OCTOBER 2022

VBA METHODOLOGY V0.2

value balancing alliance

Impact Statement

Topic-Specific Method Paper: Social and Economic

NOTE ON THIS DOCUMENT

This is the second version of our Impact Statement methodology for social and economic aspects. We piloted this version in late 2021 / early 2022, and the learnings will inform the further development of our methodology in 2022.

Main changes compared to V0.1 include:

Indicator	Chapter	Changes
Occupational Health & Safety	2.1	No change
Training	2.2.3	Training formula revision (training coefficient α)
Child Labour	2.3	New indicator
Forced Labour	2.4	New indicator
Living Wage	2.5	New indicator
GVA	2.6.2	Note on potential overlaps between GVA and other indicators
	2.6.3	Clarification of GVA definitions in line with System of National Accounts
		Instructions to report dividends as a separate GVA component
		Discussion of PPP adjustments for GVA
		Rationale for not adjusting GVA for corruption or other inefficiencies

We are well aware that this is a work in progress, and we are in ongoing discussions with third-party experts and our members on important elements. As development progresses, we will be using a review panel and formal consultation as well as further piloting rounds to test and improve the standardised approach.

In addition, we have developed a General Methodology that addresses aspects that are applicable across individual economic, environmental, and social indicators. Moreover, we have developed a methodology for specific environmental aspects and created papers on Input-Output Modelling, as well as the assessment of downstream impacts.

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ABOUT THE VALUE BALANCING ALLIANCE

The Value Balancing Alliance e.V. (VBA) is a not-for-profit organisation that aims to change the way company performance is measured and valued. The alliance's objectives are to develop, test, and pilot standardised methodologies for the integration of sustainability in management accounting practices, incl. business decision making and steering. The methodology to measure and value sustainability performance is based on two pillars:

1. Value-to-Society: The inside-out perspective, or impact measurement and valuation (IMV), assesses the value contributions of a business model to society, environment, and the economy throughout the value chain.
2. Value-to-Business: The outside-in perspective assesses how sustainability impacts enterprise value, incl. companies' financial performance.

Analogous to financial accounting, sustainability accounting first provides information for business decision making. Elements of this information about positive and negative impacts are then disclosed and reported to the public. The alliance's methodology enables companies to meet the requirements of the currently developing reporting standards such as at IFRS or EFRAG.

Founded in June 2019, the Value Balancing Alliance represents a collection of large international companies, including Anglo American, BASF, Bayer, BMW, Bosch, Deutsche Bank, DPDHL, Dräger, Holcim, Kering, Kirchhoff, L'Oréal, Michelin, Mitsubishi Chemical, Novartis, Otto, Porsche, Posco, Roche, Sana Kliniken, SAP, Schaeffler, Shinhan Financial Group, SK, and ZF. The alliance is supported by the four largest professional services networks – Deloitte, EY, KPMG, and PwC – and by the OECD, the WEF, the WBCSD, and leading academic institutions, including the Impact-Weighted Accounts Initiative at Harvard Business School. Furthermore, in partnership with the Capitals Coalition, the alliance receives funding from the EU LIFE programme for the Environment and Climate Action,[1] is a member of the EU Platform Sustainable Finance (PSF), acts as interface between PSF and the EFRAG Task Force in the context of preparatory work for EU non-financial reporting standards (PTF-NFRS) and supports the G7 Impact Task Force. VBA's CEO, Christian Heller, has also been elected deputy Chair of the Sustainable Finance Advisory Committee of the German Federal Government.

The Value-to-Society, or inside-out perspective necessitates a standardised IMV methodology to foster long-term thinking and performance comparability but also to consolidate the knowledge already available in this field. Therefore, the VBA is building on the work of leading universities and well-known organisations such as the World Bank, the OECD, the Capitals Coalition, the WBCSD, the Impact Management Project, the GRI and the Value Reporting Foundation.

The envisioned transformation and system change will require the cooperation of all players in the business ecosystem. The Value Balancing Alliance will make its work available to the public, and we encourage more companies to join us along the way.

1 The EU has provided the VBA with financial support to develop a first set of accounting principles and guidelines regarding environmental impacts for business. Over the next three years, the VBA (in partnership with the Capitals Coalition) will develop a standard for measuring and valuing companies' environmental impacts in monetary terms.

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1.

INTRODUCTION

The current economic system focuses on financial value and ignores many impacts of business on society, such as environmental and social impacts. For this very reason, such impacts are often referred to as "externalities". But many of these impacts are directly or indirectly linked to current and future business value, and to the interests of societal stakeholders. Therefore, businesses are becoming increasingly interested in these impacts and ways of addressing them in their strategies and business decisions.

There are two main perspectives on value: First, the stakeholder perspective perceives the positive and negative impacts of corporate activities on the environment and – by extension – society. This is known as ***the Value-to-Society perspective***. Second, a financial view of how these impacts (and dependencies) affect the (longer-term) financial performance of companies is known as ***the Value-to-Business perspective***. The two perspectives are inherently connected and, as such, have been widely acknowledged as constituting a "double materiality".[2]

Value Balancing Alliance aims to embrace both perspectives via dual methodological streams – one focusing on impacts and the other on dependencies – as they are fundamental to understanding a company's long-term value creation.

Our aim is to contribute to global standardisation. Moreover, our methodology is not limited to environmental impacts – we believe that the same principles should apply to all sustainability impacts. The VBA's work thus ties in with current developments in the IMV field. We are collaborating with leading academic institutions, such as the Impact-Weighted Accounts Initiative of the Harvard Business School,[3] to further improve IMV methodology, build on strong scientific research, and harmonise existing IMV methodologies. Together with the Global Value Commission, we aim for standardised rules and support a platform for publicly available IMV methodology which is reflected in valuation coefficients.

2 On double materiality, see, e.g.: Accountancy Europe, 2020; CDSB, 2020; EU Commission, 2019

3 For more information on the Impact-Weighted Accounts Initiative, see https://www.hbs.edu/impact-weighted-accounts/Pages/default.aspx

VALUE-TO-SOCIETY – IMPACT STATEMENT

The General Method paper introduces the calculation methodology for monetary impact valuation and is followed by a dive topic papers on social and economic, and environmental impacts. Notably, these papers focus on topics that are already reasonably mature rather than a comprehensive set of impacts:

- → General Method paper – sets out the overarching framework as well as the key concepts and process of methodology development
- → Environmental Method paper – explains the IMV details for specific environmental topics and specific sub-indicators
- → Social and Economic Method paper – explains the IMV details for specific social and economic topics as well as specific sub-indicators

The General Method paper is the foundational document. It sets out the guiding objectives, outlines the methodology development process, explains the document's development process, and summarises key concepts and general choices to be made that should be common for all economic, environmental, and social impacts.

The Social and Economic Method paper aims to provide specific details for Social and Human Capital Accounting per impact driver and summarises key concepts.

All documents and described methodologies are in an interim state and will be finalised after the piloting and learning in 2023 (expected).

The methodology is being developed using an iterative process. The methods currently described in this document are version V0.2. The methodology has been piloted with international companies. Findings from the latest pilot of V0.2 are not yet reflected in this paper, but they will be taken up for further development of the methodology.

For the development of the IMV methodologies for basic Human Rights impacts, we reviewed different approaches, such as from the UN Guiding Principles, NomoGaia, Verisk Maplecroft, OHCHR, the Corporate Human Rights Benchmark, Econsense, Workforce Disclosure Initiative, the Human Rights Compliance Assessment, Novartis/Valuing Impact, Trueprice, and the Impact-Weighted Accounts Initiative at the Harvard Business School. Of these methodologies, only Novartis/Valuing Impact, Trueprice, and the Impact-Weighted Accounts Initiative at the Harvard Business School have been reviewed in more detail, as these provide valuation techniques for the different social indicators. We have elected to recommend the approach of Novartis/Valuing Impact given that it includes location-specific sub-indicators and is not limited to standardised monetisation factors.[4]

The IMV methodologies currently being used in Human & Social Capital Accounting exhibit a noticeably lower level of maturity in comparison to methods for Natural Capital Accounting. Therefore, methodologies relating to basic Human Rights only include Child and Forced Labour, and Living Wage. Additional social indicators and sub-indicators require further research.

4 Please note that the provided approach aims to capture and reflect companies' impacts on human rights in a way that is consistent with the VBA methodology on other indicators. This neither replaces nor overrules requirements on human rights due diligence processes existing and emerging in different countries around the world.

2.

