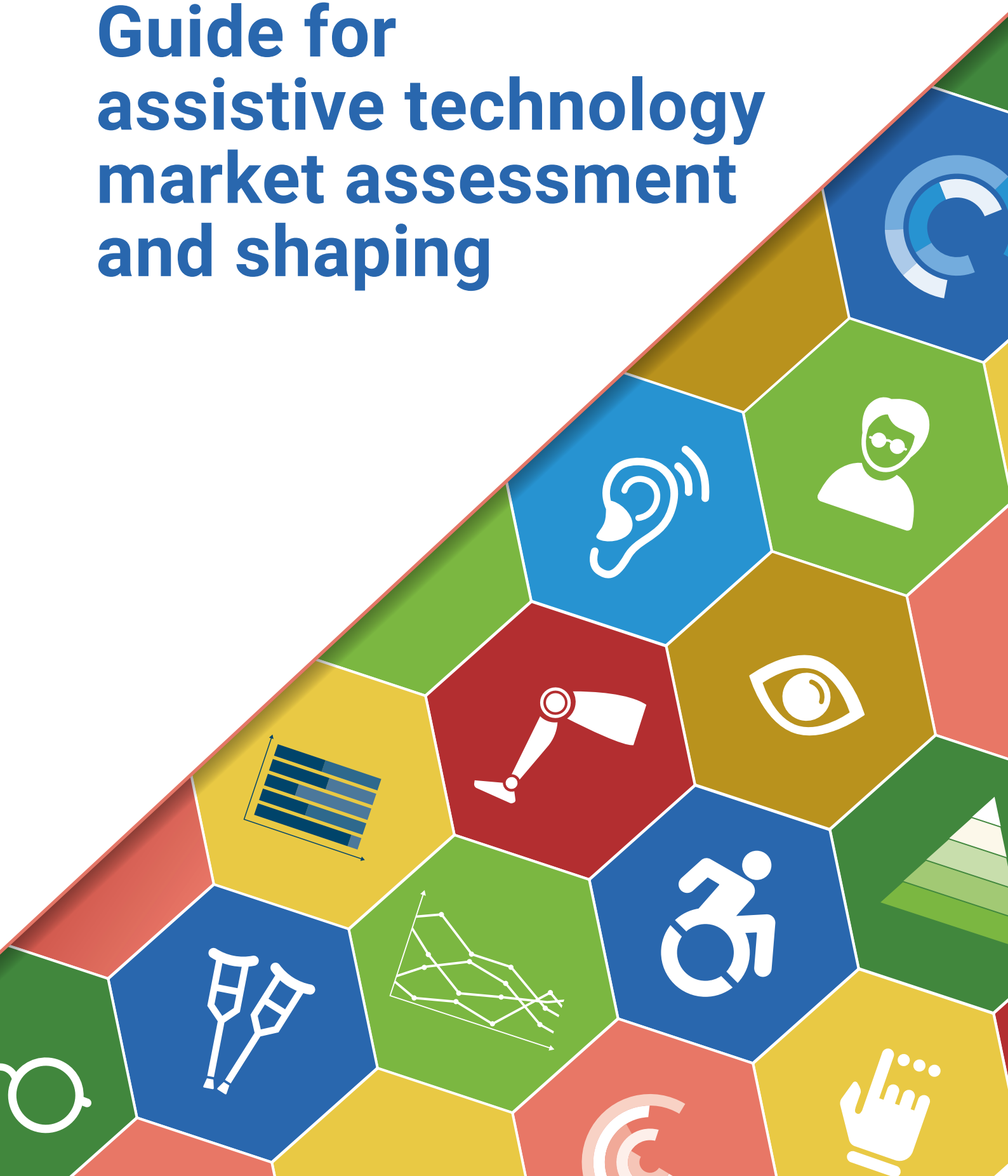
World Health Organization
European Region

Guide for assistive technology market assessment and shaping



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Abstract

This guide for assistive technology (AT) market assessment and shaping provides a comprehensive framework for understanding and improving the AT market. It outlines key concepts such as market conditions, externalities and stakeholders, and it aligns market considerations with the WHO-GATE 5P framework (people, policy, products, personnel, provision). The guide details a six-step approach to market shaping: identifying target markets, assessing market shortcomings, diagnosing root causes, identifying and prioritizing market-shaping options, implementing interventions, and monitoring and evaluating results. It emphasizes the importance of collaboration with the private sector and provides practical tools and resources for conducting market assessments. The guide aims to enhance access to AT by identifying market inefficiencies, and it recommends interventions aimed at reducing costs, increasing market information, balancing demand and supply, and improving access to finance. It is intended for stakeholders at national, regional and international levels, including governments, civil society, the private sector and intergovernmental agencies.

Keywords

SELF-HELP DEVICES, AGING, PERSONS WITH DISABILITY

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Abbreviations

5P (framework)	people, policy, products, personnel, and provision
AT	assistive technology
ATA-C	WHO assistive technology capacity assessment
EU	European Union
GATE	Global Cooperation on Assistive Technology initiative
Gavi	Gavi, the Vaccine Alliance
M&E	monitoring and evaluation
PESTEL	political, economic, social, technological, environmental and legal (analysis)
rATA	WHO rapid assistive technology assessment
SWOT	strengths, weakness, opportunities and threats (analysis)
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Glossary of key terms

Assistive product. Any external product (including devices, equipment, instruments or software) specially produced or generally available for the primary purpose of maintaining or improving an individual's functioning and independence, thereby promoting their well-being. Assistive products are also used to prevent impairments and secondary health conditions.

Assistive technology. An umbrella term for assistive products and their related systems and services.

Buyer. A buyer, whether an individual, business, government, institution or programme, seeks to procure necessary goods and services.

Externality. Unintended side-effects or impact of economic activity on a third party, such as a cost or benefit. Externalities can be either positive or negative.

Manufacturer. A company that produces finished products from raw materials, using various tools, equipment and processes, for the purpose of selling to consumers, wholesalers, distributors or retailers.

Market. A market is an economic system that comprises the investment, production, distribution and pricing of goods and services, led by the supply and demand from businesses and individuals. It plays a critical role in delivering and supplying products and services to communities, where buyers and suppliers exchange these.

Market shaping. This is a strategic approach or intervention that influences the structure and dynamics of a market, such as enhancing a specific market attribute or increasing the overall health of a market.

Oligopoly. An oligopoly is a market condition that arises when several companies or producers exert significant control over a given market. This is in contrast to a monopoly or duopoly, which refers to one or two companies/producers, respectively.

Producer. A producer is a type of supplier that produces products or product components (similar to a manufacturer) but tends to offer a wider engagement range and additional services, such as marketing, sales and promotion. It also carries branded products.

Retailer. A retailer does not produce products but is typically a vendor who sources products from manufacturers, suppliers or wholesalers, but at smaller volumes. The business model is based on trading, buying high volumes at low prices and selling small quantities at higher prices.

Service provider. An individual or organization that provides necessary services in the assistive technology provision process, including selection, fit, training and follow-up for assistive products.

Substantiated demand. Substantiated demand is the potential size of a market given that expected volumes and values are realized, considering available programmatic financing, funding or government budget and the potential for scale-up.

Supplier. A supplier, whether an entrepreneur or local, regional or global business, offers and provides products and services and seeks to make a return on the products and services supplied.

Wholesaler. A wholesaler is a type of supplier that purchases goods in bulk or large volumes at low discount prices from manufacturers and producers. Wholesalers often resell to smaller suppliers or retailers.

Executive summary

This guide to assistive technology (AT) market assessment and shaping is an informative tool that helps readers to understand the AT market and apply market assessment and shaping concepts within their own national, regional and subregional contexts. Assessing and shaping AT markets is essential to ensure that people who need assistive products have access to affordable, high-quality products that improve their daily lives. Market assessment helps to identify gaps in availability and affordability and innovation, thus enabling policy-makers and organizations to address these challenges effectively. Through the application of interventions which help to shape these markets, governments and stakeholders can promote inclusive policies, encourage competition and drive advancements that make AT more accessible and impactful.

This guide is, therefore, intended for national, subregional, and regional authorities as well as international stakeholders, including WHO country offices, civil society, governments, intergovernmental agencies and partners engaged in scaling up access to AT, including assistive products and related policies, systems, and services.

This guide outlines (i) what, broadly, the AT market is; (ii) what market assessment and shaping are; and (iii) what steps are recommended for carrying out an AT market assessment and market shaping intervention. Market shaping is defined as a strategic approach or intervention that influences the structure and dynamics of a market, such as enhancing a specific market attribute or increasing the overall health of a market. The ambition of market shaping, in this context, is to build healthy markets in areas with limited access to quality, affordable assistive products.

The guide draws from a body of successful market shaping strategies (which have been adapted for use and applied to the AT market) and is informed by the WHO Global Cooperation on Assistive Technology initiative and its 5P framework (people, policy, products, personnel, provision).

Background information on market shaping

Market shaping is a strategic approach that aims to influence the structure and dynamics of a market to improve its overall health and functionality. It involves identifying market shortcomings, diagnosing their root causes and implementing interventions to address these issues. The goal is to create a market environment where products and services are accessible, affordable and of high quality. Market shaping can lead to improvements in existing products and services, the development of new products and the strengthening of local and regional capacities.

Market stakeholders

Market stakeholders play a crucial role in shaping the AT market. They include:

- **suppliers and manufacturers**: these entities produce and distribute assistive products; their engagement is essential for ensuring a steady supply of high-quality products;
- **product users**: individuals who use assistive products and their representative organizations provide valuable insights into user needs and preferences;
- **procurement agents**: these agents facilitate the acquisition of assistive products and ensure that procurement processes are efficient and transparent;
- **technical specialists**: experts in market analysis, product development and service provision contribute to the design and implementation of market shaping interventions;
- **service providers**: organizations that offer services related to the fitting, maintenance and repair of assistive products play a key role in ensuring product usability and user satisfaction; and
- **government and civil society organizations**: these stakeholders develop policies, advocate for market improvements and support the implementation of market shaping interventions.

Collaboration among these stakeholders is essential to create well-functioning markets that improve public health outcomes.

The guide framework and actionable steps

This guide's framework and actionable steps provide a strategic approach to AT market assessment and shaping, modelled on existing approaches to healthy markets by key global partners engaged in the health sector. Users will learn to identify product markets; assess market shortcomings and identify their root causes; locate and prioritize market shaping options; implement interventions; and monitor and evaluate their outcomes.

For any effective market shaping engagement, collaboration with the private sector as a partner is crucial. This is essential as these private sector entities understand the market context and the risks. This guide emphasizes the importance of partnerships between government, civil society and the private sector to achieve programmatic objectives and improve market outcomes.

Approach to market shaping

The guide outlines a six-step approach to market shaping.

Table 1. Six steps to market shaping

1.	**Identify target markets.** This includes determining which segments of the AT market to focus on, considering the entire value chain from product supply to services such as fitting, care, maintenance and repair.
2.	**Assess market shortcomings.** A comprehensive market assessment should be conducted to identify gaps in availability, affordability and innovation. This involves conducting research, mapping stakeholders, understanding demand and supply, establishing costs, and visualizing demand.
3.	**Diagnose root causes.** The root causes of market shortcomings can be identified through in-depth questioning and analysis. This approach will help to understand what needs to happen to address challenges for both supply and demand.
4.	**Identify and prioritize market shaping options.** Tools such as the SWOT (strengths, weaknesses, opportunities and threats) and PESTEL (political, economic, social, technological, environmental and legal) analyses can be used to inform strategic planning and outline actions.
5.	**Implement interventions**: Market shaping interventions can then be designed and implemented that are collaborative, adaptable and sustainable. These interventions should address specific misalignments in the market and consider trade-offs to balance desirable and undesirable market characteristics.
6.	**Monitor and evaluate the results.** Assessing the impact of market shaping interventions using monitoring and evaluating methods will help to ensure the interventions are achieving the desired outcomes. This involves tracking changes in key market characteristics and measuring progress towards universal AT coverage.

Recent assessments and context sensitivity

The guide benefits from recent market shaping assessments carried out in Azerbaijan, Georgia and Tajikistan as part of a WHO European Region project funded by ATscale in consultation with WHO country offices and stakeholders. While every attempt has been made to be as comprehensive as possible, not all steps and options are required in all instances as the market shaping process is sensitive to national contexts and their unique market considerations. Readers should consider that there may be different approaches to market shaping, and the limitations of this guide as it has been developed based on three countries with differing context and socioeconomic status.

How to apply this guide

This guide can be applied by stakeholders at various levels to improve the AT market within their specific contexts. National and regional governments can use the guide to develop policies and strategies that enhance access to assistive products. Civil society organizations can leverage the guide to advocate for better market conditions and support the implementation of market shaping interventions. Private sector entities can collaborate with other stakeholders to identify market opportunities and contribute to the development of sustainable and competitive markets. Intergovernmental agencies can use the guide to align their efforts with global initiatives and support countries in their market shaping endeavours.

Conclusion

This guide provides a strategic approach to AT market assessment and shaping, emphasizing the importance of collaboration, evidence-informed decision-making and sustainability. By following the six-step approach, stakeholders can improve access to affordable, high-quality assistive products and services, ultimately enhancing the lives of people who need AT.

Introduction

Assessing and shaping assistive technology (AT) markets is essential to ensure that people who need assistive products have access to affordable and high-quality products that improve their daily lives. Market assessment helps to identify gaps in availability, affordability and innovation, enabling policy-makers and organizations to address these challenges effectively. Through the application of interventions which help to shape these markets, governments and stakeholders can promote inclusive policies, encourage competition and drive advancements that make AT more accessible and impactful.

A healthy market benefits from information transparency, collaboration and cooperation, stable economic conditions, balanced supply and demand, fair competition, access to capital, and robust regulations. Unhealthy markets, common in many countries where communities struggle to access assistive products, suffer from limited product availability, high prices, insufficient supplier capacity and a fragmented supplier base. Market shaping aims to address market inefficiencies by reducing prices, increasing quality, increasing market information, strengthening access to local and international markets, and mitigating risks for suppliers and buyers. Successful strategies can include sharing market information, planning and pooling data on procurement, setting up procurement consortiums, offering volume guarantees, designing tender strategies and mapping cost-effective supply chains and sources of origin.

Market shaping strategies have been effectively applied in other contexts, including in the procurement and distribution of vaccines. However, the AT sector has specific challenges and best practice parameters, necessitating a unique approach to AT market shaping. This document highlights some of the specific issues relevant to the AT sector.

AT is used to assist in maintaining or improving an individual's functioning, whether related to cognition, communication, hearing, mobility, self-care or vision, among others, thus enabling and empowering their health, well-being, inclusion and active participation in society *(1,2)*. According to the *Global report on assistive technology (1)*, only one in 10 people globally who need AT has access to appropriate products. AT may be used by older people, people with disabilities and those with specific health conditions, including mental health conditions.

The AT market (Box 1) is very diverse and encompasses a range of different markets and a range of assistive products supporting functional limitations across the communication, cognition, hearing, mobility, self-care and vision domains. As such, market shaping approaches need to be tailored to the range of assistive products needed, such as hearing aids, wheelchairs, prosthetics, and orthoses, due to their specific technical and service provision needs. Consequently, market shaping for assistive products must carefully consider the needs of users and potential users, as well as sustainability and long-term investments, rather than just increasing access to product volumes or price reductions.

The market for assistive products and related services can have many shortcomings. Access to both basic and more specialized products and services is often limited; their supply and demand is fragmented, with demand often being uncertain, not accurately quantified and based on surveys. The communities that need assistive products are not always visible and may be historically marginalized or excluded. There are often few suppliers equipped with the knowledge and expertise to offer quality products, and, in many instances, there are inadequate or non-existent national regulatory standards and delays in regulatory approval.

BOX 1.

The market for assistive products (APs)

The market for assistive products is primarily not a single market but a combination of distinct markets. For example, the markets for hearing aids, wheelchairs, prosthetics and orthotics have little in common. Even though the needs of users may overlap, each product market has different manufacturers, production processes, technical requirements, products, product specifications and service requirements. Products also require highly skilled technical expertise, which drastically differs according to each product.

