



Management Case Study Examination
November 2021 - February 2022
Pre-seen material



COVID-19 Statement

This pre-seen and the case study in general (while aiming to reflect real life), are set in a context where the COVID-19 pandemic has not had an impact.

Remember, marks in the exam will be awarded for valid arguments that are relevant to the question asked. Answers that make relevant references to the pandemic or social distancing will, of course, be marked on their merits. In most cases, however, candidates may find it helpful to assume that there are no restrictions to the movement of people, goods or services in place.

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Introduction

Frinta is a quoted company that manufactures controls for central heating systems and electronic devices that form the basis for smart homes.

Frinta is based in Westland, a developed country that has a strong economy and whose citizens have a high standard of living.

Westland's currency is the W\$. Westlandian company law requires companies to prepare their financial statements in accordance with International Financial Reporting Standards (IFRS).

You are a financial manager at Frinta's Head Office. Your primary responsibilities are associated with management accounting and you report to Amadou Gallo, the Senior Financial Manager, who reports directly to the Finance Director.

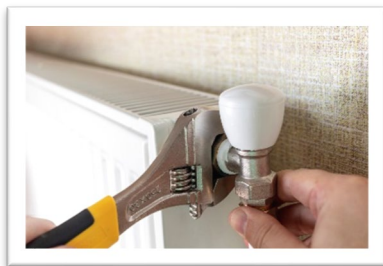
Frinta's history and products

Frinta was founded in the 1970s, initially manufacturing components such as thermostats to control domestic central heating systems. Frinta's founder was a plumber who had developed and patented a new type of thermostat that was easier to install and that gave users greater control over their home central heating than traditional controls. The company started to manufacture these devices at a time when there was a significant boom in the construction industry, with new homes being built with central heating throughout and many older homes being modernised and upgraded to include central heating.

Heating controls



Frinta's early products were essentially mechanical devices that controlled gas-powered central heating systems. Most homes had a single main thermostat that controlled the central heating system. A rotary dial set the temperature at which the house was to be maintained. When the air temperature was above that threshold a simple mechanical device opened a switch inside the device and so disconnected the electrical connection to the central heating boiler. When the air cooled the thermostat closed the switch and so activated the heating system.



Individual radiators also had mechanical thermostats that controlled the flow of hot water that was piped from the boiler. If a radiator was below its desired temperature then its thermostat opened a valve that allowed hot water to flow through, heating the radiator and so radiating heat into the room. The thermostat closed the valve once the radiator reached its desired temperature and so prevented overheating.

Frinta expanded its range to operate electric heating systems, using similar mechanical thermostats to those in its controls for gas-powered heating. All of its products were designed to be as attractive as possible because they were intended for home use and also as easy to operate as possible. The company rapidly became the largest supplier of domestic heating controls in Westland.

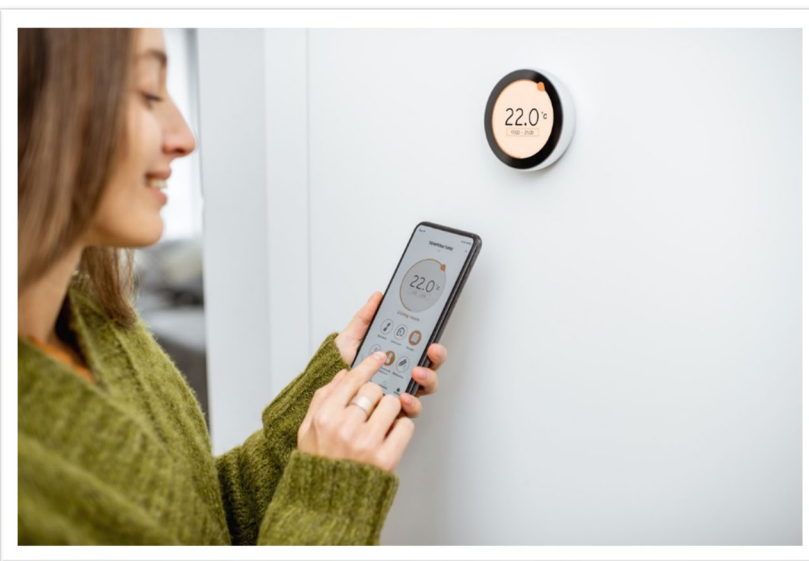
Frinta invested heavily in product design, adding features such as mechanical timers that permitted householders to set their heating to switch on and off at predetermined times, avoiding the cost of heating an unoccupied house during the working day. The user interface was a key element of any new design, with each new device being designed to be as easy as possible to operate and blending into a domestic setting rather than looking like a piece of industrial equipment.

Frinta was quoted on the Westland Stock Exchange in the early 1990s. At that time the founder stepped down from the company and retired. He sold his shares and took no further interest in the company.

Since its flotation, Frinta has continued to manufacture control devices. Its range now includes controllers for hot water heaters and air conditioning systems. Frinta has been at the forefront of incorporating new technologies into its designs. For example, replacing mechanical thermostats with electronic sensors and incorporating LCD displays that show settings and have made controllers more reliable as well as making them even easier to operate.

One major area of change has been online control. Most of Frinta's devices are now "smart", meaning that they can connect to the householder's home wi-fi system and can be operated by an app downloaded to a smartphone, tablet, laptop or desktop computer. Users can operate their heating systems from any room in the house, making use of the user-friendly interface in the app to make any adjustments with ease. They can also control their devices from outside the home provided they have an internet connection.

