivalry Among Existing Competitors.

According to previous research performed by Océ, there are upwards of 30 active manufacturers of digital cutting systems. However, as was seen in Chapter 2, the competitive landscape can be essentially divided into two parts: Zund and everyone else. Zund currently owns about 64% of the total market, with no other individual competitor claiming more than 10%. Thanks to its diverse product portfolio and strong reputation in the industry, Zund is able to

charge a relatively high price for its systems and likely obtains good margins on its equipment sales.

Although there are several smaller players that offer less expensive systems, to date none has been able to take a strong run at Zund's market share. This lack of success is most likely because of two reasons. First, because customers weight quality and durability high in terms of decision criteria, they may be reluctant to purchase from a smaller and lesser-known manufacturer (SGIA, 2012). The other reason is that smaller companies typically do not have an adequate sales and distribution presence in enough countries to be competitive. However, it is virtually inevitable that one or more smaller players with access to good distribution channels will develop a product with acceptable if not superior quality. At that point, the industry will experience much greater price competition. Thus, the force of rivalry in this industry is assessed to be low to moderate, with the potential to increase in the future.

3.2.2 Threat of New Entrants

As mentioned previously the bulk of the technology used in digital cutting systems is well established. Therefore, from an R&D perspective there is little to prevent entry into this market. The main barriers to entry are associated with access to distribution. To develop the appropriate distribution channels, a potential new entrant needs to make a serious investment of both time and money. This option is particularly prohibitive for most new entrants as they are likely to be small and lacking in resources. Competing against a large incumbent like Zund, these new entrants will struggle to get any traction.

A bigger threat would come from an established printer company that already has a strong brand and distribution presence in the display graphics industry. Such a company could easily develop and launch a competitive cutter product. Overall, the threat of new entrants can be considered moderate to high.

3.2.3 Threat of Substitutes

There are two main substitutes to digital cutting systems. Either print shops can use manual tools or they can outsource their cutting work to another shop that owns a digital cutter. In most situations, the business case for a digital cutter can be easily made, since they generally pay themselves off quickly through reduced costs and additional revenue generation. As a result, the threat of substitutes is deemed low.

3.2.4 Power of Buyers

In the market for display graphics equipment, there are no significant buyer groups. There are a few sign printing franchises but each location typically makes its own buying decisions regarding equipment. Typical cutter customers are small to medium sized businesses with 2-10 employees and do not purchase enough equipment to exert any real influence. Therefore, the power of buyers is low.

3.2.5 Power of Suppliers

Digital cutters are built mostly from custom-made parts that can be easily sourced from a wide variety of suppliers. Thus, suppliers have very little power in the industry for the most part. However, Océ's situation is notably different since Océ sells a re-branded version of a Zund cutter. For reasons both contractual and practical Océ is effectively committed to selling Zund printers, at least in the short term. This means that Zund as a supplier is currently in a strong power position over Océ. Despite this special case, the overall power of suppliers for the industry is considered low for this analysis.

3.2.6 Results of Five Forces Analysis

According to the preceding five forces analysis, it can be concluded that the attractiveness of the cutter industry in general is neutral. There is some competition from rivals but there is opportunity to differentiate through branding, reputation and quality. The need for established distribution channels with well-trained sales teams, acts as a barrier to entry for most potential entrants, although less so for the companies that already have adequate distribution in place. Additionally, the forces of supplier power, buyer power and substitution are low.

Although this analysis provides useful input on the attractiveness of the cutter industry as a whole, it is not enough on its own to guide Océ's strategy. To do that other factors need to be considered such as the size and growth of the display graphics market, and the potential opportunities and threats that are associated with the industry in general.

3.3 Opportunities

Growing Market

The fact that the cutter market is growing represents an opportunity in and of itself. As is shown in Chapter 2, there is a large installed base of flatbed printers in the world, representing a

very significant source of potential cutter revenue. There is a good opportunity for a company with a strong brand and solid distribution to release a profitable product.

Lower Priced Offering

There is also an opportunity for a lower cost competitor to capture a sizable portion of this market. Zund, the current market leader, is estimated to control about 64% of the total market by revenues. This corresponds to about 68.5 million USD in annual sales. In the industry, Zund's products are differentiated from the competition because of their perceived quality and reliability. As a result, the company is able to charge premium prices and it most likely achieves above average margins. However, anecdotal evidence obtained from several of Océ's sales managers around the world suggests that many customers view Zund products as too expensive, and would welcome a lower priced alternative provided an acceptable level of quality is maintained.

3.4 Threats

Margin Erosion

As cutter technology is relatively straightforward, there is little to prevent companies from entering this business if it is seen to be profitable. As soon as one or two of these new entrants is able to setup adequate distribution, the market will experience increased price competition. This situation would obviously reduce margins for all players in this market and hamper overall industry profitability.

Stagnant Long Term Growth

For the next 4-5 years, the market for flatbed printers is predicted to continue to grow, and the cutter market will likely follow this trend. In the longer term, however, there is potential that sales of cutters could level off sooner than sales of printers. This is for two reasons. First, cutters have very long useful lifetimes so once the initial market demand is supplied there will be little turnover. Second, while it is becoming increasingly common for print shops to make use of multiple printers, the volume of cutting work is not normally sufficient to require multiple cutters. As a result, the overall attachment rate could drop resulting in reduced placements.