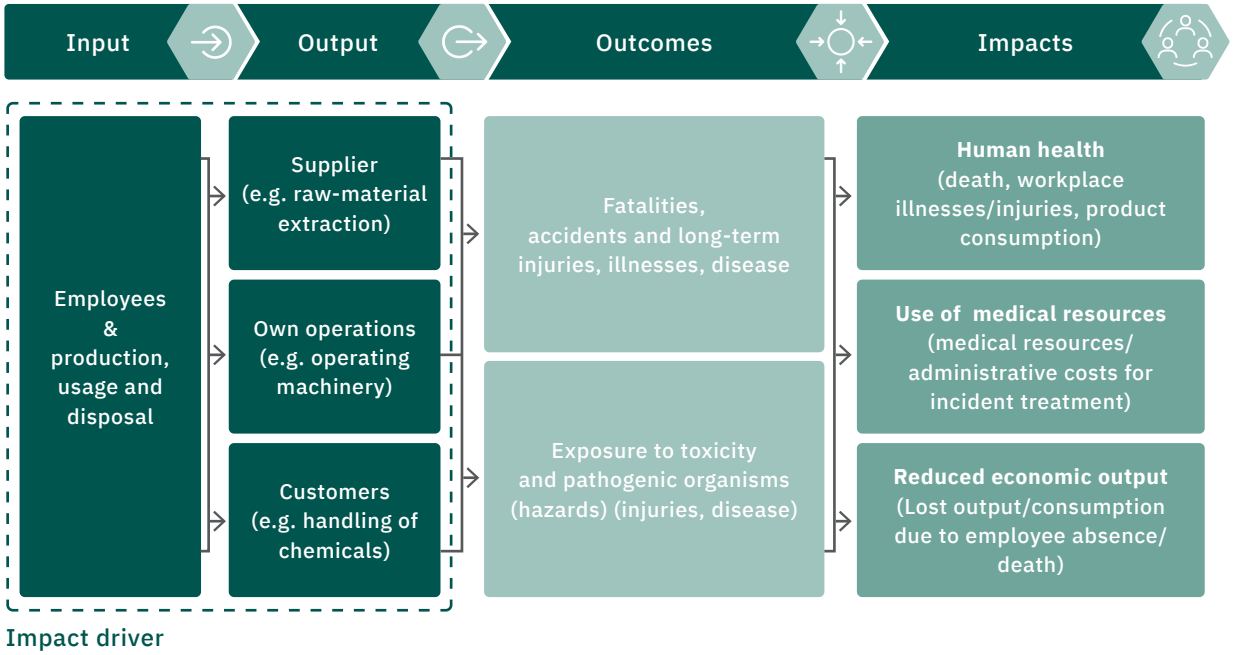
TOPIC-SPECIFIC DETAILS

2.1. OCCUPATIONAL HEALTH AND SAFETY

2.1.1. TOPIC DESCRIPTION

Incidents can occur during operations, and illnesses can arise due to working conditions (e.g. diseases related to dust, noise, or ergonomics). Occupational illnesses and incidents can lead to lower productivity, higher costs, and reputational damage for a company, all of which are reflected in the financial results. However, incidents can also affect employees' families as well as the broader local communities and society through healthcare and administrative costs, lower tax revenues (and spending), and reduced quality of life.

2.1.2. IMPACT PATHWAY



Note: Models focus on occupational health and safety and the impacts associated with illnesses and injuries. Positive impacts from product use to be considered in a separate deep dive.

Figure 1: Simplified impact pathway occupational health and safety

Occupational health deals with all aspects of health and safety in the workplace. It focuses on the prevention of hazards. With this indicator, we concentrate on the societal impacts arising from injuries and illnesses resulting from incidents that happen during the course of employment.[5]

- → To determine the costs to society, we distinguish between disease and injury, and we include several categories of severity.
- → Costs occur on the account of the employer, the worker, and the community. As the employer's costs are (directly or indirectly) reflected in the financial statements, they are excluded. The worker and community costs in each severity category are aggregated.
- → The study used as external data source is based on costs of work-related incidents in Australia.[6] As such, it is specific to Australia's economic situation and healthcare system.
- → Year-on-year adjustments reflect inflation.

Users should:

- → Apply the rules outlined in the "General" section of this methodology (e.g. include all relevant value chain levels);
- → Select appropriate data sources for calculating illnesses and injuries by severity.

2.1.3. QUANTIFICATION & MONETARY VALUATION

(i) Measuring impact drivers and (ii) outcomes

The calculation of the impact of occupational health and safety incidents is based on the number of incidents by severity. Our categorisations of severity are based on the Safe Work Australia study:[7]

- → Illness by severity: short absence, long absence, partial incapacity, full incapacity, fatality
- → Injuries by severity: short absence, long absence, partial incapacity, full incapacity, fatality

In line with the approach of Safe Work Australia, we distinguish among five levels of severity and duration in accordance with the definitions provided in conjunction with the Australian National Dataset for Compensation-based Statistics (see Table 1). Company data should be supplied in this format (i.e. as in Table 1) according to the duration of absence and whether the employee is able to return to full duties.

Note that the costs of incidents that do not result in absence from work are assumed to be negligible and are not considered.

5 The International Labour Organization (ILO) has a number of regulatory instruments addressing safety and health at work. However, they are more general in scope than, for instance, the EU Directives. The main relevant ILO instruments are: (1) C155 – Occupational Safety and Health Convention, 1981, (2) R164 – Occupational Safety and Health Recommendation, 1981, which provides a more specific recommendation supplementing C155, and (3) C187 – Promotional Framework for Occupational Safety and Health Convention, 2006, which requires members to establish, maintain, progressively develop, and periodically review a national system for occupational safety and health in consultation with the most representative organisations of employers and workers.

6 Safe Work Australia, 2015

7 Safe Work Australia, 2015

Table 1: Definition and labelling of severity categories.

Category Label	Severity Category	Definition
Short absence	Less than 5 days off work	A minor work-related injury or illness involving less than 5 working days absence from normal duties, where the worker was able to resume full duties
Long absence	Five days or more off work and return to work on full duties	A minor work-related injury or illness involving 5 or more working days and less than 6 months off work, where the worker was able to resume full duties
Partial incapacity	Five days or more off work and return to work on reduced duties or lower income	A work-related injury or disease which results in the worker returning to work more than 6 months after first leaving work*
Full incapacity	Permanently incapacitated with no return to work	A work-related injury or disease which results in the individual being permanently unable to return to work
Fatality	Fatality	A work-related injury or disease which results in death

* We assume cases in this category result in a return to work on reduced duties or income, with a resumption of normal duties. This category includes permanent incapacities for which a minimal duration of absence from work occurred and therefore the worker was able to return to work in some capacity, or for which a return to work in some capacity is possible.

Source: Safe Work Australia (2015)

(iii) Applying monetary valuation for Value-to-Society

Few studies comprehensively detail the costs for healthcare systems of work-related incidents broken down by type of injury or disease.

One of the most comprehensive studies was published by Safe Work Australia (2015).[8] In this study, the direct and indirect costs of such incidents were calculated for Australia (see Table 2). These costs were categorised by:

- → Severity of the incident: short absence, long absence, partial incapacity, full incapacity, and fatality;
- → Bearer of the costs: employer, worker, or community;
- → Type of incident: injury or disease.

8 Safe Work Australia, 2015

Our approach is to:

- → Sum the costs for the worker and community after excluding the employer's costs, as those costs are already accounted for in financial statements;
- → Multiply these costs by the respective number of incidents (disease and injury) in each severity category to obtain an Australia-centred estimate;
- → Extrapolate these costs to the appropriate countries via GDP per capita;
- → Correct for inflation since the study's base year (2012).

Table 2: Average costs (AU $ per incident) for work-related incidents, Australia, 2012-13*

		Short absence	Long absence	Partial incapacity	Full incapacity	Fatality	Average
Employee	Injury	700	8 800	16 400	13 400	26 600	**4 400**
	Disease	700	11 200	12 100	31 900	72 400	**9 600**
Worker	Injury	300	4 500	696 900	2 154 200	1 728 700	**52 000**
	Disease	400	4 200	681 800	1 912 000	1 185 500	**189 200**
Community	Injury	3 200	22 800	95 400	1 578 800	585 100	**19 100**
	Disease	5 200	15 200	44 700	956 000	212 700	**24 800**
All	Injury	4 200	36 200	808 600	3 746 400	2 340 400	**75 400**
	Disease	6 300	30 600	738 700	2 899 900	1 470 600	**223 600**
	All cases	**4500**	**34 100**	**766 300**	**3 496 100**	**1 597 100**	**116 600**

*Unit costs are rounded to the nearest AU $100

Source: Safe Work Australia (2015)

Note that this approach implicitly assumes similarity among healthcare systems in Australia and other countries. However, societal costs are likely to differ depending on healthcare and broader social security systems. Our methodology does not currently address this issue.

Users should:

- → Apply the rules outlined in the "General" section of this methodology.

2.2. TRAINING

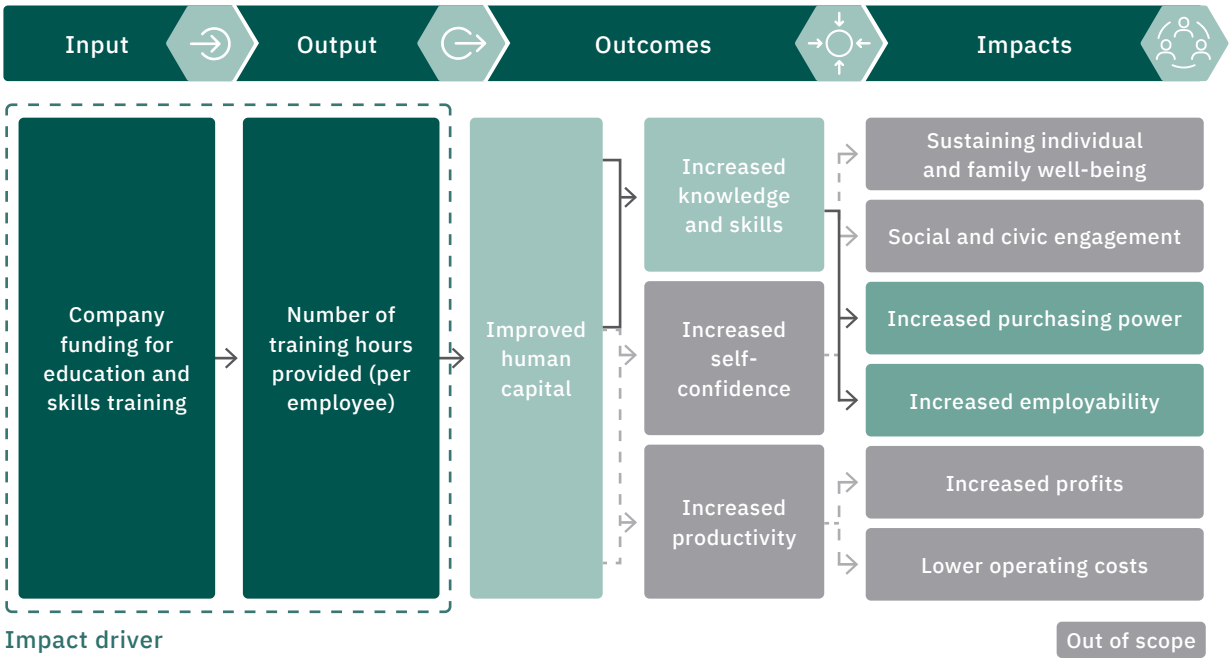
2.2.1. TOPIC DESCRIPTION

The skills and capabilities of a company's employees are essential for the company's value preservation and the development of future revenue streams. Employee development and retention are beneficial for the company, the individual, and society. Although employee training has a cost, it affects employees' employability, earnings, skills, and knowledge in key ways. It also impacts softer aspects, such as self-confidence, self-awareness, and active listening. This might, in turn, result in macro-level effects, such as greater emotional capacity, that benefit the immediate social environment, social and civic engagement, and democracy.[9]

This paper focuses on how to measure these social impacts of increasing employees' skills and capabilities. Note, however, that there is as yet no consensus on how to measure the impact of employee development, upstream or downstream. Therefore, this document focuses on the impact of employee education/training on a company's own operations only.