Frinta's app makes it easy for householders to program their heating systems to suit their lifestyles. For example, the heating system can be programmed to switch itself off at times when the house is likely to be unoccupied. The householder can also override the timer from a smartphone or any other connected device. This can be convenient if, say, returning earlier than expected and wishing to come home to a warm house.



Frinta remains Westland's leading supplier of controllers by revenue. It also has significant export sales, primarily to developed countries.

There are several major competitors in the controllers' market. Their products are significantly cheaper than Frinta's, but they are also much less sophisticated. There is still demand for inexpensive controllers that do not have the smart features used in Frinta's latest range. Indeed, there are still

manufacturers who produce mechanical controllers that are similar in design and construction to those that were made by Frinta when it was founded in the 1970s.

Frinta's heating and ventilation controllers are sold through building supply companies that resell them to heating engineers, plumbers and builders. Frinta will also accept bulk orders from large housebuilders who are prepared to order 500 units or more at a time in order to equip each of the new houses on a major development.

Frinta's controllers must be installed by qualified professionals. An amateur installation could cause the controller to malfunction, thereby damaging Frinta's reputation. Errors can also cause gas or water leaks, which could prove dangerous or damaging to property. Frinta will not, therefore, sell its controllers directly to the public or to retailers that supply the do-it-yourself market.

Frinta markets its controllers heavily through advertising in trade magazines and online in various websites aimed at relevant tradespeople. The purpose of this advertising is to ensure that new products and new features are publicised and to maintain brand recognition.

Frinta does not advertise to the general public because homeowners rarely specify a particular brand when they are replacing or upgrading any part of their heating or air conditioning systems. Instead, they rely on contractors for recommendations that meet their needs. Professionals are generally happy to recommend and use Frinta unless their customers insist that they use cheaper brands. The controllers are a visible element of any heating or ventilation system and ease of use has an immediate impact on customer satisfaction.

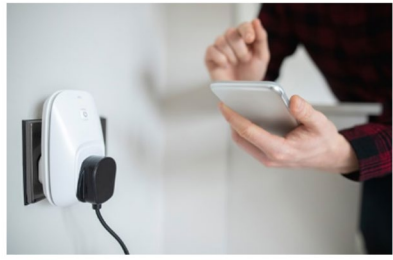
Smart speakers

In 2016, Frinta launched what was to be the first of a range of "Frinta Friend" smart speakers. This line of products was launched in response to the success of the Ypvox smart speaker system produced by Ypburn in 2014. At the time of its launch in 2014, the Ypvox smart speaker was a new product category that combined various existing technologies that were intended to simplify users' lives.

The essence of a smart speaker can be summed up as follows:

Online connection	This is the element that makes these devices "smart". Smart speakers connect wirelessly to the home wi-fi and, through that, to the internet. Smart speakers act as hubs that make it quicker and easier for users to interact with compatible electronic equipment within the home and also to access services through the internet.
Microphones	Users operate smart speakers by giving them verbal instructions. The microphones in a smart speaker system are capable of distinguishing users' voices from the background noises in a normal domestic setting. Users simply tell the device what to do.
Speakers	Smart speakers reply verbally to users' requests, using computer-synthesised voices. They have good quality speakers to enable those responses to be heard clearly. The speakers give the devices other functions, such as playing music that is stored on the home network or that is being streamed from the internet. Some smart speakers have video touchscreens, but those are generally used to augment the function of the speakers. The devices are still operated primarily by using verbal exchanges.
Artificial intelligence	Smart speakers convert users' verbal instructions to text, which then become commands for the device. Issuing a verbal instruction to a smart speaker is the same as typing a command into a tablet or computer.

	<p>The operating systems in smart speakers can interpret inputs and so enable users to talk to them without having to learn a particular set of instructions.</p> <p>For example, the Frinta Friend device can make sense of almost any sensible form of request for the weather forecast:</p> <ul style="list-style-type: none"> • “Frinta, what will the weather be like tomorrow?” • “Frinta, will it rain tomorrow?” • “Frinta, tell me what tomorrow’s weather will be like.” • And so on ... <p>The smart speaker will respond to any instruction that is prefaced by “Frinta”, which is the device’s activation word. If the instruction is indistinct or ambiguous then the device will request that the instruction be repeated or reworded.</p> <p>The software learns users’ preferences. For example, users can input account names and passwords for major online retailers. Then they can make purchases with simple commands, such as “Frinta, buy soap powder and coffee”. The smart speaker will then place orders with brands of those items that the user has purchased in the past. If no such purchases have been made then the smart speaker would seek clarification before proceeding, perhaps asking “what brand of coffee would you like to buy?”</p>
Scale	<p>Users can connect as many smart speakers as they wish to their home wi-fi networks. Having multiple devices means that requests can be made from any room that has a smart speaker. For example, the user can say “Frinta, add toothpaste to my shopping list” to any connected device and can play the updated shopping list back at any time from any device.</p> <p>Multiple smart speakers can be used as internal communication devices, enabling users to talk to one another or to broadcast announcements across the house.</p>