Other types of product can often be mass produced, defined, standardized, listed in catalogues and tendered through procurement, thus using volumes to leverage pricing and scale up. This is not the case for assistive products. They also differ from other medical products in that they are often bulky, requiring considerable space to store a sufficient range of products to suit general population needs, with even more space required to meet complex needs. The size of assistive products and the need for customization require substantial consideration of both storage and distribution requirements.

In many instances, assistive products are tailored to fit individual needs, which may change or fluctuate across time; consequently, it is essential that provision is centred on the needs of the person. It is also critical that people have choices, both in terms of the product and the supplier. Any approach to market shaping for assistive products must address user needs, such as service requirements and the capacity of service providers. Without addressing user needs, any product, and any volumes of product, will not address identified shortcomings in the market.

There is generally low awareness and understanding of the latest available technologies, both by end-users and service providers. The specific needs of individuals in these communities must be assessed and mapped, including by the health, education and social care service systems, and accommodated by policies and an enabled workforce. This is often the cause and the result of low and inappropriate supply, low returns on investment, low capital investment, limited competition and high prices. Out-of-pocket expenses typically far exceed an AT user's ability to pay, perpetuating the constant cycle of low demand and low supply. Reducing costs is a driver for financial protection, which is at the core of universal health coverage.

Market shaping has successfully improved segments of health care across many essential health products globally and regionally. Approaches to market shaping draw on lessons learned from the tools and approaches developed by the Bill and Melinda Gates Foundation, Gavi, the Vaccine Alliance (Gavi), Unitaid (a global health initiative), United Nations Children's Fund (UNICEF) *(3)*, the United States Agency for International Development (USAID) *(4)* and WHO, with notable examples over the past decade on engagement in immunization *(5)*, nutrition, pharmaceuticals, health technology and supply chain strengthening (use of drones for last-mile delivery) *(6,7)*.

Market shaping has successfully increased the availability and affordability of products for underserved communities that previously had unmet needs. Results have shown that the prices donors and low- and middle-income countries pay for key childhood vaccines, antiretroviral drugs for HIV and bed nets for malaria prevention can be brought down significantly, often by more than half. The availability and access to supplies have been increased by addressing issues and challenges in diversifying suppliers; reducing single sourcing; lowering pricing; influencing and promoting local production; nurturing product adaptation and innovation; and securing greater engagement by the private sector to bring and contribute to solutions, while also broadening its understanding of supply chain strengthening issues, needs and enabling access.

Production of this guide has benefited from recent market shaping assessments in Azerbaijan, Georgia and Tajikistan as part of a WHO Europe project funded by ATscale *(8)* in consultation with WHO country offices and stakeholders.

Background

The WHO Global Cooperation on Assistive Technology initiative

WHO uses various frameworks to guide the development and implementation of health programmes and to guide strategic thinking regarding policy and programme development. Through the Global Cooperation on Assistive Technology initiative (GATE), WHO developed a framework (Fig. 1.) to address the need for AT *(9)*. This framework is a strategic approach that can be applied to structure health programmes comprehensively within the context of universal health coverage. The approach focuses on the GATE-5P framework (people, policy, products, personnel and provision) *(10)*.

Fig. 1. The GATE-5P framework

Source: WHO *(1)*

People. The inclusion of people at the centre of the framework emphasizes the needs, rights and empowerment of individuals with disabilities by engaging people who need AT in decision-making processes. Governments should enact programmes that raise awareness, reduce the stigma associated with assistive product use, and ensure community involvement and support networks for individuals who use assistive products.

Policy. Governments are encouraged to develop and implement policies that promote access to AT and enforce laws and regulations that protect the rights of people who need and use AT. Policies should include mechanisms for monitoring and evaluation (M&E) their impact on the health and well-being of users of assistive products.

Products. Governments are encouraged to support the development and distribution of assistive products to ensure that products meet quality standards and are affordable, in order to make products accessible to all. It is incumbent on governments to ensure the availability and accessibility of assistive products and related products in the market (through market shaping).

Personnel. Governments and educational institutions have a responsibility to train and support health and social care providers to provide appropriate assistive products and related services by developing training programmes and curricula on assistive product provision. Personnel considerations should also include the use of interdisciplinary teams to provide comprehensive care for assistive product users, as well as professional development and continuing education relating to AT.

Provision. Assistive products must be provided with comprehensive services, including selection, fit, use and follow-up. Provision systems should be inclusive, accessible and equitable, through the implementation of inclusive and accessible health and social care service delivery models. Addressing these needs includes focusing on increasing the strength of primary health-care provision and ensuring the continuity of care through integrated service provision and coordination across different sectors.

What is a market?

A market is an economic system that comprises the investment, production, distribution and pricing of goods and services led by supply and demand from businesses and individuals *(11)*. It plays a critical role in delivering and supplying products and services to communities, where buyers and suppliers exchange these goods and services. A buyer, whether an individual, a business, a government, an institution or a programme, seeks to procure necessary goods and services. A supplier, whether an entrepreneur or a local, regional or global business, offers and provides these products and services and seeks to make a return on the products and services supplied.

For buyers in a market, the products and services must be affordable, meet a buyer's preferences and be of good enough quality to meet their needs. For suppliers, there needs to be enough demand from buyers to secure a sufficient return on their investment. The business environment needs to be conducive to support meeting the needs of both the buyers and suppliers.

There are two sides to a market: a **demand** side and a **supply** side. The price of market transactions must satisfy both the buyer and the seller, corresponding to supply and demand. The interactions between supply, demand and price in a free marketplace cannot function without all three areas being effective.

A government has a critical role within a market to develop and support necessary regulations and establish relevant legislative frameworks to foster a healthy demand and supply, as well as a buyer and seller relationship to ensure effective market outcomes. The role of government includes developing regulations to govern fair market competition among providers, ensuring reasonable pricing structures, regulating the availability of appropriate and high-quality equivalent products and implementing effective fiscal policies, among other aspects.

Market conditions

Several key market determinants within a wider business environment influence a market and its buyers and suppliers. Examining market attributes can identify shortcomings or opportunities when it comes to the market for a specific assistive product. A well-functioning market is one in which buyers have access to affordable, acceptable and high-quality products and services that meet their needs, provided by suppliers who operate in a sustainable and competitive environment (Table 2).

Market health is primarily determined by stable conditions, which in turn shape market attributes: both healthy and unhealthy (Table 2). For example, the stability of economic factors, such as inflation and interest rates, impacts the affordability and accessibility of capital, financial services and infrastructure. A second example is a stable political context, such as clear and transparent market regulations, laws, policies and trade rules, and accessible market information and data and access to business licences. A well-functioning national and international supply chain and distribution network system, access to primary products, services, raw materials and balanced supply and demand also bolster market conditions, leading to fair competition and steady consumer confidence.

Table 2. AT market determinants

Determinant	Characteristics
Acceptability/utilization	The extent to which available products or services meet the end-user needs, norms, choice and ease of use
Affordability	The extent to which prices are affordable, including for those below the poverty line
Availability	The capacity and reliability of supply to meet demand at points of service delivery
Competition	The level of competition/product choice from suppliers to sustain supply; includes consideration of whether the market is dominated by a single source or group of suppliers that dictate market dynamics and operations
Delivery	Whether the supply chain/distribution system and delivery capacity is cost–effective and efficient; includes the need for specialized services, warehousing and last-mile delivery
Finance	Whether long-term and reliable funding or access to financing is available and sufficiently covers the needs
Quality	Whether products are consistently safe and effective, with reference to standard measures of quality, control and criteria, technical specifications, good manufacturing practices; with recognized national regulatory authority approval
Coverage	The extent to which supply equitably meets the needs

Table 3. Healthy and unhealthy market attributes

	Unhealthy attributes	Healthy attributes
Diversity of suppliers	Not enough suppliers for essential products and services	Sufficient suppliers for essential products and services
Quality standards	No established national reference quality standards in country of use	Transparent national reference quality standards that are consistently enforced
Distribution	Suppliers are not able to distribute their products to end-users	Stable supply chain with established contingency plan for potential disruptions or instabilities
Quality	Products and services are of low quality	Products and services are of high quality, durability and safety
Materials	Raw materials unaffordable and subject to high price volatility	Access to affordable primary products, services and raw materials
Price	Prices too high for buyers to afford	Product pricing is accessible for buyers and/or end-users to afford
Market opportunities	Suppliers find it hard to enter or expand in the market and grow	Accessible capital, financial services and infrastructure for suppliers to enter and/or expand in the market
Need and demand	Suppliers offering products that are not attractive or of interest to buyers	Suppliers offering products that meet buyer needs

If any business environment condition is not right (unhealthy), it can form barriers for the private sector to operate, expand or enter a given market. As a result, suppliers may be discouraged from participating in the market, resulting in limited access to any of the market's potential products and services. This could make markets uncompetitive and can lead to the creation of single-source suppliers, monopolies, duopolies or oligopolies. A monopoly and duopoly are market structures consisting of a single or pair, respectively, of seller(s) or producer(s), while an oligopoly is when a few companies exert significant control over a given market.

Other factors that hinder market health include poor competition; weak demand; high taxes; broken infrastructure; difficult transport, logistics and distribution networks; limited access to capital or raw materials; and the presence of inappropriate products.

Unfortunately, local markets for some products and services can be unhealthy. This means that the appropriate products and services are not readily available for those who need them, especially the marginalized. Products may not be affordable or in limited supply, or, in some instances, may not be available at all at the required quality and price.

Sometimes products and services are available in other countries, but it is not sustainable or cost–effective for a supplier to import them, and the operating environment does not allow new suppliers to enter the market. This results in limited access to any products and services. If there are low volumes of sales and revenue, suppliers will not make a return on their investment and consequently will not increase, stock or supply sufficient inventory.

In addition, if suppliers lack the capacity, skills, product knowledge or financial means to expand their businesses, they cannot expand their product and service offerings to meet the needs of the buyers who need them. For example, there is a wide variety of wheelchairs available on the global market. However, in many low- and middle-income countries, there are high costs associated with importation of these products, and there is limited demand (despite a high level of need) in the absence of robust social and health policies that fund reimbursement for these products. Consequently, suppliers are unable to stock the necessary volume or variety of products to meet the population's need.

A healthy market

A healthy market requires defined rules to ensure products and services are of good quality, such as quality standards established by a participating government and manufacturers to produce and supply products within these quality standards (Boxes 2 and 3).

BOX 2.

Quality standards

Some countries lack national AT quality reference standards against which to assess a product, price or service. As a result, not all products and services that are available and being provided to users are of equal standards, such as for quality or affordability. Measuring the costs and implementation of a product or programme against reference standards and specifications is essential.

Comparing a cost against a predetermined assistive products standard identifies market discrepancies and variance, enabling owners or those with oversight responsibility to identify areas where standards or costs exceed or fail to meet expected outcomes; corrective actions can then be taken to control or adjust programme implementation and expenses. Standards also serve as benchmarks for budgeting and forecasting. By aligning actual costs with established standards, all stakeholders can more accurately predict future expenses and allocate resources more effectively. Evaluating costs against standards enables stakeholders to assess efficiency and performance and include quality criteria that products must meet.

For example, the International Organization for Standardization (see Box 3) lists 47 standards for wheelchairs, covering all aspects of design and dimensions *(12)*. Applying minimum quality standards would likely increase the cost of some products, including those locally produced. Another important consideration is the European Union (EU) guidance on medical devices, which includes some assistive products, notably wheelchairs and mobility aids *(13)*. These must comply with the European Directive for medical devices 93/42/EEC *(14)*, meaning these products can only be marketed if they fulfil the essential requirements (Annex 1 of the Directive).

BOX 3.

The International Organization for Standardization

The International Organization for Standardization was established in 1946 and sets the international standards on an agreed best way of doing things, whether making a product or managing a process. International standards ensure that the products and services are safe, reliable and of high quality, and guide businesses in adopting sustainable and ethical practices *(15)*.

In 2015, Gavi and the Bill and Melinda Gates Foundation, together with WHO and UNICEF and alliance partners, developed what they called the healthy markets framework *(16,17)*. It was designed to make vaccines and other immunization products more accessible and affordable for low-income countries. It aimed at addressing several market-related issues, including uncertain funding and uncertain demand, which are two main reasons why suppliers lack incentive to prioritize access to existing products in underserved communities or to reduce costs for low- and middle-income countries. These issues have contributed to the long time-lag between when a product is available in high-income countries and when it becomes accessible in lower-income countries. The same basic premise exists for assistive products and related services.

Market health also involves enhancing access to financial support for businesses (including product suppliers) in order to establish them and to help them to grow. Finally, a healthy market also needs to ensure buyers (either individuals or third-party payers) can afford essential products and services and that end-users can access these products and related services. To understand whether a market is healthy or unhealthy, a market assessment and diagnosis of the root causes of any market shortcomings need to be performed. This will identify the types of intervention that can improve market health and, ultimately, increase access to products and services.

Using a healthy market framework (visualized in Fig. 2) helps to structure and coordinate discussions with key stakeholders to arrive at a coherent approach. The concepts in this framework address the position of a market at a specific point in time with respect to concepts of demand and supply, including higher-level concepts relating to product supply and competition. Each of the concepts in the framework are written as targets to demonstrate what can be achieved within a healthy market. It helps all involved to understand market capacity, challenges, risk factors and issues, and to proactively plan supply requirements based on known demands and investments. A health market framework also ensures that end-users can access and afford to buy appropriate products and services at an appropriate price.

Fig. 2. The healthy market framework (a) and the example from the market assessment in Tajikistan (b)

Fig 2 (a) Basic framework

Fig 2 (b) Results of the Tajikistan assessment

Source: adapted from UNICEF *(3)*.

The healthy market framework is used in a bottom-up direction with a traffic light system to differentiate the quality of the different market attributes. Supplier risk (depicted in tier 4 in Fig. 2) refers to the potential disruption or negative impact on a business's operations, profitability or reputation through issues or challenges related to its suppliers. These risks can arise from various factors, including supply chain disruption, quality and performance issues, financial instability, geopolitical and regulatory risks, and/or reputational risks. Table 4 summarizes supplier risks and the strategies to manage each risk proactively.

A supply chain disruption is any event that interrupts the flow of goods or services from suppliers and can pose a risk. This could include breaks in the pipeline due natural disasters, geopolitical instability, transportation disruptions or supplier bankruptcies. For example, changes in regulations or trade policies, or geopolitical tensions, can affect the ability of suppliers to operate efficiently or can impact the cost and availability of goods and services.

This links to the risk factor of financial instability, such as liquidity issues or bankruptcy, where suppliers may struggle to fulfil orders or maintain consistent pricing, thus impacting the buying company's operations and financial health. Quality and performance issue risks involve suppliers failing to meet quality standards or to deliver products or services that meet specifications. Consequentially, quality and performance issues can lead to product defects, recalls, or customer dissatisfaction.

A final supplier risk to consider is reputational risk through supplier misconduct or unethical practices, such as labour violations or environmental pollution, which negatively impact the buying company's reputation and can lead to damaged brand image and loss of consumer trust.

Managing supplier risk is an important aspect of improving market health. By proactively identifying and addressing supplier risks, companies can strengthen their resilience, protect their interests and maintain continuity in their operations. For example, conducting thorough assessments of potential suppliers to ensure they meet quality, reliability and compliance standards and working with multiple suppliers to reduce dependency on any single source ensures market diversification and mitigates the impact of disruptions.

Table 4. Examples of supplier risk and strategies to manage them

	Risk	Managing strategies
	**Supply chain disruptions**	• Monitor supplier performance, supply chain dynamics, and potential risk factors in real-time • Diversification of suppliers to reduce dependency on any single source and mitigate the impact of disruptions
	**Financial instability**	• Contractual protections of performance metrics • Dispute resolution mechanisms • Contingency plans for managing disruptions to reduce financial risk
	**Geopolitical and regulatory risks**	• Create risk mitigation plans: contingency plans or alternative sourcing or shipping strategies to address potential disruptions and minimize their impact on operations
	**Quality and performance issues**	• Evaluate and select suppliers based on whether they meet quality, reliability and compliance standards
	**Reputational risks**	• Evaluate and select suppliers based on reputation and ethical conduct, such as adherence to quality standards, labour legislation and environmental practices

Developing contingency plans and alternative sourcing strategies to address potential disruptions can minimize their impact on operations. Implementing systems to track and monitor supplier performance and supply chain dynamics supports real-time identification of potential risk factors. Finally, negotiating contracts with clear terms, including performance metrics and dispute resolution mechanisms are recommended actions.

