Harvard Business School | Impact-Weighted Accounts Project

Practitioner Guide to Calculating Product and Service Impact

June 2022

Impact-Weighted Accounts contact: ImpactWeightedAccounts@hbs.edu
Author contact: Ryan Daulton, rdaulton@hbs.edu

Table of Contents

Introduction

Why Measure Product and Service Impact

The transition to an inclusive and sustainable economy requires a change in how the performance of corporations is measured and reported. A growing focus on non-financial reporting by corporations, investors, and stakeholders is challenging historical notions of value creation, indicating a paradigm shift in the role of the corporation towards producing shared prosperity. A critical component of non-financial reporting is the measurement and valuation of societal impacts that affect stakeholders beyond investors. As corporate accounting systems are augmented to include impact, the extent to which they accelerate social change will depend on the scope of impacts measured.

Despite significant progress in theory and data, measuring corporate impact across all stakeholders remains challenging. Frameworks to measure and value environmental impacts are rigorously developed and proposed rules for climate-related disclosures were recently announced by regulators and standard setters.[1,2] On the other end of the spectrum are impacts that affect the customers of products and services. Methods to measure these impacts are in a nascent stage with only principles and preliminary frameworks available to guide corporations. The measurement of product and service impact represents the innovation frontier of impact accounting.

As customers are increasingly influenced by the social impact of products and services they purchase, measuring the impact of corporations on customers will create information systems that empower informed purchasing decisions. The measurement of product and service impact is a powerful tool for corporations, generating insights that build strong customer relationships and create a competitive advantage. Just as importantly, the disclosure of comprehensive impacts in corporate reporting will scale social change by enabling investors to allocate capital to optimize risk, return, and impact. Regulators and standard setters will remain critical to enforcing disclosure requirements and ensuring that new standards are transparent and decision-relevant. Altogether, measuring product and service impact is necessary for creating an economic system that optimizes value for all stakeholders.

Users of this Guide

This document, produced by the Impact-Weighted Accounts project ("IWA") at Harvard Business School, guides practitioners in designing accounting systems that measure the impacts of products and services. Specifically, this document describes a step-by-step process for identifying, measuring, and valuing product and service impacts for the purpose of creating impacted-weighted accounts. After utilizing this guide, the user will have produced two important outputs.

I. **Product and service impact framework:** A comprehensive framework of product and service impacts for each division, company or industry to which the guide is applied

[1] "IFRS Foundation announces International Sustainability Standards Board, consolidation with CDSB and VRF, and publication of prototype disclosure requirements," November 3, 2021, https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-vrf-publication-of-prototypes/, accessed May 2022.

[2] "SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors," March 21, 2022, https://www.sec.gov/news/press-release/2022-46, accessed May 2022.

II. **Impact pathways:** An impact pathway is a calculation that links business-unit level data to an impact on a stakeholder, and monetizes the impact in currency units. Impact pathways need to be created for all impacts identified in a product and service impact framework

This guide is built on the product and service impact methodology developed in *Impact Accounting for Product Use: A Framework and Industry-specific Models* and is informed by testing of the methodology in corporate pilot programs throughout 2021 and 2022.[3] Users of this guide should be aware that this version represents the IWA methodology at a single point in time. The IWA methodology continues to evolve in scope and rigor as it is informed by academic research, corporate pilots and testing, guidance from standard setters, and feedback from stakeholders.

An important consideration in the development of this guide was extant information that has been published by other organizations. Throughout, we utilize frameworks and tools that have been developed by other leading organizations in the impact measurement and valuation ecosystem. We believe that the harmonization of frameworks and methodologies is a critical step along the path to widespread adoption of impact-weighted accounts.

Refer to **Appendix 1** for information about the Impact-Weighted Accounts project at Harvard Business School and how you can get in touch with us.

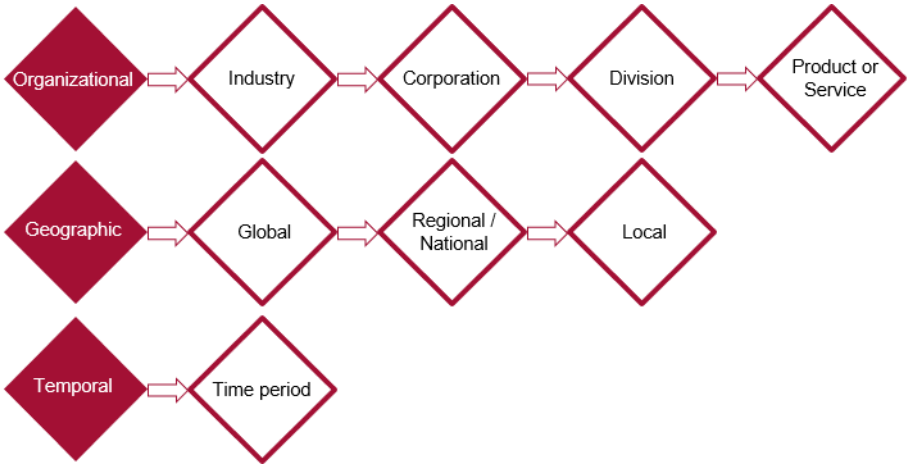
[3] Serafeim, George and Trinh, Katie, "Impact Accounting for Product Use: A Framework and Industry Specific Models," Harvard Business School Working Paper, No. 21-141, 2021.

Framing the Design Process

Project Scope

The first step in designing a product and service impact framework is to identify the division, corporation, or industry for which the framework will measure impact. A product and service impact framework contains a list of impacts that are financially material to a business-unit and material to customer stakeholders of a business-unit, applying the concept of double-materiality. Due to the idiosyncratic nature of products and services, impacts may vary significantly for each business-unit. Industries or corporations that sell products or services with similar characteristics can be analyzed at the aggregate level. Setting clear boundaries for framework design is critical for identifying relevant impacts and mitigating concerns of intractability. **Figure 1** shows dimensions that should be considered in delimiting the scope of the framework.

Figure 1. Boundaries for Determining Scope[4]



A helpful principle when designing a product and service impact framework for the first time is to take a "start low, aim high" approach. In order to demonstrate proof-of-concept and generate buy-in with key decision makers, it is valuable to start with a small set of easier to measure impacts with the intention to broaden the scope and deepen insights over time. The table in **Appendix 2** provides guidance for scoping all of the design phases of a product and service impact framework.

To maximize the value of measuring impact, designers of impact measurement systems should strive, in the long run, to measure all material impacts that can be reasonably attributed to a corporation. A theoretical end-goal for any impact measurement and valuation system is to reflect the overall contribution of the organization to the welfare of society.[5] At the same time, the implementation of impact accounting systems is a journey that requires ongoing investment.

What is Impact

A clear working definition of impact informs accurate framework design, aids in the interpretation of results, and provides a roadmap for broadening the scope of the framework in the future. The definition

[4] Adopted from "Social and Human Capital Protocol," Social & Human Capital Coalition, (February 2019), p. 25.
[5] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 5.

of impact that follows refers to all types of impact, including environmental, employment, and product and service. After defining impact in general, we will move to the definition of product and service impact, which is a sub-category of total impact.

