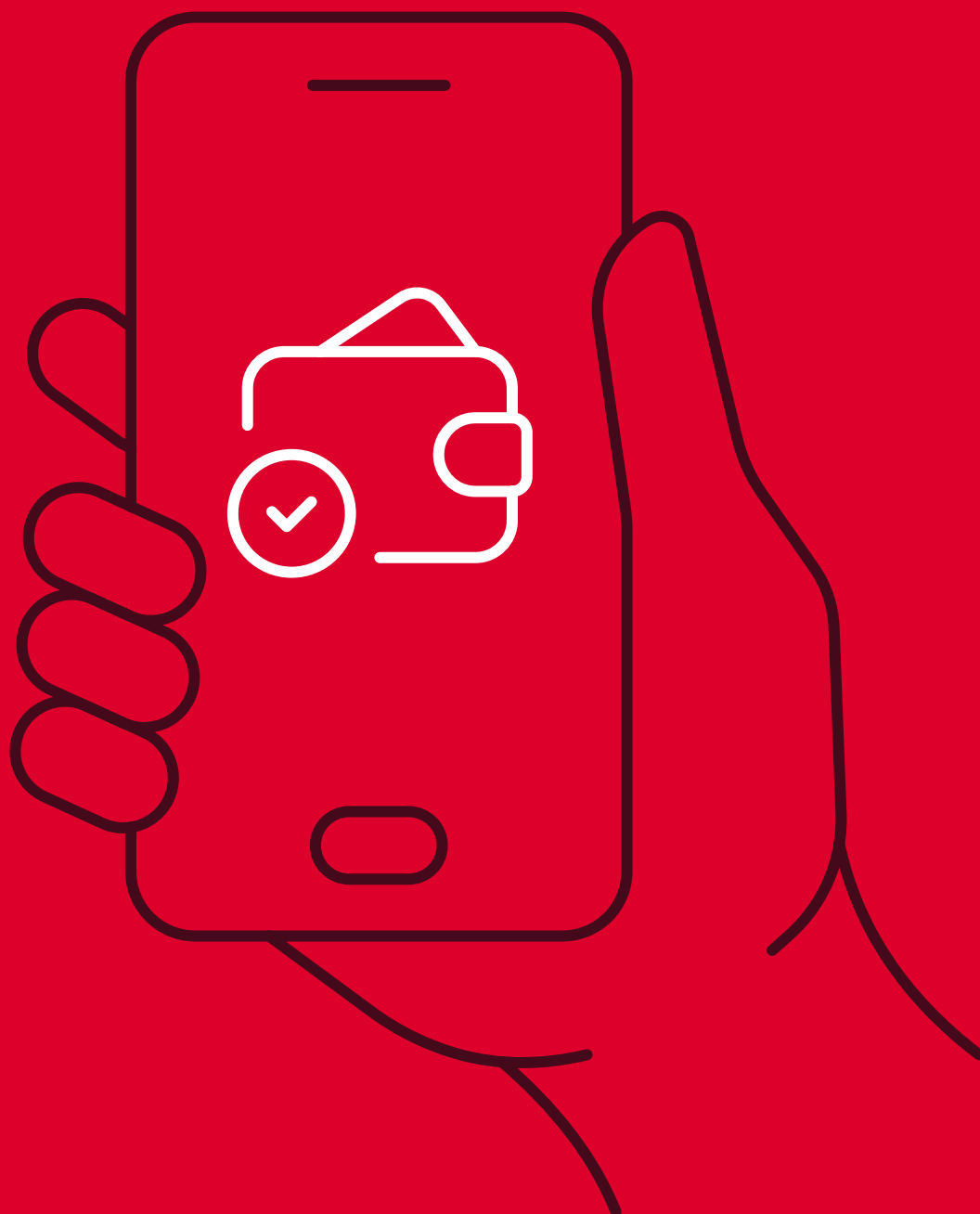


Improving handset affordability in low- and middle-income countries







Summary policy recommendations to improve handset affordability



Reducing handset costs

- › Remove sector-specific taxes and fees.
- › Refrain from imposing barriers to incentivise local production.