Externalities

An externality refers to the unintended side-effects or impact of economic activity on a third party, such as a cost or benefit affecting a third party who did not choose it. Externalities can be either positive or negative, but the focus is typically on negative externalities, such as the overuse of public resources, social harms or poor health outcomes.

Factors that minimize the incidence of externalities include transparent and effective regulations and standards that are consistently enforced; stakeholder engagement; incentives and penalties; economic instruments and impact assessments; and technological innovation.

As discussed above in the section on market health, stability is a healthy market attribute; consequently, a stable regulatory framework can keep negative externalities at a minimum by enforcing clear rules and regulations. Market regulations should be well defined, address specific externalities and be evidence-informed from scientific and economic principles. Regulatory agencies must consistently enforce regulations without bias and include regular monitoring and inspection to ensure compliance. Incentives may be implemented for compliance and innovation in reducing externalities, such as tax breaks or business subsidies. Similarly, penalties may also be established for noncompliance, which could include fines, sanctions or other legal actions.

Additionally, it is recommended that stakeholders engage with businesses, communities and subject matter experts to design and update regulations. Transparent processes for stakeholder input help improve regulation quality and compliance. Economic instruments, such as taxes, subsidies and trading schemes, may be used to internalize externalities, while the cost of negative externalities should be reflected in the price of goods and services (Box 4).

BOX 4.

Examples of minimizing externalities under a stable regulatory framework

Environmental regulations. Ideally, these should cover the whole of a product's life-cycle. The EU's Waste Framework Directive is a comprehensive legislation on waste management, including recycling *(18)*. It sets recycling targets for Member States and establishes a waste hierarchy, which prioritizes prevention, reuse, recycling and other recovery methods. It introduces the Extended Producer Responsibility, making producers responsible for the entire life-cycle of their products, including take-back and recycling.

Quality standards and associated regulations. National standards should be developed, and appropriate regulations should be implemented to ensure that products are safe for use and minimize secondary health risks caused by ill-fitting or inappropriate assistive products.

Economic regulations. Anti-trust laws prevent monopolies and promote competition, thereby preventing market abuses and inefficiencies within a market. Financial regulations should ensure stability and transparency in financial markets, protecting assistive product users and the economy.

Promoting and supporting the adoption of new technologies can reduce negative externalities. Technological innovation may be encouraged through research and development grants, subsidies, and other support. To foster environmental protection, public health and social well-being, it is necessary to set and enforce environmental and social standards that are updated regularly to reflect new scientific knowledge and societal values. Conducting thorough impact assessments before implementing new regulations helps to understand potential externalities. Regulations must be evaluated and adjusted on an ongoing basis to ensure their effectiveness.

Stable regulations provide a predictable environment in which businesses can operate and innovate. Minimizing negative externalities under a stable regulatory framework involves comprehensive, well-enforced regulations that effectively manage any unintended side-effects of economic activity. This leads to improved public health, environmental protection, economic efficiency and social welfare, and it is where market shaping can contribute.

There are several benefits of having minimal externalities under a stable regulatory framework. First, it can lead to improved public health and safety, such as safety standards leading to safer products, reduced health hazards and better health outcomes. Secondly, minimizing externalities can bolster environmental protection through effective regulations for proper disposal of recyclable products and sustainability of reusable resources, and ultimately can lead to cost savings. Thirdly, economic efficiency can be improved by internalizing externalities, enabling resources to be allocated more efficiently and leading to better economic outcomes. Lastly, the overarching benefits of reduced externalities within the AT market are improved equity and access to AT and enhanced overall quality of life. Equitable regulations ensure that the benefits and costs of economic activities are fairly distributed.

Market shaping

Throughout this guide, market shaping is referred to as a strategic approach or intervention that influences the structure and dynamics of a market, such as enhancing a specific market attribute or increasing its overall health (whereas market assessment is the analysis of a specific market or market segmentation, and so is a component of market shaping).

In the context of the AT market, the aim of market shaping is for a broader social purpose: to make assistive products and services more accessible to those who need them. Market shaping seeks to improve overall market health, enhance specific market attributes and/or reduce market shortcomings. In markets that do not function well, a market shaping approach can enable the diagnosis of root causes of market shortcomings and identify interventions to improve the market. Market shaping for the AT market can help to ensure users have equitable access to affordable assistive products and services that are safe, durable, high quality and fit for purpose.

Market shaping involves analysing the market to identify any shortcomings: that is, any unhealthy market attributes that can be improved. Once the root causes of market shortcomings are identified, interventions to improve market health can be implemented (Figure 4 in Step 3, below, visualizes the root cause analysis pathway).

Broadly, the impact of market shaping could result in improvements to existing products and services (such as lower cost or higher quality), the development and scaling up of new products to better meet programmatic needs, or the building of regional capacity to sustain development (such as local manufacturing of products).

Successful examples of market shaping interventions include pooling and visual on-demand procurement; de-risking market demand through volume guarantees; achieving lower costs through tender strategies; diversifying the number of source manufacturers; articulating demand forecasts and accuracy; standardizing product specifications; establishing differential pricing agreements; offering innovative financing options; improving service delivery; and strengthening supply chains.

Efforts to influence the AT market also support governments in advancing their commitments to the Sustainable Development Goals, particularly Goal 3 (ensure healthy lives and promote well-being for all at all ages), universal health coverage and the United Nations Convention on the Rights of Persons with Disabilities, and in governments' efforts to address social, economic and environmental considerations. Global targets place a strong emphasis on accessing products and services to help local communities.

Market stakeholders

The power to shape markets for assistive products lies with a diverse group of stakeholders, each playing a crucial role in influencing market dynamics. Governments and regulatory bodies set policies, standards and regulations that ensure product safety, efficacy and accessibility. International organizations drive global health initiatives and funding, often shaping market priorities and practices. The private sector, including manufacturers and distributors, innovates and supplies assistive products, responding to market demands and opportunities. Nongovernmental organizations and advocacy groups raise awareness, advocate for policy changes and support market interventions to improve access to essential health products. Additionally, consumers and client groups influence market trends through their preferences and demand for specific products. Collaboration among these stakeholders is essential to create well-functioning markets that improve public health outcomes.

Market shaping is a collaborative process, requiring engagement with market stakeholders from across diverse levels of any given market. Market stakeholders can hold positions across local, regional or global markets and can span diverse sectors such as development, government and industry. More specifically, market stakeholders include suppliers and their sources of supply; manufacturers; product users and organizations that represent them; procurement agents; technical specialists; and service providers, including ministries, civil society and any programme-implementing partners (Fig. 3).

Fig. 3. AT market stakeholders

Many AT stakeholders have a good understanding of the needs of communities, programme approaches, technical expertise, research and policy development. They often collaborate with donors, implementing partners, country policy-makers, civil society and end-user associations to assess communities' needs and design and implement activities.

However, they all turn to the private sector to source assistive products and supplies and ensure sustainable product and service delivery. In particular, the private sector offers technical and contextual understandings of the market, such as its operating environment or opportunities versus risk *(19)*. While the private sector is often positioned as contractors to procure and deliver products or services, market shaping considers it a key market stakeholder and a partner in implementing programme objectives.

Past successful market shaping approaches indicate how integral the private sector is for market intervention implementation and impact. For example, the private sector can offer unique insights related to the procurement of materials, transportation and shipping; manufacturing; communications; logistics and support services; and innovation. Moreover, market shaping requires buy-in from the private sector, as its engagement and contribution in designing any solution is critical for success.

Market stakeholders also include experts who conduct market assessment and shaping. The assessment of a market requires some market knowledge and a combination of analytical skills, including data analysis and research skills, strategic thinking capabilities, interpersonal skills, technical expertise in market analysis and adaptability. Annex 2 outlines the specific skills needed to conduct a market assessment.

Approach to market shaping

A good market shaping approach is tailored to the specific and unique needs of the market and carried out in collaboration with stakeholders. The entire process of market shaping and how to approach it can be considered in six steps, carried out in a linear pathway (Fig. 4):

step 1: identify target markets

step 2: assess market shortcomings

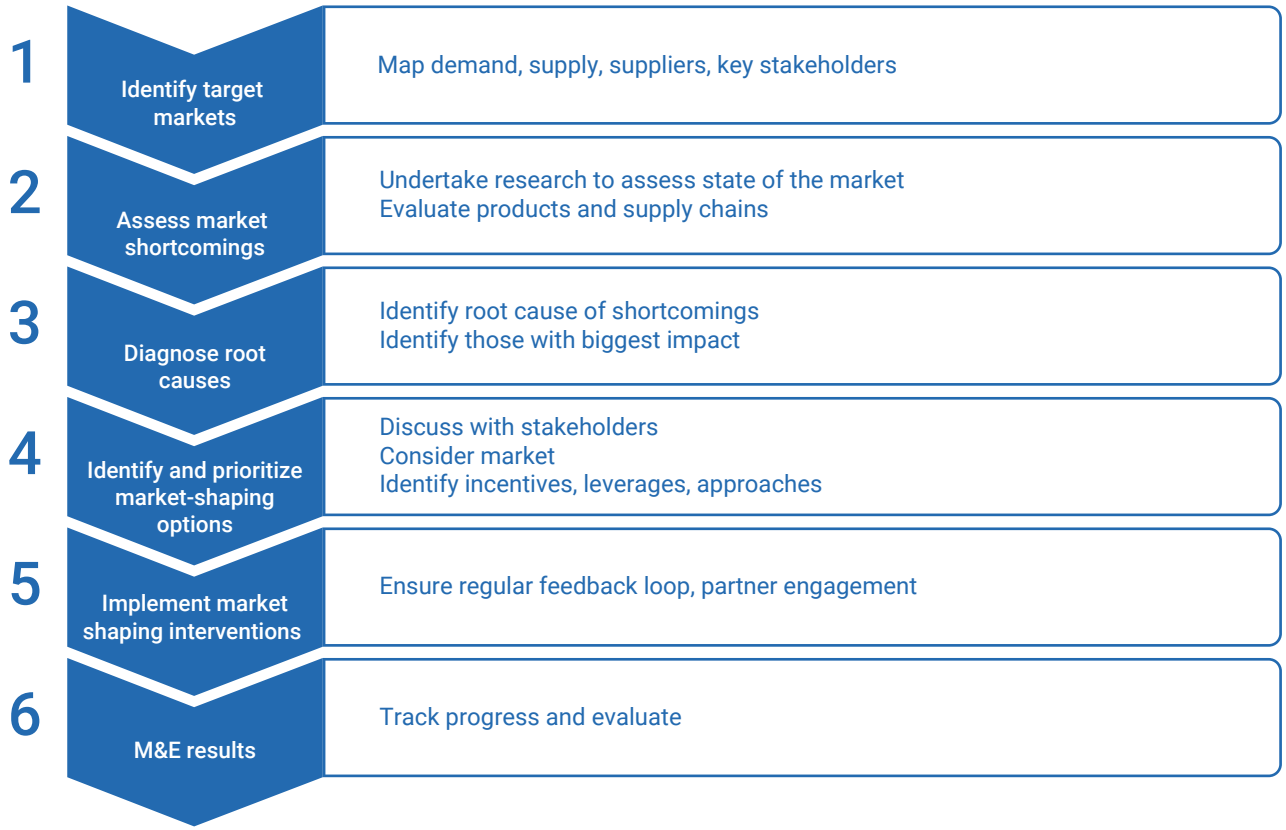
step 3: diagnose root causes

step 4: identify and prioritize market shaping options

step 5: implement market shaping interventions

step 6: assessing the results (M&E).

Fig. 4. Six-step approach to market shaping



The entire process requires engagement with a diverse range of market stakeholders to identify market challenges and their root causes and to develop an appropriately tailored intervention to solve those issues and thereby improve market conditions.

The steps are examined in more detail, and the annexes provide an example of a market assessment (Annex 1), helpful guidance on the specific skills required to conduct a market assessment and shaping (Annex 2), questions to guide the process (Annex 3) and further tools and resources on AT and market shaping (Annex 4).

Step 1:
identify target markets

The first step to market shaping is the identification and prioritization of market segment(s). Focusing attention on these segments can identify which parts require further attention. The market for AT can be considered to include the entire value chain, from supplying the products to services such as fitting, care, maintenance and repair.

In a country where communities are struggling to access AT, the first question to answer before considering any market shaping activities is which segment(s) of the market should be analysed. The market for AT is diverse, encompassing many different types of product that are listed nationally; therefore, before considering any market shaping engagement, it is crucial to establish exactly which part (or parts) of the market to focus on. For example, it is not possible to compare the market characteristics of wheelchairs and hearing aids, as they are encompassed within their own market categories – mobility and sensory – which have their own unique market attributes to be analysed.

An essential first step in market analysis is, therefore, to perform a market segmentation to determine which segment(s) will be the focus of the analysis. This also includes determining whether the market is for a product, a service or a combination of the two, as well as whether the market is divided into commercial, technical, and/or geographical segments. By carefully considering which segment(s) to prioritize, the task can be more focused and efficient, and a better result can be achieved.

Market segmentation allows market shaping efforts to be concentrated by determining which segments will be the focus of the market analysis (and which will not), whether the market is for a product, a service or a combination, and whether the market is divided into commercial, technical and/or geographical segments.

When deciding which product(s) to prioritize within a market analysis, a strategic decision should reflect the situation and context and consider needs based on those aspects that market shaping could impact and that it defines or considers as strategic and essential. A proxy indicator may be needed to reflect a country's AT market (Box 5). These need to be defined in the context of supported country programmes and contributing towards realizing strategic plans and key government priorities, accentuating those areas that will have the biggest direct impact on the target population and their quality of life and participation in society. In addition, the decision of what assistive products to focus on should be based on those essential products with a specific market situation, such as factors hampering their availability, quality, affordability or access, where looking at key market determinants and dynamics, in collaboration with partners and implementing agencies, could improve equitable access.

BOX 5.

Choosing a proxy indicator for the AT market

In absence of knowing what assistive products should be a focus, wheelchairs, prosthetics/orthotics and hearing aids will provide very good proxy indicators for the whole assistive product market as it will not be possible to assess every product.

Once it is clear which segment of the market to focus on, it is possible to apply market shaping, which is similar to the road-mapping approach used when designing programmes.

Step 2: assess market shortcomings

A market assessment is the analysis of a specific segmentation to identify market shortcomings and inform an effective market shaping intervention to improve them. Conducting a comprehensive market assessment requires completing the following six steps.

1. Conducting research
2. Stakeholder mapping
3. Understanding demand
4. Understanding supply
5. Establishing cost
6. Visualizing demand.

Once these key factors are mapped out, overall market health (including any market shortcomings) can be determined. This section describes each of these six steps, how they help in understanding each element of a market assessment, and how this links to market shaping.

Carrying out a market assessment for shortcomings

1. Conducting research

Prior to conducting any market assessment on AT, it is essential to first obtain a preliminary understanding of the country context. This includes encompassing all systems related to AT, such as the health system (private, public, regulated or unregulated), social protection measures, education, the role of defence, government structures, the level of coordination and interoperability, funding priorities, budgets and supply chain systems. This level of understanding is necessary to link how disability and AT provision fit within the broader health care and social protection systems and guides the focus of any market research.

These data may be collected during a WHO rapid assistive technology assessment (rATA) and a WHO assistive technology capacity assessment (ATA-C) (Box 6).

BOX 6.

WHO assessment tools for AT

The WHO rATA. This is a population-based household survey tool that measures the need, demand, supply, user satisfaction and barriers to accessing AT *(20)***. The rATA is used to collect data, inform policy and programme design and raise awareness within countries** *(21)***.**

The WHO ATA-C. This is a system-level tool to evaluate a country's capacity to finance, regulate, procure and provide AT *(22)***. It provides guidance and practical information on the ATA-C implementation process. It is part of the Assistive Technology Assessment Toolkit, a suite of tools to support countries in collecting data on AT** *(23)***.**

Basic population data on ageing, disability and disease should be collected and disaggregated, if possible, according to prevalence across the domains of mobility, sensory, cognitive and communication. These data can be cross-examined with any nationally approved assistive products list and national or regional AT regulations to map user need and access. Additionally, compiling economic data, such as poverty rates and median wages (which can indicate user purchasing power) and governmental budgets for AT funding contribute to a comprehensive contextual assessment. In many cases, data required for the market assessment may overlap with data required for other situational assessments, which are further discussed below.