2.2.2. IMPACT PATHWAY

In order to value companies' human impacts on society, the link must be established between corporate training and impacts on humans via societal outcomes. This is reflected in the impact pathway shown in Figure 2.[10]



Impact Valuation Roundtable 2017 & C. Mainguet and A. Baye (2006),
3.C. Defining a framework of indicators to measure the social outcomes of learning, OECD

Figure 2: Simplified impact pathway training

9 Mainguet & Baye, 2006

10 Based on Impact Valuation Roundtable, 2017; Mainguet & Baye, 2006; OECD, 2006

Impact drivers

Three impacts are associated with employee development: a direct positive impact on the employee, a positive impact for the employer in the form of increased productivity, and impacts on wider society when the employee moves on and other employers benefit from his or her improved productivity. The impacts for the employer providing the training are reflected in the company's financial statements (i.e. as profitability) and are, therefore, not included in our approach. Impacts on society are driven by the change in employees' earnings and, consequently, purchasing power, and by the contributions that more highly skilled individuals make to society. These impacts only become external to the company providing the training when the employee leaves the company.

In order to quantify and value the benefits to society of improving human capital, in-house corporate-development programs and education funding are taken into account. Improved experience and skills lead to higher wages, at either the employees' current employers or at future employers. The projected future additional earnings of trained employees after leaving the organisation are expected to benefit society through higher purchasing power and higher tax revenues. These benefits are projected into the future using country-specific wage growth rates, discounted to their current value.

Notably, compliance training is not considered in this increase of human capital. While the same beneficial mechanisms may be at play, compliance is an operational and legal obligation for companies. Companies with the greatest deviations from established rules have to invest the most in compliance training. Hence, it would be cynical to claim social benefits from training that seeks to remediate violations of business norms.

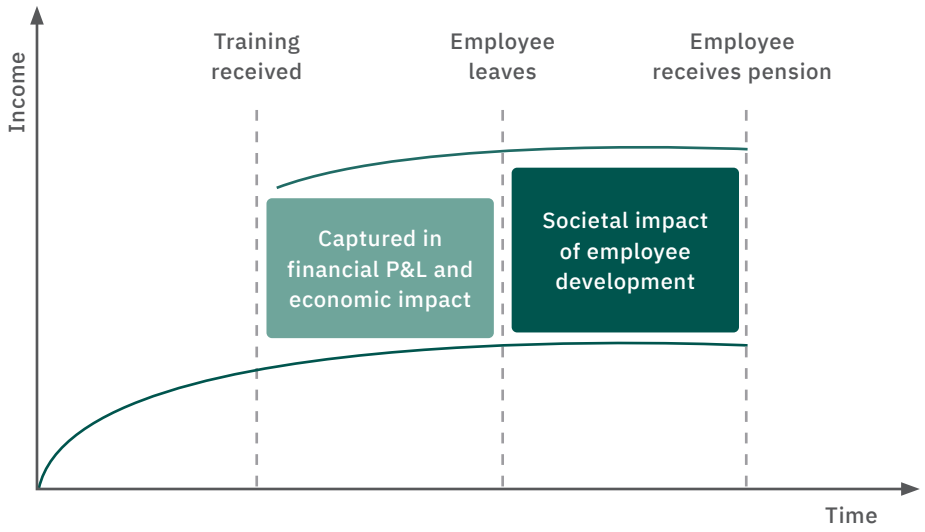


Figure 3: Spill-over effects from training

Users of this methodology should:

- → Include all material impact drivers and impacts listed above;
- → Include additional impacts, if material.

2.2.3. QUANTIFICATION AND MONETARY VALUATION

This section covers the three steps in more detail: (i) measuring impact drivers, (ii) measuring societal outcomes, and (iii) valuing impacts. For guidance on actions, see the Social & Human Capital Protocol.[11]

(i) Measuring impact drivers

The calculation of the social impact of employee training requires company data on training and employees as well as external valuation factors related to the social return rate on education. Specifically, the following company information is needed on a country level:

- Number of training hours in the focal year;
- Average wage of employees;
- Average age of employees;
- Turnover rate calculated using:
  - Total employees at the beginning and end of the year, and
  - Total employees leaving in the focal year (to work elsewhere).

Note that a more granular approach is possible if more detailed information is available. To achieve the highest granularity, the analysis could be performed on an individual level by collecting data on training hours over the last year, age, country, and wage for each individual.

Guidance on data sources[12]

The data points listed above should be available in companies' human resource systems, including:

- Training systems and platforms;
- Human resource management and administration systems;
- Payroll systems.

(ii) Societal outcomes and (iii) impacts

Psacharopoulos and Patrinos (2004) provide insights into the returns on investments in education. These returns are used as training coefficients per country.[13]

As these factors assume a return based on a further year of education, we correct the outcomes by dividing the actual hours spent on training by the training norm hours in that country. These country norms are obtained from an OECD database. In the case of non-OECD countries, extrapolations can be made from the available country-level data based on common characteristics between countries.

11 Social & Human Capital Coalition, 2019

12 Limited information is available on how companies measure the social impact of their education and training programs. Several organisations have measured this impact using methodologies similar to the one described above, including Novartis, Holcim, and BASF.
The Social & Human Capital Protocol provides good insights into best practices (Social & Human Capital Coalition, 2019): Jongbloed, 2018 or Mainguet & Baye, 2006

13 Psacharopoulos & Patrinos, 2004

The wage increase is determined using the following formula, in which the years that the individual derives benefits from increased earnings are calculated up to the point of retirement. The retirement age per country is based on data from OECD and Pension Watch.[14]

$$\sum_{j=1}^{n}\sum_{i=0}^{m}\frac{\left(\alpha\frac{Tc}{Tn}\right)_{i,j}}{(1+\beta)^{i}}w_j\gamma_j$$

where:

α = training coefficient in country j

β = discount rate

γ = turnover rate

Tc = training hours

Tn = training norm

i = time periods

j = countries in which training is conducted

m = pension age – average age of employees in country j

n = total number of countries

w = average wage

Users of this methodology should include:

→ All material impacts.

For each of these, users should:

→ Apply the rules outlined in the General Method paper;

→ Select appropriate sources/studies to model these impacts.

14 OECD, 2020; for retirement ages see: OECD, 2019 or Pension Watch, 2019

2.3. CHILD LABOUR

2.3.1. TOPIC DESCRIPTION

While employment can in principle be positive for an individual, the opposite may pertain when it comes to child labour. Child labour is defined as "work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development."[15] Child labour refers to the participation of children in work beyond what is permissible by law. Whether work done by children should be considered child labour depends on the age, local minimum working age regulations, the type and environment of work, working hours, and work relation.[16] The latest report of the ILO indicates that at the beginning of 2020 approximately 160 million children have been involved in child labour, which is equal to 1 out of 10 children worldwide. Almost half of these children, around 79 million, have been carrying out hazardous work with high risk regarding their health and safety.[17]

2.3.2. IMPACT PATHWAY

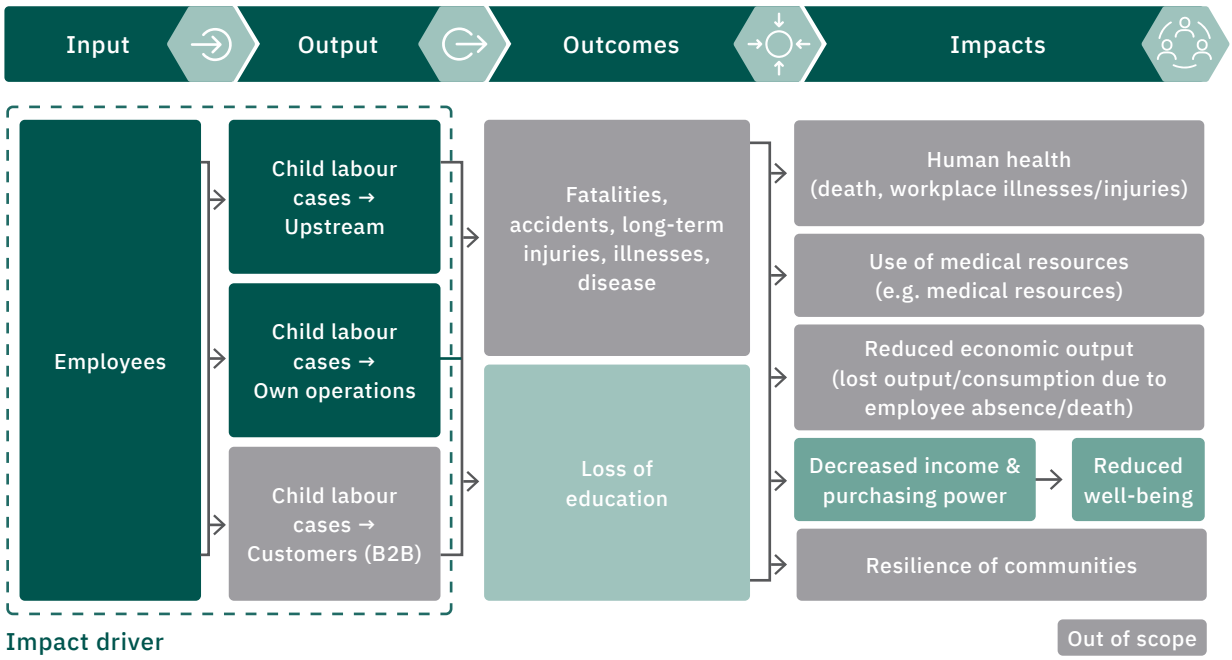


Figure 4: Simplified impact pathway Child Labour

At this point, this indicator concentrates on the societal impacts arising from children performing labour in upstream and own operations. As seen in Figure 4, various impacts can be related to child labour. The presented approach currently focuses on the impact of decreased income and purchasing power as a consequence of loss of education. However, there might be additional

15 ILO 2019

16 ILO, 1999; ILO, 2019; UNICEF, 2014

17 ILO & UNICEF, 2021

impact categories which have not yet been implemented in this valuation approach, such as the impact of additional income on households (especially low-income households) or the impact on the broader community of the child.

