

2019

Annual Report



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Introduction

Mobile phone waste is a growing problem around the world.

There is an ever increasing number of mobile phones reaching the end of their life which contain valuable and reusable materials. As we transition to a circular system there will be greater focus on mobile phones being repaired, reused and recycled. It means that fewer raw materials will need to be extracted and less CO₂ emissions will be generated.

MobileMuster plays an important role in this transition. The program has four fundamental objectives:

- Environmental: keeping mobiles out of landfill and optimising resource recovery
- Social: creating awareness and educating the community on mobile phone recycling
- Policy: enabling our members to deliver a sound product stewardship scheme
- Economic: delivering an effective, efficient, equitable and sustainable program for its members.

The mobile industry, through the Australian Mobile Telecommunications Association (AMTA), has taken a leadership role towards product stewardship through the MobileMuster program. In 2019 the program was accredited for a further five years by the federal government. The accreditation, under the *Product Stewardship Act 2011*, provides a framework for industry to voluntarily share responsibility for the sustainable management of products.

AMTA manages MobileMuster on behalf of its members. Members of the program include all the major handset manufacturers Alcatel, Apple, HMD Global (Nokia), HTC, Huawei, Google, Microsoft, Motorola, Oppo, Samsung, vivo Mobile, ZTE and network operators Optus, Telstra and Vodafone.



Foreword



For Australians, mobile phones are an essential part of our everyday lives connecting us with family and friends, entertaining us, keeping us safe and managing our daily responsibilities. We know that nearly nine out of ten Australians own a smartphone and they spend on average of three hours every day on their device.¹ Ensuring that our use of mobile technology is sustainable is at the forefront of AMTA's vision and programs.

"AMTA's vision is to promote an environmentally, socially and economically responsible, successful and sustainable mobile telecommunications industry in Australia."

The mobile industry is leading the way in responsible and sustainable business, and in turn, improving the lives of Australians and the environment in which they live. The mobile industry takes responsibility for their products throughout their lifecycle. They are improving the environmental impact of mobile technology through increased material efficiency and the use of recycled materials in the production of mobile phones coming to market.

Today's mobile devices are supported by ongoing updates so that you can access the latest software without having to upgrade to a new device. The industry is improving the energy efficiency of its products and networks. Mobile devices use power efficient components and software that intelligently manages power consumption. This is underpinned by the network operators who are adopting more energy efficient practices and connectivity to help make processes smarter, leading to a reduction in the carbon emissions of all industries.

As we approach 2020, we are proud to represent an industry that has set ambitious targets for reducing carbon emissions, recycling and for the use of recycled and renewable materials. AMTA will continue to work closely with members, stakeholders and government to ensure that the MobileMuster program continues to achieve its accreditation outcomes that bring tangible social and environmental benefits to the community.

¹ Deloitte Access Economics, Mobile nation 2019 The 5G future Australian Mobile Telecommunications Association (February 2019).



Spyro Kalos
Manager MobileMuster

This year the program turns 21. Over the years the role of the program has shifted and evolved. The program now delivers more than a free take back recycling program as our stakeholder expectations have increased. Since MobileMuster started in 1998 almost 1,500 tonnes of mobiles and accessories have been collected and recycled, including over 14 million handsets and batteries.

Australians have always loved their technology and have been early adopters. The first mobile phone call in Australia was made almost 40 years ago in 1981, with the very first mobile available in Australia being a car phone. It weighed in at 14kg and was 50cm in length. Thankfully mobiles have come a long way since then, but now many of us are still holding onto our very first mobile.

How consumers use their mobiles has also changed in 21 years. Today there are a multiple ways to move on from an old device once a new one has been purchased. From selling it, passing it on or at the end of its life, recycling. Storing it should never be considered a good option.

What makes mobiles so unique, compared to other waste, is that they are highly valued from a recycling perspective. There are strong markets for the commodities recovered from mobiles, especially the metals. Many of the materials recovered through our recycling process sees them end up in markets where they can be used in the manufacturing of new products.

MobileMuster constantly challenges our recycling partner to do more with the material recovered, not just the precious metals, but also other recovered material such as the glass and plastic. We know that plastic is a significant issue for the planet today. The challenge will be to eliminate the need for virgin plastic material. The innovation will come from developing markets for the recycled material.

This year MobileMuster has again delivered strong performance results, having collected and recycled 84.1 tonnes of mobile phone components including 1.12 million handsets and batteries, along with 31 tonnes of accessories. More of us are recycling than ever before, in fact one in three Australians have recycled a mobile phone since the program started.

Our performance

High community awareness

70% awareness of mobile phone recycling

More than recycling

1.5M Australians educated on data management



Expansive geographic footprint

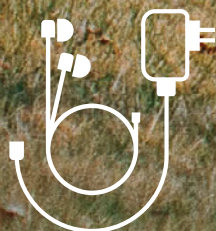
96%

of Australians living within 10km of a collection point

We recycled...



+



=

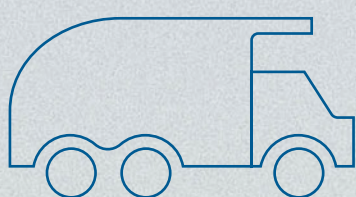
84.1 tonnes

1.12 million
handsets and
batteries

31 tonnes
of accessories

mobile phone
components

We achieved...



