



February 2020 CGMA Operational Case Study
Examination
Pre-seen material

Lottie Graphite



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1. Your role

You are a Finance Officer working within the Finance Department of Lottie Graphite, where your role changes regularly. For the past few months you have been principally responsible for preparing budgets, weekly and monthly management accounts and providing cost information to management as required. However, as part of your career programme you will also be expected to work on non-management accounting tasks as and when required. For example, you may be expected to assist with the preparation of the financial statements and answer queries regarding financial reporting. You may also be expected to assist with the analysis of information such as purchases, sales and payroll information and involved with decision making.

2. Introduction

Lottie Graphite is a manufacturer of graphite and coloured pencils. The company is based in Gawland in Western Europe where the home currency is the G\$.

The company was founded in 1902 by Frederich Von-Fearn who named it after his beloved sister Charlotte. The company remains in the ownership of the founder's family and the current Managing Director is Charlotte's great-granddaughter.

Although little has changed in wooden pencil technology for almost three hundred years the production technologies used to manufacture them has. Lottie Graphite has always embraced change and taken every opportunity to automate processes in order to improve production efficiencies and the quality of the product. Innovations in pencil technology have been incremental rather than transformational in nature throughout the life of the company. These include designing hexagonal rather than round shaped pencils, using water-based paints and developing anti-break spindles (cores). Five years ago, the company launched PEXECO an eco-pencil manufactured using an extrusion process rather than woodwork. To build on the success of this innovation the directors are working on adapting the PEXECO for use as a stylus for laptops and tablets.

All products are manufactured on a site close to the location where the company first began to produce pencils. Although Gawland is a high wage economy the directors have refused any suggestion that the company should relocate to countries where factors of production are cheaper. They believe that the culture of the company is key to its success and that this would die if removed from its native soil and its dedicated workforce. Lottie Graphite runs a public factory tour once a week.

The company manufactures just under three hundred million pencils a year and sells them throughout most of the world through its own extensive distribution network. The company brand is recognised globally, and the products are acknowledged as premium quality. Lottie Graphite employs over 1,000 employees, The majority of employees are based in Gawland from where products can easily be distributed to all of mainland Europe. The remaining employees work in company offices in North America, South America and Australasia supervising procurement, inventory management, distribution and sales at the local level.

Financial results throughout the history of the company have been buoyant. In the financial year to 31 December 2019 the company reported an annual revenue of G\$151.4 million and a profit before tax of G\$12.3 million. This compares to an annual revenue of G\$149.4 million and profit before tax of G\$11.7 million in the year to 31 December 2018

3. The directors



Mia Schmied, Managing Director, is responsible for the company's future direction and growth. She is the fourth generation of the same family to run Lottie Graphite and has been educated and trained for this post since her teens.



Diane Rechnung, Finance Director is a CIMA qualified accountant who has held this post for seven years. Prior to joining the company she held senior posts in publicly owned companies in retail and technology.



Jack Berlin, Production Director is the longest serving director on the board. Jack is an engineer by profession and worked in a car manufacturing company and another pencil manufacturer prior to joining Lottie Graphite in his current role 16 years ago.



Bridget Laden, Procurement Director is responsible for the procurement of all inputs needed to run the company. Bridget is also an engineer by profession and had extensive experience in the construction industry before joining Lottie Graphite six years ago.



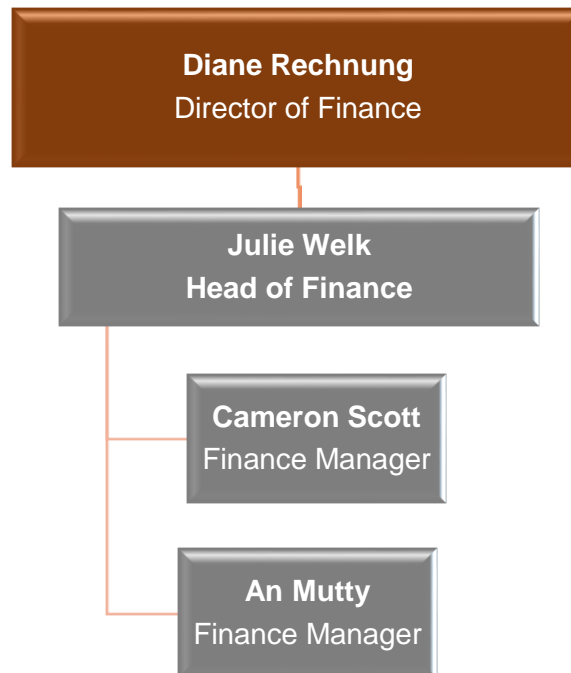
Binar Apparatt, IT Director, is the first non-European board member of the company. Her responsibilities cover all aspects of IT from the systems used for accounting to the GPS and logistics software as well as the control of the robotics and production systems. Binar has been with the company for four years



Ben Thakar, Sales and Marketing Director, is responsible for global sales and marketing strategy. He also oversees development of new products and has worked for the company for 12 years.