Impact is generally defined in a consistent manner across impact measurement and valuation methodologies. A central theme is that impact represents a change in the wellbeing or welfare of a stakeholder. A threshold test is included in various definitions, with impact being limited to a persistent or long-term change in the wellbeing of a stakeholder. Definitions may include direct and indirect changes in wellbeing or welfare.

- ***Impact:*** *A change in the wellbeing of a stakeholder of a corporation as a result of the operations and/or decisions of that corporation*

Components of Impact: Stakeholders, Capitals, and Value Chain

In addition to a working definition of impact, it is helpful to build a tangible understanding of what is being measured. Impacts generated by corporations occur across three components of impact. The first component is the stakeholder, or the entity that is affected by an impact. Stakeholder classifications can be generalized or disaggregated into highly specified categories. A classification of stakeholders is derived by the Impact Economy Foundation in its Impact-Weighted Accounts Framework, shown in **Figure 2**.[6]

Figure 2. Stakeholder Classification		
• Clients or Customers	• Employees	• Governments, local communities, other
• Investors	• Nature	• Suppliers

A second component of impact is the type of impact, or the type of capital. The International Integrated Reporting Council ("IIRC") in its Integrated Reporting Framework defines capitals as stocks of value.[7] Capitals are categorized in **Figure 3** from the Integrated Reporting Framework. A positive impact results in an increase in a capital stock and a negative impact results in a decrease in a capital stock.

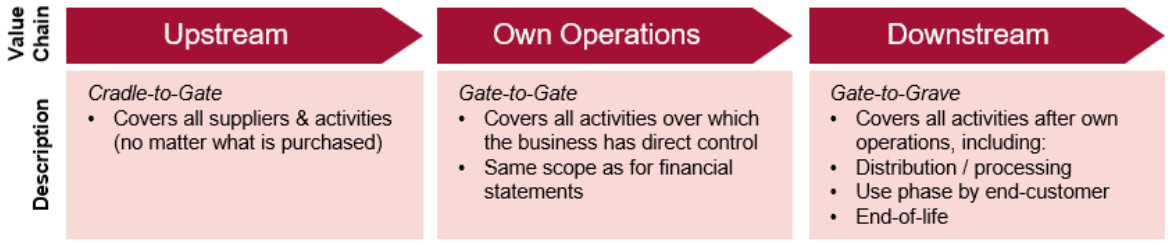
For example, the dissemination of misinformation on social media may result in a decrease in trust in society, and a decrease in the social and relationship capital stock. Capitals categorize types of changes in wellbeing or welfare. Impacts that affect a stakeholder can occur across multiple capitals. For example, in the case of customer stakeholders, the impact of a grocery store may increase human capital by selling nourishing food and increase social capital by supporting community networks.

Figure 3. Capital Stocks		
• Financial Capital	• Human Capital	• Intellectual Capital
• Manufactured Capital	• Natural Capital	• Social and Relationship Capital

[6] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 8-9.
[7] "International <IR> Framework," International Integrated Reporting Council, (January 2021), p. 15.

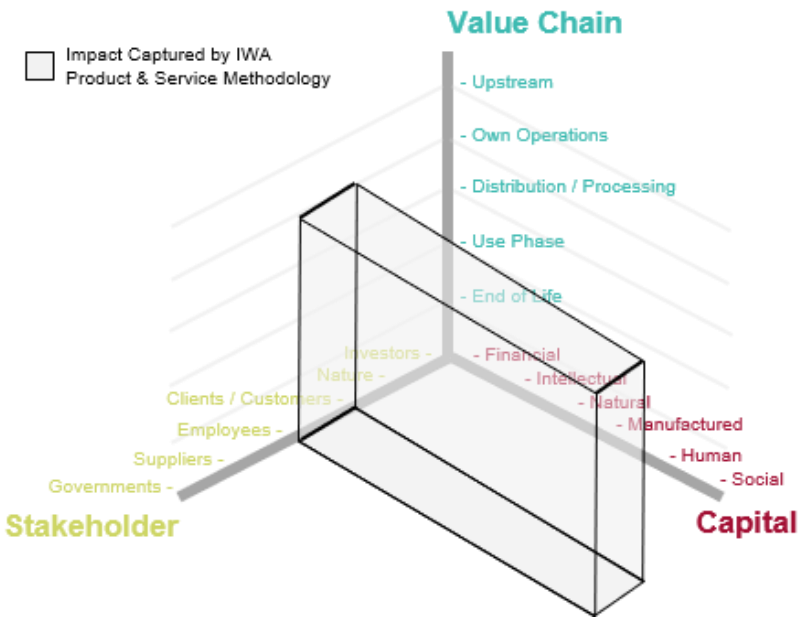
A third component of impact is the value chain, or where the impact occurs. Corporations affect stakeholders and capitals beyond the direct decisions and operations of the organization. The decision to purchase a raw material from a particular supplier may create a positive or negative impact upstream. A product or service may have multiple pathways to reach an end-customer, such as selling through a retail channel or direct to customer, presenting a unique mixture of positive and negative impacts. **Figure 4** shows activities from cradle to grave in the value chain from the General Methodology of the Value Balancing Alliance.[8]

Figure 4. Value Chain Stages



The intersection of the three impact components can be analyzed on a three-dimensional plot as shown in **Figure 5**. To measure the total impact of a corporation, impact accounting systems should consider all stakeholder, capital, and value chain combinations. Not all combinations will contain relevant impacts for a business-unit; however, all combinations should be analyzed to determine whether an impact is present in accordance with the concept of double-materiality.

Figure 5. The Three Components of Impact



The primary focus of this guide is on measuring changes in wellbeing across all capital types for client or customer stakeholders as shown in **Figure 5** by the grey box. The scope is further limited to measuring

[8] "Methodology, Impact Statement General Paper, Version 0.1," Value Balancing Alliance, (February 2021), p. 13.

impacts from a firm's operations through the end-of-life of the product or service. The guide also provides guidance for measuring environmental impacts related directly to product or service use and end-of-life, in which case nature is the relevant stakeholder. The environmental impacts discussed are not captured by the grey box in three-dimensional figure above.

Impact-Weighted Accounts Methodology

The Impact-Weighted Accounts methodology measures a company's impact performance across three pillars: environmental, employee, and product and service. The methodology is guided by key principles that are designed to ensure consistency in its application. IWA principles are listed in **Appendix 3**. The environmental and employee pillars of the IWA methodology measure impact to nature and employee stakeholders, respectively. Governments and suppliers as stakeholders are not currently included in the Impact-Weighted Accounts methodology due to the first-order principle of IWA; however, a government entity may be in-scope as a customer stakeholder when purchasing a company's products or services. Impacts to investor stakeholders are measured by traditional financial accounting methods.

This guide focuses on clients or customers as stakeholders and is an extension of the product and service pillar of IWA. The primary insight of the product and service methodology is a system that helps to identify impacts that affect customer stakeholders across all capital types. The product and service methodology, shown in **Figure 6,** contains two key impact indicators and three dimensions that measure impacts to customers.[9]

To provide a holistic assessment of product and service impact, the methodology includes two additional dimensions that consider impact of the product or service to the environment, or nature as a stakeholder. The two environmental dimensions analyze impact during the customer use and end-of-life phases of a product or service, corresponding to Scope 3, category 11 and Scope 3, category 12, respectively, under the Greenhouse Gas Protocol.[10] The environmental dimensions can alternatively be included in the environmental pillar of impact-weighted accounts.