Connectivity	<p>Smart speaker systems can interact with other smart devices even though those were not designed to be compatible with smart speaker systems. These smart devices generally use an open-source operating system that is designed to control equipment. Any device that can be connected to the home network and operated with an app can, in theory, be controlled by a smart speaker.</p> <div>  </div> <p>For example, Dronquo manufactures smart electrical plugs that can be switched on and off by a smartphone app. They use an operating system that is compatible with the Frinta Friend smart speaker. If a user gives a Dronquo electrical adapter a name, such as “table light” then it can be operated by verbal commands such as “Frinta, switch on the table light”. The system can also cope with more complicated commands, such as “Frinta, switch the table light on at 18.00 every evening and off at midnight”.</p> <p>Smart speakers can also interact with smartphones. Users can update their to-do lists or appointment calendars with verbal commands “Frinta, I have a dental appointment at 14.30 on the 23rd of next month”. Their calendar will then be updated and synchronised with their smartphones. Updates input into their phones will also be synchronised with their Frinta Friend systems.</p>
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Ypburn – Frinta’s rival in the smart speaker market

The market for sophisticated smart speakers was created by Ypburn, when it launched its Ypvox smart speaker product in 2014. Ypvox was the first product that offered effective voice control with artificial intelligence that enabled users to speak naturally. It also introduced the ability to distinguish users’ voices from any background noise.

Ypvox was primarily intended to act as an electronic hub within the home. Users would be able to interact with their smart speakers in a variety of ways, using an activation word, such as “Vox”, to distinguish instructions to the device from background conversation. For example:

- **Updating schedules and lists** “Vox, Tom has a doctor’s appointment at 4.30 next Tuesday afternoon” or “Vox, add apply for a new passport to Mary’s to-do list.”
- **Conducting basic internet searches** “Vox, what is the time in Eastland?” or “Vox, when is the next train from Midtown to Capital City?”
- **Online shopping** “Vox, order black socks from Meltasock” – which would probably result in a response listing different brands and sizes of black socks before the order was placed with the selected online retailer and charged to the user’s credit card.
- **Operating other smart devices** “Vox, switch on the television and find a documentary” or “Vox, increase the heating by three degrees.”

Users enjoyed the fact that their Ypvox smart speakers could simplify their lives in many different ways and without having to struggle with complicated programming and installation. For example, if a user purchased a new smart television there was every chance that it would be recognised by Ypvox when it was first switched on and that installation would require hardly any input from the user, apart from inputting a user name and password.

Ypvox benefitted from the fact that smart devices were being developed by many third parties. For example, Dronquo's smart electrical adapters are intended to be operated by a smartphone app, but they can also be operated by Ypvox.

Frinta's smart speakers (Frinta Friend)

Frinta's entry into the smart speaker market was inspired by Ypburn. The most immediate reason for this was that Ypburn's speaker could operate Frinta's smart heating and ventilation controllers. A secondary reason was that Frinta wished to diversify its product range and it was clear that Ypburn's smart speakers had stimulated demand for such devices.

Frinta's Board viewed the fact that Ypvox could control Frinta smart heating and ventilation controllers as a threat. Frinta's heating and ventilation controllers are more expensive than other brands, but they sell well because they are attractive and easy to operate. The emergence of smart speakers that can operate heating and air conditioning controllers makes it possible for builders to buy cheaper control systems. These need not be visually attractive because there is no need to mount them where they will be seen if they are operated by wi-fi signals from a smart speaker. There is also little need to make them easy to program and operate if smart speakers can accept simple verbal commands.

Frinta's initial intention was to create a smart speaker that was to be sold as an accessory for its heating and ventilation controllers. This device would be compatible with existing controllers and would offer greater versatility in terms of operating heating and air conditioning.

Frinta's Research & Development (R&D) Department had purchased some Ypvox smart speakers for investigation and had found that they could not replicate all of the functions that a user could input from the Frinta app on their smartphones. The initial brief for the design of the Frinta Friend smart speaker was to design a device that could employ all of the functions of the Frinta smart heating and ventilation controllers. The addition of Frinta Friend to the product range would protect the dominance of Frinta's heating and ventilation controllers at the luxury end of the market.

Frinta was also keen to develop smart speakers because demand for smart heating and ventilation controllers had matured. There was a steady demand from housebuilders and for replacements and upgrades to existing systems, but Frinta had already met most of the demand from that market. Frinta's Board was keen to find a suitable product that it could develop in order to stimulate growth.

Smart speakers were considered a suitable product for development because they were intended to be simple to use, a key consideration in Frinta's approach to design. Frinta's approach to making heating controllers had also given it experience of making electronic items for use in the home that were attractive to look at.

Frinta's R&D Department was instructed to design a smart speaker that fulfilled the following criteria:

- It should be an effective means of operating Frinta's smart heating and ventilation controllers, using simple voice commands.
- It should offer additional features for organising users' personal lives, conducting basic internet searches and online shopping. Frinta's R&D Department was instructed to deliver a design that was superior to that of Ypburn's Ypvox smart speaker in terms of the hardware and software that provided these features.




The design team decided to base Frinta Friend's operating system on the software that was already in use in the company's smart heating and ventilation controllers. That gave the greatest possible flexibility in terms of offering voice control to those products. It also assisted in the development of superior performance of a standalone smart speaker.