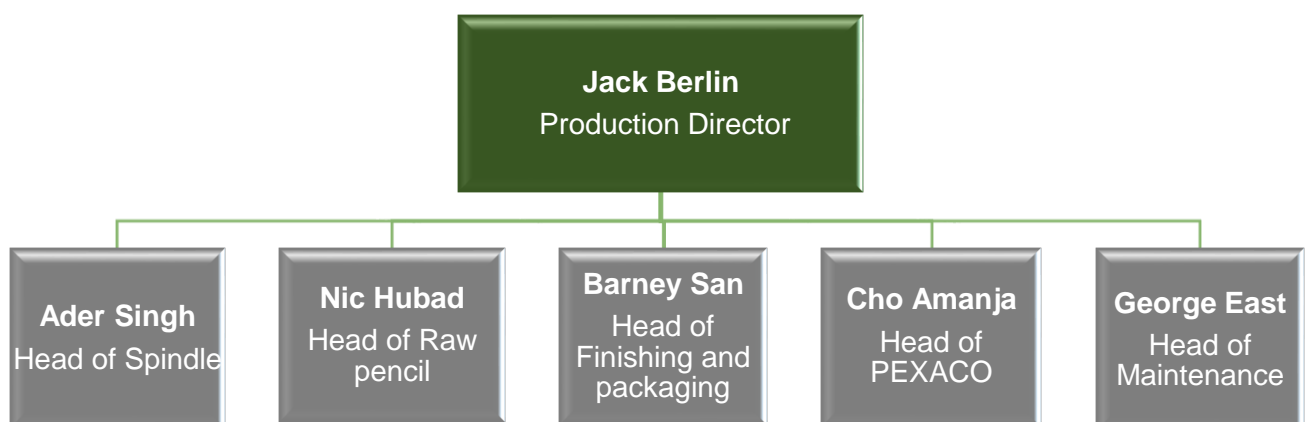
4. Key management teams

Finance



Cameron Scott is responsible for most of the management accounting information and reports produced, whereas An Mutty is responsible for transactions and preparation of the financial statements. However, there are times when their roles overlap, usually for specific new projects. There are 24 Finance Officer grade staff working in the Finance Department. Approximately 70% of staff are functional specialists who have specifically assigned roles while the remaining staff are regularly rotated into different roles. This ensures functional flexibility and enables excellent cross team cooperation and employee development.

Production



5. Company products

At present the company manufactures three types of pencil: graphite, coloured and PEXECO.

Graphite pencils

Although all graphite pencils look identical, they can have a range of different cores (called spindles). Spindles are manufactured using a combination of graphite and clay in differing proportions in order to vary the hardness and blackness of the pencil when it writes.

The measure of the spindle hardness and blackness is known as the graphite grading scale. The harder the spindle, the higher the H number. The softer the spindle the blacker the mark it can make and the higher the B number. A harder pencil spindle has a higher proportion of clay mixed with the graphite. As the spindles are delicate and easily broken, they are protected by a cedar wood case. The wooden case is 17.6 cm long and is painted a distinctive shade of blue with a gold capping. Every pencil is embossed with the graphite grading and the company name and logo. Each pencil is also embossed with a barcode for production, inventory and distribution tracking purposes. The most popular pencil in Europe is a pencil in the mid-range of the HB grading scale: the HB pencil. However, different countries tend to have their own spindle preference. Lottie Graphite manufactures 21 different pencils grades ranging from 9H to 9xxB. The selling price of the pencils in the middle of the range tend to be identical or similar as the price is market driven. Demand for the pencils at the extreme of the grading scale is quite low, as use of these is restricted to artists and specialists, although the selling price is usually much higher. A batch of these is produced less than once a year.

Coloured pencils

These pencils are identical to the graphite pencils in every way except that the spindles are made with clay, wax and colour pigment and the wooden case is painted to match the pigment colour. The company makes coloured pencils in two grades:

- **Regular grade** A range of colouring pencils used primarily, but not exclusively, by children. Currently there are 20 different colours in the range, although this changes with fashion.
- **Artist grade** This range is used by professional and amateur artists, usually adults, who require a higher density pigmentation in a much wider spectrum of colours. Lottie Graphite manufactures 109 different coloured spindles in this range. This range is acknowledged as the world's finest quality and commands a premium price.

PEXECO pencils

This product is a graphite pencil, but the spindle is encased in a wood plastic composite (WPC) rather than a cedar wood case. The name PEXECO is derived from the words: “pencil”, “extrusion” and “ecological”, which reflects the fact that they are environmentally friendly pencils made using a different technology to the traditional graphite pencil.