Slowdown in the Global Economy

In the event that the world economy slides back into recession, many print shops will postpone purchases of capital equipment, including both printers and cutters. The key issue is that while print providers may reduce capital expenditures they will likely continue to operate and will thus continue to consume ink. This will provide a continued source of revenue to companies that sell ink, such as Océ. Unfortunately, cutter equipment does not use any ink or any significant amount of consumables, and as a result, the business is even more susceptible to disruptions in the global economy.

3.5 Conclusion

The preceding external analysis provides mixed results. Although market growth looks appealing in the near term, there is significant potential that this market will slow down in the long term due to the long life of cutter equipment and the fact that few customers will ever require multiple cutters. A Porters Five Forces analysis reveals that the attractiveness of the industry as whole is neutral. This is partly because the technical simplicity of digital cutting systems means that the potential for substantial entry into the market cannot be ignored. Although profit margins on cutter equipment are good, the fact that cutters generate very little recurring revenue is a major downside.

Based on this, it can be concluded that while selling cutters can be profitable, the printer business is generally a more attractive industry in which to participate. The importance of this situation becomes clearer in Chapter 5 when Océ's strategic options are presented. Today most of Océ's display graphics organization is geared toward making and selling printers. As resources in any organization are always limited, Océ must weigh any benefits of investing in its cutter business against the opportunity costs.

4: Internal Analysis – Océ

This section provides an internal analysis of Océ, with specific emphasis on the issues that are most relevant to the cutter business. Océ’s overall strategy for the display graphics market is explained, followed by a description of Océ’s strengths and weaknesses. This section concludes with an overall assessment of Océ’s capabilities regarding cutters.

4.1 Océ’s Strategy in Display Graphics

Océ’s stated strategy for its display graphics business is the following:

“To grow our business at a pace faster than the market, by concurrently addressing new customers with existing products/technologies and introducing new products/technologies.”

To achieve this growth Océ intends to:

- Expand the flatbed printer portfolio and establish wider brand awareness in new customer segments
- Diversify across new markets with existing technologies
- Leverage the existing customer base and capture more of the application value chain through complementary products.
- Consider M&A to expand scale of the product portfolio with new technologies and address a wider range of applications

As stated in the third bullet, a key piece of Océ’s strategy is to achieve growth through complementary products, which includes cutters. Océ is currently realizing this growth in a several ways. First Océ leverages its core customer base (flatbed printer customers) by selling them cutters. This has the effect of adding revenues from equipment sales and increasing overall sales efficiency. Océ also uses complementary products to position itself as a total solution provider to its customers. By providing complete application support to its customers, Océ differentiates itself from its competition and is thus able to command higher margins, and achieve greater customer loyalty. Finally, Océ uses complementary products to enlarge its current customer base.

4.2 Strengths and Weaknesses

Océ is a large company with a wide range of products in many different markets. Consequently, it has a number of areas of strength both technical and operational. However, most of these attributes are not relevant to this analysis. In this section, the specific strengths and weaknesses that directly affect Océ's cutter business are addressed. In addition, some neutral factors that have both positive and negative implications are discussed.

4.2.1 Strengths

Distribution

Océ has direct sales in 29 different countries worldwide, giving it a presence in every major region of the world. Through its direct distribution model, the company benefits from having sales people who have extensive knowledge of Océ's specific products. This distribution network delivers a significant advantage over many existing cutter manufacturers. Most of the smaller cutter manufacturers do not have their own sales channels and must use independent dealers to get their products to customers. Many of the larger cutter manufacturers have distribution in specific regions but lack worldwide presence. As Océ can make use of its existing printer sales channels to sell cutters, the investment required for it to participate in this market is low relative to most new entrants.

Océ can use this strength to its advantage in a few ways. First, it can use its wide distribution network as leverage in negotiating partnerships. For example, Zund was willing to give Océ favourable pricing for its cutters, in part because Océ was able to provide access to markets where Zund had little exposure, such North America and Australia. Another benefit is that Océ can pick and choose where it wants to sell cutters with relative ease. It would be much easier for Océ to start selling cutters in a new region such as Asia, since it already has a sales network and established infrastructure there, than it would be for a company to start from scratch.

Brand

Océ is a well-recognized brand in the display graphics industry. Through the success of its flatbed printer offering, Océ has established a reputation as a provider of high quality reliable products that are available at reasonable prices. This gives it an advantage over smaller manufacturers who have yet to establish a reputation. The brand equity that Océ has built from its printers should be applicable to its cutter business as well. As we will see in Chapter 5, the

protection of this brand is an important priority. Any Océ branded cutter must be of a sufficient quality to ensure that Océ's reputation is not damaged.

Global Operations

Océ has been successfully producing display graphics equipment since 2002. In that time, it has learned what it takes to design, manufacture, sell and service capital equipment in this industry. Océ has strong capabilities in R&D, manufacturing, supply chain management, and customer service. Because of the technical similarities with printers and the fact that they are sold to the same customer base, most of these capabilities can be directly applied to cutters.

4.2.2 Weaknesses

Application Knowledge

To be successful selling display graphics products, salespeople must effectively become application specialists, meaning that they can work directly with customers to help select and use the equipment. A large part of this involves educating the customer on what kinds of output these machines can produce and how to actually produce it. Océ has years of experience selling printers and, as a result, its sales people have built up a wealth of printer application knowledge.