Figure 6. Product and Service Impact Indicators and Dimensions

Reach		Stakeholder: Client or Customer			Stakeholder: Environment	
Quantity	Duration	Access	Quality	Optionality	Use Phase	End of Life
The number of individuals reached	Length of time impact is generated	Affordability and access in underserved markets	Basic need, effectiveness, and health & safety	Information availability, free will, and fair pricing	Emissions and pollution from use of sold products	Emissions and pollution from end of life treatment, and value of material recycled and recovered
Key Impact Indicators		*Impact Dimensions*				

[9] Serafeim, George and Trinh, Katie, "Impact Accounting for Product Use: A Framework and Industry Specific Models," Harvard Business School Working Paper, No. 21-141, June 2021.

[10] "Corporate Value Chain (Scope 3) Accounting and Reporting Standard," Greenhouse Gas Protocol, World Resources Institute and World Business Council for Sustainable Development, (September 2011), p. 48-49.

The objective of this guide is to aid in the design of a customized product and service impact framework for a division, company, or industry. The customized framework will measure and monetize the change in wellbeing of customers and nature from the use of a product or service. The impact measured will span from a firm's operations through the product or service end-of-life. The following steps summarize the design process.

- **Step 1:** Categorize products and services into discrete groups with similar characteristics. For each product and service group, identify customer stakeholders that are affected by similar types of impacts along the value chain from firm operations to end-of-life
- **Step 2:** Analyze each customer stakeholder group from Step 1 using the product and service impact indicators and dimensions in **Figure 6** to construct a list of impacts that are relevant to each group. The product and service impact dimensions indirectly capture impacts across all capital types
- **Step 3:** Design impact pathways for each impact identified in Step 2 by measuring and monetizing those impacts

The step-by-step process for constructing a customized product and service impact framework is documented below.

Step 1. Identify Customer Stakeholders

Cluster Products and Services

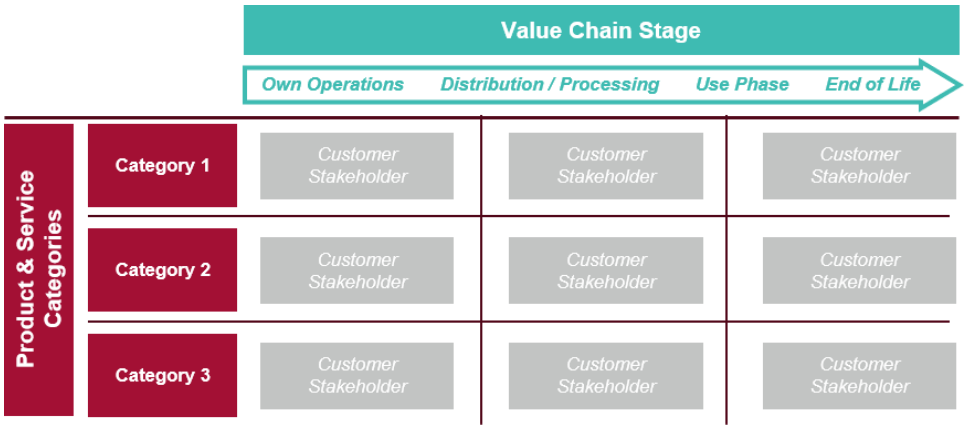
The first step after selecting the division, company, or industry that the framework will measure and limiting the scope of the framework along the dimensions in **Figure 1** is to cluster the in-scope products and services into categories with similar characteristics, such as customer value proposition, distribution channel, and end-market. Product and service categories are typically well defined within an organization, often corresponding to division boundaries. If you are designing a framework using public information only, reporting segments in financial disclosure or annual reports are a useful resource, often highlighting unique product and service offerings. Company websites and marketing documents are also useful for clustering the products and services offered by a company into discrete categories.

Customer Stakeholder Matrix

After clustering products and services, the next step is to identify customer stakeholders. Customers can be identified using a matrix that lists the product and service categories on the left and value chain stages on the top as displayed in **Figure 7**.[11] The aim is not to construct an inexhaustible list of customers, but to identify customers that are affected by similar types of impacts. If two separate customer stakeholders experience similar impacts, it may be appropriate to combine them into a single group to simplify the design process. This is particularly true when designing a first-generation impact framework. Some intersections in the matrix may not contain customer stakeholders. For example, manufacturers of durable goods do not generate customer impacts during the own operations stage, whereas consulting firms often generate many customer impacts during the own operations phase.

To avoid excluding any customer stakeholders, it is important to analyze the product or service sold from the company's own operations through end-of-life and identify customers that utilize the item as an input or realize the item as an end-customer. This process is context specific by industry. An item might be sold directly to the end-customer or pass through several intermediate phases. Customer stakeholders with material negative impacts should never be omitted from the analysis.[12]

Figure 7. Customer Stakeholder Matrix



[11] Adopted from "Downstream methodology paper," Value Balancing Alliance, (December 2021), p. 7.
[12] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 25.

End-customers

An essential part of constructing a stakeholder matrix is to identify the end-customer for each product and service category.[13] An end-customer is the consumer or business in the value chain that uses the final product or service after intermediate steps, such as distribution, processing, and retailing, before discarding the item at the end-of-life phase. The use phase by an end-customer is important because it is the point at which most product and service impacts are generated. Examples of end-customers are shown in **Figure 8** for industries that IWA has applied the product and service framework using public company disclosure.

Figure 8. End-customers by Industry

Industry	End-customer
Automobile	Consumer utilizing vehicle for transportation
Aviation	Passenger
Consumer Finance	Credit card holder, Merchant
Oil and gas	Consumer fueling an automobile (among many)
Packaged Foods	Consumer eating and realizing nutrient content
Pharmaceuticals	Patient
Social Media	Active user on a platform, Advertiser
Telecommunications	Wireless and broadband customer, Commercial user
Water Utilities	Household consumer, Industrial business

In business-to-consumer ("B2C") industries, the end-customer is typically a consumer and is reasonably easy to identify. The identification of the end-customer in business-to-business ("B2B") industries requires additional consideration. It is feasible for B2B corporations to sell directly to the end-customer, for example in the case of software or consulting services. In these scenarios, the end-customer in the value chain is a business and the most relevant impacts are typically knowledge transfer, cost savings or efficiency improvements. An alternative pathway for B2B corporations is when the end-customer is a downstream consumer. Upstream industries that produce raw materials, such as agricultural, chemical, or building inputs, are included in this category. When measuring impact for upstream B2B corporations, a portion of the downstream, end-customer impact must be attributed back to the upstream corporation. The attribution of impact to upstream corporations requires careful consideration to reasonably allocate impact across the value chain and avoid double-counting of impact.

A key learning from testing the IWA product and service methodology through corporate pilots is that a significant portion of impacts affect end-customers during the use phase, solidifying the importance of identifying the end-customer. Despite the importance of the end-customer, in Step 2 we will analyze all groups in the customer matrix for material impacts. In order to identify all relevant customer stakeholders, it is important to engage with business unit leaders for each product and service category to inform the customer mapping process.