2. Stakeholder mapping

Linked with a desktop review that maps all systems related to AT, it is also necessary to map the relevant stakeholders operating and engaging within these systems in order to identify relevant stakeholders and their market engagement. Stakeholder engagement can identify potential market shortcomings and understand their root causes.

Mapping should include local and regional market stakeholders, which is also useful as a feedback loop to better understand the root causes of market attributes. For example, AT user associations, such as organizations for people with disabilities or other advocacy groups, can offer diverse perspectives of user needs across age and gender. A comprehensive description of relevant stakeholders to include in a mapping exercise and subsequent informant interviews was outlined in the section on market stakeholders.

Once identified, stakeholder informant interviews will yield most of the information needed for a market assessment during an in-country visit, guided by the WHO ATA-C tool. The ATA-C process includes stakeholder mapping as one of its key activities, which may then be used for further evaluation of the AT market. Comprehensive stakeholder mapping will include stakeholders who have an influence on and engage in supply, such as policy/decision-makers, programme managers, distributors, retailers, service providers and AT user associations.

There may be too many stakeholders to interview, so it will be important to identify, prioritize and list those who represent the greatest influence, knowledge and market share for key market segments to ensure a comprehensive level of representation. Representing the supply side, stakeholders should include the major retailers and importers, while the demand side should include assistive products user associations and ministries in charge of health, social protection and finance to cover needs, finance and policy aspects. These stakeholders are all uniquely positioned to contextualize AT policy, procurement, supply and provision and to deepen understanding of how different dynamics affect them. Moreover, they can identify gaps, challenges and opportunities in the market to help to guide how to increase access to assistive products and opportunities to address costs.

When mapping private sector stakeholders, suppliers can be separated into different categories, such as manufacturers, producers, wholesalers, suppliers and retailers. While all of these terms are often used interchangeably, there are some important differences in their roles and functions within markets.

Manufacturers and **producers** both produce goods and are the source of products.[1] They manage their own supply chains and source raw materials or parts, which they manage across production lines. They either produce from primary materials and components, or they import components to assemble. It is often a mix, and any assembly of parts will also have their own supply chains and manufacturers. A manufacturer is a company that produces finished products from raw materials using various tools, equipment and processes and then sells these products to consumers, wholesalers, distributors and retailers (Box 7). A producer tends to have a wider engagement range and performs additional services, such as marketing, sales and promotion; a producer generally also carries branded products.

1 The word commodity should not be used as it refers to a raw material or a prime agricultural product that is traded, such as oil, grain or metals. Products are made in factories or workshops.

BOX 7.

Mapping manufacturers

Mapping manufacturers can be a complex process depending on the level of detail and the purpose of the mapping. It generally involves identifying, categorizing and geographically plotting manufacturers based on various criteria such as industry type, production capacity, location and supply chain relationships.

A key determinant of product cost for a manufacturer or producer is the cost of source materials and their supply chains with their own suppliers. For example, the production of assistive products might require stainless steel, aluminium, polyurethane, polypropylene and copper. The cost of production is highly dependent on the fluctuating prices of these raw materials, which will impact their market and product cost. As manufacturers and producers are the source of a product, they also have greater control over pricing, price discounts, terms and conditions.

Wholesalers are a type of supplier that purchases goods in bulk or large volumes at low discounted prices from manufacturers and producers. Wholesalers often resell to smaller suppliers or retailers. They are also often the distribution agents for branded products. As they do not produce any of the goods themselves, they make their living by taking their fee from a mark-up, compensating for any reduction costs with increasing economies of scale.

Retailers, similarly, do not produce products, but instead source their products at smaller volumes from manufacturers, suppliers, or wholesalers. Their business model is based on trading: buying high volumes at low prices and selling small quantities at higher prices, meaning the more they control a market, the more they control the price.

At each stage, each supplier needs to sell enough volume for its business to be commercially viable. The key difference between each of these types of supplier is that the closer one can access the source of the product from the manufacturer, the cheaper the price can be negotiated, as all the others need to put a markup on the price.

3. Understanding demand

With the desktop review and the stakeholder mapping completed, it becomes relevant to consider demand and supply. The demand is the most important section of the assessment, and it is by far one of the hardest elements to articulate accurately. There is often no shortage of data, but in most cases, the data on demand are based on self-reported or household surveys, rough statistical estimates, assumptions, guideline percentages based on global estimates extrapolated onto regions, or data that are not disaggregated by functional limitations or need. Data on demand are often very broad and rarely disaggregated with regard to age, gender or specific assistive products (Box 8).

BOX 8.

Assessing demand

There is no one-size fits all around the needs for AT; consequently, assessing demand for assistive products must be more nuanced than analysing incidence and prevalence of disability. People with the same diagnosis will inevitably have different assistive product needs based on their own unique life context, functional capacity and health history. Market shaping has to focus on clearly articulating the full scope of the demand, the needs, the current coverage and the gap that needs to be filled by the product.

However, estimates of need that shape understanding of market demand are often based on the number of people with disability and that of the assistive products themselves. For example, many countries correlate data on AT market demand with the prevalence of disability, which may not represent all individuals with functional limitations and, therefore, will exclude a wide range of the population in need of assistive products. While data demonstrating the need for rehabilitation services cover a much wider segment of need than the prevalence of disability, they may not accurately represent everyone who needs AT (Box 9). In addition to need, understanding of demand from a user perspective should also span assistive product cost, specific product preferences and any willingness to substitute one product for another.

BOX 9.

The International Classification of Functioning, Disability and Health

The conceptual framework of the International Classification of Functioning, Disability and Health *(24)* could be considered as determining needs more accurately since it is based on a comprehensive assessment of impairment, functioning, and environmental and personal factors.

Once data on demand have been analysed, demand needs to be associated with a volume, value and an estimated unit cost or price. If this is related back to current known available programme financing, funding or government budget, the substantiated demand can be identified. The substantiated demand is the potential size of the market should volumes and values be realized, considering the potential for scale-up.

Consideration of how long it would take to get to the target threshold through increases in volumes per year (which can be based on looking back against any data on past trends of increases over time) allows a forward-looking outlook to be projected. Product availability then depends to a degree on how much is stocked rather than requiring manufacturing (Box 10).

BOX 10.

Make to order or make to stock

Manufacturers typically make products to order, not to stock. Manufacturers can be both producers and suppliers, whereas suppliers only sell and do not produce. Both have limited financial resources, and so any stocked item with no guarantee of uptake is tied-up capital, as well as a liability and a risk. This is one of the reasons the global market economy and production lines are based on just-in-time supply chains.

A just-in-time supply chain is a strategy in which partners in a supply chain move materials right before they are needed. As a result, there is little or no inventory, which is by design to reduce storage costs. Just-in-time supply chains, together with lean supply chains, are those that prioritize maximum efficiency and cost savings. They were considered smart supply chain strategies. However, the disruptions caused by the coronavirus disease pandemic had a significant impact on global and local supply chains in 2020 and 2021, with many businesses closing due to a lack of stock.

Businesses have now started moving towards just-in-case supply chains because of increasing demand and supply volatility resulting from current world events that have affected trade and supply routes. This approach requires keeping a larger inventory stocked in advance, with all known costs factored into the unit price (including raw materials and their outlook), to balance the risk of stocking inventory that will not sell. As such, suppliers will not stock an inventory for a product if the demand is unproven. If there is no guarantee to move the stock on, then ultimately it would have to be written off, sold at a loss or given away. Stocking a product is only useful if it is known that it will be needed at a particular point in time (such as storing grain for the following agricultural season). Market shaping can inform the private sector of this demand outlook so businesses can calculate business case, volumes, values, overheads and any room to manipulate retail price point.

4. Understanding supply

There are several dimensions or market determinants used to evaluate the health of a market. By looking at each determinant related to a product's supply, market shaping can isolate the critical areas where there are shortcomings in the market. There are eight market determinants (acceptability/utilization, affordability, availability, competition, delivery, finance, quality and coverage; Fig. 5) that summarize the critical dimensions of the supply and demand side of the market and which can be used to highlight any shortcomings.

Fig. 5. Market determinants

Findings on supply reinforce understanding of consumer behaviour and any existing gaps related to specific products; the findings help to identify issues related to quality; access to appropriate support services; links between products and service delivery; and to what extent users have adequate knowledge and information. Therefore, the market shaping process needs to either validate existing data or improve them through disaggregation and/or qualification. This is important because data points on supply and demand are inevitably monetized and translated into market value. In health programmes, organizations assess the need for services to assess public health expenditure, an equivalent process to that which a supplier undertakes to evaluate expenditure.

For example, when suppliers bear most of the risk associated with scaling up a market, and if there is limited visibility on demand-generating activity, opportunities for a return on investment are less clear and, therefore, at higher risk to suppliers. This is one of the biggest hurdles, as suppliers require there to be substantiated demand. With little guarantee that users will buy products they import, there is low financial incentive and high financial risk to do so. Reaching a desirable balance among these factors is integral to market shaping (Box 11).

BOX 11.

Balancing factors for a successful supplier business

Suppliers need two things to run a business to provide products and services: (i) guaranteed payment and (ii) a stable operating environment. If there is too much market volatility and no secure return on investment, then there is a cost built into the price premium that a business needs in order to engage.

Suppliers need to use these data to formulate and articulate a business plan as it will guide them in considering any needed investment. Engagement with a private sector business will require investment in the business to cover costs, which will require an offer of funding or financing by donors or the government. In the absence of any external or additional financing, the private sector will bear these costs (such as importing (Box 12), expanding production lines or investing in scaling up) only when financially viable. The data, therefore, need to clearly articulate financial incentives in order to mitigate any prospective risks to suppliers.

BOX 12.

Government data on AT imports

To map informal demand, governments may be able to provide data on the national importation of assistive products in terms of imported number of units (such as wheelchairs), value (in United States dollars or local currency) and country of origin. While capturing this information for all assistive products would be ideal, it can be quite challenging. As a minimum, it is important to prioritize key segments of interest, for example wheelchairs, hearing aids and prosthetics/orthotics. This provides a comprehensive proxy view of that assistive product segment market, which can be applied to market shaping approaches. This provides an understanding of the product segment's full size, scope and scale and the key countries of importance from where products are sourced, thus informing transport and logistics considerations. Market shaping approaches can then be based on these data.

Knowledge of informal demand can then be compared with public sector provision. The government will know what it funds and provides through its programmes, system and structures, which can be combined with information from stakeholder discussions. These data can then be compared against what is known about the needs and the scale of demand. These overall data are also critical, as when the value per product is divided by the number of product units, it gives the weighted average price, a more accurate view of the average price paid per product. This should be a key default question for any government when undertaking market analysis and market shaping.

Unfortunately, existing data are generally lacking as this is an area where data are not collected regularly by governments. National data on disability are seldom disaggregated for categories of products for disabilities as pertaining to any substantiated demand. Data on what government programmes provide can be cross-referenced with the sales of suppliers, so all sources of supply (including informal sources) must be mapped and consulted.

For example, government-supported or publicly funded programmes constitute so-called formal sources of assistive products, including specific product criteria, a system, partners and a budget. However, in every environment, there will also be informal sources whereby end-users source their products independently. For example, social media and other web-based platforms are also major marketplaces for assistive products and supply second-hand products at a fraction of the price of retailers. In some instances, products may be shipped from outside the country so international quality product or manufacturing standards are another consideration.

To understand formal versus informal forms of assistive products supply, a market assessment should consult user associations to obtain information on the informal sector (those who purchase assistive products privately).

5. Establishing cost

The cost of a product is the single most important data point in a market for both suppliers and end-users. Not every stakeholder, especially in the private sector, will be comfortable in sharing this information. While information transparency is a critical aspect of any market assessment, divulging cost information can render suppliers vulnerable. For example, if product price and the number of units sold are both known, a business's scale (and thereby its market share) can be calculated. Establishing a level of trust and confidentiality with market stakeholders is, therefore, vital.

Determining the cost of a product requires a breakdown of the costs from the source manufacturer, the costs of acquiring the product and an estimate of the profit margin. Private sector businesses need to make a return on investment, and, as such, there are financial implications of pricing decisions on revenue, profit and overall business performance. Businesses also need to be competitive unless a supplier of a particular product dominates the market. In this case they would have a closed pricing strategy that would protect their market positioning, and which would imply potential risks associated with anti-competitive pricing practices.

Suppliers need to work within their margins and end-users within the limits of affordability. In many instances, the cost of products and services will be high, and many people with unmet needs will not have the capacity to pay for high out-of-pocket expenses. Data suggest a persistent and high level of exclusion and financial pressure on users of assistive products. Data on the economy and average income can provide an understanding of affordability *(25)*.

If the price of an assistive product is more than the average national monthly income, the product is unaffordable for the user and discussions on options to reduce costs are necessary. Costs may be reduced by providing incentives to the supplier, the use of drawn-out payment plans, rental options, leasing or subsidies.

When evaluating the cost of a product, it is important not only to look at the unit price and the cost of the product but also the costs to land the product in the country. In many instances, the supply chain – transport, shipping and handling – can vary between 20% and 50%. In general, the higher the volume, the lower the cost share of transport and shipping. As such, there is an incentive for suppliers, whether retailers or wholesalers, to favour low-cost, high-volume products to ensure an economic return.

6. Visualizing demand

Assistive products are subject to cost increases from a variety of factors, including inflation, increases in demand and a limited pool of suppliers. Additionally, there are also costs associated with international shipping and transport.

Given the fragmented nature of the AT market in many countries, one potential solution to increase visibility, understanding or demand is through a consortium – a collective pooling together of the demand procured through service providers for all imported products, materials and components (for example, pooled procurement by UNICEF and WHO; Box 13). This is not to suggest pooled procurement in the first instance but rather to pool an overview so that the data can be analysed in terms of the different types of components and products sourced, volumes, values and countries/sources of origin.

BOX 13.

Price referencing using WHO and UNICEF catalogues

By way of comparison and reference information, both UNICEF and WHO offer a range of prioritized assistive products that meet basic quality standards through their supply catalogues for global procurement and delivery. Both UNICEF and WHO have long-term arrangements with suppliers for these products.

A market consortium would enable countries to assess their current demand with a view to increase the industry's understanding of the current scale and scope of a country's needs and demand in terms of volume and value for a typical year. It would serve as a basis to analyse and enlighten the industry in terms of the current scale of demand, from where products are sourced and to identify the likely gaps in supply versus need, as well as to assess to what extent any economy of scale can be achieved.

In many instances, service providers undertake procurement activities individually on a case-by-case basis. This results in small volumes from the same pool of manufacturers, not just in country but also subregionally and internationally.

To counter the limitations faced by each service provider placing small ad hoc procurement orders separately, with very little forward planning, capital reserves, demand forecast and leverage, based on a few use cases at a time, a country can analyse its past procurement history (3–4 years) and establish baseline volume trends. This involves an exploration of where components can be pooled and presented in a way that is of interest to manufacturers to enable discussions on price discounts and volume. This will allow the opportunity to explore procurement arrangements (an agreement to source all procurement for certain components from a particular supplier that offers the best terms and conditions).

In most instances, suppliers, manufacturers and service providers do not have an overview of the needs for assistive products in a country, the subregion, neighbouring regions or beyond. The approach of pooling an overview on demand may offer an example of how suppliers can benefit through collaboration and cooperation for the benefit of all. It could help to expand market coverage and understand and identify a level of demand that can generate interest.

Market shaping provides the opportunity for countries to pool the information on this demand by working with service providers by market segment, by country or beyond the national to the regional level. The approach would require procurement data to be gathered. Possible approaches include service providers sharing retrospective procurement data on units, volume, value, manufacturer, countries of origin and user information (such as need, age and gender). The market shaping team would collate, categorize, aggregate and anonymize all collected data. The retrospective data would be analysed to understand past trends and project potential future market trends. These interpretations are then shared with market stakeholders for further dialogue.