Frinta's choice of software meant that Frinta Friend was less suitable for use as a universal controller that could operate other smart devices. Frinta's design team programmed the ability to update schedules and lists on smartphones and the ability to control Dronquo's smart electrical plugs into Frinta Friend. Those were the only third-party products that could be managed by Frinta Friend when it was launched. Frinta's Board believed that consumers would be prepared to buy Frinta Friend because of its build quality and the excellence of its artificial intelligence and would not be unduly concerned about integration with other manufacturers' smart devices. Most smart products are designed to be operated by users' smartphones and so Frinta's Board believed that users would have little need of the ability to use their smart speakers for this purpose.

Frinta launched its first Frinta Friend smart speaker in 2016, with updates and upgrades being added since then.

Frinta and Ypburn are the leading manufacturers of smart speakers worldwide. Ypburn remains the larger and more successful in the smart speaker market, with approximately 60% market share by revenue.

The Frinta Friend range now comprises three models of smart speaker:

Frinta Friend Classic		This is the most popular device. It has a large and powerful speaker and is intended to look good on a table, desk or shelf.
Frinta Friend Mini		The Mini speaker offers all of the features of the Classic, but in a smaller device. The Mini's speaker is a little smaller than the one in the Classic, which reduces the sound quality slightly. The Mini costs less than the Classic.
Frinta Friend Screen		<p>The Screen is larger than the Classic and has a video display that can show graphics, pictures and text. It has two speakers built into its case, giving it a better sound quality than either of the other models.</p> <p>The Screen model has a camera that can be used for video calls, either to another Frinta Friend Screen within the same home network or remotely over the internet.</p> <p>A photoelectric cell controls the video display's brightness so that it can be used in a bedroom without keeping the occupants awake with a bright display.</p>

All three models offer the same basic operating capability.

Some users own a single Frinta Friend, while others have several. It is possible to mix different models in the same network. The devices are easy to install and use. If the owner buys a single device then it will set itself up, asking the user for specific information such as the password for the home wi-fi router, a security phrase to access the Frinta Friend account and a device name. If the user adds more devices then the existing Frinta Friend will detect the

new smart speaker and will set it up automatically, requiring only the user's security phrase and a device name.

The Frinta Friend is sold as a consumer product through retailers, both physical and online, who specialise in home electronics and entertainment systems.

Frinta's operations

Frinta has a factory in Westland's Central City that manufactures controllers for heating, hot water and air conditioning systems. The factory is located in the industrial zone on the city's outskirts. Frinta's Head Office is located beside the factory. Frinta has been located in Central City since its foundation. Initially, it occupied a small factory unit. By the year 2000 it had moved to its present location, a large and modern electronics factory with a purpose-built Head Office in the adjacent building.

Frinta has a second factory in Teck City, located in Westland, 90 miles south of Central City. The Teck City factory is used to make Frinta Friend products. The location of this factory was chosen because many electronics companies are based in Teck City and Frinta's Board believes that it is desirable for the company to maintain a close relationship with the manufacturers whose products may be made compatible with Frinta Friend.

Frinta's R&D facility is based in a large building that is adjacent to the Central City factory. All of the company's research and development is located here because the Board is keen to make the best possible use of synergies between the major product ranges: controllers and smart speakers.

Head Office staff are split into five main departments:

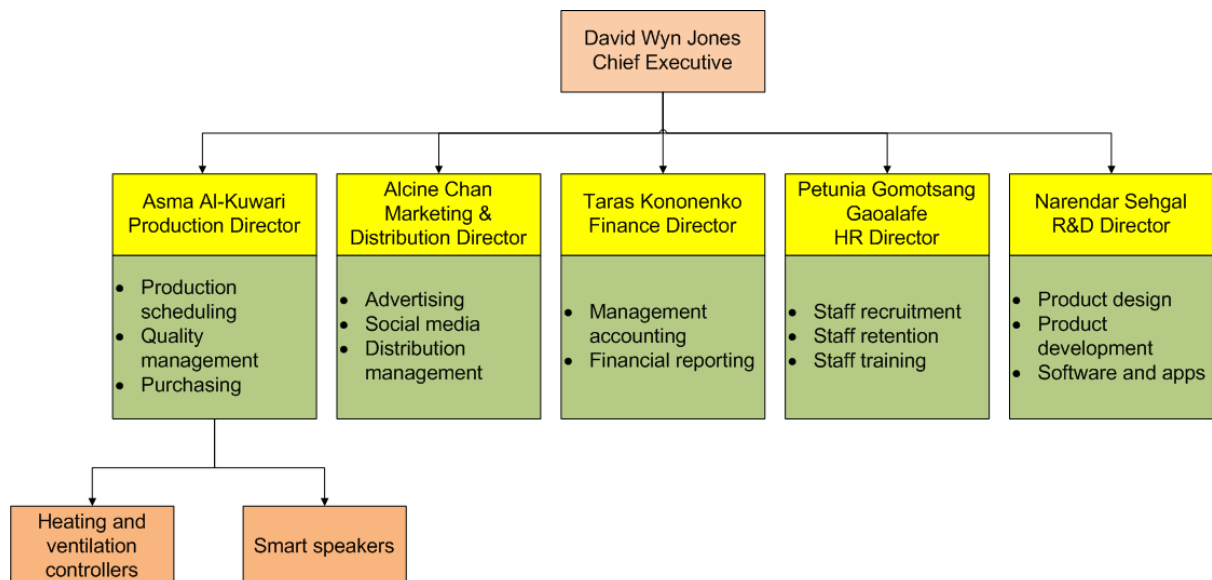
- Production
- Marketing and Distribution
- Human Resources (HR)
- Finance and Administration
- R&D

Frinta does not have direct sales channels for any of its products. Pricing decisions, including any discounts, are made by the Board.