98%

diversion from landfill

Recycling rate greater than

95%



Our collection network

Including **3,500** public drop off points



Other
retailers



Mobile phone
retailers



Local
councils



Workplaces



AusPost
outlets



Schools



Repair stores and
service centres

Strong industry engagement



network provider
participation

92%

manufacturer
participation



84%

Celebrating 21 years

MobileMuster looked completely different 21 years ago when it was established in 1998.



The Mobile Phone Industry's Recycling Program, as it was then called, was founded by AMTA members Telstra, Nokia and Motorola, who were the dominant players in the market at that time.

As mobile phone ownership became more prevalent there was increased pressure on industry to take responsibility for recycling. AMTA partnered with Planet Ark in 2001 to help build the program under the name *Phones for Planet Ark*. Over the next few years the collection network grew significantly to include mobile phone retailers and the addition of the Australia Post partnership which provided free recycling satchels to consumers.

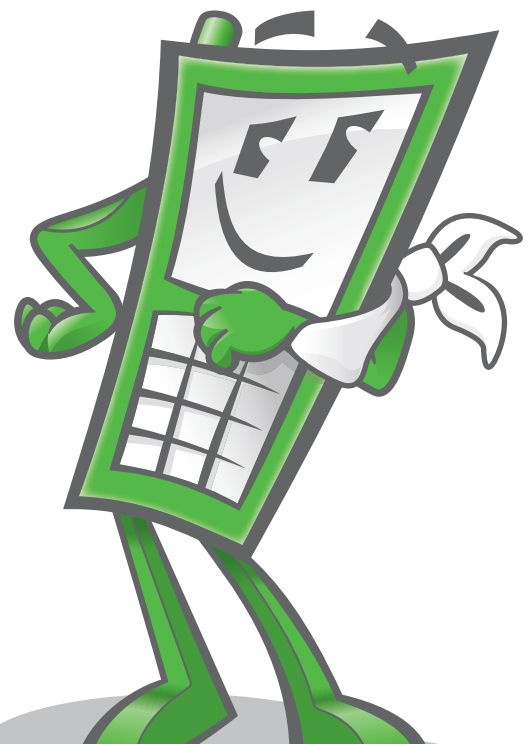
AMTA relaunched the program in 2005 under the MobileMuster brand that we know today with a focus to improve visibility and consumer awareness. In 2014, MobileMuster became the first voluntary product stewardship scheme in Australia to be accredited by the federal government under the *Product Stewardship Act 2011*.

Not only has technology changed and evolved in that time, but so has the ethos of the program. Today the program continues to provide an environmentally sound solution of disposing of unwanted mobiles, along with helping consumers manage their old devices effectively so they can make an informed choice when it comes to letting them go. Consumers are savvier than ever and understand that there is value in reuse, repair and ultimately recycling with MobileMuster.

Most Australians are now aware that they can recycle their mobile phones and one in three have recycled a mobile phone.² More are learning thanks to our education programs. We continue to invest in the next generation of mobile phone users, educating them about the impact of their mobile and how to act for a sustainable future. As we reach our 21 year milestone we promise to continue our journey and encourage everyone to play their part.

21 YEARS

**Do good for tomorrow.
Recycle your old mobile today.**



² IPSOS, Consumer insights into mobile phone use and recycling (February, 2019). Based on a used sample size of 1042 people Australia-wide. Respondents were randomly selected from an online panel and were aged 16 years + and owned a mobile phone.

Our impact since the beginning



We have grown with new members



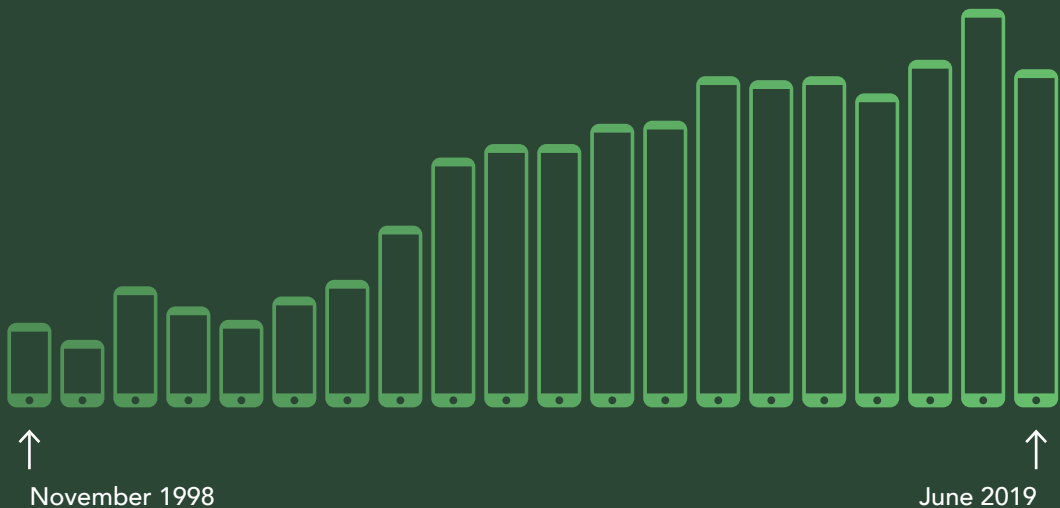
And engaged with more partners, with over **7500** collection points around Australia



1500 tonnes of mobile phone components collected and recycled

Batteries and handsets collected from November 1998 to June 2019

14.1 million
handsets and batteries recycled



Delivering tangible community and environmental benefits



Provided a **free** recycling program and reduced mobile phones in landfill



We've **reduced** CO₂ emissions and conserved raw materials

\$1M

Given to social causes to motivate and reward people to recycle



96% of Australians are within **10kms** of a MobileMuster collection point

Consumer behaviour



MobileMuster plays an active role in educating consumers on how, why and where to recycle their old mobile phones the right way and ultimately reduce the number of phones people are storing at home.