Finally, the data are shared and communicated with product manufacturers and suppliers, providing a view on each country and, if possible, subregion. Providing an overview and outlook on the market segment's procurement trend signals the level of demand set against the estimated needs and flags potential volumes and values while articulating incentives for programme objectives. The market shaping team would follow up with industry consultations involving stakeholders and governments to discuss possible areas of leverage and price discounts, appealing also for corporate social responsibility considerations and engagement.

Applying the healthy market framework

Once the market and any market shortcomings have been fully evaluated, the healthy market framework (Fig. 2) may be used to consolidate information and visualize the key areas where there is a need to address market health. Applying the healthy market framework at this stage provides a clear starting point for discussion with stakeholders on root cause diagnosis (Step 3), leading to the identification and prioritization of market shaping options.

Step 3:
diagnose root causes

Root cause analysis is the process of identifying the root cause of an issue (why there is a shortcoming) and designing strategies to change the situation *(26)*. It is a standard market research method that uses approaches such as surveys, focus group discussions and interviews.

Root cause analysis can be a simple process (Table 5). The key is asking the right questions and identifying the key themes (in this instance, the eight attributes shown in Fig. 5: acceptability/utilization, affordability, availability, competition, delivery, finance, quality and coverage). This requires in-depth questioning to understand the root of a challenge. Note there are two sides to the equation: demand and supply. It is just as important to understand the root causes of why users do not use the products and services (for example, products are not available, users cannot access them, they are not well enough informed, they do not prioritize the need, costs being too high) as it is to understand why the suppliers are not able to provide the products and services. This analysis helps to understand what needs to happen to address challenges for both supply and demand, and what is the single biggest factor to both suppliers and users to make that change happen. Ultimately, a market researcher continually asks why to get to the root cause *(27)*.

Table 5. Root cause analysis pathway

	Step	Features
	**Define the problem**	Clearly articulate the specific shortcomings and challenges in the product market distilled from the market assessment
	**Data collection**	Gather all the relevant data points from the market assessment, user feedback and meetings with industry
	**Identify contributing factors**	Analyse the collected data to identify what factors contribute to any shortcoming; look for patterns, connections, cause and effect, correlations
	**Ask why, iteratively**	In meetings, apply the 5 Whys technique (asking why five times, developed by Toyota *(27)*) to get to the base of the issue of why the shortcoming exists and drill down to the root
	**Involve stakeholders**	Including suppliers, users and industry subject matter experts to gain diverse perspectives
	**Conduct a SWOT analysis**	If necessary (see Step 4) to gain a comprehensive view and assess market strengths, weaknesses, opportunities, and threats
	**Look at industry trends**	Analyse the broader trends in industry and any external factors that might impact the market
	**Benchmark**	Compare the disability market against other successful markets and best practices to identify gaps and areas to develop, but also where things are done differently, which may inspire transferable or adaptable solutions
	**Prioritize issues**	Prioritize the identified root causes based their impact potential and the feasibility of addressing them
	**Develop an action plan**	Formulate actionable strategies to address each root cause, involving stakeholders in the process and articulating a theory of change against a counter-factual

SWOT: analysis of strengths, weaknesses, opportunities, and threats.

A breakdown of the costs of products and services is important. These costs will include the price from the manufacturers, primary shipping, transport and delivery, and secondary distribution, as well as service charges and costs related to the return on investment.

As a general rule, the landed costs of a product can be broken down into several parts: (i) the costs of the product; (ii) the cost of transport, shipping and delivery; (iii) duties and taxes; and (iv) overheads, distribution channels and return on investment. Understanding these costs will help to determine measures to bring down supplier costs to increase volumes and gain market share.

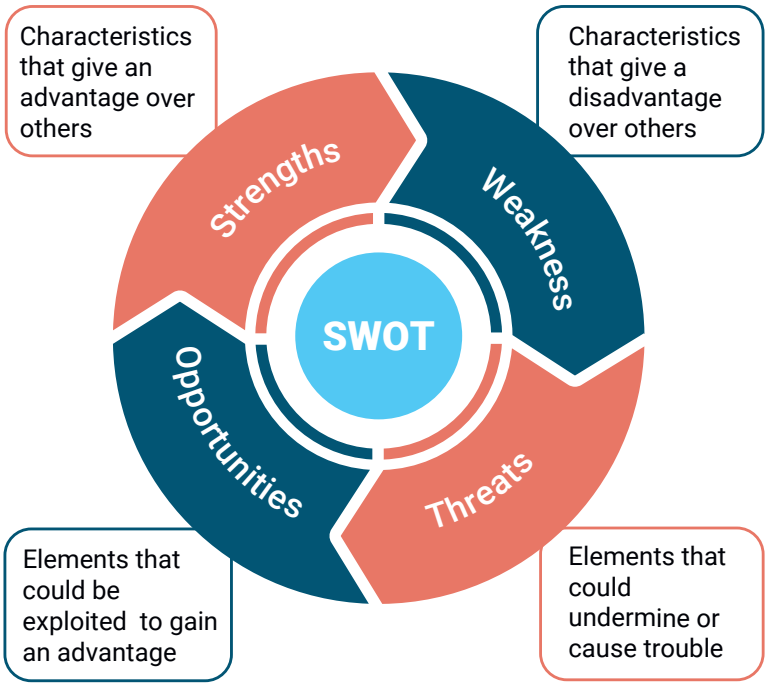
Being transparent is central to market researcher and supplier relationships. By systematically analysing and addressing root causes, targeted solutions can be developed to improve the AT market.

Step 4:
identify and prioritize market shaping options

Analysis of strengths, weaknesses, opportunities and threats

A SWOT (strengths, weakness, opportunities and threats) analysis is a well-established tool which involves stakeholder consultation to identify key external and internal considerations impacting a project or initiative (Fig. 6).

Fig. 6. SWOT analysis



A SWOT analysis can be used together with a PESTEL (political, economic, social, technological, environmental and legal) analysis to inform strategic planning, shape decision-making and outline actions *(28)*.

These do not have to be heavy processes, but they are a cost- and time-effective way to identify key issues of importance for a project. A market shaping facilitator brings together the key stakeholders who represent subject matter expertise relevant to the issue and operating context. These stakeholders should include key people who are influential if they are not the actual decision-makers. The process requires background data and research findings to be gathered and shared from the market report prior to the workshop so that participants have a view of the landscape, issues and context and have time to understand and reflect.

Whereas a SWOT or PESTEL analysis can be useful, they may also prove to be superficial and formulaic and consequently hinder performance as any findings might be misunderstood or misused. If a SWOT analysis is attempted, it should arise from critical reflection. Having only a few individuals perform a superficial assessment will only increase the risk of misrepresenting the inputs and lead to erroneous outputs.

Prior to conducting a SWOT analysis, a brief should be prepared that identifies the purpose, objectives and expected outcomes to be achieved. Each of the four domains should list simple key factors with basic information related to the political, economic, technical, environmental and regulatory issues for participants to consider prior to any collaborative engagement. Examples of these key factors to include within a SWOT analysis are summarized in Table 6.

Table 6. Key considerations for SWOT analysis

	Area	Aspects
	**Political**	• Government policies, resource allocations • Stakeholder needs or demands • National or international influence or pressure • Any potential change in the direction of future policy prospects • Business operating environment (how regulated or unregulated is it), issues of partiality NB. In many instances, politics and private sector relationships are very closely interlinked, especially in small countries
	**Regulatory**	• Promote the understanding of the Convention on the Rights of Persons with Disabilities and how it applies to the context • Issues related to the existing rules and regulations having an impact on any economic, social, technological factors (taxation) that affect or impact the work • Any quality assurance standards, oversight, regulation or regulatory bodies
	**Economic**	• Local, national or international economic situation that could impact reaching the targeted needs and communities • Consumer purchasing power, mobility • Employment, taxation • Economic prospects of the industry, current infrastructure, scope for different business models • Financial situation of key stakeholders • Availability of private sector resources relevant to the action • Any expected direction of economic change, trends, trade and market cycle • Any anticipated economic interventions by governments and their consequences
	**Transport and logistics**	• Importing products relies on transport and logistics that can represent 20–50% of the costs to land a product due to freight charges • Key access routes and modes of transport, often closely associated with political and economic considerations

	Area	Aspects
	**Social**	• Population trends, health, information awareness, access to disability services, public perceptions and attitudes around disability, customs and beliefs • Role of the media • Understanding of any knowledge, attitude and practices relevant to the issue, potential for social behaviour change, scope for social change in a given context • Anything related to social identity, roles of religious, social or cultural communities • Business management style, attitude, organizational culture, role of corporate social responsibility with reference to market shaping, opportunities to try different business models (from a distribution model to a service provision model) • Engagement and awareness of suppliers regarding trends in social issues • Stakeholder credibility and the promotion of information and communication • How the private sector links and collaborates with the social service sectors
	**Technological**	• Access to equipment and technology, options for alternative assistive products • Patterns of use of existing and new assistive products • Scope for new and innovative approaches: which approaches would have the biggest impact for the targeted community to achieve objectives • Issues related to supplier infrastructure, local production and import requirements • Licensing and any other restrictions
	**Environment and sustainability**	• Any contextual issues relevant to ensure sustainable engagement contributing to the Sustainable Development Goals • Consider whole life-cycle costing and the environmental impact of products: specifically how to apply repair, reuse, recycle and disposal of AT • How to increase cost–effectiveness and cost-efficiency while also looking at how to increase volumes and user and geographical coverage

Multiple stakeholders should represent and encompass the different stakeholders, from users (consider three key user associations representing key aspects of demand-related issues); suppliers (consider the three largest/dominant market actors representing supply considerations); ministries of health or social welfare (representing the owners of the initiative and service delivery), any key nongovernmental organizations (representing civil society, if engaged in the sector), and any stakeholders representing an understanding of aspects of logistics, transport, delivery and supply chain-related issues (e.g. international and shipping routes; Box 14). The most important aspect is to ensure that participants are those that will be directly involved in any engagement so that they feel that they have a stake in the outcome.

BOX 14.

International transport and shipping routes

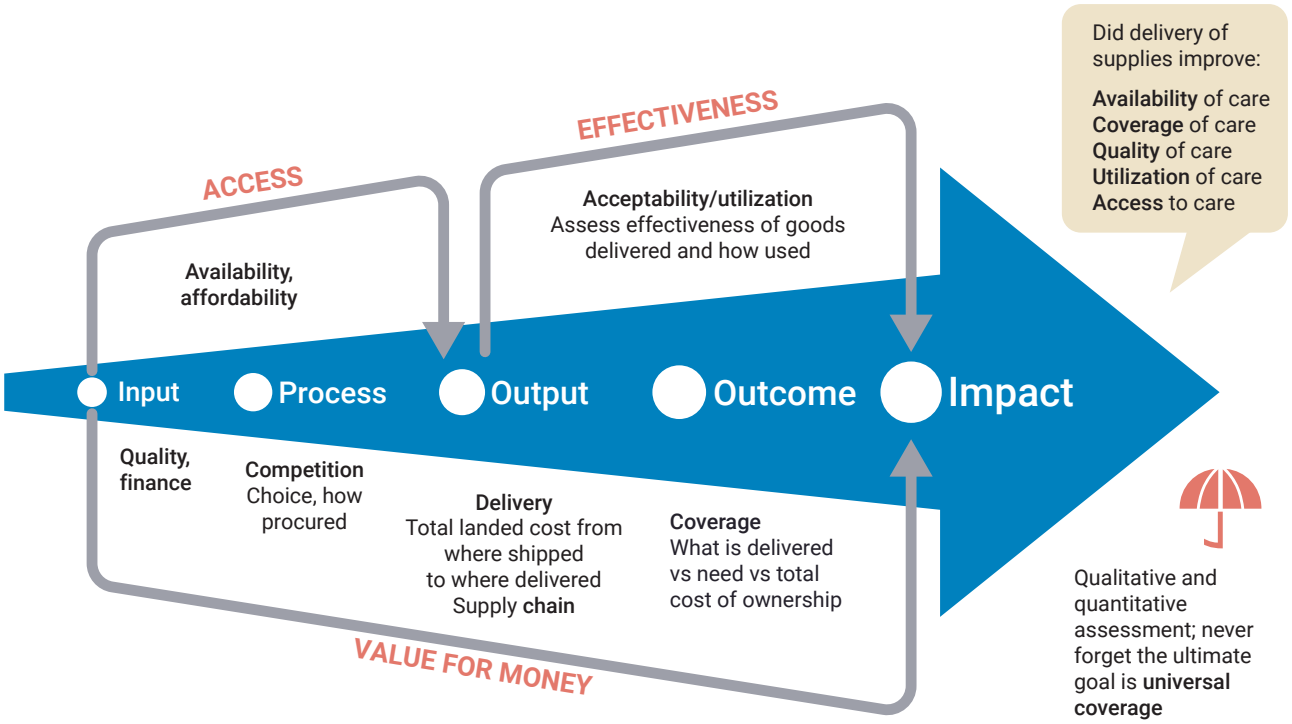
Geopolitical factors, such as regional conflict, may impact shipping routes. This inevitably means longer delivery times, while container freight rates may also increase significantly in response to crisis. This requires a revision of expected transport times for goods shipped. Diversions may add up to 10–12 additional days to shipping, with increased corresponding costs.

Within the analysis process, issues should be collaboratively identified and ranked by level of importance, linked to the impact (or likelihood of impact) they can have on the objective. For each one, there should be discussion around how to pursue any identified opportunities; how to overcome, prevent or avoid any threats; how to use or capitalize on any strengths; and how to overcome, minimize or compensate for any weaknesses. It is important to identify and analyse the linkages between strengths, opportunities, weaknesses and threats to develop effective solutions and mitigation measures, which could serve as a theory of change.

Developing a theory of change

Theory of change is a conceptual tool to describe how and why a desired change is expected to occur in a particular context (Fig. 7). It focuses on drawing out what has been described in the findings from the market assessment, SWOT, PESTEL and root cause analysis. It is the missing middle, lying between what the programme wants to see happen and whatever activities or interventions may lead to the desired goal.

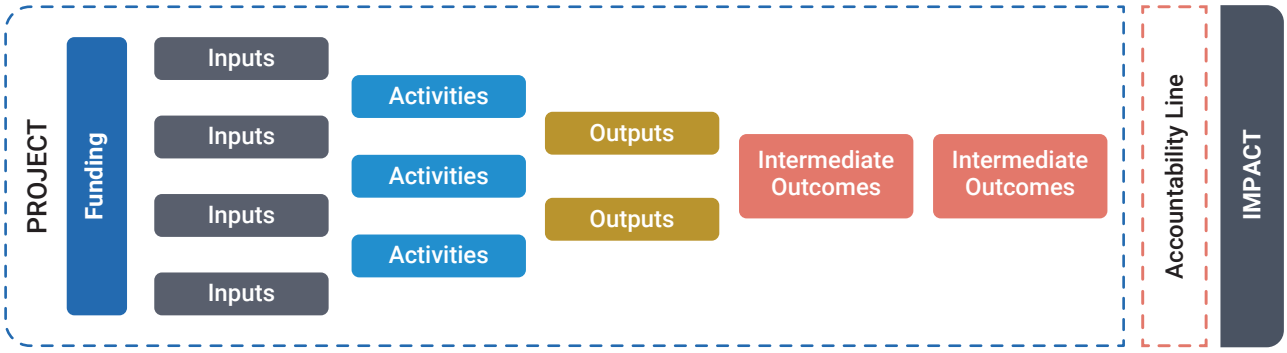
Fig. 7. Theory of change conceptual framework



The theory of change first identifies the desired goals and then works back, identifying all the preconditions that must be in place or necessary for the goals to occur and how these relate to one another causally. Another way of presenting this could be through a roadmap or framework. This can be a consultative or participatory process whereby key stakeholders and subject matter experts identify, through consensus, the conditions they believe must unfold for the long-term goal to be met.

Theory of change demonstrates a pathway from a current state to a desired state, specifying what is needed to achieve the goal, and helps to structure the way any strategy is considered from current actions to designing a plan of action. It also requires the articulation of underlying assumptions that can be tested and measured. There are several differing ways a theory of change can be framed or visualized, from conceptual frameworks (Fig. 7) to progressively linear pathways (Fig. 8) or more basic logical frameworks (Fig. 9).