Costings

		Smart speakers		
	Frinta network heating controller	Frinta Friend Mini	Frinta Friend Classic	Frinta Friend Screen
	W\$	W\$	W\$	W\$
Microphones	-	4.26	4.26	5.11
Speakers	-	3.37	4.16	6.74
Camera	-	-	-	2.75
Screen	-	-	-	3.96
LCD display	2.14	-	-	-
Processor and other electronics	1.37	3.18	3.18	3.18
Case and buttons	7.21	2.45	3.16	4.41
Wireless connectivity	2.79	3.04	3.04	3.04
Sensors	4.77	-	-	1.18
Packaging	0.85	1.07	1.26	1.57
Total parts and materials	19.13	17.37	19.06	31.94
Manufacturing labour and overheads	5.34	7.88	8.55	9.44
Production cost	24.47	25.25	27.61	41.38
Unit selling price	42.62	35.48	39.55	55.74

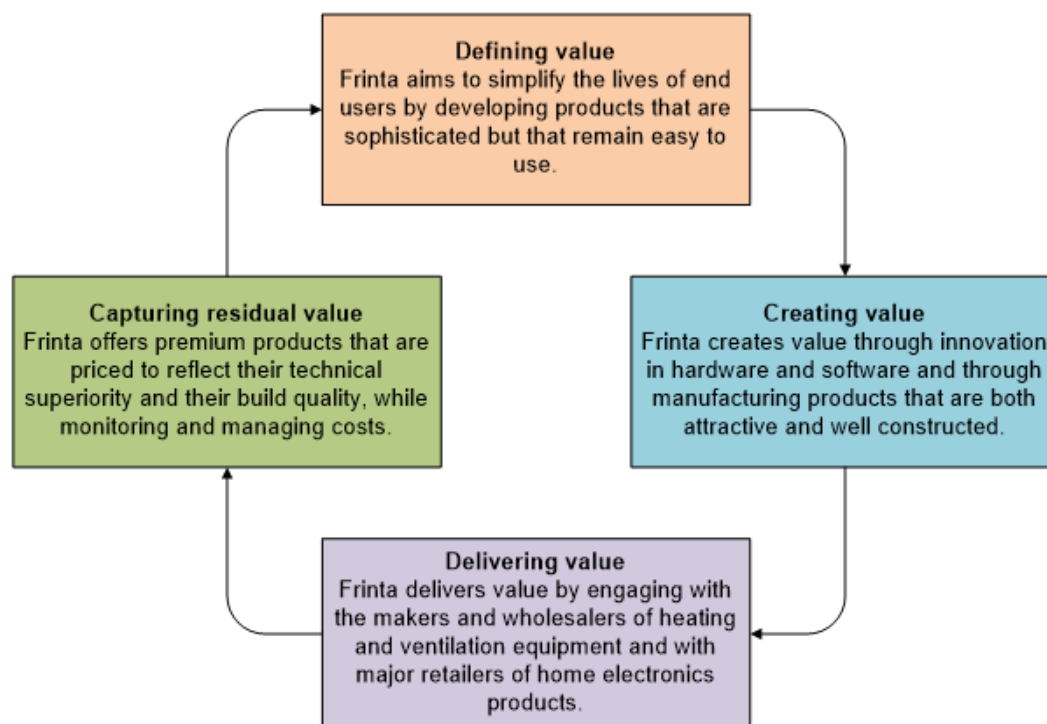
Frinta's management structure



Frinta's Board also includes the following non-executive directors:

- Tamara Dagen – non-executive Chair
- Abdelhamid Nechad
- Rachael Maminto
- Te Oti Rakena
- Hina Kazimi
- Hend Al-Naimi

Frinta's business model



Frinta has always focussed on quality and ease of use in the design and manufacture of its products. This is true of both its heating and ventilation controllers and its smart speakers. Frinta was founded by a plumber who believed that the company's initial success was attributable to continuing innovation and improvement. For instance:

- The market for smart heating and ventilation controllers is mature, but Frinta continues to innovate, making controllers that are as easy as possible to adjust and to operate, whether operated by push buttons on the control unit, a smartphone app or a smart speaker. Plumbers and builders often specify Frinta controllers because they know that their customers will find it easier to operate their heating or air conditioning.
- Frinta's smart speakers continue in the tradition of the heating controllers. Frinta Friend can be set up within minutes of opening the box and without requiring any IT skills. Adding an additional speaker to the network is just as simple.

Frinta invests in manufacturing equipment and in good quality materials that ensure that its products look attractive in a home setting. Feedback from consumers indicate that Frinta's products inspire confidence because of their high build quality.

Frinta's experience in the manufacture of heating and ventilation controllers has frequently involved working with the manufacturers of central heating boilers, air conditioners and radiators so that Frinta's controllers can be integrated into an efficient system that is both reliable and easy to operate. That experience has been invaluable in the development of a successful smart speaker brand. The Frinta Friend is designed for use in a stand-alone mode, although it can be used to control Frinta's heating and ventilation controllers. Frinta has also collaborated with Dronquo in order to enable Frinta Friend to switch devices plugged into a Dronquo electrical adapter on and off.