Our campaigns look to incentivise consumers to act and provide tools and resources to help them overcome the barriers to recycling. As an industry we also support repair and reuse as effective options to extending the product lifecycle, along with keeping the materials that have gone into making the phone circulating for longer.

MobileMuster monitors community attitudes and behaviours to better understand what motivates and creates barriers to recycling. Our research helps us to develop awareness and education campaigns to get more people recycling.

Awareness of long running product stewardship programs like MobileMuster continues to increase in the community.³ Our latest research show that 70% of Australians are aware of mobile phone recycling.⁴ However, with more than 31 million mobile phone subscribers in Australia and an increasing number of mobile phones being stored at home, MobileMuster needs to continually develop innovative campaigns to maintain awareness and encourage action.

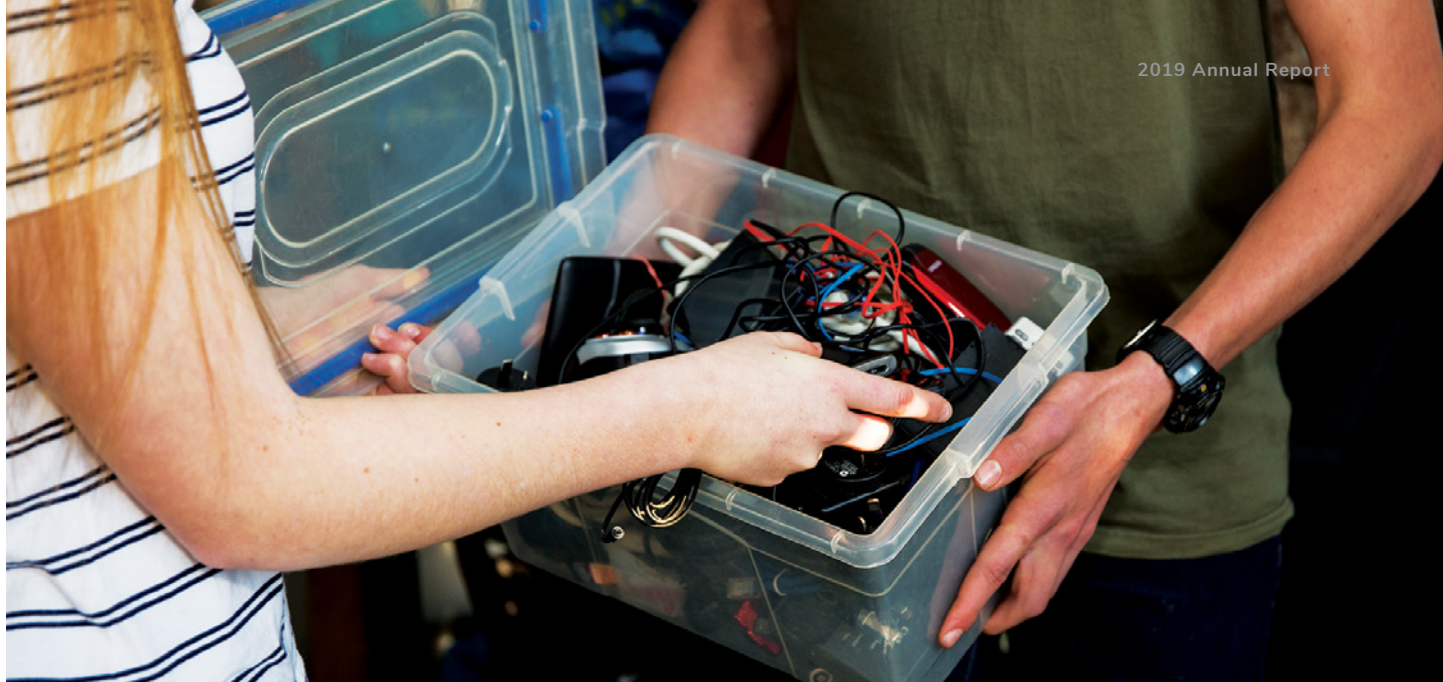
This year the ABC program War on Waste featured the growing problem of electronic waste in Australia. The show had a positive impact on raising awareness of mobile phone recycling and the MobileMuster brand. We conducted an independent survey following the program which revealed that after watching the program 82% of viewers were aware of mobile phone recycling and 52% could name the program.

To leverage the War on Waste series we ran a digital campaign supporting the recycling call to action and letting consumers know where they can recycle. The campaign reached 1.7 million Australians and received strong engagement, initiated online conversations about people holding onto their old phones and directed consumers to the MobileMuster website to search for their nearest collection point and obtain more information about the recycling process.

More recently MobileMuster launched its *Use it or Recycle it* campaign to raise awareness of the program and educate a younger demographic on the benefits and ease of recycling their mobile phones. The campaign targeted 16 to 39 year olds who are less likely to recycle. It developed the idea that having unused mobile phones is a waste of resources and that they could be put to better use by being reused or recycled. The campaign was supported through above the line advertising reaching over 10 million Australians. It had a positive impact on MobileMuster's brand awareness particularly within the target audience.

³ Planet Ark, From Waste War to Recycling Reboot Report (November, 2018).

⁴ IPSOS, 2019.