Selling cutters can be relatively complex because of their range and versatility. For example, Océ sells over 10 different table model sizes, each with a wide variety of options including various cutting tools and other accessories. Cutters can also be used for a very wide range of applications. Thus, a key aspect of selling cutters is helping customers understand how to use an Océ cutter system to generate profits. Currently Océ does not have the expertise required to do this throughout its entire distribution network. If Océ wants to expand into new geographic markets it will need to provide specific training to local sales staff. This added cost must be taken into account when assessing the strategic options for the future of the cutter business.

4.2.3 Neutral Factors

Relationship with Zund

Océ's relationship with Zund has important implications, both positive and negative, toward its cutter strategy. Through this relationship, Océ has been able to add a reputable cutter to its portfolio of products with a relatively small investment. Océ also receives very competitive

price on the cutters it purchases (relative to other dealers in the market). However, the fact that Zund is Océ's single supplier of cutting systems, may adversely affect Océ's strategic options in the future. Any actions that would compromise this relationship could result in a significant loss in cutter revenues. This issue is explored further in Chapter 5.

Sales Structure

For the purpose of this analysis, we will focus on Océ's direct distribution system, since this is the method by which Océ sells cutters². The main benefit that Océ receives from using a direct distribution model is the ability to deliver a consistent sales experience on an international basis. Océ prefers to use a consultative sales approach, whereby sales people and application specialists work closely with potential customers to help them find solutions to their specific issues. By having sales divisions integrated under the parent company, Océ gains the ability to share important information between sales and application professionals located in various regions of the world. This enables Océ to position itself as a total solution provider in the minds of its customers, which is important for driving sales and maintaining favourable product margins.

A downside of this structure is that it is more costly than the indirect distribution models used by some other manufacturers in the industry. This is particularly important for the cutter business, since Océ currently gets lower margins on cutters as compared to printers. Because the sales divisions are incentivised to achieve certain profit targets, they are more likely to focus selling efforts on the higher margin products. As will be discussed in Chapter 6, the issue of incentives is important factor for Océ's cutter business.

4.3 Conclusion

By analysing Océ's internal strengths and weaknesses, it is clear that it is well within Océ's capability to be a strong player in the cutter market. Océ has been very successful with its flatbed printer business, and the cutters business is very similar. It should be straightforward for Océ to use its global distribution, strong brand, and operational abilities to be an effective competitor in this space. Océ's only applicable weakness is that most of its sales people are not equipped with the necessary application expertise to sell cutters effectively. However, the fact

² Océ actually uses some indirect distribution as well, but because it does not affect the cutter business specifically it is ignored for this analysis.

that Océ has been able to sell cutters successfully in several countries indicates that obtaining this expertise through appropriate training is achievable. Additional factors, such as Océ's relationship with Zund, and the structure of its sales channels are also important factors that affect Océ's ability to grow its cutter business.

However, the fact Océ has many of the capabilities needed to compete in the cutter business does not necessarily mean that Océ should increase its investment in this product line. As we will see in Chapter 5, many other factors need to be considered.

5: Strategic Options

The purpose of this section is to identify three possible strategic options for Océ with respect to its cutter business and evaluate them based on a specific set of criteria. The chosen criteria are consistent with the above analysis as well as Océ's overarching strategy for the display graphics business. Using a weighted scoring system the best option is selected.

5.1 Key Challenges for Océ's Cutter Business

Océ faces several challenges with respect to its cutter business, which are presented here. The goal of any proposed option should be to address some or all of the following issues.

Underperforming Overall Placements

Chapter 2 highlighted the fact that there is opportunity for Océ to sell more cutters than it is currently selling. Besides the obvious benefit of increased revenues and profits, selling more cutters would serve to expand Océ's customer base in general, which could ultimately lead to increased printer sales.

Low Margins

Océ's current arrangement allows it to purchase cutters from Zund at a 38% discount from the list price. This means that Océ could theoretically receive gross margins of 38%, which is reasonably good. In reality, because of competition in the market place, Océ's sales offices often need to offer deep discounts to customers in order to produce a sale. As a result, Océ actually attained gross margins of 20% on its cutter sales in 2011, as compared to its flatbed printer margins, which ended up at about 59%. Note that this 20% gross margin does not take into account the costs associated with selling, such as salaries, marketing costs, and other overheads. Once this overhead is taken into account, only a very small percentage of the revenue from a cutter sale actually ends up contributing to the company's bottom line. In order for the cutter business to be profitable, this issue of low margins needs to be addressed.

No Low End Models in Portfolio

With list prices in the range of 100,000 to 200,000 USD depending on the configuration, Océ's current cutter offering is positioned in the mid to high end of the market. However, section 2.1 indicates that a lower-end product would be appropriate for a sizable segment of the market. Furthermore, feedback from sales managers within Océ indicates that there is significant customer interest in a lower priced model, as many of the smaller print shops do not have enough revenues to justify these prices. The price point of a low-end model would need to be at least 40% less than an Océ ProCut, in the range of 50,000 to 80,000 USD.

Competition from independent resellers

For many of the products that Océ manufactures, including flatbed printers, Océ maintains strong control over the sales channel, and as a result can minimize price competition among different sellers. However, the Océ ProCut is different in the fact that it is fundamentally just a rebranded Zund cutter. This means that Océ must compete directly with other Zund resellers, who are mainly independent dealers. Because these independent dealers often have fewer overheads, they can sometimes offer deep discounts and effectively price Océ out of the market. This can be a major reason for lost sales.