Increasing access to financing

- › Enable innovative financing mechanisms for handsets.
- › Carefully consider remote locking for handsets while protecting consumers.
- › Engage in public-private partnerships to de-risk handset financing.
- › Partner with the industry to provide device subsidies for targeted user groups.



Improving willingness to pay

- › Address barriers to willingness to pay.
- › Implement effective strategies to tackle handset theft and the trading of counterfeit devices.



Handset affordability is the single most cited barrier to mobile internet adoption

The world is more connected than ever before but billions of people remain offline, with the vast majority living in areas already covered by mobile broadband.¹ Affordability of handsets has been consistently the single most cited barrier to mobile internet adoption among mobile users aware of it in low- and middle-income countries (LMICs). Even when people already own a handset, it may not be suitable for 4G or 5G connectivity. In Sub-Saharan Africa, for example, most owned handsets are still only 3G capable, limiting people's internet experiences.

Handset affordability has not improved in recent years, and in some regions worsened. Underserved populations including women, people living in rural areas and the poor are disproportionately affected. Women, for example, are much less likely to own a smartphone than men as they often have more limited financial independence, lower incomes, and less access to external sources of financing.² In rural areas, a similar device can be more expensive than in urban areas due to additional retail distribution and sales costs.³ Upward inflationary trends and local currency devaluations against the US dollar or

other major currencies can also negatively impact handset affordability, including through increased (imported) component costs or trade restrictions.⁴

It is important for policymakers to tackle the challenge of handset affordability in order to achieve international commitments to universal meaningful connectivity, realise national digital growth ambitions and in general improve people's lives and livelihoods. International efforts are already underway to make handsets more affordable, as evidenced, for example, by the prioritisation of the issue by the World Bank's Digital Development Global Practice as well as the Broadband Commission Working Group on Smartphone Access.⁵

This policy brief explores drivers of handset affordability, offers policy recommendations for addressing this important challenge, and highlights GSMA initiatives that can be leveraged in efforts to advance digital inclusion for all.

¹ GSMA, [State of Mobile Internet Connectivity Report](#)

² GSMA, [Mobile Gender Gap Report](#)

³ GSMA. (2022). [Making internet-enabled phones more affordable in low- and middle-income countries](#)

⁴ High inflation can cause the price of goods to increase, including the price of components used to manufacture handsets as well as the price of finished handsets. As these costs rise, manufacturers may pass them on to consumers, leading to higher sale prices and making them less affordable for consumers. Exchange rates can also impact affordability for countries that import a significant portion of handset components or finished devices. If the local currency weakens against the currencies of the exporting countries, it can become more expensive to purchase those components or devices. Measures or levies that aim to limit the outflow of foreign currency reserves caused by imports may also increase cost to consumers.

⁵ World Bank. (2023). [Affordable devices for all](#); More information on Broadband Commission Working Group on Smartphone Access, see: <https://www.broadbandcommission.org/working-groups/smartphone-access/>

Improving handset affordability requires addressing both people's ability and willingness to pay