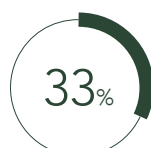
Building trust

Storage rates of mobiles continue to be high, with most of us having at least one in the house that is not being used. Of the phones we are storing, 1 in 4 are either broken or no longer working, so why do we keep them?

Over 90% of Australians believe recycling is the right thing to do and have good intentions when it comes to recycling their mobile phones with research revealing that almost half plan to recycle.⁵ We want that positive attitude to turn into recycling of more mobiles, therefore it is important that Australians have trust in the program and have confidence that all mobile phones collected are recycled to the highest standard.

This year saw the introduction of an education campaign to help consumers gain the skills in removing the data off their old mobile phones so they could be reused or recycled. Our how-to videos for iOS and Android take consumers through the steps of backing up their files, logging out of accounts and performing a reset on their devices. The videos provided engaging content and educated over 1.5 million people. We also worked with tech expert, Trevor Long, as a spokesperson for the campaign to inform people how to securely remove the data off their old mobile phones.

Australians who have repaired their mobile phones



Australians who have bought a used mobile phone



Extending the life

Whilst Australians are early adopters of technology, the length of ownership of mobile phones remains relatively stable, with half of the population using their mobile phone for two or more years before upgrading to a newer model.⁶ More people are reusing and repairing their devices than ever before.

When it comes to reuse most of us are passing on our phones to friends or family members. Those aged between 16 to 24 are more likely to pass their old phones to a friend, whereas the 25 to 39 age group are more likely to give it to a parent and those aged between 40 to 64 years are passing them onto a child.

It is expected that the number of people reusing devices will increase over time as younger Australians are more likely to repair and purchase second hand phones. When devices are repaired, rather than replaced, we make better use of the materials in them along with extending their life. Our members offer service centers and authorised service providers throughout Australia to provide safe and high-quality repairs.

MobileMuster also partners with several leading commercial reuse programs in the Australian market as their official recycling partner. When a device has no commercial resale value, their customers are encouraged to recycle them with MobileMuster. Traditionally the refurbished devices market is in developing markets overseas, but there is a growing demand for refurbished devices locally.

⁵ Planet Ark, 2018 and IPSOS, 2019.

⁶ IPSOS, 2019.

Partnerships



Championing collaboration

We continue to work with our collection partners to increase the visibility and accessibility of the program to the community. Our extensive collection network supports 3,500 public drop off points through all the major mobile phone retailers and a free post back option through Australia Post.

We've built strong relationships with retailers, repair stores and service centres, along with councils, schools and workplaces across the country. Over the past year we have seen continued interest and growth in the number of repair stores joining the program, with over 150 stores registering as a collection point. Our collection partners are critical to the success of the program, they are motivated and actively engage in supporting our work, which makes a real difference in delivering our collections.

A local approach

One of the longest standing partnerships is the work we do with local government.

We partner with nearly 400 councils around Australia reaching 18 million residents who help to recycle tonnes of mobile phones each year.

Local governments are more than ever, the first point of contact for residents and small businesses who want to recycle tricky items like old mobile phones. In partnership with MobileMuster, councils can make it easy for residents to drop off their mobile phones along with other household items for recycling.

Each year MobileMuster recognises the top collecting councils from around the country. The awards acknowledge the hard work and dedication undertaken by local government and its staff to support mobile phone recycling within their community. For the fifth year in a row, collections from councils have grown year on year. MobileMuster is always working to expand the number of participating councils.

Top Local Government Recyclers

New South Wales – Hornsby Shire Council
 Northern Territory – Darwin City Council
 Queensland – Brisbane City Council
 South Australia – City of Tea Tree Gully
 Tasmania – Burnie City Council
 Victoria – Moonee Valley City Council
 Western Australia – City of Stirling

Photo credit (left to right): Rebecca Gilling Deputy CEO Planet Ark, The Hon. Sussan Ley – Minister for the Environment, The Hon. Trevor Evans – Assistant Minister for Waste Reduction & Environmental Management, Spyro Kalos – MobileMuster Manager



Good for the community

This year we partnered with Take 3 for the Sea to raise awareness of the growing issue of plastic pollution in our oceans and waterways. Plastic pollution is a growing global problem threatening wildlife, our health, and the health of our ocean ecosystems. Organisations like Take 3 for the Sea offer practical ways to clean up the environment.

The initiative aimed to motivate Australians to recycle their old mobile phones over summer with every mobile recycled delivering funding to Take 3 for the Sea.

The campaign collected and recycled over 30,000 mobiles, along with their batteries and chargers.

We hope the initiative will inspire more Australians to Take 3 pieces of rubbish with them when they leave our waterways and help reduce global plastic pollution.

MobileMuster also supports the Salvos Stores as an important collection and ongoing charity partner. Salvo Store customers recycled hundreds of kilograms of mobile phones throughout the year which generated much needed funds to their organisation. The funds raised through the partnership help The Salvation Army deliver programs that transform lives for the better. Their initiatives aim to end hunger, homelessness and build stronger families and communities.

Cutting down on plastic

We are reducing the use of plastic in our collection network. We're transitioning to satchels made with recycled content and paper mailing labels through our AusPost partnership. MobileMuster will ensure all satchels and packaging sent back to us are recycled after use. We are committed to delivering long term sustainable packaging solutions for our collection partners and mobile phone users.