The cases are not made from slats of wood and painted like the traditional graphite pencil. Instead wood that would not usually be used for pencil manufacture (such as twigs, bits of tree trunks/branches, off-cuts and wood with poor grain properties) is ground to fine granules and mixed with a polymer resin. This mixture is extruded at the same time as the graphite spindle and a soft outer coating.

This pencil sharpens better, suffers less breakages and is smoother to write with than the standard pencils although it is slightly heavier. PEXECO pencils are currently only available with 2H, HB and 2B grade spindles.

6. Extract from the public factory-tour guidebook: The production process for graphite and coloured pencils

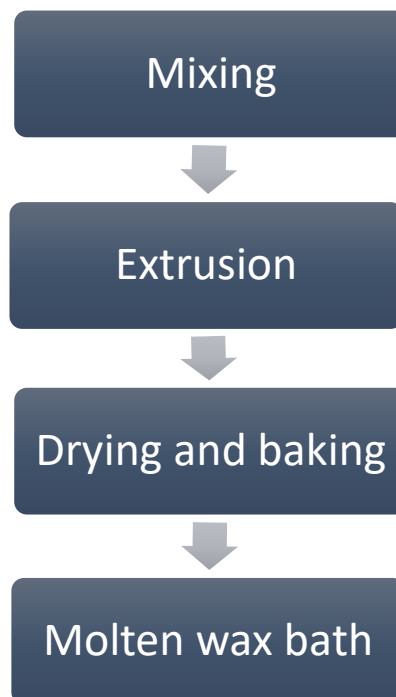
There are three key areas involved in the production of a graphite and coloured pencil: spindle production (creating the core of the pencil), raw pencil production (adding the wooden case) and finishing.

Spindle

The spindle is the material that runs through the centre of a pencil, the part that actually writes, draws or colours. There are separate spindle production facilities for graphite and coloured spindles.

The spindle of a graphite pencil is made up of a mixture of clay and graphite. Although the spindle is almost universally referred to as the “lead” of the pencil, lead has never been used in the manufacture of pencils. The shepherds who discovered graphite in the Cumbrian hills in the mid sixteenth century believed that they had found lead and the name stuck.

To make the spindle there are a number of different processes:



Mixing: To make a graphite pencil spindle we mix graphite powder, clay and water in a giant mixing machine. A single batch takes the same number of hours to complete regardless of the batch size. We want to use our machinery efficiently and therefore usually mix the maximum amount possible, enough mix for 200,000 pencils. The output from the mixing process looks like small grey pebbles.

If we are making coloured pencils the process is exactly the same, except we mix together clay, wax and colour pigment. Here at Lottie Graphite we can mix every colour of the rainbow. Generally, we plan our production schedule so that we mix light colours then medium colours and then dark colours. When the machine has mixed a dark colour, it has to be thoroughly cleaned before a light or medium colour can be mixed otherwise there is a risk of colour contamination.

Extrusion: The clay/ graphite mixture (or the wax and pigment mixture) is squeezed through a die immediately after the mixing process. This forms the mixture into long thin cylinders. At this stage the spindle is soft and wobbly.

Drying and baking: The spindles are placed in drying tins in a dryer and heated at 100 degrees Celsius to gently remove the water. It is important that the water is removed because otherwise the spindles could explode when baked.

Graphite spindles are baked in batches in a blast furnace, at a temperature of 1,000 degrees Celsius, for approximately three hours until they are hard and brittle. Coloured spindles are baked at a lower temperature and for less time, but the process is exactly the same.

Molten wax bath: At this stage in the process the spindles have tiny microscopic holes which, if left unattended, would make writing with the finished pencil uneven and bumpy and likely to tear the paper!

To prevent this happening the spindles are lowered into a molten wax bath where the holes fill with beeswax. We hold very little spindle inventory as it is so easily damaged. Usually, as soon as they are drained and dried, bundles of spindles are transported immediately to the raw pencil area.

Raw pencil

Although it is possible to use the spindles to write and draw, it would be a frustrating exercise because they are brittle and snap easily. Therefore, we protect the spindle by encasing it in wood, which involves the following processes:



Encasing: Here at Lottie Graphite we use cedar to make all of our pencils. Cedar is finely structured and stable which means that our pencils sharpen easily and do not split or crack. All the wood that we use is sourced from sustainable forests and for every tree we cut down, we plant two more.

The wood is delivered to us in 8 cm by 18 cm slats which are loaded into a machine that sands them smooth. Every slat then has nine 1mm deep grooves cut along the length into which a tiny amount of glue is squeezed. Half of the slats have a spindle inserted into every groove and an empty slat is then dropped onto this making a sort of nine-pencil sandwich.