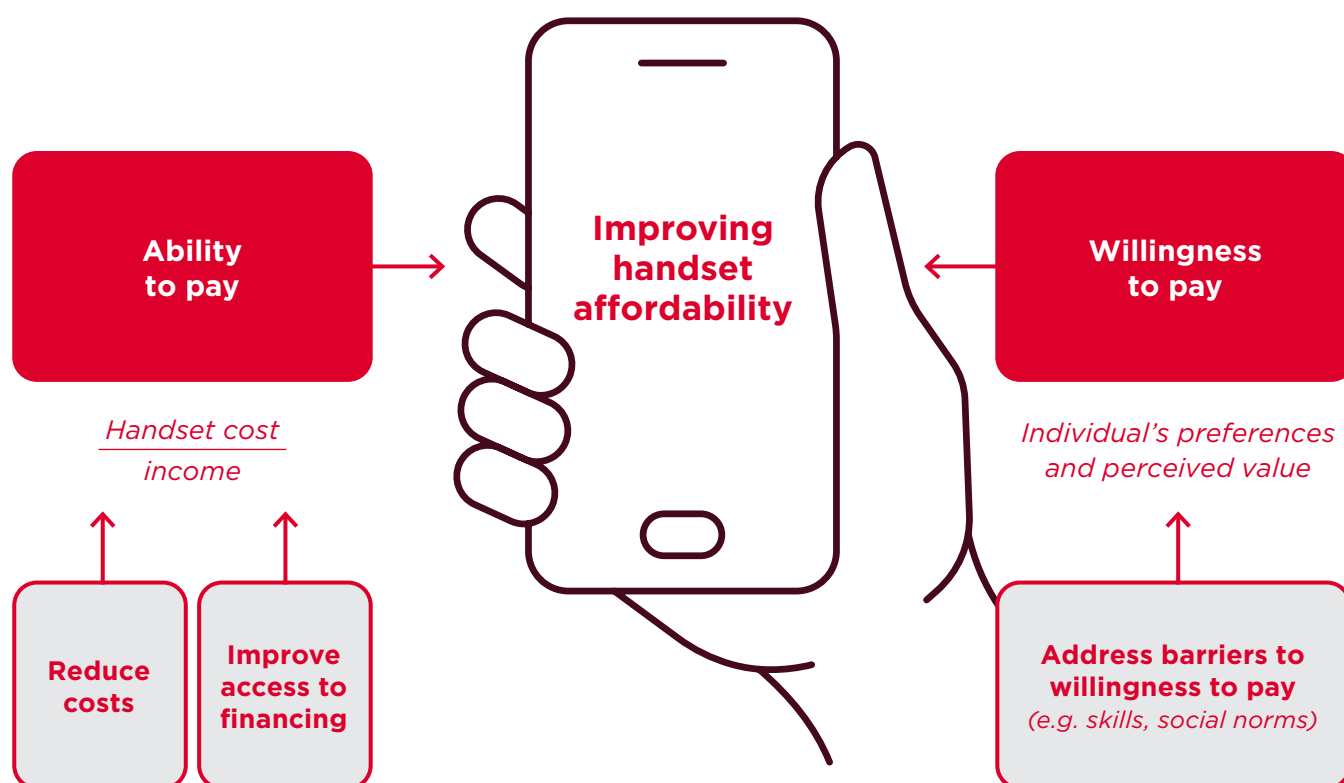
Improving handset affordability is more complex than simply focusing on the cost of an internet-enabled handset. For example, in several countries low-cost devices are available but affordability remains a challenge. Instead, improving handset affordability is about addressing people's ability as well as willingness to pay.⁶

When considering affordability in terms of ability to pay for a handset, the cost of a device as well as a consumer's income should be taken into account. Affordability, in the simplest terms, is the ratio between the price of a handset and a person's income,⁷ meaning the lower the cost of a handset as a share of income, the more affordable a handset is.

Improving ability to pay therefore includes measures to reduce handset costs as well as those that help to increase access to financing for people that do not have sufficient income to pay for a handset upfront.

Willingness to pay, on the other hand, is the maximum amount a customer is willing to pay for a handset and reflects individuals' preferences and perceived value to their life.⁸ It is influenced by multiple factors, for example awareness of mobile and its benefits, perceived relevance, digital skills, device features, branding, and social norms. Policy approaches should therefore be comprehensive, taking all these factors into account.

Figure 1
Framework for addressing handset affordability



⁶ GSMA. (2023). [State of Mobile Internet Connectivity](#).

⁷ In the GSMA publications, handset affordability is calculated as the cost of a handset divided by the monthly GDP per capita

⁸ GSMA. (2022). [Making internet-enabled phones more affordable in low- and middle-income countries](#).

Policy recommendations to improve handset affordability

Governments have a critical role to play in addressing handset affordability by implementing policies that reduce handset costs, expand financing options and improve willingness to pay.