Fig. 8. Theory of change outcomes and impact pathway



Source: Adapted from Analytics in Action *(29)*.

Fig. 9. Theory of change logical framework

	Intervention summary	Indicators	Means of verification	Risks/ assumptions
Goal				
Outcome				
Outputs				
Activities				
Inputs				

Regardless of how a theory of change framework is structured, its central aim is to articulate outcomes and impact, as well as steps to get there. For example, Fig. 5 depicts a visual representation of what is expected from the intervention based on the different market determinants, how it fits together to achieve the desired outcome and how to get there.

The goal of theory of change related to AT market shaping is that the availability, coverage, quality, utilization and access to assistive products have to all register as positive through a qualitative and quantitative assessment to be judged successful. This is a core tool, as it makes it easier to plan, visualize, articulate and communicate, as well as manage a project. A theory of change approach also allows all key stakeholders involved to visualize the sequence in which actions lead to the overall goal, and it can be combined with a Gantt chart to illustrate a corresponding timeline for each step.

Market shaping interventions

Preconditions

To ensure any market shaping interventions are successful, several preconditions need to be established. First, there must be long-term visibility of the needs of AT users (and potential user), or of assistive product demand. This must be well articulated and supported by substantiated data and evidence with regard to any targeted underserved populations or unused products. Additionally, a readiness by the government and the private sector to collaboratively engage in and support the market shaping initiative is necessary.

The healthy market framework (visualized in Fig. 2) can help to structure and coordinate discussions with key stakeholders to arrive at a coherent approach. It helps all involved to understand market capacity, challenges, risk factors and user need/demand to plan an appropriate market shaping intervention.

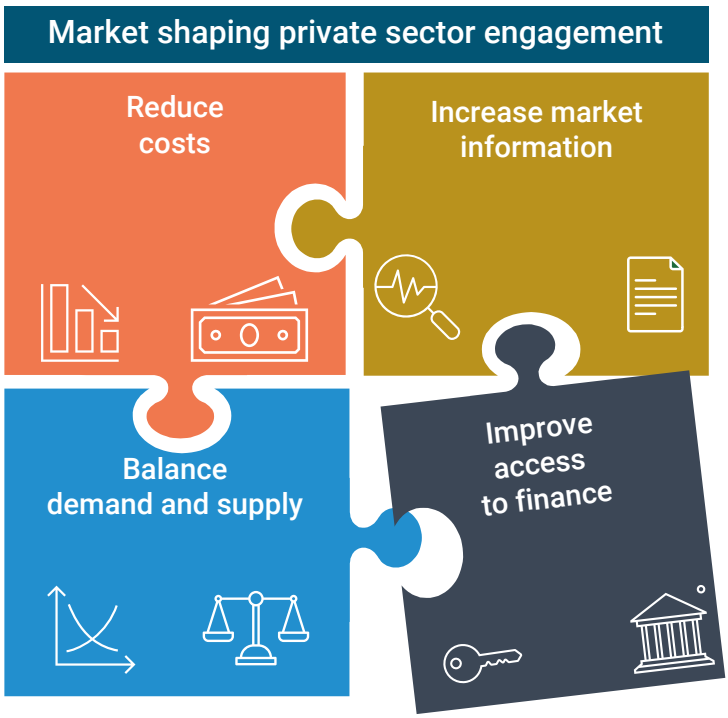
Undermining the viability of local businesses in favour of bigger regional or international suppliers needs to be managed very delicately, as this could result in unintentional and undesirable impacts. Market shaping of small markets often requires the prioritization of the local level rather than incorporating regional or international competition. While a healthy market highlights the need for competition, options should favour nurturing collaboration and cooperation given the small scale of local markets in many of these countries. Any regional and international engagement should, therefore, complement or compensate for local capacity limitations. Conversely, when engaging international organizations, considerations of how to use any planned procurement to offer incentives to scale up supply and demand are recommended.

Specific interventions

There are several market shaping interventions to address specific misalignments in the market. Designing an intervention depends on the specific data generated from a market assessment, such as what the user needs are. Conducting a SWOT analysis is recommended prior to designing a market shaping intervention, as it is essential to assess the benefits, potential drawbacks and constraints associated with each option. How the intervention is expected to progress through a theory of change pathway is also helpful.

Building on USAID's primer, *Healthy markets for global health: a market shaping primer (4)*, market shaping teams can classify market shaping interventions and group them according to four levers or areas of leverage that can address the root causes of challenges: (i) reduce costs, (ii) increase market information, (iii) balance demand and supply, and (iv) improve access to finance (Fig. 10).

Fig. 10. Market shaping interventions



Source: adapted from UNICEF *(3)* and based on USAID *(4)*.

Reduce costs

There are a number of ways to approach cost-reduction targets:

- strategic use of any available programmatic funds to leverage push or pull incentives can advance market or purchase commitments, subsidies or purchase guarantees (for example, if the market is small, it is more realistic to consider market creation);
- exploring options to pool a view on procurement through a consortium approach and articulating a plan for yearly forecast of demand to offer a greater, predictable and substantiated demand;
- enhancing economies of scale through larger order sizes and longer-term contracting with volume commitments and negotiating favourable terms of payment; negotiating pricing with suppliers in return for volume increases, sales or a time-bound commitment to increase their market share;
- advocating for suppliers to engage in corporate social responsibility as a contribution to the greater public good;
- working with regulators to create an environment conducive to increasing access to products by reducing any import tax on assistive products or critical components of assistive products; and
- examining innovative business models beyond distribution, such as renting or leasing, to offer new business opportunities.

Increase market information

Access to transparent and accurate information, as well as consumer education about the products and their benefits, can empower users to make more informed choices and ensure suppliers understand these needs. Information sharing involves:

- maintaining clear and regular communication to strengthen relationships, notably through regular industry meetings and consultations to share news and information about the market and new programmatic developments;

- ensuring transparency of information shared on supply availability and demand, product information and user needs and product choices, such as product pricing per category of item, different sources of supply, and data on volumes and values procured;
- sharing plans and strategies on programme expansion and timing, and signalling opportunities for new local and regional market entrants;
- increasing the level of predictable and reliable demand with demand forecasting accuracy, thus promoting reliability and stability of substantiated demand;
- providing transparent information on supply constraints and capacity limitations, highlighting AT sector issues and challenges and calling for engagement;
- creating feedback loops where users and suppliers can share information to adapt the strategy of supply based on customer responses; and
- M&E of changes in the supply chains (including the impact of global events), which can also be important when aligning the demand with the needs of end-users.

Balance demand and supply

- aligning supply with proven scale of demand and engaging regional suppliers to boost availability and supply capacity;
- exploring opportunities to collaborate in expanding product choice and availability in line with demand; and
- engaging local and regional suppliers to network and develop and share contacts.

Improve access to finance

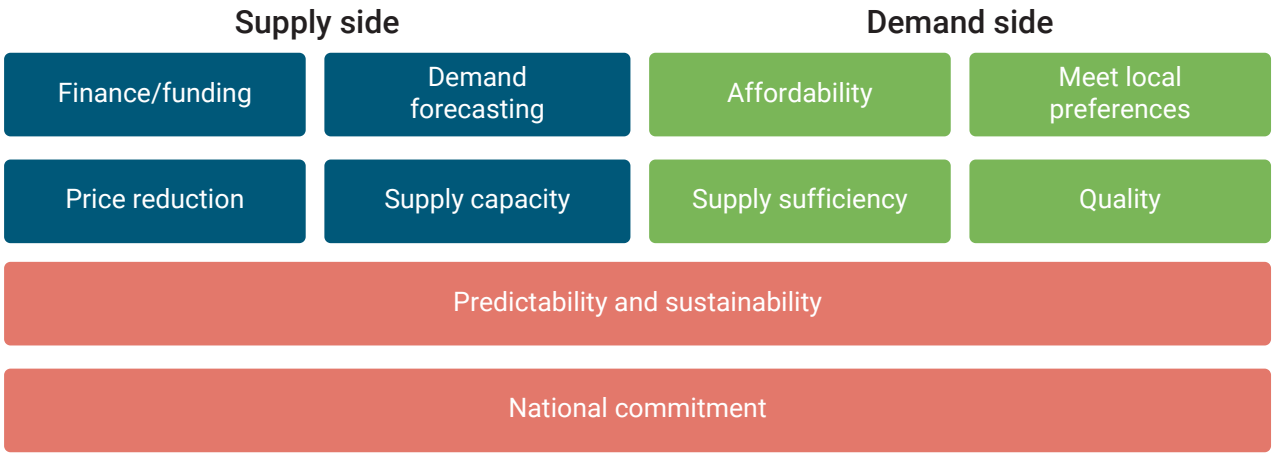
Using any programmatic funding or financing available to incentivize private sector engagement and leverage and influence engagement is one of the most powerful tools available. Sharing information on potential sources of funding and identifying possible areas to access working capital are, therefore, important modes of improving access to finance. At times, programmes can represent very sizeable procurement volumes (Box 15). To address the root causes of the market shortcomings, a market shaping intervention may include one, two, three or all four levers, depending on the context and act on either the supply or the demand side (Fig. 11).

BOX 15.

United Nations procurement

In 2022 the procurement undertaken by the different United Nations agencies, funds and programmes reached US$ 29.6 billion *(30)*, repeating a similar record level reached in 2021. A total of US$ 16.1 billion (54%) was spent on goods, while US$ 13.5 billion (46%) was spent on services. Procurement in health reached US$ 7.6 billion, representing 25.4%, of which WHO procured a total of US$ 1.6 billion in 2022, representing 21%. Considering the scale of United Nations procurement, how WHO procures is as important as what it procures. However, most funding in the health sector comes from relatively short-term and unpredictable donor sources, which undermines any long-term sustainability in terms of market shaping engagement. Increasing financing predictability and sustainability are, therefore, key to market shaping approaches.

Fig. 11. Market shaping priorities

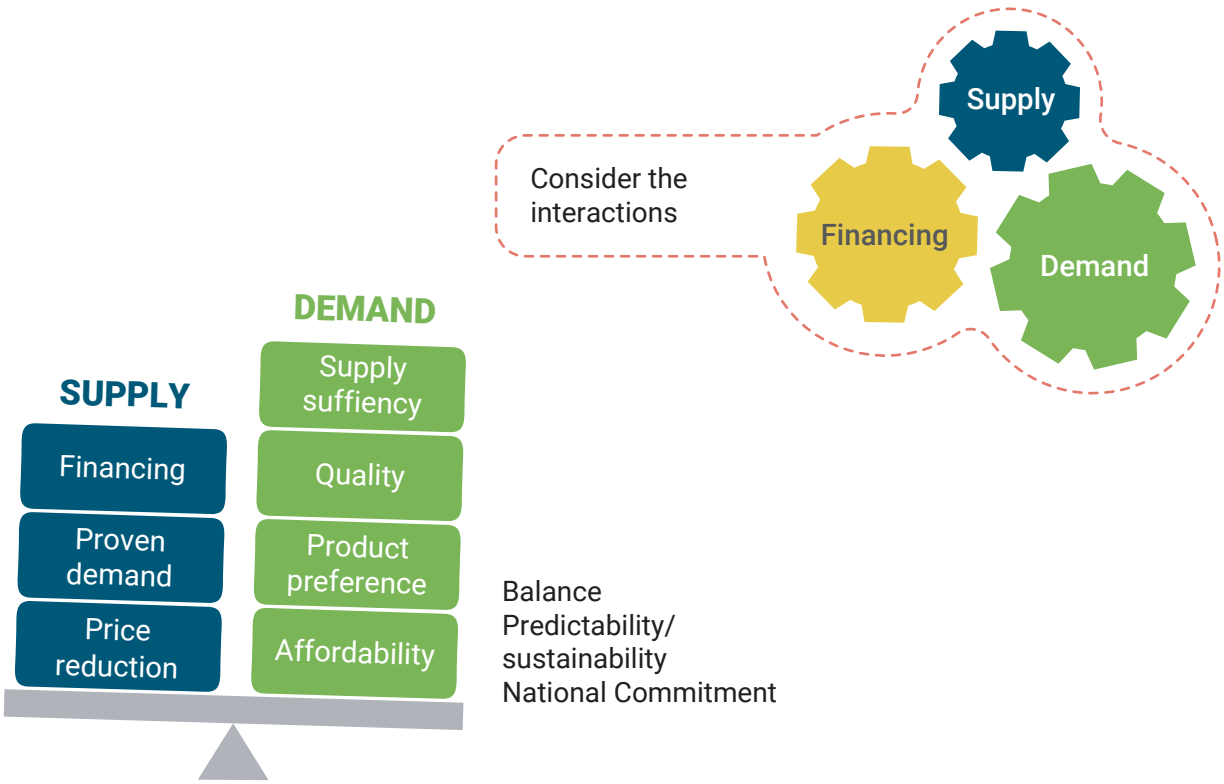


Strategic prioritization

Strategic prioritization is the identification of specific market attributes or externalities to address through market shaping and will guide intervention development. For example, cost and impact will guide the selection of a particular externality and corresponding intervention, or even whether to take up a market shaping intervention rather than a programmatic intervention.

Additionally, strategic prioritization weighs the advantages and disadvantages of a regional intervention versus one in a single country, as they will have different strengths and advantages. Balancing the strategic options requires consideration of all the factors that impact a market (Fig. 12). Market shaping interventions are created to reduce long-term demand and supply asymmetries, and both are required to sustain an impact. While not necessary, conducting a cost–benefit analysis can support market shaping intervention design.

Fig. 12. Balancing strategic options



Conducting a cost–benefit analysis

A cost–benefit analysis supports decision-making and the strategic prioritization process within market shaping. It involves evaluating the financial and nonfinancial costs and benefits associated with a particular intervention, project, decision or investment. A cost–benefit analysis can be done as a standalone study or in parallel with others and can be adapted to context as there is no standardized assessment protocol. When possible, involving stakeholders in a cost–benefit analysis ensures all relevant factors are considered and accurately represented. The analysis process typically involves several key steps, which are outlined below.

Identify costs, benefits and return on investment. The analysis often begins by identifying all costs and benefits associated with the intervention within a defined time period. These may include direct costs (explicit expenses directly related to the intervention), indirect costs (additional expenses indirectly related to the intervention) and opportunity costs (the value of any forgone alternatives). Benefits associated with the intervention include those which are tangible (gains that are quantifiable and measurable) and intangible (non-monetary or difficult-to-quantify gains). It is important to consider both short-term and long-term benefits, as well as any underlying assumptions and uncertainties at the outset.

Assign a monetary value to identified costs and benefits. A forecasted monetary value is assigned to each in. A net benefits value is calculated by subtracting the total costs from the total benefits, while the return on investment is expressed as a percentage of the costs (the net benefit is divided by the total costs and multiplied by 100). When formulating these calculations, it is important to remain consistent with the time period applied to the cost and benefits identification.

Perform a sensitivity analysis. A sensitivity analysis aims to understand which variables may affect cost and benefits and the overall impact of changes in these variables. This includes considering the time frame of costs and benefits and the return on investment period when benefits outweigh costs. Additionally, if there are multiple intervention options, comparing the cost–benefit analysis of each (including the alternative of doing nothing) helps to clearly outline the option with the highest net benefits or return on investment.

Document any assumptions made during the analysis. Highlighting limitations or uncertainties in the data is essential for the appropriate interpretation of results and making informed decisions. Decision-making should also include non-monetary factors, strategic goals and potential risks.

M&E. Regular assessment of costs and benefits over time facilitates appropriate adjustments to market shaping interventions as needed, based on real-world data and changes in market circumstances. For example, the visualization of the different components to be prioritized for market shaping could be presented as in Fig. 10, with the findings structured into a report.

Sustainable procurement considerations

Sustainable procurement is an approach that incorporates the three sustainability pillars of social, economic and environmental impact considerations. It ensures the procurement of products and services that support local economic and social development with the least environmental impact and at the best value for money *(31)*.

The implementation of sustainable procurement seeks to promote green manufacturing quality management systems, such as the prioritization of social and economic considerations in commercial tender evaluations and the development of local industry capacity in programme countries.