5.2 Evaluation Criteria

Before outlining some options for Océ's cutter business, we first define the criteria by which the alternatives are evaluated. The following sections describe each of the criteria along with their relative importance. The relative importance of each criterion is quantified as a percentage weight between 0 and 100%, where 0% represents a complete lack of importance and 100% represents total importance. For this analysis, the sum of each of the weightings is 100%.

5.2.1 Profit Contribution

Potential profitability is an obvious metric for evaluating these strategic options. In this case, profit contribution refers to any benefit to Océ's bottom line that is derived specifically from cutter sales. This could come from either an increase in revenues or better margins or both. Note that this criterion does not account for any tangential benefits to printer sales that may be provided. This effect is accounted for by the "Strategic Fit" criterion, which is described later.

Profit contribution is assessed a moderate weighting, at 25%. While it is certainly desirable for the cutter business to yield profits, it is not necessarily of paramount importance if other benefits are provided. Profit contribution is scored from 1 to 10 with 1 representing very low profits and 10 representing very high profits.

5.2.2 Required Investment

The required investment is simply the cost of implementing a particular strategic option. For Océ, the required investment is a very important parameter mostly because cutters are not Océ's core business. In addition, as seen in Chapter 3, the cutter business is generally less attractive than the printer business because cutters have a longer usable life, use predominantly mature technology, and do not generate recurring revenues. Because Océ as a company has limited resources, any investment in the cutter business will involve some corresponding opportunity cost. Therefore, it is probably not in Océ's best interest to make very large investments in this business, particularly if such investments detract from potential advances in its printer product line.

Because of the opportunity costs involved, the required investment has the highest weighting of 40%. Required investment is scored from 1 to 10 where 1 represents a very large investment and 10 represents very small investment.

5.2.3 Protection of Océ Brand

Chapter 4 highlights brand reputation as an important strength of the Océ organization. It is important that any actions that Océ takes with its cutter business do not adversely affect Océ's brand. For example, if Océ were to launch a cutter that had poor performance or reliability, the resulting damage to Océ's brand could affect the entire product line including the printer business.

Although this criterion is important, the risk to Océ's brand can be mitigated by exercising thorough due diligence. Therefore it is assessed a weighting of 10%. Protection of Océ Brand is scored from 1 to 10 where 1 indicates likely damage to the brand and 10 indicates that the brand is well protected.

5.2.4 Risk

Any investment entails a certain amount of risk. The purpose of this criterion is to capture the need for higher potential returns from riskier investments. Because the strategic options

considered in this analysis are not large enough to materially affect the company as a whole, risk is given a relatively low weight of 10%. Risk is scored from 1 to 10 where 1 represents very high risk and 10 represents very low risk.

5.2.5 Strategic Fit

This criterion is used as a catchall to capture any strategic benefits that a given option generates. As was mentioned in Chapter 4, an important aspect of Océ's strategy in the display graphics market is to offer application expertise to customers. This criterion attempts to measure how well an option enables Océ to position itself as a solution provider and thus differentiate itself from the competition. Another strategic factor to consider is how much control a given option affords Océ over product features and technology.

Strategic fit is assessed a moderate importance of 15%. Strategic fit is scored from 1 to 10 where 1 represents a poor strategic fit and 10 represents an excellent strategic fit.

5.3 Strategic Alternatives Development

This section presents three alternative strategies that Océ could employ for its cutter business. The alternatives are to continue selling only the Zund manufactured ProCut system, expand the current cutter offering by finding a new partner with a lower cost product, or vertically integrate through an acquisition. Each alternative is described and then ranked according to the previously defined criteria. The ultimate goal in this section is to determine a score for each option relative to its alternatives. In some situations, rough calculations are used to provide a basis for comparison. It is important to note that the calculations presented in this section are ballpark approximations that need to be refined in much more detail once a specific alternative is chosen.

5.3.1 Option 1 – Maintain Current Strategy

The first option is the most straightforward of the three. The premise is to continue the current strategy of selling only the ProCut models manufactured by Zund. Océ has used this business model since 2008, and it has proven to be quite effective in several countries such as Germany and France. Moving forward, Océ should work to identify the factors that have contributed to success in certain countries, in order to improve the performance of the countries that have had less success. At the same time, Océ should look to expand cutter sales into new geographic areas.

5.3.2 Profit Contribution

In order to assess the potential profit contribution that can be achieved with this strategy, we will start by considering Océ's cutter placements by country. In 2011, the countries with the highest cutter placements were Germany, France and the Netherlands. As a group, these three countries achieved an attachment rate of 60%, meaning that 6 cutters were sold for every 10 printers. As a comparison, in 2011 Océ's overall attachment rate was about 15%, with 69 cutters sold and 468 printers sold.

While a goal of achieving 60% average attachment rate is probably too ambitious, a more conservative target for Océ as a whole could be around 30%. This rate is roughly double Océ's current rate and is in line with the overall market rate established in Chapter 2. Table 10 shows the increase in gross profit that could be provided by improving attachment rates to 30% in lower performing countries like USA and Australia, while expanding into new regions such as Brazil and China. The potential gross profit increase in this scenario is about 1.7 million dollars annually.