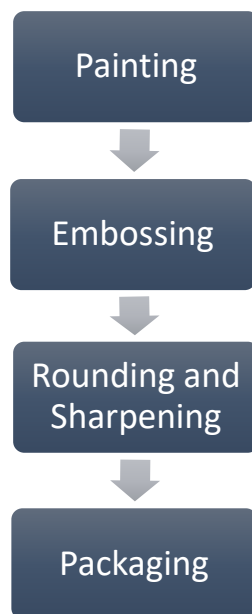
Drying chamber: One hundred nine-pencil “sandwiches” are stacked into each niche of the drying chamber where they are heated at about 60 degrees Celsius. A vice squeezes the sandwiches together to bind the two slats. The slats are slowly rotated and heated until the glue is set.

Trimming: Here the pencil “sandwiches” are trimmed to 175 mm and passed to a shaping machine where knives cut the slats into individual hexagonal shaped pencils. Lottie Graphite has always made hexagonal pencils rather than round ones because we have always understood the frustration caused by pencils that roll off and under a desk!

Finishing

At this stage in the process we have perfectly functional pencils, but they are naked. This third section in the manufacturing process is all about dressing them up and making them shine. All graphite pencils are finished in the famous Lottie Graphite livery and all coloured pencils are painted to match their spindle shade.

This finish is not only for aesthetic reasons, it is also more hygienic. The hard, shiny surface means that germs are not absorbed by the wood of the pencil. Research shows that over 78% of people who use pencils put them in their mouth. Our shiny finish helps prevent germs spreading! The finishing processes are:



Painting: Every pencil receives two coats of primer, four coats of topcoat and a coat of lacquer. Pencils are individually pushed through the paint and passed through a heated chamber after each coat is applied to speed up the drying process.

In the late 1980's Lottie Graphite was the first pencil manufacturer to use only water-based paints to finish pencils. This is an environmentally friendly alternative and it also ensures that children, who tend to suck and bite pencils as well as write with them, cannot be hurt by the chemical toxins present in oil-based paints.

Embossing: Pencils are embossed with the company name and logo, the graphite grading (or pencil colour), a barcode and the legend "made in Gawland". The barcode records every detail of the manufacture, down to the names of the operatives on shift in the section when the embossing was added.

Rounding and sharpening: The ends of the pencils are rounded and then put into trays that hold 138 shafts before being dipped into metallic gold paint. Every Lottie Graphite pencil has the same distinctive gold cap. Look closely and you will see the lasers that automatically measure the paint level, this information is passed to the machine that dips the pencils,

ensuring that every pencil has a cap that is the same depth. Sharpening is the final process production each pencil is sharpened using a series of rotating razor blades. This is fascinating to watch, like a dance in the snow!

Packaging: All pencils are packaged into appropriately sized cartons depending on the customer preference and type of pencil.

PEXECO pencil production

Our ecologically friendly pencils are not made from slats of wood and so have a different production process. Spindle and pencil bodies are made entirely by extrusion in a separate PEXECO production facility. As the colour is already in the material of the body, PEXECO pencils do not need painting and varnishing.



7. Company operations

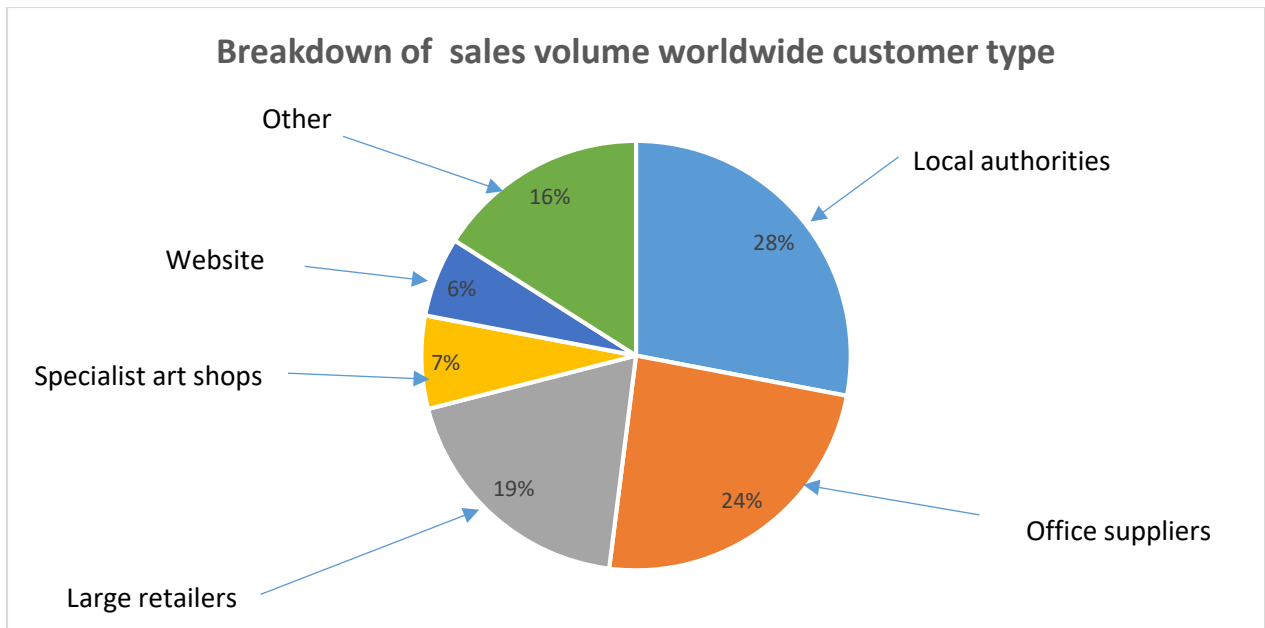
Manufacturing and packaging: The company manufactures all of its graphite and coloured pencils in a huge custom-built state of the art production facility in Gawland. Next door is a much smaller production facility where PEXECO pencils are made. The current facilities are located only three kilometres from the original factory that was opened when the company was formed. Although the activities required to manufacture have not changed since the company was founded, the production methods have. Almost every aspect of manufacture is now automated and much of the production flow is managed by robotics with minimal human involvement in the process.