Academic partnerships

To explore innovative ways to improve our recycling processes we are collaborating with the University of New South Wales Centre for Sustainable Materials Research and Technology. The partnership looks at increasing the valuable metals alloys and plastic from the mobile phone recycling process. We are also participating in the NSW Circular Economy Innovation Network to link industry with government, councils and researchers to drive innovation in recycling and stimulate new ways of tackling the challenges of the circular economy.

This year we also collaborated with the Australian National University, School of Art & Design and worked with students on an industry design challenge. The third year design students developed concepts and prototypes for MobileMuster's instore collection unit. Exploring ways to make the unit more secure and increase visibility of the units within the store.

Working with schools

We know that the next generation are the key to making a more sustainable planet. It's how we engage them now that will make the difference. We do this through our school program and Mobile Connections education resources which provide best practice teaching and learning.

This year we have seen growing uptake of our Mobile Connections geography program with over 5,000 curriculum guide and 500 digital book downloads. The students who have been through the geographical inquiry process develop deep knowledge of our mobile connections and the resulting impact on places. They explore how mobile technology can be sustainable and help students to act by encouraging their community to recycle.

Mobile Connections resources have improved digital literacy, developed critical thinking and prepared students for the future.

"The Mobile Connections curriculum is excellent and I will be using this next term with Year 8. It features many practical and creative tasks for students which is great. It caters to a range of diverse learning needs and styles."

Our resources have generated over 14,000 video views and 9,000 visitors to the website. MobileMuster continues to work with educational experts from the Geography Teachers Associations and the Field of Mars Environmental Education Centre to further develop the curriculum material and student resources. During the year 340 teachers participated in online and face-to-face professional development sessions to help integrate the materials into the classroom.

Making learning fun

To engage more schools in the program we launched a film competition for students to encourage their community to recycle. Students can work as a class, groups or individually to create a one minute film on mobile phone recycling. The competition encourages student led action and helps them to develop critical and creative thinking.

We partnered with educational experts from Cool Australia to deliver six lessons and provide a film making toolkit for primary and secondary schools. These innovative resources help students develop their film and empower them to champion the MobileMuster message. As part of the competition, the winning film makers receive a technology prize to be shared between the students and their schools. Finalist representatives will win an industry experience day in Sydney and attend the awards screening. They will also be showcased by our competition partner Planet Ark during National Recycling Week later this year.

In the classroom

The number of participating schools keeps growing, and this year 150 new schools registered to become a collection partner. Through these partnerships we have introduced 100,000 students to the MobileMuster program and mobile phone recycling. To encourage learning we have developed a new kit for teachers and students to run a muster at school. The kit provides schools with hands-on activities and the opportunity to learn about product stewardship.

With curriculum links to Science and Geography, the school kits take students on a recycling journey that explores the processes used to recycle mobile phones, along with a hands-on experience of the materials extracted in the process. Students are also provided with all the materials to run a successful muster at their school while learning about resource recovery and sustainability.

Recycling

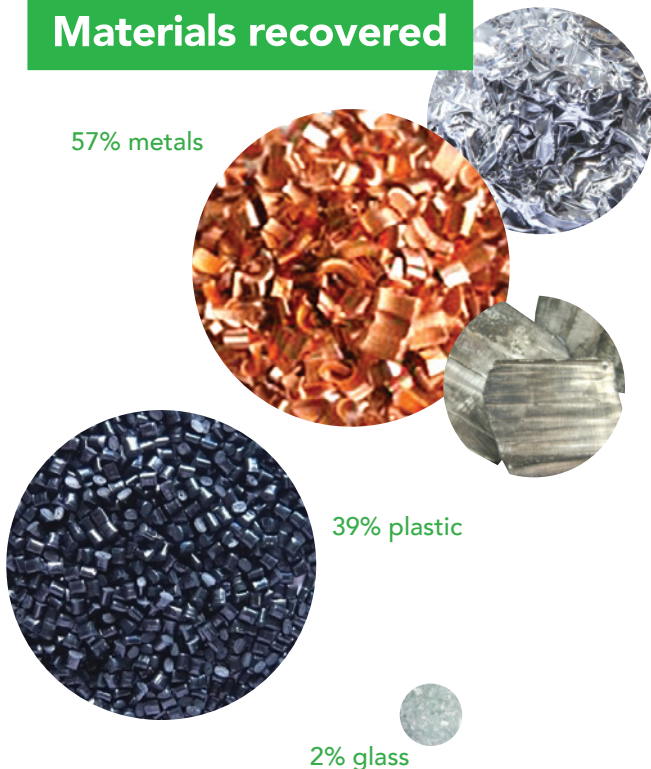
MobileMuster continues to work closely with its recycling partner to deliver best practices when it comes to recycling and reporting on our downstream processes.

The recycling industry in recent times has been in the spotlight, and at MobileMuster we are committed, as always, in being completely transparent with our recycling process. Anyone that recycles with MobileMuster should know what happens when they drop off their mobiles or post them back to us. Transparency in our processes is integral to the success of the program.

Aligning to leading practice

Our recycling partner engages teams of onsite technicians, operate trucks on the road and run plants which are EPA licenced, AS/NZ:5377 standard approved, R2 Certified and managed to ISO9001 (Quality), ISO14001 (Environmental) and OHSAS18001 (Health & Safety) systems. They are experienced with Basel Convention Rules and the Import and Export of Hazardous waste and their applicability in used electronic equipment and WEEE (waste electronics) movements internationally.