Frinta's products are marketed on quality and functionality.

- Frinta's heating and ventilation controllers are relatively expensive in comparison to competing brands. They are often recommended by heating engineers who have been commissioned to design and install high quality heating and ventilation systems and so are more focussed on quality than on price. The same is true of builders, who often specify Frinta controllers as a selling feature in their more expensive homes.
- Frinta's only major competitor in the smart speaker market is Ypburn. The retail prices for both company's products are comparable. Neither company actively aims to compete with the other on the basis of price.

Extracts from Frinta's annual report

Frinta Group

Consolidated statement of profit or loss

For the year ended 31 December

	2020	2019
	W\$ million	W\$ million
Revenue	820.0	771.0
Cost of revenues	(537.9)	(495.3)
Gross profit	282.1	275.7
Administrative expenses	(16.4)	(19.3)
Selling and marketing expenses	(50.8)	(54.7)
Operating profit	214.9	201.7
Finance costs	(11.0)	(11.0)
Profit before tax	203.9	190.7
Tax	(45.0)	(38.0)
Profit for year	158.9	152.7

Frinta Group

Consolidated statement of changes in equity

for the year ended 31 December 2020

	Share capital and share premium	Retained earnings	Total
	W\$ million	W\$ million	W\$ million
Balance at 31 December 2019	800.0	671.3	1,471.3
Profit for the year		158.9	158.9
Dividends		(128.0)	(128.0)
Balance at 31 December 2020	800.0	702.2	1,502.2