One area which is not yet fully automated is the packaging department. After manufacturing is complete the pencils are packaged in a number of different sized bundles and combinations. While HB pencils can be packed into cardboard packaging, in quantities exceeding 100 they can also be shrink wrapped in a set of three. The artist coloured pencils have a number of combinations of colours that are sold as sets of different quantities, some of which are sold in special presentation tins, as well as being sold as single pencils or boxes.

Lottie Graphite does not manufacture for any other brand.

Sales and marketing: Lottie Graphite has tens of thousands of different customers throughout the world. At one extreme it is possible to buy a single coloured pencil through the company website, while at the other extreme a local authority in Gawland has just contracted to buy a million pencils over the next three years.

The Lottie Graphite brand is global, and products are sold in almost 100 countries worldwide. The company has sales offices in 20 countries and trades in most currencies. Lottie Graphite also operates its own warehouses for distribution in strategic locations. In addition, sales are also made through the company website which is accessible in different languages depending on the location of the customer.



With such a wide range of customer types, and so many different locations, the sales teams have to negotiate a range of different credit terms. However, most business customers are granted standard terms of between 30-60 days.

Logistics: All products are transported from the manufacturing facilities to warehouses and distributors by road. Lottie Graphite owns and maintains its own transport fleet, although it also sub-contracts transportation in some locations. Local courier firms are used for smaller orders placed on the company website.

The company logistics system is highly sophisticated. It tracks the movement of goods from the receipt of raw material through the production process to delivery to customers. Raw material and all work-in-progress inventories are held at the manufacturing facilities at Gawland. Finished goods inventories are held at the warehouse adjacent to the manufacturing facilities and at the other warehouses. All finished goods inventory is monitored and identified using the barcode that is embossed onto every pencil made.

Finance: The financial information systems are integrated with the production and inventory systems. Lottie Graphite is able to generate information from daily sales and production cost data to the comprehensive management accounts and annual financial statements. The company operates a standard absorption costing system and departmental overhead absorption rates are applied based on machine hours.

Budgets are produced by the Finance Department on an annual basis using incremental budgeting. The company operates a top-down approach to budgeting and functional managers have extremely limited budget responsibility. Senior managers provide the information required to construct the budgets and budgets are submitted to the Board for approval.

Procurement: Material costs are a significant cost of manufacture and therefore, the Procurement Department's competence is of vital importance to the success of the company.

Wood is the most significant cost and the company's commitment to sustainability means that it is sourced only from forests that are managed according to the Forest Stewardship Council's strict guidelines. Lottie Graphite believes that using sustainable resources helps safeguard the raw materials and therefore keep prices stable in the long-term. Lottie Graphite uses cedar wood for the manufacture of its graphite and coloured pencils as its grain is finely structured and stable. This means that the pencils will sharpen easily and are less likely to split. Wood is bought-in in 8 by 18 cm slats from a number of suppliers, most of whom are based in South America. PEXACO pencils are not made from slats of wood but from wood traditionally considered unsuitable for pencil manufacture which would often end up in landfill. This is sourced from the same wood suppliers as the slats.

Other raw material inputs include graphite, wax, clay and pigment. Most of the graphite is purchased from suppliers in Siberia. This is supplied in powder form and is of extremely high purity. The wax purchased is beeswax and is sourced from sustainable bee farmers worldwide. To be suitable for use in a pencil the clay used must be of a type to not split during drying or firing and yet be elastic enough to enable correct extrusion. In addition, the clay particles must be compatible with the graphite particles in order to ensure optimal smoothness when writing. Lottie Graphite sources the clay from various suppliers worldwide. All of the pigments purchased for coloured pencil production are plant or mineral based in origin and vary considerably in price depending on the density of the colour and the rarity of the plant or mineral needed.