Users should:

- → Apply the rules outlined in the General Method paper (e.g. include all relevant value chain levels);
- → Select appropriate data sources for the number of child labour cases in upstream and own operations.

2.3.3. QUANTIFICATION AND MONETARY VALUATION

(i) Measuring impact drivers and (ii) outcomes

The impact of child labour is calculated based on the number of child labour cases in upstream and own operations. While data for child labour at own operations may be accessible (country-specific regulations on the minimum age for employment should apply for the assessment), obtaining data for the whole of upstream activities can e challenging for companies.

UNICEF's statistics on child labour at country level should be used as a starting point for estimating the number of child labour cases in upstream activities.[18] The sectoral distribution of child labour varies across countries and world regions. In order to allocate the country-level cases to different sectors, country-level estimates on the distribution should be taken into account. Here, the publication of Schultz and Strauss (2008) provides helpful statistics.[19] All forms of child labour need to be considered, except for domestic work.[20] If no data exists for a country, the global average distribution should be applied: 66% assigned to agriculture, 13.9% to the hospitality sector, and 7.2% to the manufacturing sector.[21]

To estimate the child labour rate by sector, the absolute number of cases is set in relation to the number of employees in the sectors. It is assumed that children perform only low-skill labour. Therefore, the relative rate of child labour by sector is defined as $\frac{\text{children per sector}}{\text{low-skill employees per sector}}$. This rate can be directly applied to the employment estimates for upstream activities.[22]

Note that this approach relies on the data reflecting the number of child labour cases at country level. However, this data may not be available for all countries. In such cases, the method described below should be used, which might be refined in the future.

Recommended approach:

- → Track the number of child labour cases for own operations;
- → For the number of child labour cases in upstream activities, use the statistic from UNICEF on estimated child labour cases at country level for all countries in which upstream activities are located;

18 https://www.unicef.org/protection/child-labour

19 Schultz & Strauss, 2008 – see "Child labour" Chapter

20 Domestic work is excluded, as this approach focuses on companies' impact on society, and companies are not accountable for domestic work.

21 Vionnet et al., 2021a

22 In line with Vionnet et al., 2021a

- → Allocate the country level-cases to the different sectors, building on the statistics provided by Schultz and Strauss (2008) and calculate the child labour rate (children relative to low-skill employees by sector/country):[23]
  - → If no country data is available, assign 66% to agriculture, 13.9% to the hospitality sector, 7.2% to the manufacturing sector;[24]
- → Apply the child labour rate of the different sectors to the low-skilled employees per sector.

(iii) Applying monetary valuation for Value-to-Society

There are different approaches to valuing the impact of child labour. Two main outcomes of child labour are illustrated in Figure 4: (A) illnesses/injuries and (B) loss of education.[25]

(A) Outcome: illnesses and injuries

The first outcome, illnesses and injuries, has not yet been implemented into the valuation approach due to a lack of data on the severity of cases occurring from child labour. This may be adjusted in future versions.

(B) Outcome: loss of education

Regarding the second outcome, loss of education, there are different valuation approaches. One possibility is to use a monetisation factor, set as compensation costs for the loss of income due to missed years of education because of child labour.[26]

Another possible approach, which is the one recommended by this paper, is to assume an average loss of income of 10% for each year of education not achieved, based on the missed opportunities due to the lack of education.[27] Per child labour case, the assumption of one year of missed education should be used. Regarding the income, the Gross National Income (GNI) per capita per country from the World Bank should be taken. A time period of 20 years is assumed in order to derive the Net Present Value (NPV) of the lost income,[28] with a discount rate of 3.5% (see General Method paper) which is then transferred to the change of well-being through the use of the Health Utility of Income (HUI) method. The HUI represents the contribution of income to the well-being of an individual at country level and is applied to translate the effects related to income change into the change of an individual's quality of life.

HUI equation:

$$\mathbf{HUI_l = \frac{Change\ in\ well\text{-}being_l}{Income\ change_l}}$$

Where:

- → HUI: Health Utility of Income
- → *l*: location (here: country)
- → *Change in well-being*: life quality and expectancy differences that are explained by

23 Schultz & Strauss, 2008

24 Vionnet et al., 2021; Vionnet, Haut, & Adhikari, 2021

25 True Price, 2020; Vionnet et al., 2021; Vionnet, Haut, & Adhikari, 2021

26 True Price, 2020

27 Montenegro & Patrinos, 2014

28 20 Years are being used as a conservative approach. See Vionnet et al., 2021

income inequalities (also called the "health gap"), reported per year of life or, more precisely, year of work

→ *Income change*: the income change through which the health inequity is experienced, expressed in a chosen currency (e.g. USD)[29]

The HUI factors are multiplied directly by the lost income of the children. As child labour leads to an income loss, each case will therefore lead to a negative impact on well-being. The equation to apply the HUI factors is thus:

DALY equation:

$$\textbf{Lost DALYs} = \textbf{HUI} \cdot \textbf{NPV of income lost}$$

Where:

→ DALY: Disability-adjusted life years

→ NPV: Net Present Value

It should be stressed that an update of the HUI is necessary every 2-3 years to adequately calculate the societal impact.

Valuation of DALYs

Having established the number of DALYs lost as a result of child labour cases, we assign a monetary value to those DALYs to estimate the societal cost of child labour.

Health economists and policy makers typically use DALYs to understand the relative severity of health conditions. They often use them to compare the cost effectiveness of investments (cost savings per avoided DALY). In Lvovsky et al. (2000), published for the World Bank, the authors build on this to present a method for estimating the welfare value of DALY savings.[30]

Lvovsky et al. (2000) derive the DALY value from the value of a statistical life (VSL) based on the number of lost DALYs associated with that lost life (see: *Value of a DALY below*).[31] This approach has been applied in a government policy context by Pearce et al. (2004) to help evaluate the EU's REACH policy (Registration, Evaluation, and Authorisation of Chemicals). The following discussion presents our application of this approach. The VSL values used are consistent with those used in the other environmental impact methodologies.

Equation: Value of a DALY

$$\textbf{Value of DALY} = \frac{\textbf{VSL}}{\textbf{Number of DALYs lost}}$$

29 Vionnet, Haut, & Adhikari, 2021

30 Lvovsky et al., 2000

31 Lvovsky et al., 2000

The OECD nations VSL estimate of USD 3.4m (2011, inflated from 2005) is the basis of our DALY valuation.[32] The OECD estimate is based on a meta-analysis of studies which consider acceptance of risks to life and extrapolate to give a VSL (e.g. wage premiums to accept working in riskier environments). The median age of individuals in the studies is 47 years old, with a life expectancy of 78, such that the resulting estimate of VSL is associated with 31 years of lost life.

In order to estimate the value, the number of years lost is converted to DALYs. A year of disability-free life does not hold the same number of DALYs for all ages. People place a higher value on avoiding disability between the early teens and the mid-50s (age-weighting for DALYs). The DALYs are therefore age-weighted.[33]

Prüss-Üstün et al. (2008) provide a formula and suggest coefficients for calculating the relative weighting of each year of life (X_w), which is set out in the following equation.[34]

Equation: Age-weighting formula for calculating DALYs

$$X_w = Cxe^{-\beta x}$$

Where x is the age in years. The suggested coefficients are $C = 0.1658$ and $\beta = 0.04$. This formula is used to calculate the relative weight applied to each of the 78 years of life expectancy associated with the OECD's VSL estimate.

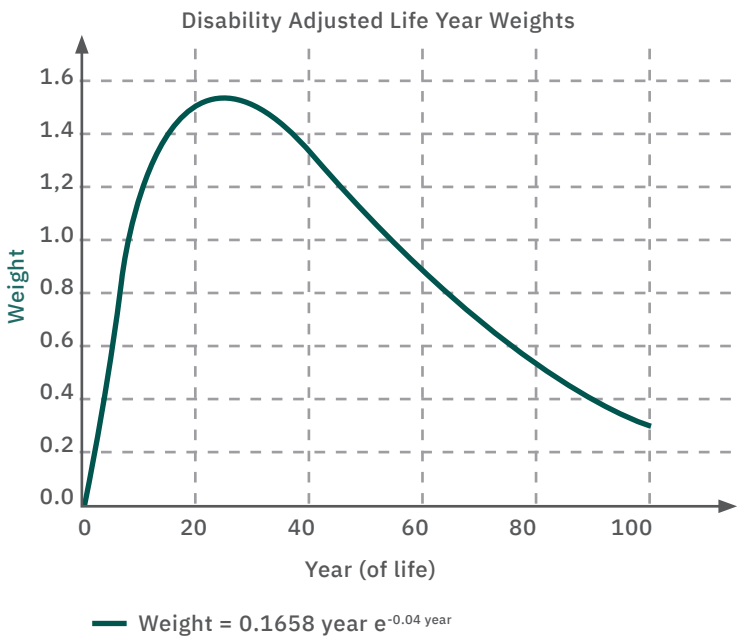


Figure 5: Age-weighting for DALYs

32 OECD, 2012

33 Prüss-Üstün et al., 2008

34 Prüss-Üstün et al., 2008

People are willing to pay more to avoid disability today than to avoid it the future. Therefore, a discount rate of 3% (as per the social discount rates used in the other methodologies) is applied to future years beyond the age of 47. The discounted age-weighting is calculated using the equation below.