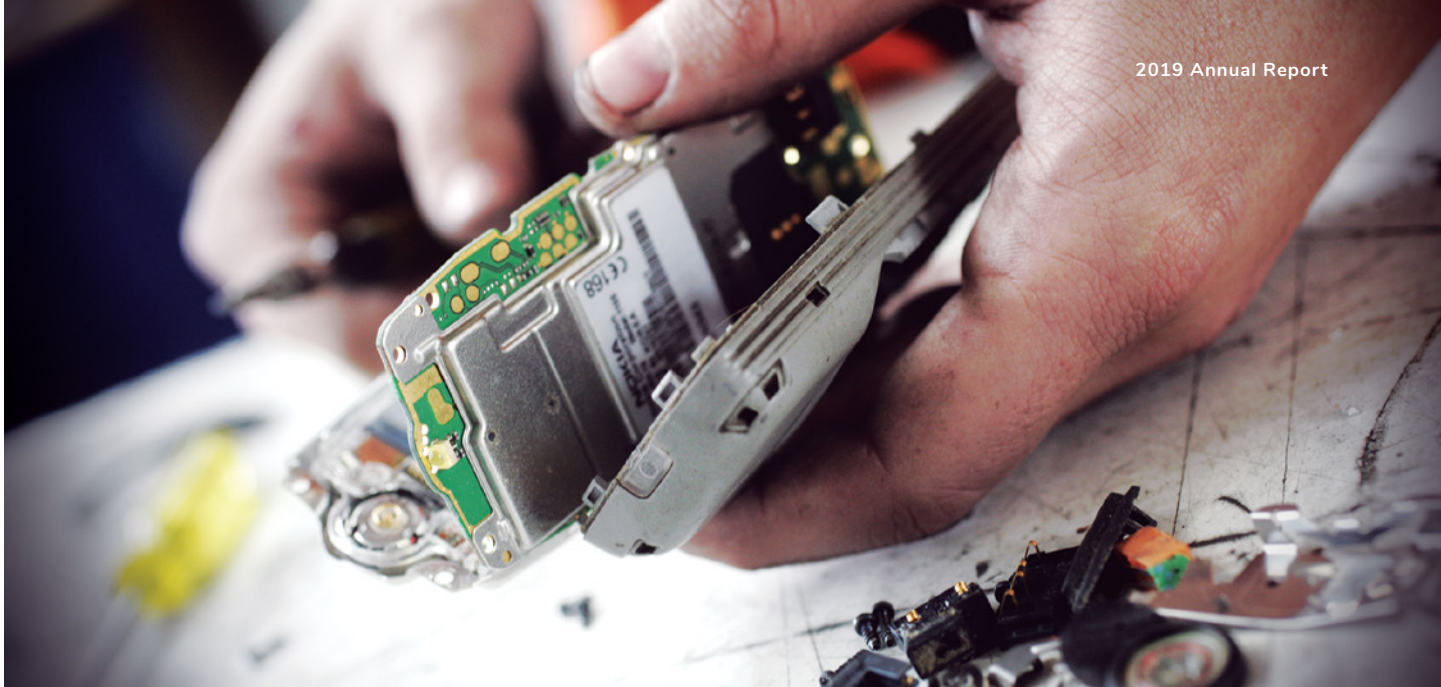
Materials recovered



Continuous innovation

MobileMuster aims to recover as much as possible of the material from mobile phone waste and turn it into valuable resources for reuse. Ultimately the more material that can be recovered through recycling, means less virgin material needs to be extracted and processed to make new products.

Our recycling partner's e-waste recycling facilities utilise state-of-the-art equipment and processing techniques aimed at delivering the lowest possible environmental impact for recycled equipment. They invest heavily in research, development and machinery that maximises recovery of commodities and raw materials for reuse. We continue to work with them to find markets for all material recovered in our recycling process.



The environmental benefits

Everyone knows recycling is good for the environment. The greatest environmental benefit of recycling our mobile phones is the conservation of energy and natural resources and the prevention of pollution that is generated when a recycled material is used to make a new product.

The 84.1 tonnes of metals, glass and plastics recycled by MobileMuster this year saved a total of 188 tonnes of CO₂ emissions. This is equivalent to planting 4,840 trees.

Furthermore, our recycling effort conserved 950 tonnes of mineral resources. Mobile phones are made from numerous materials including precious metals and through recycling we reduce the need to mine and take less from the earth.

Recycling also saves energy. When we make new products out of virgin materials, we expend energy to extract and process those materials. This includes burning fossil fuels. However, if we manufacture products using recycled materials, we reduce the need for virgin materials and save the energy required to extract and process them. This year through our recycling we were able to save 205 gigajoules of fossil fuels.

Finally, recycling reduces pollution. Recycling improves air quality by reducing the demand for power used in the mining, refining, processing and shipping of raw materials. This year the program avoided 313 kilograms of summer smog and 540 kilograms of particulate pollution.