Reducing handset costs

Few opportunities exist to lower materials and manufacturing costs of entry-level devices, which have already been significantly optimised.⁹ Considerable savings can be achieved through other measures including reducing taxes, import duties, barriers that incentivise local production, or sales and distribution cost. According to GSMA research into the ‘bills of materials’ for handsets, no single component represents a large enough share of costs to have a substantive impact in terms of consumer price (see Figure 2).¹⁰ Substantially further cutting costs of any major component (for example memory or camera) could in fact yield a less usable or durable device. Therefore, it is important for governments to consider other measures improving handset costs.

Figure 2
Bill of Materials analysis

	OVERALL			LOW COST 4G	LOW COST 5G
	AVG	LOW (RANGE)	HIGH (RANGE)		
Display	-20%	15%	35%	~20%	~ 15%
Processor	-15%	10%	20%	10% to 15%	~ 20%
PCB/Casing	-15%	10%	20%	10% to 15%	~ 10%
Memory	-15%	10%	20%	20% to 25%	~ 20%
Camera	-10%	5%	20%	-10%	~ 15%
RF-Cellular	-10%	5%	15%	-10%	~ 5%
RF-Other	sub-5%	1%	5%	sub-5%	sub-5%
Sensors	sub-5%	2%	5%	sub-5%	sub-5%
Battery	sub-5%	1%	7%	~ 5%	~ 5%

Source: GSMA Intelligence. [Analysis to improve handset affordability](#).

Note: RF-Cellular and RF-Other refer to components that manage receiving and emitting of Radio Frequency (RF).

⁹ World Bank (2023). [Affordable devices for all](#)

¹⁰ GSMA Intelligence. (2024). [Analysis to improve handset affordability](#).



Remove sector-specific taxes and fees

Taxation has a direct impact on device affordability and should therefore be reduced. In LMICs, sector-specific taxes are often levied on top of general VAT and customs duties, disproportionately affecting underserved populations such as women, low-income individuals, and those in rural areas.¹¹ This treatment of handsets as luxury goods can hinder digital inclusion efforts and further entrench existing inequalities. Flat fees have a particularly regressive impact on the affordability of devices for individuals with the lowest incomes. To align with international best practices and promote equitable access, governments should consider the gradual elimination of sector-specific taxes on handsets. Such taxes not only place an undue burden on the most vulnerable members of society but also contradict broader digital inclusion objectives. Governments may also consider adjusting general sales or VAT taxes to further reduce handset costs. By harmonising tax policies with digital growth goals, governments can unlock sustained long-term benefits through increased connectivity and its positive impact on economic development.

Refrain from imposing barriers to incentivise local production

Local manufacturing, often focused on assembly rather than component production, may have several benefits including improving supply chain efficiency, generating export revenue and increasing jobs. However, some countries have implemented protectionist measures (including tariffs or restrictive licences) for the specific purpose of incentivising local production. Such measures can result in higher cost handsets and leave consumers worse off, especially when the local device industry is uncompetitive. Consumers either have to buy imported handsets that have become more expensive, or face uncompetitive domestic prices, limited choice and potentially lower device specifications.

It is important for governments to conduct thorough cost-benefit analyses and carefully balance competing interests, such as affordability and job creation, to ensure policies are effective and sustainable. Instead of imposing restrictions, governments could opt to implement policies that aim to attract or stimulate domestic or foreign investment in the local production of internet-enabled handsets.¹² These policies can take several forms, such as low-interest loans, credit guarantees, tax incentives (e.g. tax deferrals, credits or holidays) or other regulatory benefits. Attractive terms for investors should be part of a government's overall investment policy and be non-discriminatory and available on equal terms to all investors.

¹¹ GSMA. (2021). [Accelerating Mobile Internet Adoption](#).
¹² GSMA. (2021). [Accelerating Mobile Internet Adoption](#).



Increasing access to financing

Despite continued increases in access to financial services, many people living in LMICs remain underbanked and financially excluded, posing a challenge for consumers who may want or need to finance the cost of a handset. In addition to general financial inclusion policies¹³, the policy measures below should be considered.