Table 10 Profit Potential of Option 1

Country	Flatbed Printer Placements in 2011	Cutter Placements in 2011	2011 Attachment Rate	Gross Profit Increase based on 30% Attachment Rate (1000USD) ³
Italy	14	Not Sold	NA	109
Belgium	13	Not Sold	NA	101
Switzerland	7	1	14%	29
Spain/Portugal	7	Not Sold	NA	55
Norway	6	Not Sold	NA	47
Sweden	8	Not Sold	NA	62
Denmark	4	Not Sold	NA	31
Finland	2	Not Sold	NA	16
Austria	4	Not Sold	NA	31
Poland	16	Not Sold	NA	125
Czech/Slovenia	4	Not Sold	NA	31
USA	94	10	11%	473
Mexico	6	Not Sold	NA	47
Australia	24	6	25%	31
Singapore	13	Not Sold	NA	101
PRC-China	14	Not Sold	NA	109
China-cons.	14	Not Sold	NA	109
Malaysia	7	0	NA	55
Brasil	20	Not Sold	NA	NA
			TOTAL	1,719

At this point, these numbers are hypothetical and are intended to provide an estimate of the upside potential of the current strategy. However, an important point to consider is that despite the potential for increased revenues, the margins that Océ gets on the Zund cutters will remain relatively fixed. Because these margins are so low, the potential profit contribution that this option can ultimately offer is also low.

Profit Contribution Score: 3/10

³ Profit increase is calculated assuming an average sale price of 130,000 USD and a gross profit margin of 20%. These figures are consistent with Océ's 2011 financial results.

5.3.2.1 Required Investment

Of the three options presented, this one requires the smallest investment. Océ has already gone through the process of qualifying and negotiating a partnership with Zund. The primary cost of this option is the training of sales and service staff in new regions. While significant, these training costs are small relative to the costs of options 2 and 3. By comparison, the incremental investment required to expand ProCut sales into new geographic regions is small .

Required Investment Score: 10/10 (low investment = high score)

5.3.2.2 Brand Protection

Option 1 entails negligible brand risk. Since initially launched in 2008, Océ has had no substantial quality issues with the Zund manufactured ProCut cutters, and there is no reason to expect anything different in the years to come. In the industry, Zund products are known for quality, and they complement the Océ brand well.

Brand Protection 10/10:

5.3.2.3 Risk

Moving forward the financial risk associated with this option is very low. All of the major costs have been already sunk. Océ has a good understanding of what the costs associated with selling ProCut cutters are and what kind of sales volumes to expect. As a company Zund appears to be on good financial footing with growing sales and good margins.

Risk: 10/10 (low risk = high score)

5.3.2.4 Strategic Fit

The Zund cutter is a good strategic fit for Océ for the simple reason that it is the most popular cutter on the market and is therefore the system that most customers are likely to want. On the other hand, because the Zund models are mostly geared toward the medium to high-end market, there will be some smaller revenue customers that will not be addressed. Another important consideration is that with this option Océ has little control over technology and product features. Considering these factors together, this option receives a moderate score for strategic fit.

Strategic Fit Score: 5

5.3.3 Option 2 - Find a new Lower Cost Partner

The second option attempts to address the issue that the Océ ProCut is priced too highly for certain customer segments, particularly low revenue print providers. In this scenario, Océ would seek out a relatively small manufacturer that is capable of producing a cutter at a significantly lower cost than the Océ ProCut. Once a suitable company is found, Océ would negotiate a deal to sell the new partner's system as Océ branded equipment. An ideal partner would be a small company with under-developed global distribution channels. This would allow Océ to use its strong distribution as leverage in contract negotiations in order to secure exclusive access to the product at favourable prices. The new low-end cutter model would be sold in addition to the existing ProCut models.

5.3.3.1 Profit Contribution

In order to estimate the potential profit contribution from this option we must determine a reasonable sales forecast for a low-end cutter solution. The market segmentation data provided in Chapter 2 showed that the low-end of the flatbed printer market represented about 1/3 of the total flatbed printer placements in 2011. In the same year, Océ placed 69 cutters, which we will assume were all sold to midrange or high-end printer customers. Using this 1/3 ratio, it is reasonable to assume that Océ could sell 34 low-end cutters annually⁴.

Next, we assume that a low-end cutter would need to sell for about 80,000 USD on average, which is about 60% of the average price that Océ receives for a ProCut. This corresponds to about 27.2 million USD in annual revenues. For gross margin, a value of 30% is used, as compared to the 20% that Océ receives on a ProCut sale⁵. This results in a gross profit of 816,000 USD annually, which is relatively low.

Profit Contribution Score: 1

5.3.3.2 Required Investment

The investment required to implement this option is moderately high. First Océ would need to source and qualify a new cutter manufacturer, which would require considerable resources from various company departments especially R&D. Following that, there would be a significant logistical effort to get the supply chain up and running for the new product. Finally,

⁴ If Océ sells 34 cutters to low-end customer and 69 to midrange and high end then the low-end sales will represent 1/3 of total placements.

⁵ Assuming Océ can use its distribution capabilities as leverage to negotiate better margins.

sales and service staff around the world would need to be brought up to speed before the product could actually be sold.

Required Investment Score: 4 (low investment = high score)

5.3.3.3 Brand Protection

The risk to the brand is high for this option. Because a suitable partner will likely be a small and relatively new company, there is significant potential for this company's products to have quality issues. Compared to Zund, a new partner will be a much greater risk to the Océ brand. Therefore, the brand protection score for this option is low.