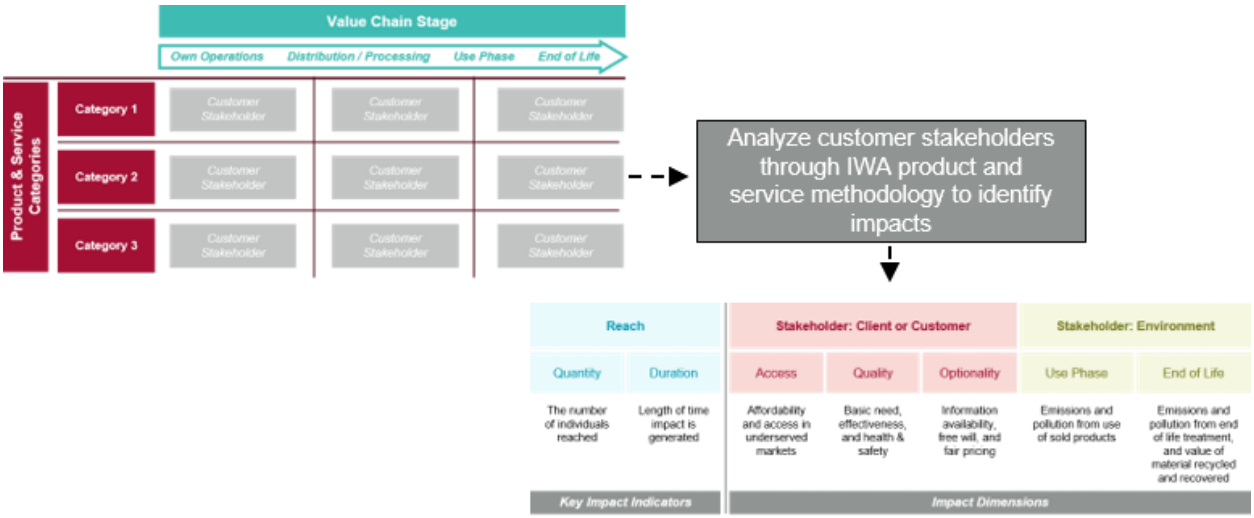
[13] End-customers are end-users in the Greenhouse Gas Protocol, see "Technical Guidance for Calculating Scope 3 Emissions (Version 1.0)," Greenhouse Gas Protocol, World Resources Institute and World Business Council for Sustainable Development, (2013), p. 113.

Step 2. Identify Material Impacts

The objective of the mapping exercise in Step 1 is to cluster products and services into categories and for each category identify customer stakeholders that are impacted by similar types of impacts. This mapping process simplifies Step 2, the identification of material impacts. A key learning from corporate pilots is that the identification of material impacts requires knowledge of the customer value proposition and research pertinent to a corporation's products and services.

The product and service methodology classifies impacts into dimensions with explicit definitions to aid in the identification of impacts. The total impact calculated represents the change in wellbeing for a customer stakeholder of a product or service in a reporting year. The impact dimensions are designed to capture impact across all capital types in the Integrated Reporting Framework of the International Integrated Reporting Council. As illustrated in **Figure 9**, each customer stakeholder for a product or service should be analyzed separately to identify material impacts. The process can be broken down into two phases, key impact indicators and hypothesized impacts.

Figure 9. Utilizing the IWA Methodology to Identify Impacts



Key Impact Indicators

Key impact indicators are primary data collected by a corporation to measure the scale or volume of a business in a reporting year. Key impact indicators are used to measure the scale of impact, typically by multiplying the impact of a single unit of a product or service by the key impact indicator.

For a product or service with a life of more than one year, it is also necessary to measure or calculate the duration of the item sold. Duration is usually calculated using primary data collected by a corporation, but secondary data can also provide reliable estimates of duration. For example, the product life of an automobile can be estimated using internal company information or calculated using government or regulatory data measuring average annual miles driven in a geography. As a starting point, **Figure 10** lists key impact indicators for industries that IWA has applied the product and service framework using public company disclosure.

Figure 10. Key Impact Indicators by Industry		
	Key Impact Indicator	
Industry	**Quantity**	**Duration**
Automobile	• Vehicles manufactured and sold	• Product life (miles) • Annual usage (miles)
Aviation	• Revenue passengers • Revenue miles	• N/A
Consumer Finance	• Cards issued • Cards per cardholder • Merchants in network	• N/A
Oil and gas	• Volume of gasoline, natural gas, and other refined petroleum products	• N/A
Packaged Foods	• Calories sold	• N/A
Pharmaceuticals	• Patient doses • Patients treated	• N/A
Social Media	• Daily active users	• N/A
Telecommunications	• Wireless and broadband customers	• N/A
Water Utilities	• Utility connections and customers • Water volume	• N/A

Identification of Impacts

The second phase of Step 2 is the identification of impacts. The IWA product and service methodology contains three dimensions that identify material impacts to customers and two dimensions that identify material impacts to nature. Each impact dimension contains multiple types of impacts. For example, the access dimension contains two impacts. The first impact is affordability and the second is underserved. The two impacts are designed to measure discrete aspects of the access dimension. The same logic applies to each dimension in the framework, with several impact types serving to capture the total value of the dimension. The impact dimensions serve as a proxy for measuring impact across all types of capital.

For any customer stakeholder, an impact dimension may contain no material impacts or several material impacts as a result of the unique characteristics of the industry. **Appendix 4** shows the dimensions, defines the impact types that are included in each dimension, and lists key questions for determining whether a particular impact applies to the customer stakeholders identified in Step 1. Note that certain impacts can only be positive, whereas others may be positive or negative. To determine whether an impact applies to a customer stakeholder, the key questions for inclusion should be considered for each impact. If the answer to all of the key questions is yes, then an impact type has been identified.

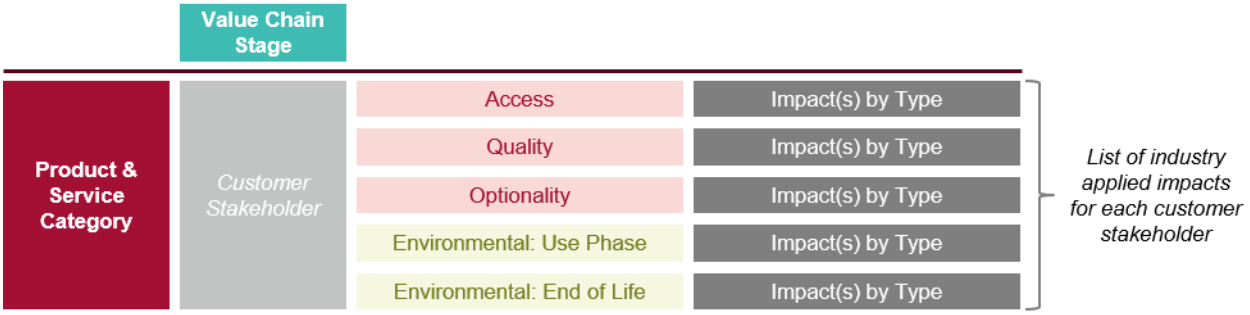
Contextualize Impacts

After identifying an impact, it must be applied to the customer stakeholder being analyzed and the industry in general. The process of applying an impact to an industry is accomplished using the definition of the impact in **Appendix 4** and brainstorming contextualized impacts. Multiple impacts may be included per impact type. For example, consider the packaged food industry and the underserved impact under the access dimension. Several multinational packaged food companies meet the questions for inclusion by addressing UN Sustainable Development Goal 2 and distributing products to customers

in emerging markets. Applying the impact to the industry requires the user to answer the question in the definition, "What is the incremental value realized by underserved customers who gain additional access benefits?" The additional value of packaged food to underserved customers in emerging markets includes but is not limited to shelf stability, food security, and nutrient fortification to address malnutrition. For examples of contextualized impacts, refer to **Appendix 5** for impacts that IWA has applied to industries using public company disclosure.