Equation: Discounted age-weighting for DALYs

$$\mathbf{X_{wd}} = \begin{cases} \mathbf{Cxe^{-\beta x}\ when\ x\ < 47} \\ \mathbf{Cxe^{-\beta x}/\left(1 + 0.03^{x-47}\right)\ when\ x\ \geq 47} \end{cases}$$

The discounted, age-adjusted proportion of life lost (PLL_{wd}) is calculated using the equation for age-adjusted years of lost life. This represents the proportion of life lost for a person who expected to live to 78 but died prematurely at 47.

Equation: Age-adjusted years of lost life

$$\mathbf{PLL_{wd}} = \left(\sum_{x=47}^{78} \mathbf{X_{wd}(x)} \Big/ \sum_{x=0}^{78} \mathbf{X_{wd}(x)} \right)$$

To calculate the number of DALYs, PLLwd is multiplied by life expectancy. Table 3 lays out the steps in the calculation that results in the DALY value of USD 185,990 (in 2011 USD).

Table 3: Steps in the calculation that results in the DALY value of USD 185,000 (in 2011 USD)

Age at time of premature death	Life expectancy	Proportion of life lost (PLL_{wd})	DALYs lost ($PLL_{wd} \times$ *ife expectancy*)	VSL	DALY value ($\frac{VSL}{Number\ of\ DALYs\ lost}$)
47	78	23.4%	18.3	USD 3.4m	USD 185,990

This value is then used to monetarise the impact of DALYs lost according to the child labour cases.

Our approach is to:

- → Track the number of child labour cases for upstream and own operations – if no data is available for upstream, use the calculation as explained in (i) and (ii);
- → Estimate the income lost resulting from loss of education for each child labour case for one year of lost education with an according loss of income of 10%;
- → Translate the loss of income into the change of well-being by using the HUI for the specific country;
- → Determine the monetary value of DALYs lost;

2.4. FORCED LABOUR

2.4.1. TOPIC DESCRIPTION

Forced labour can be defined as work and/or services a person performs involuntarily under threat of penalty.[35] Common tools to force people into such situations are violence, manipulated debt or the holding back of identity papers.[36] Compared to child labour, the number of incidents of forced labour is lower, but it remains a predominant problem. In 2016, around 25 million people were victims of modern slavery, meaning that, for every 1,000 people, there were 5.4 people carrying out forced labour.[37] Of these, approximately 70% were women and girls, and around 50% of the male and female victims were in debt bondage. When it comes to the type of work, domestic work represents the largest share at 24%, followed by the construction sector (18%) and manufacturing (15%).[38]

2.4.2. IMPACT PATHWAY

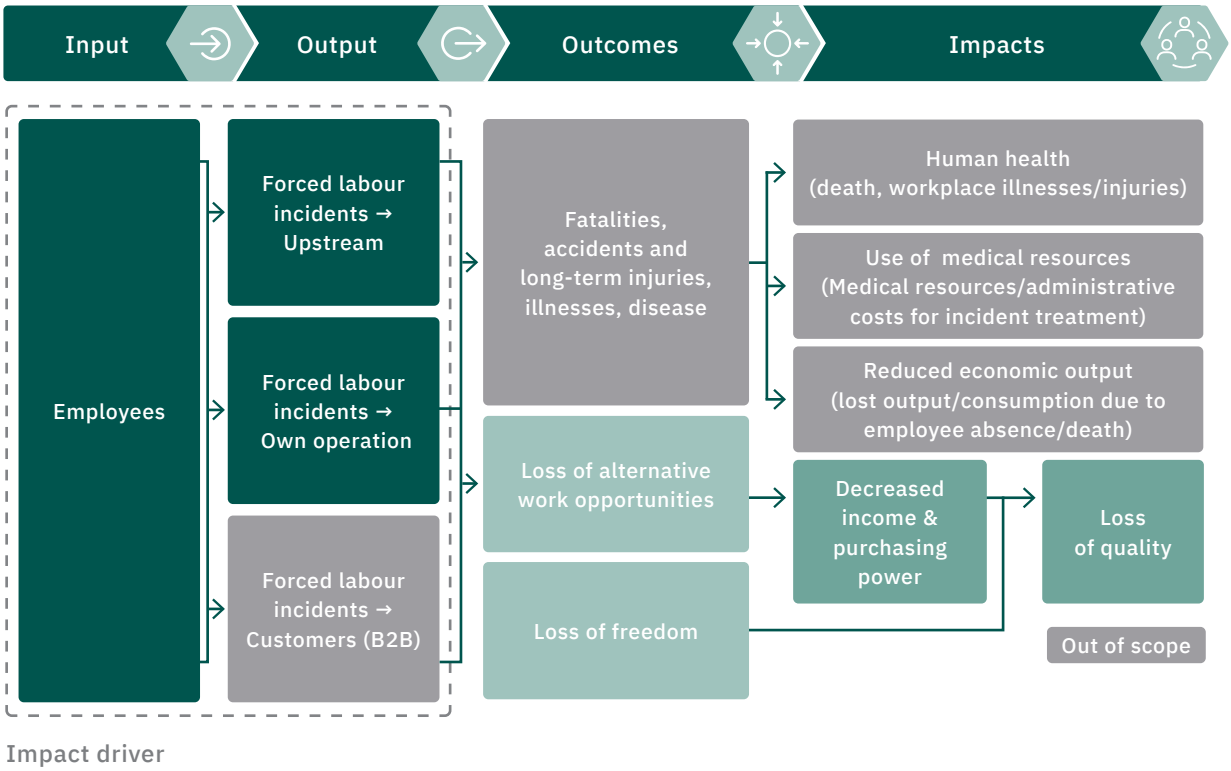


Figure 6: Simplified impact pathway Forced Labour

35 ILO, 2022

36 ILO, 2022

37 ILO, 2017

38 ILO, 2017

With this indicator, we currently concentrate on the societal impacts arising from employees being forced to perform the work in upstream and own operations. As seen in Figure 6, this approach focuses on the impacts on life quality resulting from forced labour. However, there may be additional impact categories which have not yet been implemented in this valuation approach but might be added in future versions.

Users should:

- → Apply the rules outlined in the General Method paper (e.g. include all relevant value chain levels);
- → Select appropriate data sources to calculate an estimation of forced labour for upstream activities.

2.4.3. QUANTIFICATION AND MONETARY VALUATION

(i) Measuring impact drivers and (ii) outcomes

The impact of forced labour is calculated based on the number of forced labour incidents in upstream and own operations. While the data for forced labour incidents at own operations may be accessible, obtaining data for the whole of upstream activities can be challenging for companies.

A useful statistic for estimating victims of forced labour in the supply chain at country level is provided by the Global Slavery Index Initiative.[39] Their data includes estimates for modern slavery at country level and is based on risk factors and population levels.[40]

It is assumed that people held in forced labour typically perform low-skilled labour. Thus, to estimate forced labour per sector, the country data can be broken down according to the low-skilled labour distribution.

If no data on the employee distribution by sector is available, the number of forced labour incidents in the supply chain can also be estimated as follows:

$$\frac{\textbf{forced labor}}{\textbf{low} - \textbf{skill employees}} = \frac{\textbf{forced labor incidence rate in country}}{\textbf{country} - \textbf{wide low} - \textbf{skill employement rate}}$$

Note: This approach relies on the data for forced labour at country level. Forced labour rates could differ inside the same country at regional and local levels. For the present, however, the data at country level will be used. Further development of regional and local factors might apply later.

Recommended approach:

- → Track the number of forced labour incidents for own operations;
- → For the number of forced labour incidents of upstream activities, use the statistics on modern slavery incidents at country level from the Global Slavery Index Initiative for all countries in which upstream activities are located;
- → Assign the absolute country data to the different sectors by the distribution of labour among the different sectors or estimate the share of forced labour in low-skilled employment in the country;

39 https://www.globalslaveryindex.org/, statistics 2018

40 The 2018 Global Slavery Index uses predictive modelling, based on data from nationally representative surveys and the Walk Free Foundation Vulnerability Model, to estimate the prevalence of modern slavery country by country. The number of estimated victims on country level also includes sexual exploitation, forced marriage, and state-imposed labour. Further research for latest data is needed.

→ Apply the rate of forced labour compared to low-skilled labour of the different sectors to the absolute number of low-skilled employees per sector.

(iii) Applying monetary valuation for Value-to-Society

Analogous to the effect of child labour, there are different approaches to valuing the impact of forced labour. Two main indicators of forced labour are: (A) illnesses/injuries and (B) loss of life quality.[41]

(A) Outcome: illnesses and injuries

The first indicator, the impact valuation of illnesses and injuries, has not yet been implemented into the valuation approach due to a lack of data on the severity of forced labour incidents. This may be adjusted in future versions.

(B) Outcome: loss of life quality

For the second indicator, the loss of quality of life, a different approach is used compared to illnesses and injuries. Building on the approach of Vionnet et al. (2021), it is assumed that a forced labour incident results in a 50% loss in quality of life.[42] Forced labour is considered an impairment to the mental and physical well-being of affected individuals. Therefore, this impact is expressed in form of DALY. A burden of 0.5 DALY is comparable to a severe anxiety disorder.[43] A DALY is valued at USD 185,900 based upon the statistical value of life (VSL) and is worth the same everywhere in the world (see the detailed calculation in the Child Labour section).[44]

Our approach is to:

→ Collect the number of forced labour incidents across upstream and own operations – if no data is available, follow the instructions for calculating the number as described in (i) and (ii);

→ Value the outcome of loss of life quality assuming a loss of 50% DALY per forced labour incident and a value of USD 185,900 per DALY.