Many United Nations procurement decisions will face trade-offs between the three sustainable procurement pillars (economic, social and environmental), resulting in decisions to prioritize one pillar over the other. The absence of evidence to make informed trade-off decisions may result in key operational challenges, especially between environmental and social considerations (with the latter often being more difficult to quantify). Solutions to sustainable procurement must, therefore, be situation specific and based on readiness, market influence and targeted objectives.

A key consideration for the sustainable procurement of AT is to seize opportunities to promote options and encourage countries to adopt an approach to recover, reuse, repair, recondition and recycle assistive products. There are a number of excellent examples that exist already, including one example from Georgia (Box 16).

BOX 16.

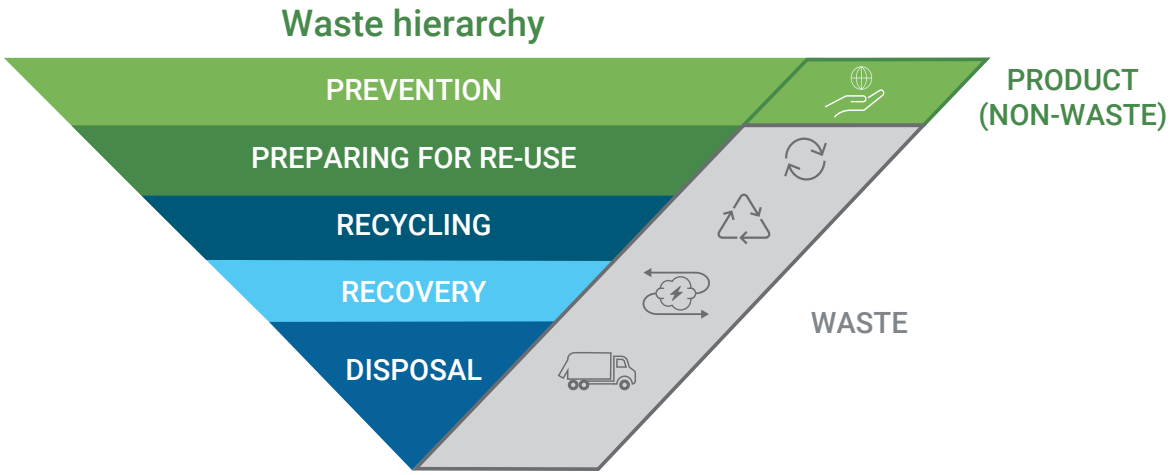
Georgia's sustainable procurement

In Georgia, the Church of Jesus Christ of Latter-day Saints, in partnership with the Women of Georgia for Peace and Life, delivers approximately 700 to 800 wheelchairs a year to people with disability in collaboration with the municipal authorities. Their key strategy is to retain the ownership of their wheelchairs, where users sign an agreement to return the wheelchair when it is no longer needed. When Women of Georgia for Peace and Life recovers these wheelchairs, they recondition and reallocate them to others in need. Additionally, the partnership also offers a wheelchair repair service, which bolsters the chairs' total life-cycle and allows the programme to continue to provide coverage with less investment in new procurement.

The approach used in Georgia (Box 16) is a highly effective cost-saving measure, especially in countries and contexts with limited fiscal spending, and it should be encouraged where possible. This example of sustainable procurement demonstrates how programmes can advance the objectives of the SDGs and align with measures to reduce waste through reuse and recycling, such as the EU's Waste Framework Directive, while still scaling up assistive products supply and overall user access.

The EU's Waste Framework Directive is a comprehensive legislation on waste management, including recycling (Directive 2008/98/EC, amended in 2023) *(18,32)*. It sets recycling targets for Member States, establishing the waste hierarchy, which prioritizes prevention, reuse, recycling and other recovery methods (Fig. 13). It also introduces the Extended Producer Responsibility, making producers responsible for the entire life-cycle of their products, including take-back and recycling.

Fig. 13. The EU's waste hierarchy



Source: European Commission *(32)*.

The EU passed a regulation to encourage the repair, recycling and reuse of products through the Waste Framework Directive *(18)*. Targets include the reuse and recycling of waste materials (including metal and plastic) and other material recovery. Producers have an organizational responsibility to help with waste management of their product's life-cycle.

Step 5:
implement interventions

Market shaping interventions should be uniquely designed to reflect the specific market, situational context and objectives related to any identified shortcoming. While no two interventions should be the same, there are several foundational principles that can be integrated into the implementation process of all market shaping interventions.

First, interventions must be collaborative, with market stakeholders (such as governments, development partners and private sector actors) working jointly throughout the process and realistically to ensure prospective market impacts are attainable.

Interventions should be adaptable to changes necessitated by user feedback and/or the broader M&E process (elaborated in Step 6). As part of this process, interventions must consider trade-offs to balance desirable with undesirable market characteristics and account for any unintended consequences. As intervening in markets can create unforeseen effects, it is important to be sensitive to any negative impacts that could consequentially worsen market health instead of improving it.

Finally, implementation should have an intentional and sustainable exit strategy to ensure beneficial market changes will continue after the intervention's activities are completed.

Step 6:
assessing the results, M&E

M&E of the results of any interventions is critical to ensure the success of any project and achieving an impact.

As market shaping is an emerging field, a standardized assessment for M&E market shaping interventions does not presently exist. Rather, there are fundamental areas that should be monitored and evaluated in relation to any market shaping intervention. Changes within specific market attributes or in previously identified market shortcomings are important measures of overall market health and of the impact of any implemented market shaping intervention. Additionally, identifying specific outcomes or outputs of market shaping interventions, and any overarching impact on overall market health, are important quantifiers to gauge whether market shaping is successful.

There are several existing M&E frameworks that can be adopted for the purpose of market shaping. When choosing specific M&E tools or frameworks, it will be helpful to prioritize tracking changes in key market characteristics and whether these changes impact products and services. Further, such tools or frameworks should integrate or enable collection of feedback in real time to ensure the process includes users, suppliers and health service providers, and a feedback loop should exist for interventions to be adapted according to this feedback.

Markets are fluid and subject to several dynamics broadly categorized by the influences of supply and demand, regulation, technology and competition. They also include consumer preferences, purchasing power, population demographics, production costs, the number of suppliers, government policies, labour law, monetary policy, the structure of the market and international trade and global supply chains, among many others.

To track, monitor and anticipate changes in the market, there is a need to understand these forces at a local, subregional and international level. For example, some market forces are more global in nature and can have a wider effect beyond the market segments of assistive products, and traditional M&E approaches may not always be appropriate for use in assistive product market shaping, making results difficult to measure regularly and accurately. These factors reinforce the importance of M&E as a feedback mechanism, to strategize and make defensible and informed decisions, especially on market outcomes, but also to measure any unintended consequences.

The key areas to focus on within M&E are the relevant eight market determinants visualized in Fig. 5 and chosen under the theory of change model in Fig. 7 (acceptability/utilization, affordability, availability, competition, delivery, finance, quality and coverage). All of these determinants are measurable, and all can have indicators formulated to track progress.

Linking these considerations back to the broader goal of a market shaping intervention for the AT market is ultimately to achieve universal coverage. Any progress resulting from market shaping must, therefore, demonstrate indicators of universal AT coverage, such as increases in assistive product access, coverage, quality and user uptake. More specifically, an M&E approach should attempt to quantify and qualify measures such as affordability, availability, appropriateness of products, quality assurance, knowledge and awareness and overall health impact (increased access to assistive products) and output (increased use of assistive products).

These indicators should be at the core of M&E and should help to guide M&E planning, visualization, articulation and communication, as well as to manage a project in a manner that ensures that all involved can see the sequence by which any actions lead to the overall goal. A Gantt chart would also be useful to track the work completed over a period of time in relation to the time planned for the work.

M&E can track changes along the steps shown in the theory of change (Fig. 7), noting any changes in the overall market, including market size, new products, trends in use and demand. The baseline to use should come from the market assessment, which captures current use, supplies, costs, availability of products, and quality, which can also serve as a counterfactual scenario (meaning doing nothing). There should be data and evidence of a change in market variables, showing a higher uptake of assistive products.

While standardized surveys can capture some information on some health areas and indicators, a better way would be to coordinate stakeholders and involve them in designing an approach to identify and track the necessary metrics.

Summary

This guide is intended to help readers to understand and apply market assessment and shaping concepts within their own national, regional and subregional contexts. Throughout this guide, market shaping is referred to as a strategic approach or intervention that influences the structure and dynamics of a market, such as enhancing a specific market attribute or increasing the overall health of a market (whereas market assessment is the analysis of a specific market or market segmentation).

This guide further defines key market concepts, such as market conditions, attributes, externalities and stakeholders, and describes approaches to market shaping assessments and interventions. The healthy market framework and six fundamental steps are recommended for carrying out market shaping within a specific AT context. The steps are (i) identifying target markets; (ii) assessing market shortcomings; (iii) diagnosing root causes; (iv) identifying and prioritizing market shaping options; (v) implementing market shaping interventions; and (vi) M&E of the results.

Readers are encouraged to adopt collaborative, evidence-informed, and sustainable approaches to AT market shaping in their respective contexts and the specific needs of AT users. It is important to emphasize the analysis of specific assistive product market segments within the broader AT market (for example, focusing on the wheelchair market rather than the entire scope of assistive products) and understand user needs to appropriately tailor AT market shaping interventions. Finally, integrating M&E within all aspects of an assessment and shaping intervention ensures transparency and accuracy when measuring progress and impact. The annexes carry helpful guidance on specific skills required to conduct a market assessment and shaping, questions to guide the process, and further resources on AT and market shaping.

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Annexes

Annex 1. An example market assessment in Tajikistan

A market assessment is the analysis of a specific segmentation to identify market shortcomings and inform an effective market shaping intervention to improve them. Conducting a comprehensive market assessment requires the following steps: (i) conducting research; (ii) stakeholder mapping; (iii) understanding demand; (iv) understanding supply; (v) establishing cost; and (vi) visualizing demand. Once these key factors are mapped out, overall market health (inclusive of any market shortcomings) can be determined and inform a market shaping approach.

A market assessment was carried out in Tajikistan in 2021, and the results are summarized below as an example of a country assessment.[3]

Conducting research

At the time of the assessment, the current Tajikistan market was not able to meet the needs of all wheelchair users. The sources from which users could acquire different wheelchairs were limited. Most wheelchairs were imported from China and Türkiye, with very few models being considered appropriate or able to target the needs of active users needing urban, rough terrain and dual use. There were no national quality reference standards available at the time of the assessment and products were only subject to the quality standard judgements of whichever supplier imported the product. The market determinants (as outlined in Table 2 of the main text) for wheelchairs in Tajikistan were identified (Table A1.1).

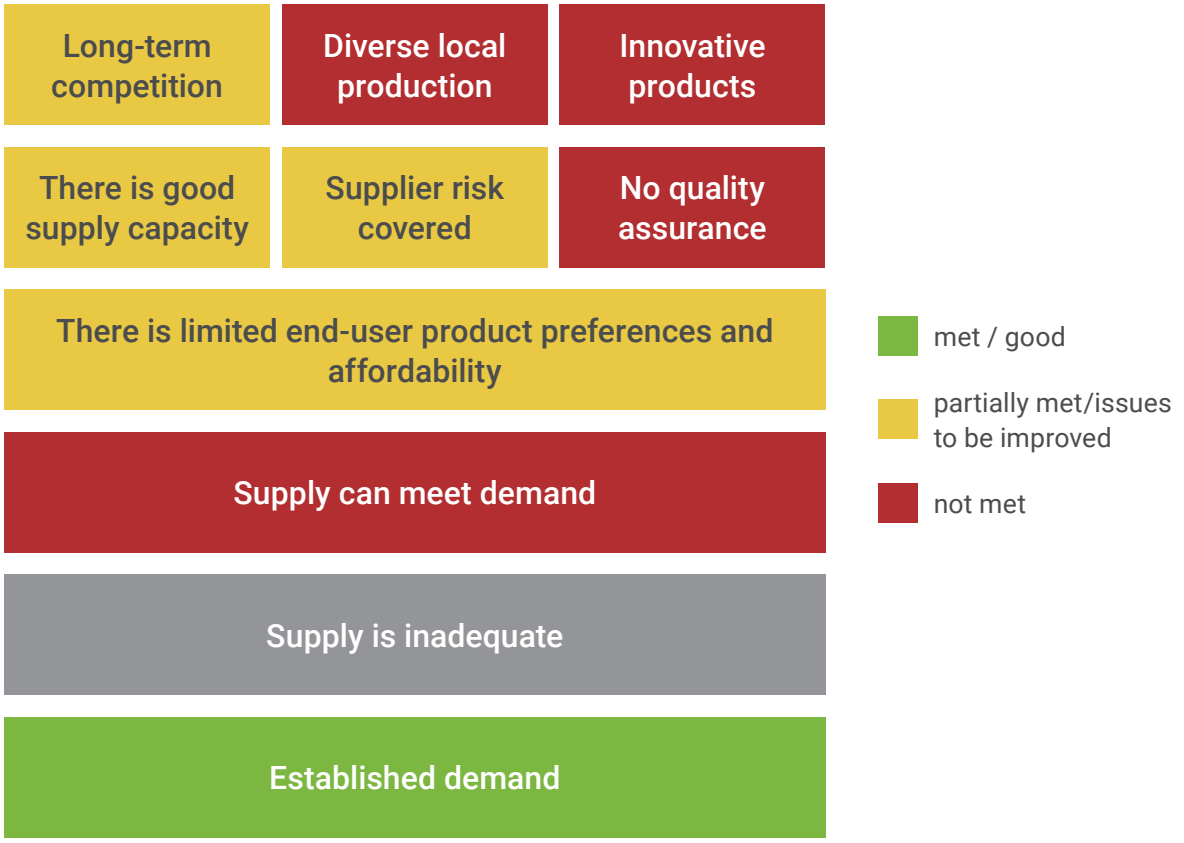
Table A1.1. Market determinants for wheelchairs at the point of the assessment

Determinant	Characteristics
Acceptability/utilization	The market only offers a limited choice of products that can meet end-user needs and that are adapted to their profile
Affordability	Most products are low-cost options with payments mainly in cash
Availability	There is a limited range of products available to meet demand at points of service delivery
Competition	There is very little competition in the market; product choices are based on low-cost options and dominated by small and medium-sized enterprises, which have full influence over market
Delivery	There is supply chain, distribution system and capacity to deliver products to reach all regions but there are no specialized fitting services
Finance	The market is heavily reliant on Government funding support to cover the known needs and demand
Quality	There are no national regulatory reference standards or measures to ensure product safety, quality, and technical specifications; these are subject to supplier considerations
Coverage	Coverage is low with significant gaps per model type; an assessment of equitable coverage is not possible as data not disaggregated

Fig. A1.1 shows the market situation in Tajikistan using the healthy market framework (see Fig. 2 in the main text).

3 An assistive technology household survey was carried out in Tajikistan in 2021; the results and recommendations are still in draft but will be published.

Fig. A1.1. Market representation in Tajikistan using the healthy market framework



In terms of volume and value, data indicate that private sector suppliers and the Government reached an estimated 2000–2500 wheelchairs a year on average. Data do not capture all procurement, as there are some wheelchairs also being procured and imported privately by individuals.

The quality of the wheelchairs was generally not consistent with international quality standards. As there were no regulations to define or govern the type of wheelchairs to be provided in Tajikistan, the choice of product was subjected to the decisions made by the importer or manufacturer of the product, based on their quality reference standards, choice of specifications, and the cost thresholds they can afford.

Stakeholder mapping

The market stakeholders identified within the Tajikistan wheelchair market were nongovernmental organizations, the Government and related health ministries (including the health departments and the Department of Social Protection), national health facilities, international health facilities, retail outlets and pharmacies.

Understanding demand

With reference to manual wheelchairs, the absence of reliable data and information posed significant obstacles to understanding user demand. Recent survey data indicated 85 500 people need a wheelchair (58 500 for manual and 27 000 for manual with postural support).

Understanding supply

The market assessment found that, annually, between 2000 and 2500 wheelchairs were being provided in Tajikistan each year via all sources, including Government and the private sector, and representing 12–15% of the known demand. The assessment indicated that only 11% of wheelchairs were provided by the public sector, while 44.4% of wheelchairs were reported to be sourced via friends and family, 22.2% via the nongovernmental organization sector, and 11.1% were self-made; this represents 77.7% of wheelchair users acquiring their assistive products through sources beyond the Government.