All impacts that are identified by answering yes to the questions for inclusion need to be applied to the industry context. To develop a comprehensive framework, impacts should be identified for each customer stakeholder; however, it is typical for a majority of impacts to affect end-customer stakeholders only. As shown in **Figure 11,** at the end of Step 2 a list of industry applied impacts will have been constructed for each customer stakeholder.

Figure 11. Impacts Identified at the Customer Stakeholder Level

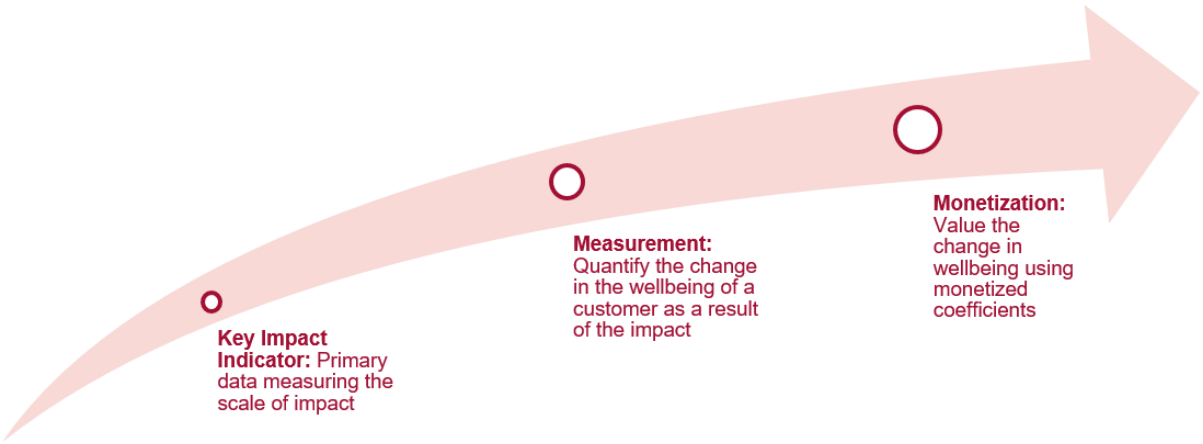


Step 3. Design Impact Pathways

What are Impact Pathways

The final step is to measure and monetize the impacts identified in Step 2. The process requires the construction of individual impact pathways for each impact. An impact pathway is a calculation that connects a key impact indicator to an impact, linking the steps from business activity, to the change in wellbeing of a customer, to the value of the impact in monetized units. The steps of an impact pathway are shown in **Figure 12**.[14] For example, a well-known impact pathway is the valuation of greenhouse gas emissions, linking business activities to impact through measurement of CO_2 equivalent and monetizing the emissions using the social cost of carbon.

Figure 12. Impact Pathway



Measure Impact

The first linkage in the impact pathway is the measurement method. This linkage is a quantitative method for measuring the change in wellbeing of a stakeholder. While many impacts may be qualitatively described through intuition, creating a measurement method requires research to design a fit for purpose calculation. Measurement is performed by multiplying the key impact indicator by a factor that relates the business activity to the impact on the stakeholder.

For example, in the packaged foods industry, a key impact indicator is calories sold per year and the impact on the customer is the health effects of consuming the food. A measurement method in this example would link the calories sold per year to any increase or decrease in the prevalence of a diet-related illness. The measurement factor would be the change in prevalence of the diet-related illness per calorie sold in a reporting year. Refer to **Appendix 6** for generalized methods for measuring impact.

The research and identification of the measurement factor requires either dedicated time of an internal employee or a third-party advisor. The research process requires familiarity with the customer value proposition and the latest industry and scientific research on the product or service. A section

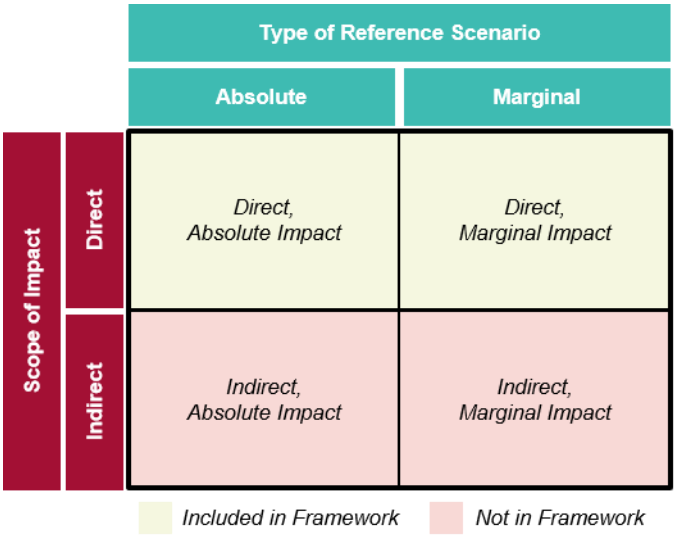
[14] Adopted from "Methodology, Impact Statement General Paper, Version 0.1," Value Balancing Alliance, (February 2021), p. 9.

describing the research process for identifying the measurement factor and the monetization coefficient is below.

Scope and Reference Scenario

A critical distinction to consider when constructing the measurement method is whether the impact is direct or indirect and absolute or marginal as shown in **Figure 13**.[15] A direct impact is a first-order effect of the product or service, whereas an indirect impact is a secondary or knock-on effect of the product or service. A first-order effect occurs when an impacted person directly utilizes a product or realizes a service. For example, in the packaged foods industry, the health effects of consumption are a direct impact, but the societal effects of increased strain on the healthcare system from less healthy food are indirect.

Figure 13. Impact Measurement Scope and Reference Scenario



Occasionally, direct impacts affect individuals closely associated with a customer, even though the individual impacted is not a purchasing customer. For example, if a software provider sells software to a business, and that business utilizes the software to improve the user experience of its online customers, then the impact to the online customers may classify as a direct impact. The determination of direct or indirect requires judgment in light of the IWA principles listed in **Appendix 3**. The IWA product and service methodology does not include indirect impacts in impact-weighted accounts in accordance with the first-order principle.