Supplier payment terms vary significantly and range between 30 and 90 days. Lottie Graphite takes full advantage of all credit terms granted.

Future growth and development: Since the launch of PEXECO the Directors have been committed to the development of other new products and markets that would utilise or complement the company's core competences. Currently there are three opportunities that may come to fruition in the near future.

Firstly, the expansion of the PEXECO technology to create a stylus for use on laptops and tablets. A stylus is currently in development and will have a case and outer shell made from the same materials as the PEXECO graphite pencil. The spindle will contain an electromagnetic resonance technology (EMR) that ensures that the tip of the pencil can always be accurately located by the tablet or computer screen. The stylus (currently called the S-Pencil) looks and feels exactly like a PEXECO pencil and therefore the writing experience is very natural. The S-Pencil captures handwriting accurately and, like a normal graphite pencil, is responsive to pressure. It does not need charging or a battery and is compatible with most tablets and touch screens. The app that will ensure that the S-Pencil works properly with computer hardware is still being perfected by a technology company commissioned by Lottie Graphite.

Secondly, there are ongoing talks with Wellys, a large retailer of pharmaceutical, personal care and cosmetic products, to manufacture all of the cosmetic pencils that it currently sell in 800 stores across Gawland. Cosmetic pencils are pencils which are used to define eyes and lips that come in a range of colours. The processes needed to manufacture eye and lip pencils are exactly the same as for other coloured pencils but there is a statutory requirement to adhere to more stringent hygiene practices. For this reason, the production of cosmetic spindles will have to be kept separate from other spindle production and machines in common production will need to be cleaned more frequently when manufacturing cosmetic pencils. If an agreement to produce for Wellys is made it will also be viable to make cosmetic pencils for other companies and to start selling cosmetic pencils worldwide.

Finally, there are opportunities to open sales and distribution centres in Feland. Until quite recently countries in the same region as Feland did not encourage foreign trade and Lottie Graphite did not trade directly with them. However, with the development of many countries in the Feland region, demand for status goods has increased, including Lottie Graphite pencils.

8. The pencil industry

Customers

Although pencils are often automatically associated with children and schools, the users of pencils are found in all age ranges and professions. All of the big five pencil manufacturers understand the scope of their customers and their needs very well: from architects to artists and from joiners to journalists, pencils are always in demand. The trend for pencils during the twenty-first century has been a steady upward demand. However, changes in fashions in unrelated areas have had a significant impact on this modest trend. For example, the rise in mindfulness as a means of overcoming the stresses of everyday modern life, triggered the demand for adult colouring books, which in turn has led to a significant increase in demand for quality colouring pencils.

Competition

There are thousands of pencil manufacturers worldwide but the five largest account for 80% of global pencil production. Lottie Graphite is the smallest of these five. There have been well publicised court actions involving some of the big five pencil manufacturers based around brand and image. For example, the claim to be the oldest pencil producer in the world is disputed by Graf-Dietrich the world's largest producer and Zimmemman the second largest. However, the big five have never engaged in price wars, preferring instead to compete on quality and to develop new markets across the globe.

Throughout the twentieth century there were many occasions where technological advancement appeared to herald the demise of the pencil: the ballpoint pen, the typewriter, and word processing. However, global demand for the pencil has continued to grow at a steady rate. Over the past decade the slower growth rates in Europe and North America have more than been compensated for by the growth in South America and Africa.

Competition from lower cost producers in the Far East, while a concern, has not had a significant impact on the big five. Cheaper pencils tend to have quality issues such as: casing that splits and splinters easily, difficulty in sharpening, uneven spindle particles that tear paper and a much higher level of spindle breakage. Many end consumers choose to pay a higher price for a pencil that writes well and lasts, especially since a low-quality pencil does not save much money compared to a high quality one.

9. Financial Statements for the year ending 31 December 2019

Lottie Graphite

Statement of profit or loss for the year ended 31 December 2019

	2019 G\$000	2018 G\$000
Revenue	151,440	149,436
Cost of sales	(83,956)	(83,374)
Gross profit	67,484	66,062
Distribution and marketing costs	(37,731)	(37,819)
Administrative expenses	(16,558)	(15,673)
Operating profit	13,195	12,570
Finance costs	(937)	(897)
Profit before tax	12,258	11,673
Income tax expense	(3,146)	(2,895)
Profit for the year	9,112	8,778

Lottie Graphite

Statement of financial position at 31 December 2019

	2019 G\$000	2019 G\$000	2018 G\$000	2018 G\$000
ASSETS				
Non-current assets				
Intangible assets		2,519		2,600
Tangible assets		25,435		21,677
		27,954		24,277
Current assets				
Inventory	23,340		22,398	
Trade receivables	23,395		23,412	
Other receivables	1,084		1,079	
Cash and cash equivalents	15,112		16,850	
		62,931		63,739
		90,885		88,016
Total assets				
EQUITY AND LIABILITIES				
Issued ordinary G\$1 share capital		1		1
Retained earnings		54,274		51,227
Total equity		54,275		51,228
Non-current liabilities				
Borrowings	19,889		19,913	
		19,889		19,913
Current liabilities				
Trade payables	7,362		7,389	
Accruals and deferred income	5,745		6,545	
Current tax liabilities	3,614		2,941	
		16,721		16,875
Total equity and liabilities		90,885		88,016