Brand Protection Score: 4

5.3.3.4 Risk

The financial risk associated with this option is moderate. There is a risk that the new partner company will run into financial or operational difficulties and not be able to supply product in the quantities required. In this case, Océ would stand to lose the investment it made in finding the new partner, negotiating an agreement and ramping up distribution. However, this risk can be mitigated by exercising appropriate due diligence when choosing a partner company.

There is also a significant risk, that by finding another cutter partner, Océ will jeopardize its current relationship with Zund. If Zund were to walk away from the current partnership, Océ would stand to lose most if not all of its mid-range and high-end cutter business. Therefore the risk of this option moderate to high.

Risk: 3 (low risk = high score)

5.3.3.5 Strategic Fit

In terms of strategic fit, this option is the best of the three. It allows Océ to maintain sales of the popular Zund cutter, while addressing the lower end of the market with an inexpensive entry-level product. However, this option suffers from the same issue as Option 1, in that Océ will still have little control over product features and technology. Therefore, the strategic fit score for this option is moderate to high.

Strategic Fit Score: 7

5.3.4 Option 3 - Acquire a Cutter Manufacturer

The third option would be for Océ to purchase an existing cutter manufacturer. By acquiring greater ownership of the entire value chain, Océ would be able to get much better gross margins on its cutter sales. An acquisition would also provide Océ with full control over product design and manufacturing processes, which would allow Océ to ensure that its cutting products are of acceptable quality. For this option to be feasible the target company would need to be small with relatively low earnings, otherwise the price would be prohibitively high. An ideal candidate would have a proven product line and a talented development team, but with under-developed distribution and relatively low sales volume.

An important implication of this option is that Océ would become a direct competitor to Zund. In all likelihood, this would terminate the partnership between the two companies and Océ would no longer be able to offer its ProCut systems.

5.3.4.1 Profit Contribution

In terms of profitability, this option offers the greatest potential upside. To estimate this potential, we assume that Océ would be able to get about 60% gross margins on cutters, which is about the same margin that Océ currently receives on its printing equipment. Increasing cutter margins from their current level of 20% to 60% would effectively triple the profits from the cutter business, which is a significant increase. Based on 2011 cutter sales of 8.5 million this would represent an increase in gross profit of 3.4 million. Note that this figure is based on Océ's 2011 attachment rate of 15%. If this attachment rate were increased, this option would be even more profitable.

This estimate assumes that after launching the new cutter Océ would be immediately able to match the sales volumes of the ProCut. This is unrealistic, as it would almost certainly require several years to ramp up sales of a new cutting system. However, the estimate does show that this option has considerable potential to be profitable in the long run.

Profit Contribution Score: 8

5.3.4.2 Required Investment

Estimating the cost of acquiring a cutter manufacturer in a general way is an extremely difficult task. Without specific information about the target company, it is virtually impossible to

arrive at a number with any accuracy. To get a ballpark estimate we will consider a hypothetical company of a size that would be reasonable for Océ to purchase.

Based on market share data that was presented in Chapter 2, a typical small manufacturer in the cutter industry could have annual revenues in the range of 5 million USD. To determine the hypothetical company's net earnings we will use an assumed net profit margin of 15%⁶. Using this profit margin, we arrive at 750,000 USD in net earnings. Next, a price to earnings multiple of 15 was applied to determine an appropriate valuation.⁷ Finally, a liquidity discount of 30% is applied since all of the smaller players in this industry are privately held⁸. The calculation is summarized in the following table.

Revenues	\$5,000,000
x Net Profit Margin	15%
Net Earnings	\$750,000
x Price/Earnings	15
	\$11,250,000
Liquidity Discount(30%)	-\$3,375,000%
Valuation	\$7,875,000

The cost calculated above only provides an estimate of what Océ would need to pay the owners of the acquired company. It does not take into account the additional investment that would be required to integrate the company into the Océ organization. This integration effort would entail additional financial costs and consume significant company resources. Determining the total cost of an acquisition requires an in depth business case analysis which is beyond the scope of this paper. For now, it is sufficient to say that this option requires substantially greater investment than the other two options. Thus, this option receives a poor score for required investment.

Required Investment Score: 1 (low investment = high score)

⁶ Net profit margin depends entirely on the company in question. 15% was chosen as a number that would be appropriate for a reasonably successful small company with low overheads.

⁷ At the time of writing this paper the Price to Earnings multiple for the S&P 500 index was 15.3

⁸ Because the Price to Earnings multiple of 15 was derived from publicly held companies, it must be discounted in order to value a private company.

5.3.4.3 Brand Protection

With this option, the risk to the brand is moderate. Because it involves launching new and less field-tested products there will be some potential for quality and reliability problems to arise. However, because the acquired company would be fully owned by Océ, it would be in position to ensure that products delivered are of suitable quality.

Brand Protection Score: 5

5.3.4.4 Risk

As with any acquisition, there are significant risks that must be considered. Some examples of potential pitfalls include loss of key personnel, difficulty integrating operations, or un-anticipated capital expenditures. The fact that the required investment is high also tends to increase the riskiness of this option.