Whether an impact is direct or indirect determines if the impact is included in the framework, while the classification of absolute or marginal impact determines how the impact is calculated. An absolute impact occurs when a product or service is primarily responsible for creating an impact. In other words, if the industry that supplies the product or service did not exist, then the impact would to a significant degree not exist. A marginal impact occurs when a product or service contributes to the magnitude of the impact, but is not primarily responsible for its existence. For example, residential real estate creates an absolute impact by providing shelter to residents. A housing shortage creates insecurity and no

[15] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 15.

alternative options satisfy the need for shelter. Residential real estate creates a marginal impact when housing units are located close to employment opportunities by reducing commute time compared to the regional average.

How to calculate the two types of impact are shown in **Figure 14**. Absolute impacts attribute the full value of the impact to the corporation. Marginal impacts attribute a portion of the impact to the corporation by measuring the incremental value added. The incremental value is calculated by taking the difference in performance of the product or service compared to a counterfactual scenario, typically an economy-wide or industry-wide average.

All impacts identified in Step 2 need to be classified as either direct or indirect and absolute or marginal. Impacts identified as indirect are not included in the impact-weighted accounts methodology in accordance with the first-order principle. All of the customer impact types in **Appendix 4**, excluding the affordability impact which only uses a marginal reference scenario, may be absolute or marginal.

Figure 14. Absolute vs. Marginal Impact Calculations

Direct, Absolute Impact	
Impact Pathway	**Data Source**
Key Impact Indicator	Primary Data
	x
Measurement: Change in Wellbeing of a Customer	Primary or Secondary Data
	x
Monetization Coefficient	Secondary Data
	=
Value of Impact in Reporting Year	

Direct, Marginal Impact	
Impact Pathway	**Data Source**
Key Impact Indicator	Primary Data
	x
(Measurement: Change in Wellbeing of a Customer	(Primary or Secondary Data
	-
Measurement: Industry Average Change)	Secondary Data)
	x
Monetization Coefficient	Secondary Data
	=
Value of Impact in Reporting Year	

Monetization Coefficients

After the societal effect of the impact has been measured, a monetization coefficient is used to convert the measured impact into monetary units. The monetization coefficient is the final linkage in the impact pathway. A list of monetization methods is shown in **Figure 15**.

Figure 15. Monetization Methods

Type	Description	Example
Market Price	Price observed in the market, often used to quantify affordability	Sales price of a product or service
Estimated Cost	Estimates from academic literature on the value or cost of an impact	Social cost of a metric ton of CO_2 equivalent
Averted Cost	Estimates from academic literature on costs that are averted by a product or service	Health costs averted by healthy food consumption
Proxy Cost	Estimates of costs that are representative of impact	Valuing customer satisfaction using sales price of the product or service
Willingness to Pay ("WTP")	Estimates from academic literature that measures WTP to realize or avoid an impact	A revealed premium willing to pay for sustainably sourced food

A critical methodological question concerns whether to recognize all impact from a product or service in the impact-weighted accounts at the time of sale, even if the impact is realized in the future, or to recognize impact when it is realized by the customer. The Greenhouse Gas Protocol states that the total expected lifetime emissions from products or services sold in the reporting year should be recognized upfront.[16] For companies that sell products with an expected life that spans multiple years, recognizing all impact at the time of sale may result in impact values that are significantly in excess of financial profit. For this reason, and many others, it is important to be transparent with all assumptions when measuring and monetizing impact. At present, IWA does not provide guidance on the timing of impact recognition and leaves the decision to the user.

Regardless of the impact recognition method chosen, it is important to ensure that monetization coefficients are consistent with the impact recognition method. If impact-weighted accounts are designed to reflect impact when it is realized by the customer, even if the impact is realized in the future, the monetization coefficient should represent the impact realized in a single year period. For example, in the packaged foods industry, healthier foods lead to averted medical costs. The averted cost used in this scenario should represent the annual treatment costs of a patient, as opposed to the lifelong patient costs.

In certain circumstances, impacts initiated during the use phase are realized by the customer with a time lag. A time lag occurs when time passes between the use phase and the impact affecting the customer. For example, the long-term health effects of consuming certain foods are realized with a time lag. If impact-weighted accounts are designed to recognize all impact at the time of sale, then impacts realized with a time lag may be discounted to present day using a discount rate. Researching and implementing a fit for purpose monetization method requires trial and error and refinement over time.

Research Methods

Designing pathways for each impact requires dedicated staff capacity or the utilization of third-party advisors. The process requires access to the latest industry and scientific research on the products and services sold. The data used to measure and monetize an impact are most commonly sourced from peer-reviewed academic literature or grey literature, including market studies, governmental agency reports, databases of intergovernmental organizations, and reports published by industry trade groups. Identifying relevant data sources is an explorative process. It is helpful to have a preliminary idea of how the linkages in the impact pathway connect. For instance, in the packaged foods industry, a good starting point is to note that food volume in calories is linked to changes in health outcomes, and those health outcomes could be valued using averted health costs. The research then requires an iterative review of external sources to validate and refine the impact pathway.

[16] "Corporate Value Chain (Scope 3) Accounting and Reporting Standard," Greenhouse Gas Protocol, World Resources Institute and World Business Council for Sustainable Development, (September 2011), p. 48.

Completed Frameworks and Consolidation

Calculate Impact

At this stage, a comprehensive product and service framework has been completed for each division, company, or industry being analyzed. To calculate company-wide impact, the results need to be aggregated across all customer stakeholder frameworks. To calculate annual impact for a specific reporting year, use the key impact indicators for the relevant year, calculate the value of each impact using the impact pathways, and sum the result across all divisions. When calculating impact on a year-over-year basis, the measurement methods and monetization coefficients may require adjustments to account for inflation, any evolution in how products and services impact customers, and data availability.

A generally accepted practice is to report results in a disaggregated form, disclosing positive and negative impacts separately. Negative impacts may stem from practices that are detrimental to human and planetary health, or that violate human rights, and they should not be reported on a net basis against positive impact.[17]

Financial Statements and Impact-Weighted Accounts

A common question is whether impact-weighted accounts double count impact when analyzed in conjunction with financial statements. For instance, the market price of a good may incorporate positive impacts for which customers are willing to pay, and those positive impacts would be included in the revenue line item. The income statement may also include negative impacts, such as costs related to environmental damage and clean-up, reflected in expense line items. While financial statements may include impacts, it is by no means sufficient to assume that the income statement incorporates all impacts.

All material impacts should be included in an impact framework as it is developed. A corporation might recognize the cost of environmental damage in its income statement, but that does not preclude that cost from also being recognized in an impact framework. In the case of impact-weighted accounts, any double counting between financial statements and impact accounts is removed during statement consolidation through a process similar to intercompany eliminations. This process may be referred to as inter-stakeholder eliminations.

Conclusion

A product and service impact framework is a critical component of any impact accounting system. The framework will require investment over time to increase the accuracy of the measurement methods and generate insights for strategic decisions.

[17] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 5.

Appendix 1: Background on Impact-Weighted Accounts

Background

The Impact-Weighted Accounts project ("IWA") is a joint project between the Global Steering Group of Impact Investment and the Impact Management Project incubated at Harvard Business School under the leadership of Professor George Serafeim and Professor Ethan Rouen. The mission of the Impact-Weighted Accounts project is to drive the creation of financial accounts that reflect a company's financial, social, and environmental performance.