Lottie Graphite**Statement of cash flows for the year ended 31 December 2019**

	G\$000	G\$000
Cash flows from operating activities		
Profit before tax		12,258
Adjustments		
Depreciation	3,719	
Amortisation	81	
Loss on sale of tangible assets	9	
Finance costs	937	
		4,746
Movements in working capital		
Increase in inventory	(942)	
Decrease in trade and other receivables	12	
Decrease in trade and other payables	(827)	
		(1,757)
Cash generated from operations		15,247
Tax paid		(2,473)
Finance costs paid		(937)
Net cash inflow from operating activities		11,837
Cash flows from investing activities		
Purchase of property, plant and equipment	(8,000)	
Proceeds on disposal of tangible assets	514	
Net cash outflow from investing activities		(7,486)
Cash flows from financing activities		
Repayment of borrowing	(24)	
Dividend paid	(6,065)	
Net cash outflow from financing activities		(6,089)
Net decrease in cash and cash equivalents		(1,738)
Cash and cash equivalents at the start of the year		16,850
Cash and cash equivalents at the end of the year		15,112

Notes on the financial statements

Lottie Graphite depreciates items of property, plant and equipment over their useful economic lives on a pro-rata basis.

10. Management accounting information for the year ending 31 December 2020

Company summary budget

	Graphite pencils	PEXECO	Regular coloured pencils	Artist coloured pencils	Total
	G\$000	G\$000	G\$000	G\$000	G\$000
Total sales revenue	106,525	12,494	28,093	7,091	154,203
Direct material	(27,520)	(2,752)	(9,235)	(1,682)	(41,189)
Direct labour	(1,128)	(152)	(372)	(68)	(1,720)
Variable overhead	(6,104)	(470)	(1,701)	(255)	(8,530)
Fixed production overhead	(23,838)	(1,623)	(5,547)	(832)	(31,840)
Gross Profit	47,935	7,497	11,238	4,254	70,924
Selling Costs					(40,093)
Administration costs					(16,808)
Operating profit					14,023
Gross profit margin	45%	60%	40%	60%	

Examples of standard cost cards

Graphite pencil

HB: 100 boxes of 10 pencils (1,000 pencils)	Quantity	Price/rate G\$	Total G\$
Direct material			
Graphite	1.5 kilogrammes	4.00	6.00
Clay	1.5 kilogrammes	0.42	0.63
Cedar	228 slats	0.51	116.28
Other materials			9.64
Packaging	100 boxes	0.09	9.00
Total direct material			141.55
Direct labour			
Spindle	0.11 hours	16.00	1.76
Raw pencil	0.06 hours	16.00	0.96
Finishing	0.22 hours	14.00	3.08
Total direct labour			5.80
Variable overhead			
Spindle	11.99 machine hours	0.68	8.15
Raw pencil	22.37 machine hours	0.71	15.88
Finishing	35.41 machine hours	0.21	7.44
Total variable overhead			31.47
Fixed overhead			
Spindle	11.99 machine hours	3.88	46.52
Raw pencil	22.37 machine hours	2.41	53.91
Finishing	35.41 machine hours	0.62	21.95
Total fixed overhead			122.38
Total production cost			301.20

PEXECO

HB: 100 boxes of 10 pencils (1,000 pencils)	Quantity	Price/rate G\$	Total G\$
Direct material			
Graphite	1.5 kilogrammes	4.00	6.00
Clay	1.5 kilogrammes	0.42	0.63
Wood/plastic composite	4 kilogrammes	22.00	88.00
Outer shell	0.2 kilogrammes	80.00	16.00
Other materials			2.47
Packaging	100 boxes	0.09	9.00
Total direct material			122.10
Direct labour			
Pencil production	0.23 hours	16.00	3.68
Finishing	0.22 hours	14.00	3.08
Total direct labour			6.76
Variable overhead			
Pencil production	23.09 machine hours	0.78	18.01
Finishing	2.62 machine hours	1.08	2.83
Total variable overhead			20.84
Fixed overhead			
Pencil production	23.09 machine hours	2.69	62.11
Finishing	2.62 machine hours	3.78	9.90
Total fixed overhead			72.01
Total production cost			221.71