Enable innovative financing mechanisms for handsets

Policies should facilitate instalment payment options for individuals who cannot afford upfront device purchases. Alternative credit assessments can significantly expand device ownership in LMICs where many lack traditional credit histories by unlocking access to credit and third-party device financing. For example, mobile operators can develop a proxy indicator of a person's creditworthiness by analysing mobile subscriber data. While regulatory caution is understandable, sector-specific restrictions that hinder mobile operators from responsibly developing alternative credit scores should be lifted. These approaches should prioritise user privacy and prevent over-indebtedness. Alternative credit scoring assessments should be officially recognised, for example through centralised credit bureaus, to allow a range of providers to improve access to financing.

Carefully consider remote locking for handsets while protecting consumers

Policies and regulations that recognise the benefits of remote locking while protecting consumers should be carefully considered. Many successful handset finance initiatives use the handset as collateral. This means when payments are overdue, the device can be locked remotely. Locking mechanisms can be customised to fully lock a handset, rendering it unusable, or gradually removing only certain desirable functionalities.¹⁴ While remote locking technology has enabled many providers to offer financing for internet-enabled handsets to low-income customers at higher risk of default for the first time, due to the reduced risk. Remote locking can also have negative consequences for end users, and in some countries is not allowed as it may conflict with consumer protection laws. However, taking a balanced approach, which includes transparency about when locking is applied, its consequences and ways for customers to unlock, could greatly increase the willingness of providers to offer such schemes to the underbanked and should therefore be carefully considered.

¹³ See also GSMA's Mobile Money programme and its [Mobile Money Policy and Regulatory Handbook](#)

¹⁴ GSMA. (2022). [Making internet-enabled phones more affordable in low- and middle-income countries](#).

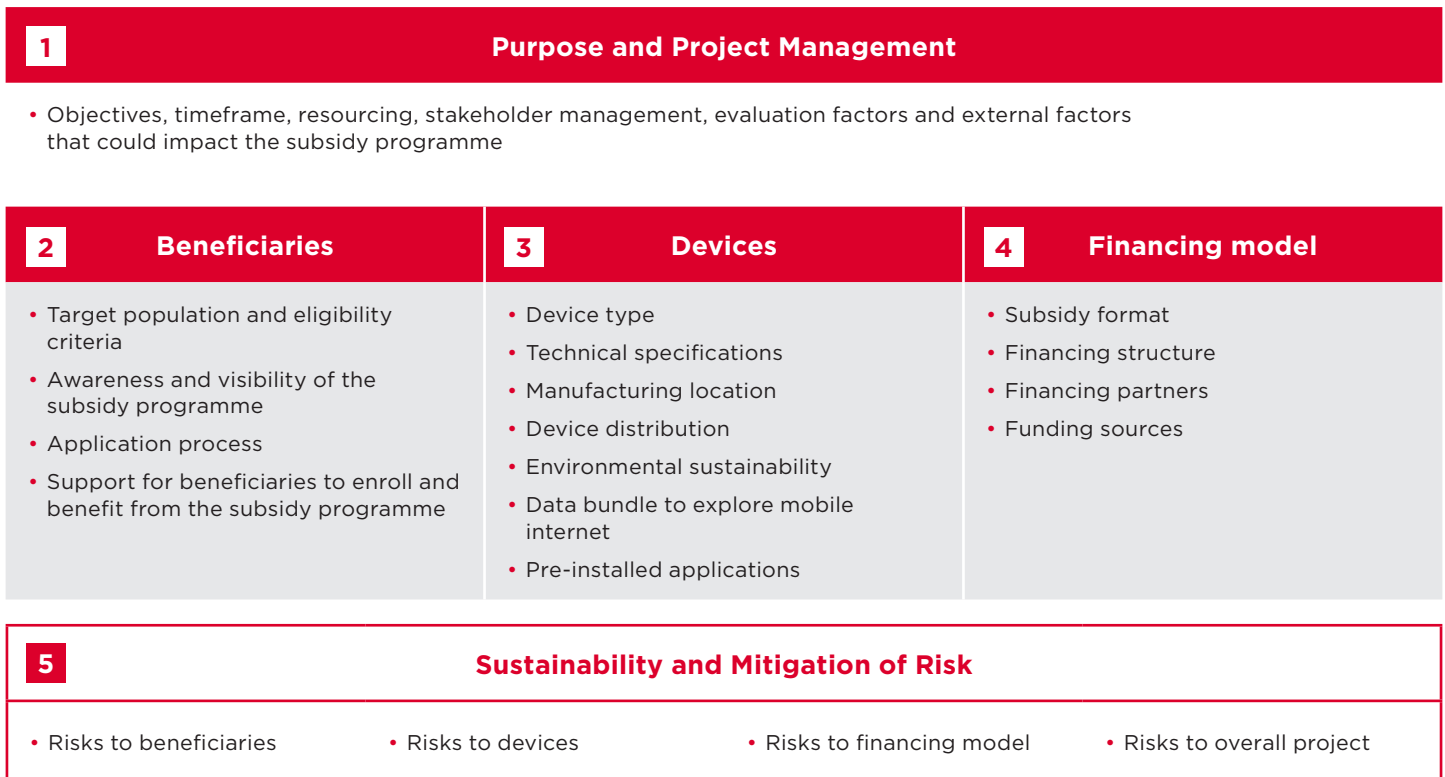
Engage in public-private partnerships to de-risk handset financing