The **four key messages of IWA** are:

- Impact can be measured and compared
- Impact measurement in monetary terms reflected in financial statements (impact-weighted accounts) is a necessary condition for the creation of impact economies that optimize risk, return and impact
- Creating impact-weighted accounts is cost-effective, scalable, and actionable
- Analyzing impact-weighted accounts provides new important insights for business leaders and policymakers

IWA is committed to methodology and research transparency. All the Impact-Weighted Accounts research materials are posted on the Impact-Weighted Accounts Website. The site contains search and sort functionality to enable fast navigation.

Get In Touch

If you are experimenting with impact-weighted accounting, we would love to hear from you! More information about IWA can be found at www.hbs.edu/impact-weighted-accounts, or by reaching out to ImpactWeightedAccounts@hbs.edu.

Appendix 2: Scope of an Impact Measurement and Valuation System[18]

	Benefits of Low	Benefits of High
How Many Impacts to Include	• Reduce cost of measuring key impact indicators • Accelerate design and implementation • Develop expertise and knowledge of impact assessment • Promote buy-in for internal stakeholders	• Maximize insights, inform strategic decision making, and increase value creation
Complexity of Impact Calculations	• Reduce cost of measuring key impact indicators • Accelerate design and implementation • Limit use of third-party advisors	• Reduce discretion in measurement and improve accuracy • Increase confidence and credibility of insights generated
Types of Impact to Measure	<u>Direct, absolute impacts only</u>: • Reduce the risks of inaccuracy and decision irrelevance in estimating impacts that are not first-order effects of a product or service (i.e. indirect impact) • Understand impact creation for which the organization is primarily responsible (i.e. absolute only)	<u>Add marginal impact</u>: • Measure the total impact for which the organization is directly responsible • Measure how the organization creates value as compared to other organizations
Reporting Scope	<u>Low = Internal stakeholders</u>: • Focus only on information relevant for internal decision-making • Reduce the risk of scrutinization of results	<u>High = External stakeholders</u>: • Increase transparency and reputation of the organization • Engage in dialogue with stakeholders to better understand how organization can create value

[18] "Impact-Weighted Accounts Framework," Impact Economy Foundation, (December 2021), p. 33.

Appendix 3: Impact-Weighted Accounts Principles

Principle	Definition
Consistency	**Definition:** Consistency in units, scale, and approach across pillars, dimensions and metrics. **Objective:** To promote standardization for business decision makers and the comparability of information.
Incentive Alignment	**Definition:** Impact dimensions are designed with consideration of the behavior that is incentivized. **Objective:** To incentivize corporate decisions that are aligned with positive employee, environmental, and product and service impact.
Best-in-class	**Definition:** Impact dimensions are benchmarked to counterfactual scenarios that maximize positive environmental, employee, and product and service impact over time. **Objective:** To mitigate the risk that an impact is benchmarked to an undesirable average and to safeguard the relevance of the information.
Conservatism	**Definition:** Base the framework in conservative assumptions. In instances of significant measurement uncertainty, all else equal, positive impacts should be excluded before negative impacts are excluded. **Objective:** To increase the likelihood of faithful representation and mitigate the prevalence of impact-washing.
First-order	**Definition:** The scope of impacts considered is limited to first-order effects. **Objective:** To decrease measurement error and make the insights generated decision-relevant.

Appendix 4: Product and Service Impact Dimensions and Key Questions for Identifying Impacts

Dimension	Impact Type	Definition	Sign	Reference Scenario	Questions for Inclusion *(Yes = Include in Framework)*
I. Access	Affordability	• Price difference vs. industry average for comparable products and services	• Positive Only	• Marginal only	• Is it feasible to systematically measure price vs. industry average? • Is customer access improved through pricing strategies? • Is the product differentiated (i.e. not a commodity)? • Is the product not a luxury item?
	Underserved	• Incremental value realized by underserved customers who gain additional access benefits • Underserved customers are vulnerable due to factors such as geography or income	• Positive Only	• Absolute or marginal	• Does the product address a UN Sustainable Development Goal? • Does the product reach underserved customers with higher marginal utility of consumption, including by geography or income level? • Is distribution to underserved populations a strategic decision (i.e. revenue generating and not corporate philanthropy)?
II. Quality	Basic Need	• The averted cost(s) associated with lack of access to a fundamental human need	• Positive Only	• Absolute or marginal	• Is the product or service a direct human necessity in accordance with the Universal Declaration of Human Rights? • Does the product exhibit inelastic demand (with certain exceptions)?
	Effectiveness	• Performance of the product or service in delivering on the core customer value propositions	• Positive or Negative	• Absolute or marginal	• What are the core customer value propositions for the standard use cases? • Is it feasible to measure the performance of the product or service in delivering on the core customer value proposition? (If not, is customer satisfaction data available?)
	Health & Safety	• Any violation or failure to meet health, safety, and/or privacy standards	• Negative Only	• Absolute or marginal	• Do regulatory or consumer protection agencies oversee the industry? • Have violations of safety, health, and/or privacy regulations occurred? • Have data breaches occurred?

III. Optionality	Decision Altering	• Any customer coercion present to stimulate demand	• Negative Only	• Absolute or marginal	• Does the product or service present addictive tendencies?
	Information Availability	• Misleading, inaccurate, and/or limited information available to purchasers	• Negative Only	• Absolute or marginal	• Have fines or warnings relating to misleading information or false marketing been levied?
	Monopoly Rents	• Extractive price rents from market concentration	• Negative Only	• Absolute or marginal	• Do the Herfindahl-Hirschman Index ("HHI") or CR4 scores indicate market concentration? • Does market concentration lead to higher prices?
IV. Environmental: Use Phase	Emissions	• Scope 3, category 11 emissions	• Negative Only	• Absolute only	• Are Scope 3, category 11 emissions generated per the GHG protocol?
	Pollution	• Pollutants during use phase	• Negative Only	• Absolute or marginal	• Are environmental pollutants generated during customer use?
V. Environmental: End-of-Life	Emissions	• Scope 3, category 12 emissions	• Negative Only	• Absolute only	• Are Scope 3, category 12 emissions generated per the GHG protocol?
	Pollution	• Pollutants during end-of-life	• Negative Only	• Absolute or marginal	• Are environmental pollutants generated during end-of-life treatment?
	Recyclability & Recoverability	• Value of recycled and recovered material	• Positive or Negative	• Absolute or marginal	• Is any percentage of material recycled or recovered? • Does recycled or recovered material have economic value?