Risk Score: 1 (low risk = high score)

5.3.4.5 Strategic Fit

It is unlikely that any company that Océ would purchase would have the same breadth of product models and options that Zund has. Therefore, in the short term Océ may have to offer a less extensive portfolio of cutters. This would make it more difficult for Océ to provide application solutions to its customers. In the long run, however, this option would give Océ complete control of its cutting products in terms of technology and features. As a result, the strategic fit of this option is assessed as moderate.

Strategic Fit Score: 5

5.4 Summary of Results

Table 11 summarizes the results of the strategic analysis. A total score for each option is obtained by calculating the weighted sum of the scores for the individual criteria. A higher score indicates a more attractive option. According to this analysis Option 1, is the clear winner, indicating that Océ would be best off to continue with its current practice of selling Zund manufactured cutting systems exclusively.

Table 11 Strategic Option Evaluation

	Weight (%)	Option 1 Current Strategy	Option 2 Low-end Partner	Option 3 Acquisition
Profit Contribution	25%	3	1	8
Required Investment	40%	10	5	1
Brand Protection	10%	10	4	2
Risk	15%	10	5	1
Strategic Fit	10%	5	7	5
		7.75	4.1	3.25

Clearly, the numbers used in preceding weighted decision table are somewhat subjective. Despite this fact, the results do provide some valuable insight. For example, they illustrate that, while an acquisition could potentially lead to greater profits down the road, the large investment required ultimately makes this option undesirable. To provide a sanity check on this evaluation of strategic options, these results were discussed with experienced professionals within Océ's display graphics business unit. There was general agreement that the results are reasonable and consistent.

6: Recommendations and Conclusion

In this analysis, the cutter business is examined from several different angles. In order to estimate the size and breakdown of the overall market, a model is constructed using data provided from external consultants. Next, an external analysis is performed to see if market forces are favourable for this industry in the long term. Chapter 4 provides an internal analysis, which explores Océ's strategy in the display graphics field, as well as its strengths and weaknesses, in order to assess whether Océ has the necessary capabilities to compete effectively in the cutter business. Finally, the major challenges that Océ is facing with its current cutter business are examined, and some alternative strategies to address them are suggested.

In terms of attractiveness, the analysis provides mixed results. Although an investigation of the market shows that Océ's cutter business has some room for top line growth, Océ's gross margins on cutters are currently quite low, meaning that the contribution to the bottom line is likely to remain small. A Porter's Five Forces analysis shows that while the cutter business is generally a good business to be in, it is considerably less attractive than the flatbed printer business for reasons such as low recurring revenues and limited barriers to entry. An internal analysis exposes the fact that Océ has all of the necessary capabilities to compete in the cutter industry, although it should not invest heavily in cutters at the cost of further printer development.

This analysis examines three alternative strategies for Océ to take with its cutter business. The options are to either stay with the current strategy of selling only the Zund manufactured ProCut system, expand the product portfolio by finding a new partner with a lower cost product, or vertically integrate through an acquisition of a small cutter manufacturer. Each option is evaluated according to specific criteria, which includes, among other things, how much profit each option could generate and how much investment would be required for its implementation. Using a weighted scoring scheme the best option is ultimately determined.

A key insight to be taken from this analysis is that cutters themselves will likely never contribute significant profits to Océ unless the company can acquire more of the value chain, specifically the manufacturing. The margins received from selling a third party manufactured product are simply too low to pay for Océ's relatively high selling costs. This problem is compounded by the fact that Océ faces direct price competition on its cutting products from

independent dealers, which reduces margins even further. Another benefit of owning the manufacturing is that it would give Océ a greater ability to set the price of its cutters, which would reduce price competition.

Despite the benefits of vertical integration, the results of this analysis show that the investment required would be too large to be worthwhile. This money and resources required to acquire and integrate cutter-manufacturing capabilities would be better spent on developing new printer products.

For Océ, direct profits from selling cutters should not be the most important consideration, although it would obviously be undesirable for this business to generate a loss. It is more important to consider the strategic benefits of having a cutter in the product portfolio. By having a cutting solution available to offer customers, sales staff are better equipped to provide application solutions to customers. This increases customer loyalty and can thus generate more printer sales. Cutters also present an opportunity to enlarge the existing customer base. For example, in 2011, Océ's sales division in France sold five cutting systems to customers who did not own Océ flatbed printers. The potential outcome of this was the creation of five new satisfied customers some of which could very likely purchase a printer down the road.

The conclusion of this report is that the best course of action is for Océ to stay with the current strategy of selling Zund manufactured cutters. Zund has a solid reputation in the market and is a good match for the Océ brand. Although the margins are tight, ProCut sales do generate some profit, while at the same time enabling Océ to position itself as total solution provider. Since the Zund product adequately enables Océ to satisfy most of its customers cutting needs, any major investment in this business cannot be justified.

While this report does not recommend that Océ make sweeping changes to its current cutter business, there are a few areas where improvements can be made. Table 12 lists several recommendations that can be taken in order to increase cutter placements, and ensure that Océ's cutter offerings meet its customers' application needs.