Governments or other public partners can step in to take over part of the financing or credit default risk from private sector credit providers. When providing or structuring financing options to end-users, financial service providers consider risks, including default rates. These are often unknown, however, due to a lack of credit histories, especially of the underserved. Due to such unknown financial risks, financial service providers may not be willing to create handset financing options, even when such risks may never materialise. Governments or international partners can step in to take on some of the risk, providing more certainty to the financial service provider. This could take the form of a first-loss guarantee, for example, or taking on the risk above a certain default rate that the financial service provider deems feasible.

Partner with the industry to provide device subsidies for targeted user groups

Governments can opt to provide direct support to increase handset ownership or help people migrate from a basic phone to an internet-enabled handset through subsidies. Governments can partner with mobile operators or other players to carefully plan handset subsidies as these providers can provide helpful insights into potential beneficiaries, consumer preferences and user behaviour. Subsidy programmes are not always the solution to increasing handset affordability and should be considered as part of a wider range of policy measures covered in this brief. Moreover, to ensure devices stay in the hands of users, subsidy programmes should be accompanied by measures to address other barriers than handset affordability, such as digital skills initiatives. To support governments, the GSMA's Connected Society team has developed a comprehensive handset subsidy toolkit.¹⁵ This toolkit provides governments with a clear framework with key considerations for the implementation of successful subsidy schemes (Figure 3).

Figure 3
Handset Subsidy Toolkit Framework



Source: GSMA. Handset subsidy toolkit for governments

¹⁵ GSMA. (2023). [Empowering governments to design effective handset subsidy programmes with the GSMA's new toolkit.](#)



Improving willingness to pay

Address barriers to willingness to pay

The more value a customer perceives in a handset, the more likely they are to invest in one. Companies and other partners play a key role in promoting the value of handsets. Governments also have a role to play, by addressing barriers to mobile internet more broadly. This can include awareness campaigns on both the benefits and potential risks of using mobile internet and how to address them. Digital skills strategies on use cases that help targeted user segments meet their life goals and needs are also critical. Policies addressing safety and security concerns, including consumer protection regulation, may also help increase willingness to invest in a handset. Furthermore, governments can increase the perceived relevance of mobile internet through increased availability of local services by implementing policies that create an environment for digital businesses to thrive and to accelerate the digitisation of public services, including, for example, healthcare, education and social benefit schemes. There are many factors that come into play when addressing willingness to pay. These will vary greatly by country and should therefore be assessed in each market-context.¹⁶

Implement effective strategies to tackle handset theft and the trading of counterfeit devices

Stolen, fraudulent, and counterfeit handsets negatively impact consumers due to their poor quality, short life cycle, and association with criminal activities. Policymakers should work with the industry to prevent handset theft and the distribution and use of counterfeit devices. Monitoring and blocking irregular handsets through IMEI tracking can improve affordability by fostering consumer trust and encouraging investment in quality devices.