Regular coloured pencil

H82: 50 boxes of 20 pencils (1,000 pencils)	Quantity	Price/ rate G\$	Total G\$
Direct material			
Pigment	48 grams	0.12	5.76
Clay/Binder	1.5 kilogrammes	0.42	0.63
Wax	1 kilogramme	20.00	20.00
Cedar	228 slats	0.51	116.28
Other materials			10.73
Packaging	50 boxes	0.21	10.50
Total direct material			163.90
Direct labour			
Spindle	0.09 hours	16.00	1.44
Raw pencil	0.06 hours	16.00	0.96
Finishing	0.30 hours	14.00	4.20
Total direct labour			6.60
Variable overhead			
Spindle	9.28 machine hours	0.74	6.87
Raw pencil	22.37 machine hours	0.71	15.88
Finishing	35.41 machine hours	0.21	7.44
Total variable overhead			30.19
Fixed overhead			
Spindle	9.28 machine hours	2.41	22.36
Raw pencil	22.37 machine hours	2.41	53.91
Finishing	35.41 machine hours	0.62	21.95
Total fixed overhead			98.22
Total production cost			298.91

Artist coloured pencil

JS644: 50 tins of 20 pencils (1,000 pencils)	Quantity/ Hours	Price/rate G\$	Total G\$
Direct material			
Pigment	52 grams	0.18	9.36
Clay/Binder	1.3 Kilograms	0.42	0.55
Wax	1.1 Kilograms	20.00	22.00
Cedar	228 slats	0.51	116.28
Other materials			10.75
Packaging	50 tins	0.80	40.00
Total direct material			198.94
Direct labour			
Spindle	0.09 hours	16.00	1.44
Raw pencil	0.06 hours	16.00	0.96
Finishing	0.40 hours	14.00	5.60
Total direct labour			8.00
Variable overhead			
Spindle	9.28 machine hours	0.74	6.87
Raw pencil	22.37 machine hours	0.71	15.88
Finishing	35.41 machine hours	0.21	7.44
Total variable overhead			30.19
Fixed overhead			
Spindle	9.28 machine hours	2.41	22.36
Raw pencil	22.37 machine hours	2.41	53.91
Finishing	35.41 machine hours	0.62	21.95
Total fixed overhead			98.22
Total production cost			335.35

Notes on preparation of standard cost cards and budget

1. Standards for the purchase cost of material inputs and labour hour rates are updated annually in January.
2. Packaging costs vary depending on the number and type of boxes or tins required per 1,000 pencils.
3. Normal losses are included in the standard cost of each product.
4. All direct labour overtime premium is treated as overhead.
5. Fixed overheads are allocated and apportioned to cost centres and absorbed based on machine hours. Production cost centres in the main production facility are graphite spindle production, coloured spindle production, raw pencil production and finishing. In the separate PEXECO production facility the production cost centres are pencil production and finishing. Each production cost centre has its own fixed production overhead absorption rate.
6. Budgeted selling prices are based on achieving the margins detailed in the budget. However, in reality prices vary depending on location and type of customer. The more specialist pencils, those at the extreme ends of the graphite grading scale, tend to command higher selling prices.

11. E-mail from the Procurement Director of Wellys

To: Mia Schmied
From: James Owen
Date: 19 February 2020
Subject: Contract for lip and eye pencils

Dear Mia

The board wanted you to know that today we have voted unanimously to grant Lottie Graphite the contract to make all of our cosmetic pencils. We are delighted to welcome you as our new partner and wanted you to know our decision immediately. We will be confirming this officially later this week.

Your company's capacity to produce quality cosmetic pencils in the volumes we are likely to need was the main reason we reached our decision. However, your assurance that we can track the progress of our orders through the intranet system was also a valuable factor.

The professionalism and speed of response to all queries your tender team managed throughout these negotiations made it the best supplier negotiation I have ever taken part in.

We all look forward to working with you.

Kind regards

James Owen
Procurement Director
Wellys

12. Tax regime in Gawland

- The corporate tax rate to be applied to taxable profits is 30%.
- Unless otherwise stated below, accounting rules on recognition and measurement are followed for tax purposes.
- The following expenses are not allowable for tax purposes:
 - accounting depreciation
 - amortisation
 - impairment charges
 - entertaining expenditure
 - donations to political parties
 - Taxes paid to other public bodies.
- Tax depreciation allowances are available on all items of plant and equipment at a rate of 25% per year on a reducing balance basis. Tax depreciation allowances are not available for property assets.
- Where a business sells a property asset a chargeable gain or loss will arise. A chargeable gain can be reduced by indexation allowance, but the indexation allowance cannot be used to create a chargeable loss. Chargeable gains are subject to capital tax at a rate of 30%. Chargeable losses can be carried forward indefinitely to offset against future chargeable gains.
- Tax losses can be carried forward indefinitely to offset against future taxable profits from the same business.
- Sales tax is charged on all standard rated goods and services at a rate of 15%. Tax paid on inputs into a business can be netted off against the tax charged on outputs from that business. All businesses are required to pay over the net amount due on a monthly basis.