Frinta Group

Consolidated statement of financial position

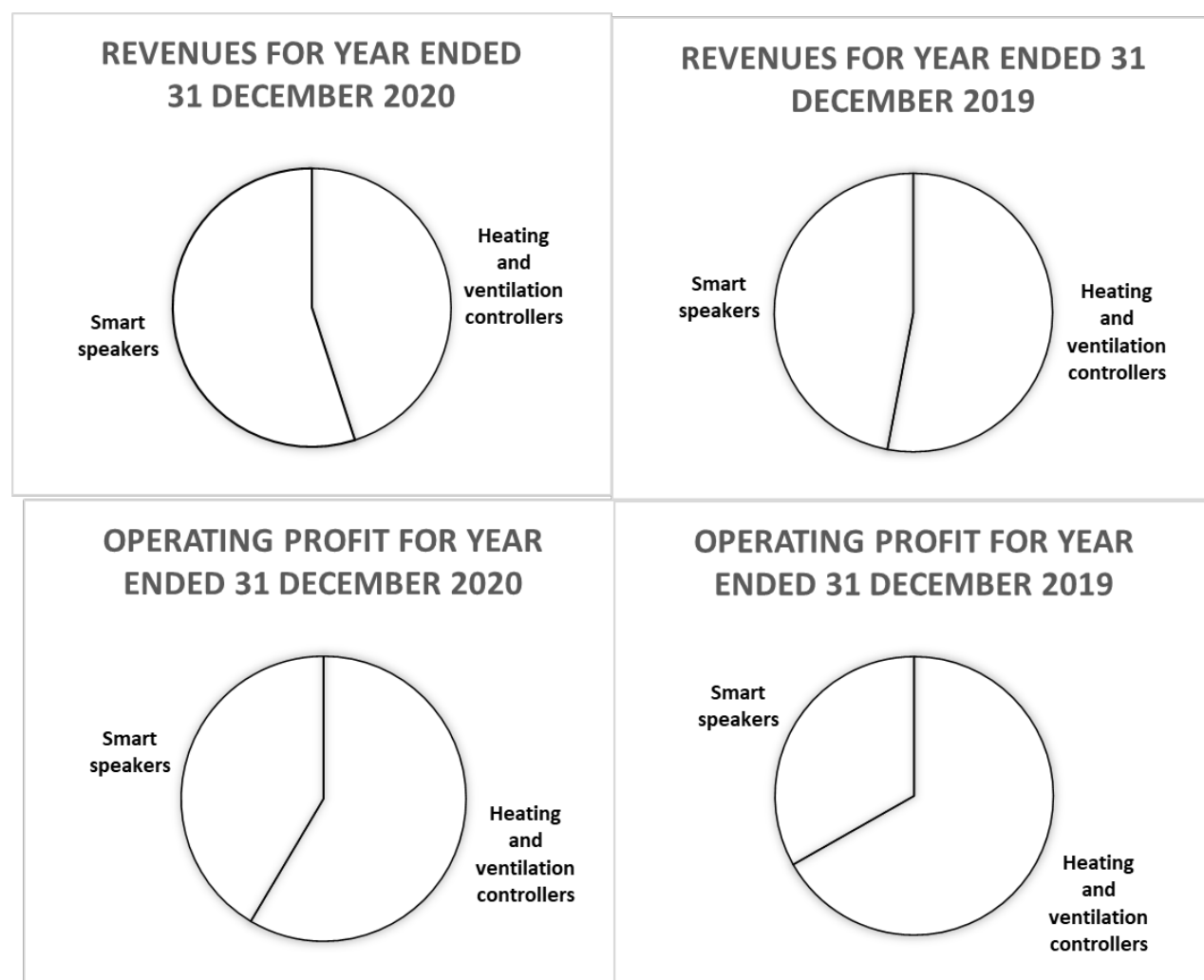
As at 31 December

	2020	2019
	W\$ million	W\$ million
Non-current assets		
Property, plant and equipment	971.1	935.2
Intangible assets	657.1	661.1
	<hr/>	<hr/>
	1,628.2	1,596.3
Current assets		
Inventory	41.3	36.7
Trade receivables	88.0	82.0
Bank	17.3	16.8
	<hr/>	<hr/>
	146.6	135.5
Total assets	<hr/>	<hr/>
	1,774.8	1,731.8
	<hr/>	<hr/>
Equity		
Share capital and share premium	800.0	800.0
Retained earnings	702.2	671.3
	<hr/>	<hr/>
	1,502.2	1,471.3
Non-current liabilities		
Borrowings	180.0	180.0
Current liabilities		
Trade payables	51.6	47.5
Tax	41.0	33.0
	<hr/>	<hr/>
	92.6	80.5
	<hr/>	<hr/>
	1,774.8	1,731.8
	<hr/>	<hr/>

Segmental analysis

	Year ended 31 December 2020 W\$ million	Year ended 31 December 2019 W\$ million
<u>Revenue</u>		
Heating and ventilation controllers	369.0	408.6
Smart speakers	451.0	362.4
	<u>820.0</u>	<u>771.0</u>

<u>Operating profit</u>		
Heating and ventilation controllers	125.8	134.7
Smart speakers	89.1	67.0
	<u>214.9</u>	<u>201.7</u>



Extract from Ypburn's annual report

Ypburn is Frinta's only major competitor in the market for smart speakers. Ypburn manufactures smart speakers and a range of other smart consumer electronic items.

Ypburn is based in Westland and is quoted on the Westland Stock Exchange.

Ypburn Group

Consolidated statement of profit or loss

For the year ended 31 December

	2020	2019
	W\$ million	W\$ million
Revenue	1,172.6	1,114.0
Cost of revenues	(738.7)	(690.7)
Gross profit	433.9	423.3
Administrative expenses	(19.4)	(17.8)
Selling and marketing expenses	(69.9)	(65.7)
Operating profit	344.6	339.8
Finance costs	(9.6)	(13.2)
Profit before tax	335.0	326.6
Tax	(70.4)	(68.6)
Profit for year	264.6	258.0

Ypburn Group

Consolidated statement of changes in equity

for the year ended 31 December 2020

	Share capital and premium	Retained earnings	Total
	W\$ million	W\$ million	W\$ million
Balance at 31 December 2019	700.0	250.4	950.4
Profit for the year		264.6	264.6
Dividends		(214.3)	(214.3)
Balance at 31 December 2020	700.0	300.7	1,000.7

Ypburn Group
Consolidated statement of financial position
As at 31 December

	2020	2019
	W\$ million	W\$ million
Non-current assets		
Property, plant and equipment	633.3	639.2
Intangible assets	479.7	487.6
	<u>1,113.0</u>	<u>1,126.8</u>
Current assets		
Inventory	55.1	50.8
Trade receivables	127.0	120.7
Bank	18.2	15.3
	<u>200.3</u>	<u>186.8</u>
Total assets	<u><u>1,313.3</u></u>	<u><u>1,313.6</u></u>
Equity		
Share capital and share premium	700.0	700.0
Retained earnings	300.7	250.4
	<u>1,000.7</u>	<u>950.4</u>
Non-current liabilities		
Borrowings	160.0	220.0
Current liabilities		
Trade payables	86.2	80.6
Tax	66.4	62.6
	<u>152.6</u>	<u>143.2</u>
	<u><u>1,313.3</u></u>	<u><u>1,313.6</u></u>

News reports

Westland Business Daily

Internet of things continues to expand into the home



So-called “smart devices” have existed for many years. They are essentially machines that have an internet connection that enables them to send information or receive instruction over the internet.

Smart technology has many commercial applications. For example, smart factories can use a combination of sensors, software and robotics to automate production in ways that would have been unimaginable before

the internet. Machines from different suppliers can communicate and integrate with little or no human intervention. This is possible because of the development of common software standards that allow for a common machine language.

This phenomenon of interoperability is often referred to as the “internet of things” or “IoT”. The IoT has been so successful in industrial settings that it is being rolled out in the home. Early applications include smart meters, which enable utility providers such as gas and electricity companies to download customers’ meter readings and bill them without requiring a physical meter reading. More advanced applications include the smart refrigerator that has a barcode sensor that allows users to scan products when they are stored and when they are used. That makes it possible to check the contents of the refrigerator using a smartphone app. Most models can also be programmed to place an order for fresh supplies from an online supermarket whenever an item is about to run out.

Westland Daily News

How many wi-fi devices do you have in your home?



A recent study by the University of Westland indicated that the average home has 11 smart devices that are connected to the internet and used on a daily basis. As many as 10% of homes have 18 or more devices.