To support tackling theft, GSMA's Device Registry, which contains the IMEIs of devices flagged as lost or stolen by mobile operators, can help.¹⁷ When mobile operators detect a device connecting to their network that is registered in the registry's blocking list, they can deny network access to that device. Due to the complexity of counterfeit devices, global, multistakeholder solutions need to be developed. This involves manufacturers, custom agencies, regulators and others to track and understand the challenge, criminalise unauthorised alteration of IMEI, as well as engage in international device data-sharing initiatives.¹⁸

¹⁶ For a comprehensive overview of policies to address all main barriers to mobile internet adoption see GSMA (2021) [Accelerating Mobile Internet Adoption](#)

¹⁷ See also [GSMA Device Registry](#)

¹⁸ See also GSMA (2022) [Safety, privacy and security across the mobile ecosystem](#)



Private sector efforts to improve handset affordability

As part of efforts to improve handset affordability, mobile operators and others in the ecosystem are focusing on innovative ways to lowering the cost of handsets while also improving access to financing. Such efforts include¹⁹:

- **Smart feature phones:** Smart feature phones use lightweight operating systems and less expensive components, making them more affordable for first-time internet users. They are roughly twice as expensive as a basic phone, but ten times as cheap as a smartphone.
- **Customised smartphones:** Customising smartphones allows mobile operators and handset manufacturers to design devices to better meet customer needs in a specific market and optimise the cost of components by removing or tailoring device functionalities.
- **Reducing procurement, distribution and marketing costs:** Manufacturers and mobile operators are reducing handset costs through various efficiencies, such as pooled procurement, vertical integration, and direct sourcing. Partnerships between the mobile industry and last-mile distribution networks can also help reduce costs in rural areas.
- **Innovative financing options:** New credit scoring methods and handset locking mechanisms are making financing more accessible to underserved populations. Flexible and micro-payments are also unlocking more opportunities for the underserved, especially for those who earn income on a daily basis.
- **Circular economy principles:** Circular economy principles, such as buying back pre-owned phones and selling them (certified) at a discounted price, can also help lower the cost of handsets.

For more details on these and other efforts, please see the GSMA report [‘Making internet-enabled phones more affordable in low and middle-income countries’](#) as well as the [GSMA Handset Affordability Coalition](#).

¹⁹ GSMA Intelligence. (2024). [Analysis to improve handset affordability](#).

The GSMA is supporting governments, the industry and other partners to improve handset affordability

Recognising the importance of handset affordability as well as increased demand for support from a variety of stakeholders, the GSMA has strengthened its efforts on addressing this important issue.

The GSMA's [Connected Society](#) and [Connected Women](#) teams support governments, mobile operators, the wider mobile ecosystem and other partners on handset affordability through data and research, technical assistance, resources for project implementation, as well as through facilitating collaboration and knowledge exchange.

The GSMA has also established the [Handset Affordability Coalition](#), a global coalition which brings together key stakeholders to unlock partnerships and advance innovative solutions

to enhance handset affordability in LMICs.²⁰ Members include major global mobile operators, vendors, device ecosystem players, international organisations and financing institutions, such as the World Bank, the ITU and the WEF Edison Alliance. The coalition helps to assess multiple levers to reduce the cost of handsets and explore new solutions to de-risk financing mechanisms.

GSMA's Connected Society and Connected Women programmes are funded by UK International Development from the UK government and by the Swedish International Development Cooperation Agency (SIDA) and is supported by the GSMA and its members.

²⁰ More information: <https://www.gsma.com/solutions-and-impact/connectivity-for-good/external-affairs/home/gsma-handset-affordability-coalition/>

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For more support on handset affordability please visit www.gsma.com/connectedsociety or reach out to connectedsociety@gsma.com