Table 12 Areas to improve current cutter business

Recommendation	Justification	Next Steps
<ul style="list-style-type: none"> - Increase placements of cutters in countries with lower cutter sales. 	<ul style="list-style-type: none"> - Strong performance in certain countries indicates opportunity to increase sales in others - Market research (see Chapter 2) indicates room for improvement in certain countries. 	<ul style="list-style-type: none"> - Investigate methods of successful countries to identify potential best practices - Ensure incentives to sell cutters are in line with company strategy.
<ul style="list-style-type: none"> - Expand cutter distribution into new countries. 	<ul style="list-style-type: none"> - As existing markets become saturated, expanding into new geographic regions will provide opportunity for increased placements. (see Chapter 2 and 3) 	<ul style="list-style-type: none"> - Select countries most appropriate for expansion - Verify product offering is appropriate for targeted countries. - Conduct primary market research to ensure cutter market is large enough to pursue in targeted countries.
<ul style="list-style-type: none"> - Pursue a low-end cutter model through Zund. 	<ul style="list-style-type: none"> - Analysis of segmentation of flatbed printer market indicates potential for a low-end cutter product. (see Chapter 2) 	<ul style="list-style-type: none"> - Perform primary research to validate size of low-end segment. - Determine appropriate product features. - Use relationship with Zund to influence them to make the right product for low-end customers.
<ul style="list-style-type: none"> - Investigate ways to leverage cutter product to increase sales of flatbed printers. 	<ul style="list-style-type: none"> - Printing equipment is Océ's core business and is generally a more attractive market. (see Chapter 3) 	<ul style="list-style-type: none"> - Interview sales divisions with successful cutter sales to identify how cutters can facilitate printer sales. - Investigate ways to bundle cutters with printers.

Appendices

Appendix A Cutter Market Model

Model of Global Market for Digital Cutting Systems

To estimate cutter placements per company we take each companies revenues and divide by the estimated average price to the manufacturer. Manufacturer prices are estimated assuming a dealer discount of about 30%. To understand the sensitivity to these price estimates we do the calculation for low, nominal and high values. Source of revenues figures: IT Strategies.

Nominal Average Mfg Price

Manufacturer	Units Sold	Average Mfg Price (\$1000)	Revenue
Esko	53	\$85	\$4,500
Blackman & White	47	\$63	\$3,000
Aristo Graphics	70	\$143	\$9,975
Fotoba Colex	77	\$91	\$7,000
EuroLaser	50	\$50	\$2,500
Zund	673	\$102	\$68,550
Other	145	\$79	\$11,500
Total	1115		\$107,025

High Average Mfg Price

Manufacturer	Units Sold	Average Mfg Price (\$1000)	Revenue
Esko	45	\$100	\$4,500
Blackman & White	30	\$100	\$3,000
Aristo Graphics	70	\$143	\$9,975
Fotoba Colex	77	\$91	\$7,000
EuroLaser	50	\$50	\$2,500
Zund	571	\$120	\$68,550
Other	115	\$100	\$11,500
Total	958		\$107,025

Low Average Mfg Price

Manufacturer	Units Sold	Average Mfg Price (\$1000)	Revenue
Esko	69	\$65	\$4,500
Blackman & White	75	\$40	\$3,000
Aristo Graphics	91	\$110	\$9,975
Fotoba Colex	108	\$65	\$7,000
EuroLaser	50	\$50	\$2,500
Zund	762	\$90	\$68,550
Other	164	\$70	\$11,500
Total	1319		\$107,025

Next we assume the portion of cutters that are sold into the inkjet market. Because this value is unknown we once again assume a low, nominal, and high value. Based on the number of Flatbed Printer Placements in 2011 (source: IT Strategies) we determine the nominal attachment rate.

Percent of cutter sold to inkjet market

High	90%
Nominal	80%
Low	65%

Flatbed Printer Placements 2011	2372
Nominal Attachment Rate 2011	38%

Next we perform a two dimensional sensitivity analysis of the effect of uncertainty with respect to average manufacturer price, and the percent of cutters sold to the inkjet market.

		Average Manufacturer Price			
		Low	Nominal	High	
		1319	1115	958	
% Sold to Inkjet Market	High	65%	36%	31%	26%
	Nominal	80%	44%	38%	32%
	Low	90%	50%	42%	36%

Using the market forecast for flatbed printers, and the previously calculated nominal attachment rate, we estimate a forecast for cutter placements.

	2011	2012	2013	2014	2015	2016
Total Flatbed Printer Sales	2372	2533	2680	2810	2947	3091
Total Cutting Systems Sold To Inkjet Customers	892	952	1,008	1,057	1,108	1,162
Cutter Attachment Rate (assumed constant)	38%	38%	38%	38%	38%	38%

Using the global breakdown of flatbed printer sales by region we estimate a forecast for cutter placements by region.

Region	% Total Placements	2011	2012	2013	2014	2015	2016
North America	33%	294	314	333	349	366	384
EU	43%	384	410	433	454	476	500
Rest of World	24%	214	229	242	254	266	279

To obtain an alternative geographic breakdown of cutter placements we take the average of Oce's printer placements by region(Source: IT Strategies) and Oce's actual cutter placements by region in 2011

Region	% Flatbed Printer Placements by Region, 2011	% Oce Cutter Placements by Region, 2011	Average
North America	33%	23%	28%
EU	43%	68%	56%
Rest of World	24%	9%	17%
Total	100%	100%	100%

Region	% Cutter Placements by Region	2011	2012	2013	2014	2015	2016
North America	28%	250	267	282	296	310	325
EU	56%	495	529	559	586	615	645
Rest of World	17%	147	157	166	174	183	192

The effect of the is that we end up with different attachment rates for each region.

Region	Attachment Rate
North America	32%
EU	49%
Rest of World	26%

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