Appendix 5: Impacts Identified in Impact-Weighted Accounts Research by Sector

	Reach		Stakeholder: Client or Customer			Stakeholder: Environment	
	Quantity	Duration	Access	Quality	Optionality	Use Phase	End of Life
Automobile	• Number of vehicles manufactured • Number of vehicles sold	• Average product life • Lifetime mileage • Annual mileage	***Affordability*** • Vehicle ownership costs, including fuel and operating ***Underserved*** • Time savings of private transportation	***Effectiveness*** • Customer satisfaction ***Health & Safety*** • Safety rating and vehicle recalls ***Basic Need*** • Commuting time savings for rural customers	• N/A	• Vehicle emissions	• Value per pound of recyclable and recoverable scrap • Cost per pound of waste
Aviation	• Revenue passengers • Revenue miles	• N/A	***Affordability*** • Price per revenue mile ***Underserved*** • Flights to underserved cities, excluding leisure destinations, facilitating sustainable development	***Effectiveness*** • Baggage mishandling, cancellations, customer satisfaction, and delays ***Health & Safety*** • Flight accidents and incidents ***Basic Need*** • N/A	• Monopolistic control of gates and price premium on routes	• N/A (flight emissions included in environmental framework)	• Recycling of renewable fuel and in-flight food and beverage
Consumer Finance	• Cards issued • Cards per cardholder • Merchants	• N/A	***Affordability*** • Interest cost and card fees • Merchant fees ***Underserved*** • Financial access for low FICO customers	***Effectiveness*** • Customer satisfaction ***Health & Safety*** • Depression risk for indebted customers • Data breach ***Basic Need*** • N/A	• Marketing complaints, including reported and estimated unreported	• N/A	• Cost of unrecycled plastic

	Reach		Stakeholder: Client or Customer			Stakeholder: Environment	
	Quantity	Duration	Access	Quality	Optionality	Use Phase	End of Life
Oil and Gas	• Volume sold, including gasoline, natural gas, other petroleum	• N/A	***Affordability*** • N/A ***Underserved*** • Natural gas sales for electricity in emerging markets	***Effectiveness*** • N/A, due to commodity nature of product ***Health & Safety*** • Recalls due to faulty fuel ***Basic Need*** • Access to reliable energy supplied (MMBtu)	• N/A	• Emissions from use of natural gas, gasoline, and petroleum	• N/A
Packaged Foods	• Food volume, including grams, calories and servings	• N/A	***Affordability*** • Price per calorie ***Underserved*** • Nutrition value for food insecure customers	***Effectiveness*** • Health effects of fiber, whole grains, trans fat, sodium and added sugar ***Health & Safety*** • Product recalls ***Basic Need*** • Averted malnutrition from staple foods	• N/A	• Home storage and cooking emissions	• Recycling of packaging and food waste emissions
Pharmaceuticals	• Patients treated	• N/A	***Affordability*** • Treatment price ***Underserved*** • WHO prequalified medicinal products, including family planning and vaccines	***Effectiveness*** • Treatment efficacy by illness ***Health & Safety*** • Recall volume or FDA reported issues ***Basic Need*** • Minimum efficacy for all patients	• Price rents captured due to monopolistic nature of industry	• Emissions from usage	• Cost of waste after pharmaceutical administration, including packaging and pollution

	Reach		Stakeholder: Client or Customer			Stakeholder: Environment	
	Quantity	**Duration**	**Access**	**Quality**	**Optionality**	**Use Phase**	**End of Life**
Social Media	• Daily active users	• N/A	***Affordability*** • N/A for active users • Cost per click, or similar metric, charged to advertisers ***Underserved*** • N/A	***Effectiveness*** • Customer satisfaction ***Health & Safety*** • Data breaches ***Basic Need*** • N/A	• Privacy loss from platform use • Users encountering fake news • Addiction prevalence • Risky use by adolescent users	• N/A (data center emissions included in environmental framework; emissions to power devices not within company control)	• N/A
Tele-communications	• Wireless customers • Broadband customers	• N/A	***Affordability*** • Average revenue per user ("ARPU") ***Underserved*** • Connectivity to rural homes, emerging markets, and low-income families	***Effectiveness*** • Hours lost or gained due to internet speed ***Health & Safety*** • Data breaches ***Basic Need*** • Connectivity for social and economic participation	• Customers lacking freedom of choice due to monopolistic concentration	• Emissions from electricity to power connectivity at customer site	• Cost of e-waste generated • Value of e-waste recycled
Water Utilities	• Number of utility connections • Number of customers • Sales volume	• N/A	***Affordability*** • N/A ***Underserved*** • Low-income families receiving bill support	***Effectiveness*** • Systemwide commodity loss ***Health & Safety*** • Water quality violations ***Basic Need*** • Sanitation and hydration	• N/A	• N/A (water withdrawals included in environmental framework)	• Value of re-use water and cost of wastewater treatment

Appendix 6: Measurement Examples by Impact Type[19]

$$Affordability = \max\{0\ , (price_{industry} - price_{firm}) \times units\ sold\}$$

The total difference in price for use of a product or a service is estimated by multiplying the total units sold by the difference in the industry average price and the firm price with a floor at zero.

$$Underserved = product_{SDG} \times customers_{underserved} \times additional\ access\ benefit$$

Products or services that meet a UN Sustainable Development Goal are designated with a 1 in $product_{SDG,}$ otherwise a 0. The number of underserved customers is multiplied by the value of the additional access benefit.

$$Basic\ Need = product_{basic\ need} \times customers_{total} \times averted\ cost_{unmet\ need}$$

Products or services that are a basic need are designated with a 1 in $product_{basic\ need,}$ otherwise a 0. The number of customers is multiplied by the averted cost associated with an unmet basic need.

$$Effectiveness = value_{product\ performance} \times units\ sold$$

If the product or service performance can be clearly defined or measured, the effectiveness impact is the value realized through the customer value proposition. The product performance value is multiplied by all units sold.

$$Effectiveness = customer\ satisfaction_{firm} \times price_{firm} \times units\ sold$$

Otherwise, the effectiveness dimension can be replaced with an estimate of customer satisfaction. This estimate multiplies the customer satisfaction by the firm overall price of the unit sold during the reporting period. This value is multiplied by all units sold.

$$Health\ \&\ Safety = customers_{affected\ by\ health\ \&\ safety\ incident} \times cost_{health\ \&\ safety\ incident}$$

The number of customers affected is multiplied by the associated cost of the incident to the customer.

$$Optionality = customers_{coerced} \times cost_{coerced\ choice}$$

The optionality impact is estimated by multiplying the number of coerced customers by the cost these customers face due to lack of freedom of choice.

$$Environmental: Use\ Phase = (volume_{emissions} \times cost_{emissions}) + (volume_{pollution} \times cost_{pollution})$$

The environmental use phase impact is estimated by multiplying the equivalent volume of emissions created during the use phase of the product or service and the cost of emissions as defined in the environmental framework of the Impact-Weighted Accounts project. The volume of pollution created during use phase is multiplied by the cost of pollution.

$$\begin{aligned} Environmental: End\ of\ Life \\ = (volume_{emissions} \times cost_{emissions}) + (volume_{waste} \times cost_{waste}) \\ + (volume_{recycled} \times value_{recycled}) + (volume_{recovered} \times value_{recovered}) \end{aligned}$$

The emissions impact is estimated by multiplying the equivalent volume of emissions created during the end-of-life phase of the product or service and the cost of emissions as defined in the environmental framework of the Impact-Weighted Accounts project. The pollution, recyclability, and recoverability impacts are estimated by multiplying the volume and cost associated with each end-of-life treatment.

[19] The examples shown, excluding the *Affordability* calculation, use an absolute reference scenario.