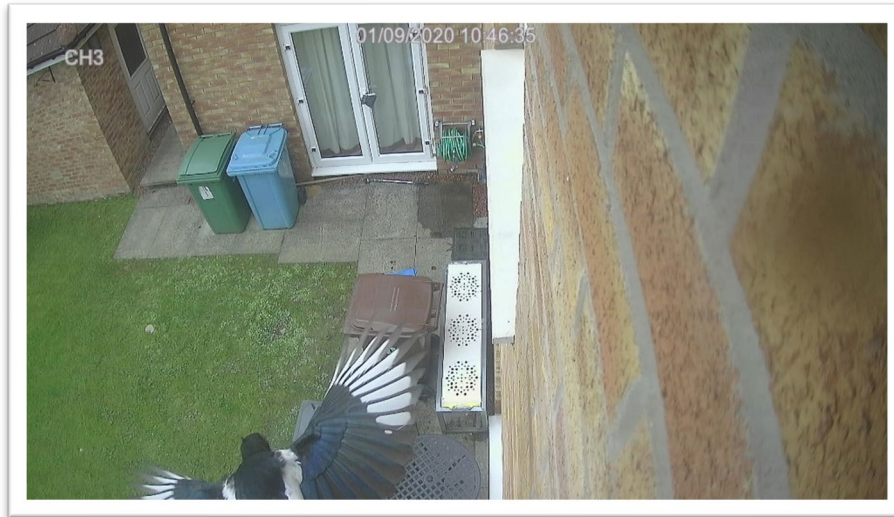
There is plenty of room for growth in that number. In theory, a typical domestic wi-fi router can connect to as many as 255 devices at once. Users

who attempt to use all of that capacity could find that they have insufficient bandwidth to use any of those connections effectively. It is generally recommended that the number of connections be limited to 45 devices.

Even 11 devices can be difficult to use in the average home. Wi-fi signals can generally reach up to 50 metres indoors, but that range can diminish rapidly depending on the number of floors and internal walls between the device and the router. The construction materials used in those barriers will also have a part to play, as will the location of furniture.

Reviews of the Ypburn Home Alarm, as posted to a major online retail site

👍👍👍👍👍 Glad I bought it!



I live in an area that has a high crime rate and so I have been looking for a reliable alarm system for quite some time. My old alarm used to send a text message whenever it detected an intrusion, but I had a few false alarms that caused me a great deal of stress. It turns out that the infrared motion detectors on most home alarm systems can be triggered by a sudden change in the sunlight coming through a window, or even a large spider spinning a web in front of the sensor.

I have upgraded by buying myself a Ypburn Home Alarm system and added two Ypburn Outdoor Security Cameras. I already had a Ypvox, which acts as the control unit, so everything was compatible. Installation was really easy.

I have attached a photograph of a cheeky magpie that flew past my bedroom window while I was away last week. It triggered a motion alarm, but I was able to check that nothing was wrong simply by looking at the images taken by the system and uploaded to my phone.

It is also possible to view a live video feed from the security cameras from anywhere that has internet access. That can be reassuring during a trip or on holiday.

I have given the system 5 thumbs because of the peace of mind that it offers.

Debbie



Easy to install

I chose the Ypburn Home Alarm because I already had an Ypvox smart speaker. There are lots of other smart alarm systems on the market, but most require the installation of a control box that then has to be programmed to link it to the home wi-fi network and remote access requires further programming so that you can use your phone to check your alarm. The Ypburn system sounded so much simpler.

Set-up is easy. The first thing that you see when you open the kit is a card with a unique serial number. You say “Vox, learn security system”, read out the serial number from the card and your smart speaker downloads all of the software that it needs. When it is ready, it asks you for a security phrase that can then be used to disarm the system. Finally, you position your sensors and the external siren. The Ypvox detects each as it is switched on and makes all the necessary connections. It also sets up your smartphone to monitor security alerts while you are away from home.

The new system started working immediately. Now, all I need to do is shout “Vox, alarm active” and the system gives me 30 seconds to leave the house while it arms itself. When I get home, I have 30 seconds to shout “Vox, disarm” and then state my security phrase. Intruders cannot disarm the system without that phrase and so will trigger an alert and will be photographed.

I have awarded the product five thumbs because it was so easy to set up.

Ronald



There is a lot in the box

The Ypburn security system comes as a kit, comprising:

- Two door/window sensors, each of which is attached to an opening. Each sends a signal to your Ypvox smart speaker when it detects that its door or window has been opened.
- Three indoor sensors, each of which detects and photographs movement within the room where it is located. The sensor sends an alert and a photograph to the Ypvox smart speaker, which uploads that information to the cloud and also sends a message containing the time and date of the alert and a copy of the photograph to the user’s phone. This all takes a fraction of a second.
- An external siren that is fitted to an exterior wall. This acts as a visible deterrent against intrusion and also alerts neighbours that the security system has been triggered.



It is possible to extend the kit by adding additional sensors that are sold separately, but it is necessary to buy the kit to get started because it contains the serial number required to download the software to your Ypvox smart speaker. I found that slightly irritating because the kit costs W\$450, which is a lot. My apartment only has one external door, for example, so I only needed one of the door/window sensors.

The system is easy to operate. It can be armed and disarmed with simple voice commands. It seems to be reliable because it always detects my presence when I get home. I did once forget the security phrase needed to disarm the system and so triggered the alarm. The siren was loud enough to annoy my neighbours, who complained about it for days afterwards.

I am awarding this product three thumbs. It would have been five, but I am annoyed that I had to pay for two door/window sensors when I only need one and for a siren that I wouldn't have purchased if I'd had a choice.