Establishing cost

The assessment examined the costs for wheelchairs and how these are broken down into purchase, transport and final cost. Most wheelchairs in Tajikistan at the time of the assessment were manual chairs imported from China, the Islamic Republic of Iran and Türkiye. The costs for these wheelchairs ranged from 531 somoni (US$ 50) to 5000 somoni (US$ 456), while the cost of transport could range from 223 somoni (US$ 21) to 616 somoni (US$ 58). This resulted in landed costs of 876 somoni (US$ 82) to 5400 somoni (US$ 492). The weighted average price of a manual wheelchair in Tajikistan was approximately 1200 somoni (US$ 112). The product cost was roughly 60%, representing 720 somoni (US$ 67), while transport costs equated to 40%, representing 480 somoni (US$ 45).

The key driver for those procuring wheelchairs in Tajikistan is to secure products at low cost to secure greater affordability. However, procurement in 2021 was not based on any technical or quality standards or the needs of users. The baseline cost for a minimum quality standard wheelchair in the region was 1919 somoni (US$ 175), excluding transport and shipping costs. This is a higher cost than the approximate weighted average price of a manual wheelchair.

In comparison, WHO and UNICEF offer quality approved wheelchairs through their supply catalogues for global procurement and delivery that range from 1863 somoni (US$ 175) to 5472 somoni (US$ 515). These prices are indicative and only focus on the product, excluding transport and shipping costs. It is, therefore, advisable and important always to compare the landed costs for any procurement option (i.e. the product plus transport plus shipping plus delivery) and not just the product.

Conclusions for a market shaping approach

The assessment came to a number of conclusions. Existing data on demand should be further mapped and disaggregated to capture age, gender and user needs in order to distinguish and differentiate the different models of wheelchairs needed. Tajikistan also needed to increase its supply of wheelchairs and diversify the number of models offered to ensure users have a more comprehensive range of wheelchairs.

Additionally, Tajikistan needed to adopt some minimum reference standards for the types and models of wheelchairs that are needed and to consider minimum service standards. More technical staff capacity would be required to ensure wheelchairs are appropriately provided to users, such as customizing a chair to the person and their unique needs.

Adopting reference standards would support the Government to assess cost–efficiency and effectiveness of interventions. The Government could consider developing closer cooperation with and between the different service providers and suppliers, creating a sort of consortium to plan procurement needs over a year. Pooling the overview of demands would also leverage collectively greater price discounts on procurement from manufacturers based on minimum reference standards.

Tajikistan can secure additional gains in coverage and reduce expenditure by savings made from reducing the loss caused by discarding equipment, which equates to a loss of accumulated investment. By applying an approach to recover, reuse, repair, recondition and recycle, coverage could be made by capitalizing on products already provided.

Annex 2. Skills required to complete a market assessment

Analytical skills

Data analysis: ability to interpret and analyse market data, trends, sales figures, consumer demographics and private sector performance.

Research skills: proficiency in conducting market research, gathering relevant information and synthesizing insights from various sources.

Statistical analysis: understanding statistics, methods and tools to derive meaningful conclusions from market data.

Competitive analysis: ability to assess supplier strengths, weaknesses, opportunities and threats (SWOT analysis) to identify market positioning and differentiation strategies.

Critical thinking: capacity to evaluate market information critically, such as identifying patterns and anticipating potential outcomes.

Strategic thinking

Market segmentation: capability to divide markets into distinct segments based on technical and demographic factors.

Trend forecasting: ability to predict future market trends and anticipate any shifts in behaviour, needs, technology, regulations and economic conditions.

Scenario planning: capacity to develop scenarios and strategic plans based on programmatic changes and in response to market conditions and uncertainties.

Interpersonal skills

Communication skills: effective communication to articulate market insights, findings and recommendations to stakeholders, team members and clients.

Collaboration: ability to work collaboratively with cross-functional teams, including marketing, sales, product development and finance, to align market strategies with organizational goals.

Client management: skill in understanding and addressing the motivation, needs and expectations of clients or internal stakeholders while providing market analysis and recommendations.

Negotiation skills: capacity to negotiate and influence decision-making processes based on market insights and strategic recommendations.

Adaptability: because market dynamics are constantly evolving, the ability to adapt to change in real time, learn new skills and stay up-to-date with industry trends and emerging technologies are crucial for effective market assessment.

Technical skills

Market assessment: familiarity with market research and needs assessment tools and techniques, such as surveys, focus groups, interviews and data analytics software.

Financial analysis: basic understanding of financial concepts and metrics relevant to market assessment, such as return on investment, market share, pricing strategies and cost analysis.

Technical knowledge: understanding of health and social care programmes and key sectors of engagement and how health and social care systems work.

Annex 3. Questions to guide market assessment

The following questions may assist users of this guide in carrying out an AT market assessment. Use of these basic market questions can guide stakeholders to collect relevant information and gain insights into market dynamics, potential market growth opportunities and develop strategies to address consumer needs effectively.

Defining the market

Market segments

What are the specific assistive product categories or market segments of interest for the assessment?

How is the assistive product market segmented based on disability type, age group or functional needs?

Which segments represent the largest market opportunities and why?

Are there any underserved or niche segments within the market that present growth potential for assistive product providers?

Which segments have the highest turnover?

Price

What products are sold?

What are the number of units sold and the indicative price?

If the information is not available, ask for volume and value to get indicative pricing.

Market size

What is the size of the assistive product market in terms of demand and revenue, and is there any growth rate?

Is it possible to break down the different market sizes in terms of volumes (units) and values (revenue)?

Demand

Which are the biggest products of interest demonstrated by demand?

How do suppliers presently choose what products to stock and sell?

Supply

What is the geographical coverage or reach of suppliers?

What is the geographical scope of the market, and are there any regional differences in demand or preferences?

Do suppliers see any emerging market opportunities?

Do suppliers offer warranty periods?

Regulations

What regulations do suppliers have to follow, and are there any quality standards?

Opportunities

What are the key opportunities for growth and innovation in the assistive product market?

How can assistive product providers address affordability, accessibility and awareness challenges to expand market reach?

Challenges

What are the major challenges or obstacles hindering market development, growth, or the adoption of AT?

Are there any external factors, such as economic conditions (inflation, forex) or geopolitical events, impacting the market or its stability?

User need, behaviours and preferences

User profile

Who are the primary clients for assistive products (e.g. private individuals, clinics, medical service providers, pharmacies)?

What are the specific needs, preferences and challenges faced by individuals with distinct types of disabilities or functional limitations?

What sort of support is offered in terms of fitting, customization or training?

User need

Do available products cater to a wide range of different users?

Where do suppliers get information on user need and preferences?

Perceptions

How do individuals with disabilities perceive the products?

Do suppliers get user feedback?

Are there any opportunities for improving customer satisfaction or loyalty?

What are the pain points or unmet needs of customers, and how can they be addressed?

Preferences

What features or functionalities do consumers prioritize when selecting assistive products?

Decision-making

How do users and caregivers make decisions about selecting and buying assistive products?

What factors influence consumer-purchasing decisions in this market?

Do consumers prefer different brands or products in the market?

Barriers

Are there any barriers to entry or factors affecting competition in the market?

Are there any emerging trends or changes in consumer preferences?

What challenges do suppliers face in catering for the needs of individuals with disabilities?

Transport and shipping

Understanding the choices made for international transport and shipping involves considering various factors that influence logistic decisions, such as costs, efficiency, and reliability. Here are some questions to ask.

Supply

From where do suppliers import most of their products (i.e. country of origin)?

What are the decision-making criteria for selecting suppliers and manufacturers?

Do suppliers monitor performance delivery targets?

How often do suppliers order and import?

Cost

What does it cost suppliers to import and ship a container from the different countries of origin?

Do suppliers pay import taxes, whether for the product or the separate components and raw materials necessary for making or assembling the products?

What is the difference between landed costs and product costs?

What are the main considerations for transportation costs (e.g. freight rates, fuel surcharges, handling fees, time)?

How are transportation services and costs negotiated and managed with freight carriers (tender, direct order)?

Mode of transport

What modes of transport are used (sea, air, road, rail)?

How do suppliers choose what mode of transport to use: cost, transit time, reliability and nature of the cargo?

Shipping

What are the primary trade routes for international shipping needs?

How are routes selected based on factors such as distance, transit time, fuel costs, geopolitical stability and weather conditions?

How is cargo handled and packaged?

Do shippers consider any environmental issues or impacts?

Importation

What customs requirements and regulatory compliance factors should be considered?

Do handlers have to comply with any documentation, permits and licences?

Distribution channels

Distribution

What are the primary channels used to distribute assistive products (e.g. health care providers, specialty retailers, online platforms)?

How do users access and acquire assistive products, and what role do health care providers or insurance companies play in the distribution process?

Barriers and opportunities

Are there any barriers to access or affordability for individuals seeking assistive products?

Are there any emerging distribution trends or partnerships with retailers, online platforms or assistive product specialists?

Competitive landscape

Who are the major manufacturers, suppliers and distributors of assistive products in the market?

What does the competition look like in the market?

What are the market shares of different market players?

Are there any informal arrangements to distribute products or services within this market?

What are the strengths, weaknesses, opportunities and threats (SWOT) for the supplier landscape?

Are there any barriers to entry or factors affecting competition in the market?

Regulatory environment

What regulations or requirements and standards governing the procurement, import, sale and distribution of assistive products affect their business?

Do any regulations follow or reference specific national or regional legislation (e.g. the United States Disabilities Act or the European Accessibility Act) or other source to influence market access and product compliance?

Are there any upcoming regulatory changes or updates that could impact the assistive product market?

What are the relevant regulations or standards governing this market?

How do regulatory changes or government policies influence market dynamics, and do suppliers have an influence on these?

Are there any compliance requirements or barriers to entry for new entrants?

Technological trends and innovation

Advancements

What are the latest technological advancements and innovations in assistive products?

Do suppliers keep up with any technological advancements and innovations in AT?

Trends

Are there any notable trends in product design, usability or integration that are of interest to the business?

Are there any notable trends in product design, usability or integration with mainstream technology platforms?

Innovation

How do emerging technologies such as robotics, artificial intelligence and wearable devices impact the development of the assistive product market?

Future outlook and market forecasting

What are the long-term prospects for the assistive product market, and how is it expected to evolve?

Where do suppliers or other stakeholders see this market heading in the next 5–10 years?

What are the potential disruptors or game changers that could impact the market?

How can businesses position themselves strategically to capitalize on future opportunities?

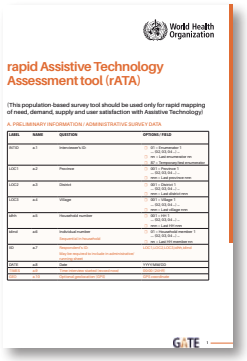
How will demographic trends such as ageing populations and increasing prevalence of disabilities impact market demand?

What role will advancements in technology and health care policies play in shaping the future of AT?

Annex 4. WHO tools and resources

Tool for rapid assistive technology assessment

- Population-based survey
- Mapping need, demand, supply and satisfaction with assistive products.



Rapid assistive technology assessment tool (rATA). Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/341939). Licence: CC BY-NC-SA 3.0 IGO.

Instruction manual for AT capacity assessment

- Evaluation of national capacity for delivering AT
- Data collected from documents and key stakeholders in the country
- Results in recommendations for policy and systems.

Assistive technology capacity assessment (ATA-C): instruction manual. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/343615). Licence: CC BY-NC-SA 3.0 IGO.

Priority assistive products list

- List of 50 products every person should have access to
- May be used as the basis for development of a national assistive products list.

WHO, USAID, International Disability Alliance. Priority assistive products list: improving access to assistive technology for everyone, everywhere. Geneva: World Health Organization; 2016 (https://iris.who.int/handle/10665/207694). Licence: CC BY-NC-SA 3.0 IGO.

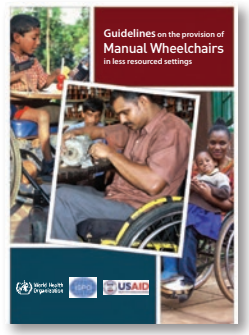
Assistive product specifications, procurement, standards and guidelines

Four documents provide:

- specifications for 26 assistive products (representing 25 items on the assistive products list); and
- may be adopted by national governments or adapted to meet contextual needs; and
- consistent format for product specifications; and
- specifications include product description, product requirements and supply and service requirements.

Assistive product specifications and how to use them. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/339851). Licence: CC BY-NC-SA 3.0 IGO.

Wheelchair provision guidelines. Geneva: World Health Organization; 2023 (https://iris.who.int/handle/10665/368493). Licence: CC BY-NC-SA 3.0 IGO.



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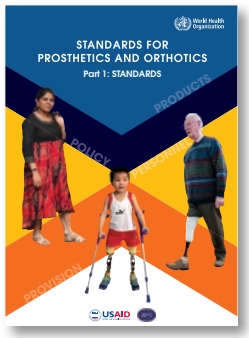
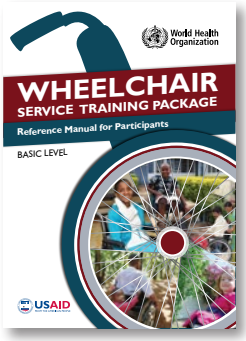


WHO, USAID. Standards for prosthetics and orthotics. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/259209). Licence: CC BY-NC-SA 3.0 IGO

Training programmes and resources

- online training in assistive products
- wheelchair service training programme.

Online training in assistive products (TAP) [online application]. Geneva: World Health Organization; 2025 (https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/assistive-technology/training-in-products#:~:text=TAP%20includes%20a%20range%20of,needs%20of%20the%20local%20population).



Wheelchair service training package: basic level. Geneva: World Health Organization; 2012 (https://iris.who.int/handle/10665/78236). Licence: CC BY-NC-SA 3.0 IGO.

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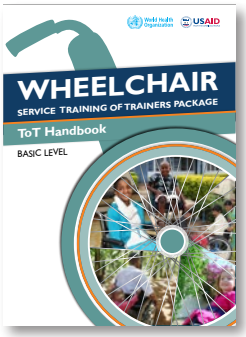

Wheelchair service training of trainers package. Geneva: World Health Organization; 2017 (https://www.who.int/publications/i/item/9789241512398). Licence: CC BY-NC-SA 3.0 IGO.

Additional wheelchair service training packages are available from WHO.

Annex 5. Market shaping tools and resources

There are several market shaping reports available that provide insight and analysis into how different organizations seek to influence the market to achieve better outcomes, particularly in global health and development contexts. Some interesting notable examples follow.

ATscale publishes a regular global assistive product market report, as well as product narratives on wheelchairs, hearing aids and orthotics and prosthetics, which may be used to better understand the AT market globally *(1,2)*.

Access to Medicine Foundation publishes the Access to Medicine Index, which focuses on evaluating pharmaceutical companies and their efforts to improve access to medicine in low- and middle-income countries, including market shaping activities *(3)*.

Clinton Health Access Initiative undertakes market shaping, which analyses market shaping strategies to increase access to essential medicines and diagnostics, including negotiating lower prices and supporting local manufacturing *(4)*.

FIND (Foundation for Innovative New Diagnostics) focuses on medical devices and diagnostics, leveraging the market to improve access to diagnostics to spur diagnostic innovation and make testing an integral part of resilient health systems *(5)*.

Gavi, the Vaccine Alliance, undertakes market shaping on vaccines, working to improve the health of markets for vaccines and other immunization products *(6)*. It highlights Gavi's approach to shaping vaccine markets to ensure sustainable supply, affordable prices and innovation in vaccine development.

PATH assesses supply and demand for health products and builds markets that address the five As: affordability, availability, assured quality, appropriate design and awareness *(7)*.

The Global Fund focuses on tuberculosis, HIV/AIDS and malaria. Its next-generation market shaping approach outlines how it will work with governments, communities, civil society, health workers, and the private sector to meet the targets set out in the Sustainable Development Goals *(8)*.

UNICEF leverages the power of public supply chains to drive change for children and provides a process guide and compendium of proven methods for strengthening supply chains *(9)*.

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The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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