41 See for example True Price, 2020; Vionnet et al., 2021; Vionnet, Haut, & Adhikari, 2021

42 Based on Vionnet et al., 2021

43 Global Burden of Disease Collaborative Network, 2020

44 Vionnet et al., 2021

2.5. LIVING WAGES

2.5.1. TOPIC DESCRIPTION

Wages can be seen as an important factor for human capital and have a big influence on workers' health. Research by the World Health Organisation (WHO) has found that the correlation of quality of life/life expectancy with wage inequality is stronger than with GDP per capita. While GDP, which can be seen as a representation of national wealth, indicates any type of employment as a positive impact, jobs in the low-income sector might actually create negative impact for workers.[45] Therefore, assessing the actual impact that companies have on society by paying lower or higher wages to their employees is of considerable relevance.

The concept of living wage is the most common method to evaluate wages and refers to paying enough to provide a satisfactory standard of living to workers and their families.[46]

The living wage can be defined as "a basic but decent level of life that allows a household to get good nutrition, housing, health, and education."[47]

2.5.2. IMPACT PATHWAY

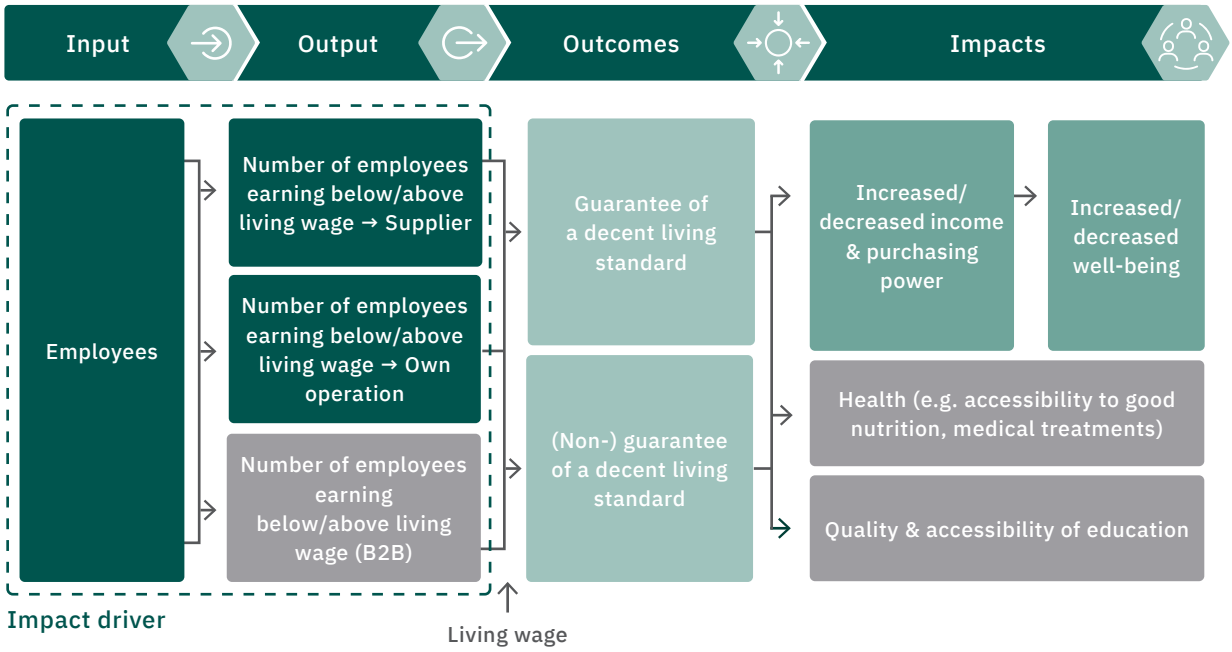


Figure 7: Simplified impact pathway Living Wages

With this indicator, we concentrate on the societal impacts arising from salaries paid to employees in upstream and own operations compared to living wage at country level. It should be noted that the impact from an (un-)equal pay ratio will be covered later in future methodology updates, as seen in Figure 7, this approach focuses on the impact of living wage on well-being resulting

45 WHO, 2016

46 Anker, 2011

47 Vionnet et al., 2021

from increased or decreased income and purchasing power. However, there are additional impact categories, such as health (e.g. nutrition), housing, and quality & accessibility of education. The OECD well-being framework covers 11 key dimensions of current well-being, which are influenced amongst other things by inequalities between top and bottom performers, including social connections, work-life balance, and subjective well-being.[48] Given the lack of valuation approaches, these additional impact categories are not included at present.

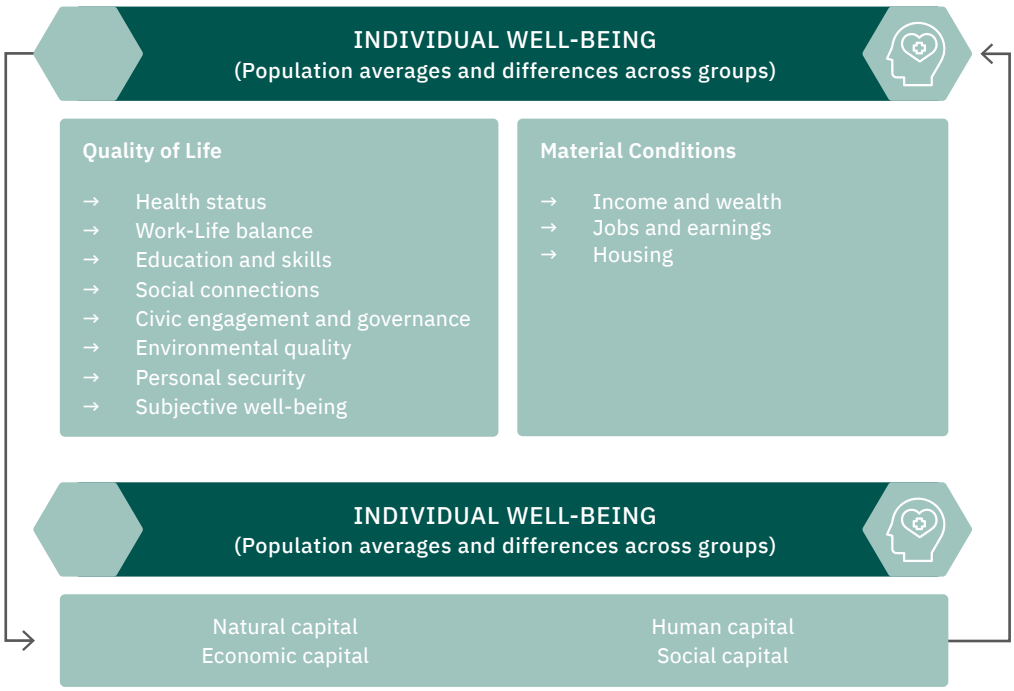


Figure 8: The OECD well-being conceptual framework[49]

Users should:

- → Apply the rules outlined in the General Method paper (e.g. include all relevant value chain levels);
- → Select appropriate data sources for calculating wage gaps at country level and use the applicable HUI.

NOTE: Given the complexity of valuing societal impacts from living wages, the presented methodological approach and selected data for living wages still bear limitations that will be addressed in the future refinement of the methodology. For example, partial overlaps exist between living wage and other indicators such as GVA. Further methodological work will be required to develop approaches that allow adjustment for such overlaps. In the meantime, it is important to note that living wage and GVA impacts are not additive. Potential overlaps should be made transparent, and balancing living wage against other impacts is to be avoided, as the results would be misleading.

48 OECD, 2011

49 OECD, 2011

2.5.3. QUANTIFICATION AND MONETARY VALUATION

(i) Measuring impact drivers and (ii) outcomes

The impact of living wages is calculated based on the wage gap between the annualised base salaries paid to the employees in each country compared to the living wage at country level for upstream and own operations.

As the living wage marks the threshold, any wage above the living wage creates a positive impact, whereas any wages below the living wage account for negative impacts with regard to quality of life and life expectancy.

The calculation of the living wage itself is based on the costs of good, housing, and other essential needs, but it also includes the average family size, the number of workers in each family, as well as statutory payroll deductions and taxes.

Data on living wages is published by different sources, incl.:

- → WageIndicator Foundation
- → Global Living Wage Coalition
- → Valuing Impact

Table 4: "Review of main initiatives providing living wage data worldwide (review done end of 2019)", Vionnet, 2020

	Geo. coverage	Granularity	Updates frequency	Data sources	Availability
Valuing Impact	World	Country	N/A	Primary + WageIndicator + model	Public
BSR	World	Country (+US/ Brazil cities)	N/A	US + Model	Private
WageIndicator	76 countries	Country + regions + cities	Quarterly	Primary	Public / private
Asian Floor Wage	10 countries (Asia)	Country	> 3-year period	Model + primary for food	Public
Global Living Wage Coalition	21 countries / 26 locations	Regional or city	N/A	Primary	Public
Fair Wage Network	World	Sub-national	N/A	Model + WageIndicator + Secondary	Private
Others	1 or a few countries	Sub-national	N/A	Primary / model	Public

This approach focuses on the living wage data provided by Valuing Impact in collaboration with WageIndicator, as it contains primary global data at country level and is available publicly. This might be adjusted in the future to provide updated living wage data.

If no primary data on wages is available for the employees of upstream activities, refer to Exiobase as stated in the General Method paper on *Input-Output models for impact assessment - upstream*.

Note that this approach applies an average living wage at country level. However, in reality, the living wage may differ within a country between regions. As comprehensive primary data is not currently available at a sub-national level, we recommend using country-level data in the V0.2 methodology. Data availability and quality will also be taken into account in the further refinement of this methodology.

Recommended approach:

- → Use primary data on paid wages for own operations;
- → Calculate the average paid wages for employees per country for upstream activities;
- → Take the living wage for each country by using data from the Valuing Impact in collaboration with Wage Indicator;
- → Calculate the wage gap between average paid wages for each country for employees earning above and below the living wage.

(iii) Applying monetary valuation for Value-to-Society

While there are several studies underlining the relevance of paid wages when measuring companies' impact on employees, only a few studies exist that present detailed information on the valuation technique used for this indicator.