Recycling facilities

- 1 Melbourne Sydney Brisbane

Items dismantled

- 2
- Circuit Boards
 - Plastic casing
 - Metals
 - Batteries

Processes

- 3
- Sorting
 - Shredding
 - Crushing
 - Smelting

Material recovered

- 4
- Gold, silver, platinum, palladium, mixed-metal ingot
 - Mixed plastic
 - Glass
 - Ferrous and non ferrous metals, aluminium, steel, copper

Potential products

- 5
- Jewellery
 - Electronics
 - Batteries
 - Plastic products
 - Glass bottles
 - Road base

Appendices

Appendix 1: Targets for 2015-16 to 2018-19

Key Performance Indicators	2015/16	2016/17	2017/18	2018/19
Reported Shipments (units – millions)	5.00	5.15	5.28	6.50
Estimated Available Phones (weight – tonnes)	122.83	126.51	129.67	150.38
Mobile Phone Collections (weight – tonnes)	72.5	75.9	79.1	82.0
Annual Collection Rate, Available Phones (%)	59.0%	60.0%	61.0%	54.5%
Annual Collection Rate, Net imports (%)	10.0%	10.2%	10.4%	7.0%
Estimated Number Handsets & Batteries (units – millions)	1.00	1.04	1.09	1.10
Recycling				
Diversion from Landfill	97%	97%	97%	97.0%
Recycling Rate (estimated material recovered)	>90%	>90%	>90%	>90%
Consumer Behaviour				
Personal Storage Rate (% users with 2 or more handsets at home)	<37%	<37%	<37%	<37%
Disposal to Landfill Rate	2%	2%	2%	2%
Awareness of Mobile Phone Recycling	>80%	>80%	>80%	>80%
Industry Participation				
Manufacturers	56%	75%	75%	>90%
Mobile Network Carriers	91%	91%	91%	91%

Appendix 2: Program performance over past five years

Key Performance Indicators	2014/15	2015/16	2016/17	2017/18	2018/19
Collections					
Mobile Phone Collections (tonnes)	74	76.1	79.1	90.0	84.1
Annual Collection Rate, Available Phones	53.1%	60.3%	68.5%	61.1%	30.3%
Annual Collection Rate, Net imports	9.0%	9.0%	10.3%	9.2%	5.8%
Estimated Number Handsets & Batteries	827,765	1,030,000	1,060,000	1,210,867	1,115,047
Reported Shipments (Units-millions)	5.56M	4.98M	4.18M	5.65M	7.75m
Recycling					
Diversion from Landfill	99%	99%	99%	97%	99%
Recycling Rate (estimated material recovered)	98%	99%	99%	99%	98%
Consumer Behaviour					
Personal Storage Rate (% users with 2 or more handsets at home)	36%	42%	34%	32%	34%
Disposal to Landfill Rate	2%	3%	2%	3%	2%
Awareness of Mobile Phone Recycling	78%	76%	77%	73%	70%
Industry Participation					
Manufacturers	45%	43%	40%	91%	92%
Mobile Network Carriers	91%	90%	86%	84%	84%

Note: Recycling Rates and Industry Participation results have been rounded to whole numbers.

Appendix 3:

Key Performance Indicator Definitions

Average unit weight

The average weight of a mobile phone unit (i.e. a new handset, battery and charger imported into Australia) is currently estimated to be 217.3 grams calculated based on manufacturers published weights of devices sold into the Australian market, then average weight is calculated by total volumes based on sales data provided by GfK market analysis report.

Annual Collections

The annual collection data is the weight of mobile phone components collected by MobileMuster measured in kilograms and then converted to tonnes. Mobile phone components include handsets, batteries, chargers, and accessories.

Annual Collection Rate (Available Mobiles)¹

$$\text{ACRDM} = \frac{\text{Annual Collection (tonnes)}}{\text{Available Phones (tonnes)}} \times 100$$

Annual Collection = Weight of mobile phone components (i.e. handsets, batteries, chargers, accessories and associated plastics) received by recycler measured in kg and converted to tonnes.

Available Phones = Total phones kept but not working as a percentage of participating manufacturer's reported net imports.

Participating Manufacturer Reported Imports = measured in units² (i.e. mobile phone unit = handset, battery, charger and accessory) and converted to weight using the average unit weight.

Estimated Participating Manufacturer Exports = measured in units and converted to weight using the average unit weight. The figure has been calculated to reflect the proportion of participating manufacturer reported imports that have been exported and is estimated as the All Industry Exports³ divided by All Industry Imports⁴ multiplied by Participating Manufacturer Reported Imports.

Kept but not Working – Estimate based on market research⁵ on the proportion of people who keep their previous phones “not working but kept it anyway” multiplied by Net Imports. Measured as units and converted to weight using the average unit weight.

Net Imports = Participating Manufacturer Reported Imports – Estimated Participating Manufacturer Exports.

The following assumptions have been made in calculating the amount of available (previously described as discarded) mobiles and may be subject to review in future years as more data becomes available:

- The majority of mobile phones being discarded are manufactured by participating manufacturers and that the number of non-participating manufacturers is minimal/insignificant.
- The amount of unsold mobile phones held in stock is relatively low and remains constant throughout the year.
- The IPSOS market research results used in the calculations are an accurate and consistent representation of what the general population do with their mobile phones when no longer in use.

¹ Current year calculation methodology has been reflected in the 2017-18 and 2018-19 only.

² Data sourced from GfK and participating manufacturers.

³ All Industry Exports (i.e. includes non-participating manufacturers exports) sourced from Australian Customs Data that has been reported by Australian Bureau of Statistics and provided to AMTA. The calculation utilised is average of the past three year volumes.

⁴ All Industry Imports (i.e. includes non-participating manufacturers imports) sourced from Australian Customs Data that has been reported by Australian Bureau of Statistics and provided to AMTA. The calculation utilised is average of the past three year volumes.

⁵ Independent online survey conducted in Feb 2019 by IPSOS on behalf of AMTA of 1050 mobile phone users, aged 16 years or older randomly selected from all States across Australia.