To assess the monetary value of the impact, we recommend using the unit DALY (Disability Adjusted Life Years) for negative impacts and the unit QALY (Quality Adjusted Life Years) for positive impacts. With the DALY, the Years of Life Lost (YLL) and the Years of Life Disabled (YLD) are combined.

The DALY lost, and respectively the QALY gained, according to the paid wages are calculated by using the Health Utility of Income (HUI) method. The HUI represents the contribution of income to the well-being of an individual at country level and is thus applied to translate the effects related to income into the change of an individual's quality of life.

HUI equation:

$$\mathbf{HUI_l = \frac{Change\ in\ wellbeing_l}{Income\ gap_l}}$$

Where:

- → HUI: Health Utility of Income (QALY/DALY)
- → *l:* location (here: country)
- → *Change in well being*: life quality (i.e. YLD) and expectancy (i.e. YLL) differences that are explained by income inequalities (also called the "health gap"), reported per year of life or, more precisely, year of work. Those factors are provided in a separate table
- → *Income gap: the gap of income within which the health inequity (or gap) is experienced, expressed in a chosen currency (e.g. USD)*[50]

50 Vionnet, Haut, & Adhikari, 2021

The HUI factors are multiplied directly by the income of the employees; the living wage is set as the baseline. All wages below the living wage will therefore have a negative impact on human capital, while wages above the living wage have a positive impact. If an employee is paid exactly the living wage, the impact is equal to zero. The equation to apply the HUI factors is thus:

DALY equation:

$$\mathbf{DALY = min\ (HUI \cdot (income_{max} - baseline), HUI \cdot (income_{employee} - baseline))}$$

Where:

- → $income_{max}$: is the income value at the top of the income range, which is suggested to be equivalent to four times the living wage[51]
- → $income_{employee}$: is the assessed income of the employee[52]

It should be stressed that an update of the HUI is necessary every 2-3 years to adequately calculate the societal impact.

Valuation of DALYs

Having established the number of DALYs lost/QALYs gained as a result of wages below/above the living wage, we assign a monetary value to those DALYs to estimate the societal cost of underpaid/overpaid work.

Health economists and policy makers typically use DALYs to understand the relative severity of health conditions. They often use them to compare the cost effectiveness of investments (cost savings per avoided DALY). In Lvovsky et al. (2000), published for the World Bank, the authors build on this to present a method for estimating the welfare value of DALY savings.[53]

Lvovsky et al. (2000) derive the DALY value from the value of a statistical life (VSL) based on the number of lost DALYs associated with that lost life (see: *Value of a DALY below*).[54] This approach has been applied in a government policy context by Pearce and Koundouri (2004) to help evaluate the EU's REACH policy (Registration, Evaluation, and Authorisation of Chemicals).[55] The following discussion presents our application of this approach. The VSL values used are consistent with those used in the other environmental impact methodologies.

Equation: Value of a DALY

$$\mathbf{Value\ of\ DALY = \frac{VSL}{Number\ of\ DALYs\ lost}}$$

51 Due to the marginal utility of income, the additional positive impact with increasing wages is decreasing. See therefore Vionnet & Haut, 2018

52 Vionnet, Haut, & Adhikari, 2021

53 Lvovsky et al., 2000

54 Lvovsky et al., 2000

55 Pearce & Koundouri, 2004

The OECD nations VSL estimate of USD 3.4m (2011, inflated from 2005) is the basis of our DALY valuation.[56] The OECD estimate is based on a meta-analysis of studies which consider acceptance of risks to life and extrapolate to give a VSL (e.g. wage premiums to accept working in riskier environments). The median age of individuals in the studies is 47 years old, with a life expectancy of 78, such that the resulting estimate of VSL is associated with 31 years of lost life.

In order to estimate the value, the number of years lost is converted to DALYs. A year of disability-free life does not hold the same number of DALYs for all ages. People place a higher value on avoiding disability between the early teens and the mid-50s (age-weighting for DALYs). The DALYs are therefore age-weighted.[57]

Prüss-Üstün et al. (2008) provide a formula and suggest coefficients for calculating the relative weighting of each year of life (X_w), which is set out in the following equation.[58]

Equation: Age-weighting formula for calculating DALYs

$$\mathbf{X_w = Cxe^{-\beta x}}$$

where x is the age in years. The suggested coefficients are C = 0.1658 and β = 0.04. This formula is used to calculate the relative weight applied to each of the 78 years of life expectancy associated with the OECD's VSL estimate.

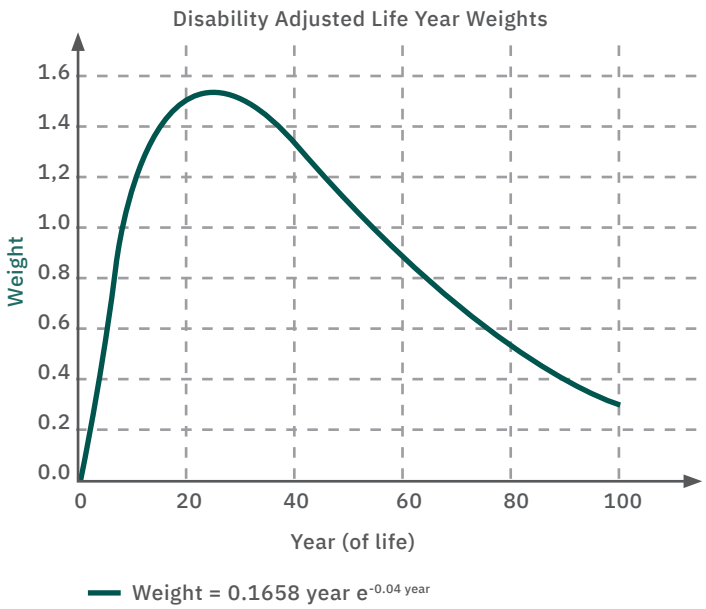


Figure 9:Age-weighting for DALYs

People are willing to pay more to avoid disability today than to avoid it the future. Therefore, a discount rate of 3% (as per the social discount rates used in the other methodologies) is applied to future years beyond the age of 47. The discounted age-weighting is calculated using the equation below.

56 OECD, 2012

57 Prüss-Üstün et al., 2008

58 Prüss-Üstün et al., 2008

Equation: Discounted age-weighting for DALYs

$$X_{wd} = \begin{cases} Cxe^{-\beta x} \text{ when } x < 47 \\ Cxe^{-\beta x}/(1 + 0.03^{x-47}) \text{ when } x \geq 47 \end{cases}$$

The discounted, age-adjusted proportion of life lost (PLL_{wd}) is calculated using the equation for age-adjusted years of lost life. This represents the proportion of life lost for a person who expected to live to 78 but died prematurely at 47.

Equation: Age-adjusted years of lost life

$$\mathbf{PLL_{wd}} = \left(\sum_{x=47}^{78} X_{wd}(x) \Big/ \sum_{x=0}^{78} X_{wd}(x) \right)$$

To calculate the number of DALYs, PLL_{wd} is multiplied by life expectancy. Table 5 lays out the steps in the calculation that results in the DALY value of USD 185,990 (in 2011 USD).

Table 5: Steps in the calculation that results in the DALY value of USD 185,000 (in 2011 USD)

Age at time of premature death	Life expectancy	Proportion of life lost (PLL_{wd})	DALYs lost ($PLL_{wd} \times$ *life expectancy*)	VSL	DALY value ($\frac{VSL}{Number\ of\ DALYs\ lost}$)
47	78	23.4%	18.3	USD 3.4m	USD 185,990

This value is then used to monetarise the impact of DALYs lost/QALYs gained according to the paid wages.

Our approach is to:

- → Calculate the gap between the paid wages in each country compared to the national living wage for all employees of upstream and own activities;
- → Calculate the impact of the wage gap by using the national HUI;
- → Determine the value of the resulting DALYs/QALYs;
- → Sum up the positive impacts and negative impacts separately for all employees.

Note that this approach relies on the accessibility of data for all employees for upstream and own operations.

2.6. GVA

2.6.1. TOPIC DESCRIPTION

Gross Value Added (GVA) is a measure of the contribution to Gross Domestic Product (GDP) by an individual producer, industry, or sector. GDP is an aggregate measure of the market value of goods and services a country produces to satisfy the needs of final consumers.

GDP has long been used to measure the economic performance and societal progress of nations and, ultimately, the wealth of a country. At a sub-national level, governments have historically used GVA to assess the value of interventions or investments.

As the sum of the private sector's GVA constitutes the private sector's share of national GDP, GVA is often used to reference a company's contribution to GDP.