Annual Collection Rate (Net Imports)

$$\text{ACRNI} = \frac{\text{Annual Collection (tonnes)}}{\text{Net Imports (tonnes)}} \times 100$$

Annual Collection = Weight of mobile phone components (i.e. handsets, batteries, chargers, accessories and associated plastics) received by recycler measured in kg and converted to tonnes.

Net Imports = Participating Manufacturer Reported Imports – Estimated Participating Manufacturer Exports.

Participating Manufacturer Reported Imports = measured in units⁶ (i.e. mobile phone unit = handset, battery, charger and accessory) and converted to weight using the average unit weight.

Estimated Participating Manufacturer Exports = measured in units and converted to weight using the average unit weight. The figure has been calculated to reflect the proportion of participating manufacturer shipments that have been exported and is calculated by using the following formula All Industry Exports⁷ / All Industry Imports⁸ x by Participating Manufacturer Reported Imports.

The following assumptions have been made in calculating the annual collection rate based on net imports and may be subject to review in future years as more data becomes available:

- There is no material difference between the quantity of mobile phones being exported that are manufactured by participating manufacturers versus the estimated participating manufacturers exports which has been generated by applying the ratio of Participating Manufacturer Imports and All Industry Imports to All Industry Exports;
- There is no material difference between the average unit weight of imported mobile phones versus the estimated average unit weight used that is based on manufacturer data.

Diversion from Landfill of MobileMuster Collections⁹

This indicator measures the proportion of mobile phone components (i.e. handsets, batteries, plastics and accessories) collected by MobileMuster that, once sorted and dismantled by the primary recycler, are sent either to third party specialist recyclers for further processing or manufacturers for re-use, versus being sent to landfill.

This indicator does not measure the proportion of mobile phone components recycled/materials recovered versus any residues sent to landfill by third party specialist recyclers' and manufacturers.

⁶ Data sourced from GfK and participating manufacturers.

⁷ All Industry Exports (i.e. includes non-participating manufacturers exports) sourced from Australian Customs Data that has been reported by Australian Bureau of Statistics and provided to AMTA. The calculation utilised is average of the past three year volumes.

⁸ All Industry Imports (i.e. includes non-participating manufacturers imports) sourced from Australian Customs Data that has been reported by Australian Bureau of Statistics and provided to AMTA. The calculation utilised is average of the past three year volumes.

⁹ Current year calculation methodology has been reflected in the 2017-18 and 2018-19 only.

The indicator expressed as a percentage and calculated using the formula below:

$$\text{DFLR} = \frac{\text{Total weight of mobile phone components collected and sent to third party specialist recyclers or manufacturers (kg)}}{\text{Annual Collections adjusted for movements in stock holdings (kg)}}$$

Recovery Rate

(as defined in the Australian Standard AS/NZS 5377: 2013 – Appendix D3)

The percentage of the total of all output fractions, classified as sent for recycling and other material recovery or other recovery in proportion to the total of the input amount of non-treated mobile phone components.

$$\text{Recycling Rate} = \frac{\text{Total of all output fractions (kg)}}{\text{Input amount of non-treated mobile phone components (kg)}} \times 100$$

Storage Rate of Mobile Phones at home and work

Derived from annual market research¹⁰ that measures the percentage of mobile phone users having two or more mobiles in storage.

Disposal to Landfill Rate

This is currently measured through market research¹¹ that measures the percentage of mobile phone users that dispose of their mobile phones to landfill.

Awareness Rate of Mobile Phone Recycling

This is currently measured through market research¹² that measures the percentage of mobile phone users that are aware of mobile phone recycling.

Industry Participation Rate

Industry participation is defined as the aggregated % of handset sales volumes in the Australian market of mobile phone handset manufacturers and revenue of mobile network carriers operating in the Australian mobile telecommunications market that contribute financially to the industry's mobile phone industry recycling program.

This is measured in two parts.

Manufacturers¹³ = Total Market share (by unit sales) of each participating manufacturer in the Australian retail market

&

Mobile Network Carriers¹⁴ = Total Market Share (by revenue) of each participating Network Carrier

Participating members as at 30 June 2019

Handset Manufacturers Alcatel, Apple, HMD Global (Nokia), HTC, Huawei, Google, Microsoft, Motorola, Oppo, Samsung, ZTE

Network Service Providers Telstra, Optus, Vodafone Hutchison Australia

Class of products covered under arrangement
Mobile phones, batteries, chargers, accessories, wireless mobile modems and smart watches

¹⁰ Independent online survey conducted in Feb 2018 by IPSOS on behalf of AMTA of 1050 mobile phone users, aged 16 years or older randomly selected from all States across Australia.

¹¹ Independent online survey conducted in Feb 2018 by IPSOS on behalf of AMTA of 1050 mobile phone users, aged 16 years or older randomly selected from all States across Australia.

¹² Independent online survey conducted in Feb 2018 by IPSOS on behalf of AMTA of 1050 mobile phone users, aged 16 years or older randomly selected from all States across Australia.

¹³ Data sourced from GfK

¹⁴ Data quoted is sourced from IBISWorld Industry Report J5802 Wireless Telecommunications Carriers in Australia, May 2019.

Contact us

MobileMuster is the Government accredited recycling program of the mobile phone industry.

An initiative of the Australian Mobile Telecommunications Association (AMTA)

MobileMuster
Level 8, 71 Walker St
North Sydney NSW 2060

Phone 02 8920 3555
mobitemuster@amta.org.au

Australian Mobile Telecommunications Association
PO Box 103
Deakin West ACT 2600

Phone 02 6232 4488
contact@amta.org.au



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