2.6.2. IMPACT PATHWAY

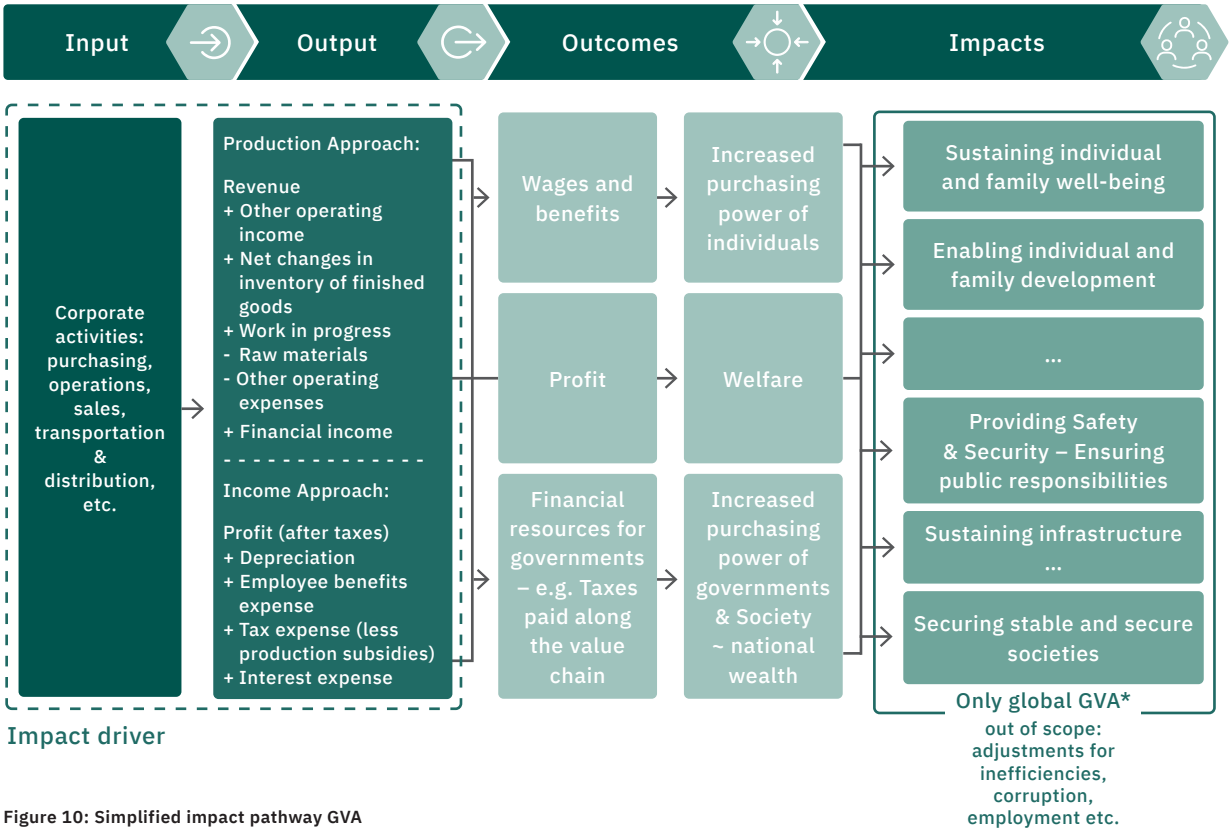


Figure 10: Simplified impact pathway GVA

NOTE: Partial overlaps may exist between GVA and other indicators such as living wage and training, depending on how those indicators are defined. Further methodological work will be required to develop approaches that allow adjustment for such overlaps. In the meantime, it is important to note that GVA and societal impacts are not additive. Potential overlaps should be made transparent, and balancing GVA against other impacts is to be avoided, as the results would be misleading.

Impact drivers

- The size of a company's direct GDP contribution is driven by its profits, sales, wage volume, depreciation, and taxes in a given time period.
- In the value chain, upstream GVA creation is typically linked to the scale of a company's procurement spending and the resulting activity in the wider economy. Such spending acts as production inputs or intermediate consumption.
- GVA generated downstream can be understood as the economic activity enabled by the goods and services sold by the company.
- The balance of a business's GDP contribution among its upstream, downstream, and own operations reflects that business's position along the value chain, from raw material extraction to final consumer demand.
- When measuring GDP contribution, the granularity required depends on how the results will be used. Data should be collected at the level of the organisational units relevant for the decision.

2.6.3. QUANTIFICATION AND MONETARY VALUATION

For both the production approach and the income approach, the key elements of direct GVA should be available from the company's financial reports.

The selection of an input-output model should reflect the ability to estimate GVA components across the value chain. The minimum input in this regard is the company's spending per industry sector and country.

(i) Measuring impact drivers

There are two principal methods for calculating GVA at company level: the production approach and the income approach.[59]

The production approach treats GVA as the difference between a company's outputs (sales or production value) and its intermediate inputs (purchases).

Production approach as defined by the System of National Accounts (SNA):[60]

GVA = output - intermediate consumption

Outputs include the total value of:

- Sales;
- Goods manufactured but held in inventory;
- Work in progress;
- Items of a capital nature created in-house for a company's own final use.

GVA can be calculated using the following Profit & Loss (P&L) items (oriented at IAS 1.102, illustrative example):[61]

59 Scottish Government, 2021

60 European Commission, IMF, OECD, United Nations, & World Bank, 2008

61 Note that the structure of the P&L is entity specific.

Table 6: GVA calculation – production approach

GVA calculation – production approach	
System of National Accounts definition	Corresponding Profit & Loss items
Output	Revenue
	+ Other operating income (including items created in-house for own use, excluding subsidies and less financial income, e.g. interest or investment income)
	+ Net changes in inventory of finished goods
	+ Work in progress
	= Company performance
Intermediate consumption	- Raw materials and consumables used
	- Other operating expenses
	= GVA

The Net Value Added (NVA) can be calculated by deducting all depreciation and impairment expenses from GVA.

Intermediate inputs, measured at purchaser's prices (inclusive of taxes), are the goods or services that a business requires to produce its output.

The income approach directly calculates the components of the difference between intermediate inputs and outputs taking into account remuneration for primary inputs of production (labour and capital) and other taxes, less subsidies for production. These components are:

- → The costs of employment (wages and other benefits);
- → Production taxes (less subsidies);
- → Gross operating surplus (profit).

Income approach as defined by the SNA:62

GVA = compensation of employees + consumption of fixed capital + other taxes minus other subsidies on production + net operating surplus

62 European Commission, IMF, OECD, United Nations, & World Bank, 2008

GVA can be calculated using the following P&L items:[63]

Table 7: GVA calculation – income approach

GVA calculation – income approach		
System of National Accounts definition	Corresponding Profit & Loss items	
Net operating surplus	Profit (after taxes) plus interest expenses, net of financial income	
Consumption of fixed capital	+	Depreciation/impairment expenses
Compensation of employees	+	Employee benefits expenses
Other taxes, less other subsidies on production	+	Tax expenses (less production subsidies)
	= GVA	

The NVA can be calculated by deducting all depreciation and impairment expenses from GVA.

For the GVA generated through companies' research and development (R&D) activities, a variation of the income approach is used, in line with the OECD's Frascati Manual.[64]

Note that taxes and subsidies on products (such as VAT) are not taken into account in either approach. These taxes are collected by businesses but are typically borne by the final consumer,[65] and they represent the difference between the sum of national GVA (in basic prices) and the nation's GDP (in market prices).

The income approach neatly divides the components of GVA into the different stakeholder groups that stand to benefit from the company's economic performance. Employees experience an improvement in their material conditions from receiving wages and benefits. Production taxes flow to the wider society and allow the state to improve the quality of life of its citizens. Gross operating surplus affects the material conditions of the company's shareholders.

As both approaches are equivalent, the choice largely depends on data availability. For specific topics, like the calculation of the GVA associated with R&D, a variation of the income approach is the only approach available.

(ii) Quantifying the outcomes and (iii) estimating the impacts on society

All GVA components are measured in monetary values and, therefore, do not need to be converted from physical quantities with valuation coefficients. However, the change in welfare that the same monetary unit (e.g. a Euro) can obtain differs from one country to another (e.g. the price of a certain basket of goods in Switzerland is higher than the price of the same basket of goods in Ethiopia). Therefore, all other things being equal, the same Euro in one country will buy a different quantity of goods in another and, it is assumed, will result in a different level of welfare.

63 Please note that the structure of the P&L is entity specific.

64 OECD, 2015

65 PwC, 2021

To estimate the welfare change associated with these financial capital flows in different countries, the GVA components can be adjusted using World Bank purchase power parity (PPP) conversion factors. For certain applications, it may make sense to adjust GDP contributions for purchasing power in order to understand relative GDP impacts.

For an organisation's total GVA reporting, we recommend working with the unadjusted results in order to maintain consistency with financial reporting and to facilitate inter-organisational comparability.

Discussion: When can PPP adjustments to GVA be useful?

In some cases, adjusting GVA for PPP can be helpful. But the consequences of such adjustments should be carefully considered. General consequences of PPP adjustments include:

1. Loss of consistency with macroeconomic GVA calculations and corporate financial reporting (e.g. calculating GVA contributions in proportion to GDP is no longer possible);
2. Inflation of lower-income countries' value contributions:
   - → This allows for an improved reflection of value contributions in a local context (when viewing effects from the value to society perspective),
   - → Such a focus on social value creation can be helpful, e.g. when assessing investment opportunities across different geographies. The same financial value contribution can generate a higher value to society in lower-income countries, but this effect would only become visible through PPP adjustments.

Similarly, PPP adjustments can be helpful when comparing social value performance levels between international projects or different country organisations within one's own organisation.

Discussion: Should GVA be adjusted for corruption and other inefficiencies?

The VBA does not recommend adjusting GVA contributions for corruption or other inefficiencies, although the existence of local differences in corruption levels is widely accepted and country-level comparisons are available.[66]

There are two main reasons for excluding such adjustments:

1. GVA is an established macroeconomic concept to which we aim to maintain connectivity. Negative effects from corruption and other inefficiencies could be measured with a separate indicator in the future, but netting of positive and negative impacts within the GVA indicator should be avoided.
2. Corruption and other inefficiencies are effects that lie outside companies' direct control, and measuring them would thus not provide an actionable basis for organisational decision making. Theoretically, companies could choose to withdraw from markets with high corruption levels, but it is debatable whether this would lead to any outcome other than different companies filling the void.

66 Transparency International (2020): Corruption perceptions index. Available from https://www.transparency.org/en/cpi/2020/index/nzl

NOTE: Measuring value by quantifying GVA impacts is the most mature approach of those considered as part of the VBA method V0.2. However, ongoing research is exploring the link between the improvement in material conditions experienced by the beneficiaries of GVA creation and the resulting improvements in quality of life and well-being.

The elements of the OECD's well-being framework (see Figure 5) are interconnected. An increase in income may facilitate a change in housing conditions, which could, in turn, improve personal security and health. Further development of the methodology should focus on better quantifying these secondary effects to enhance our understanding of the impact and value of GVA creation.

Recently, the use of GDP or GVA as a measure of progress or as a definition of value has been criticised. GDP is now often seen as an insufficient measure in light of other pressing social needs, as it does not capture a population's quality of life or well-being.[67]

Many organisations have attempted to establish frameworks for a more complete measure of people's well-being. The OECD well-being conceptual framework (see Figure 8) shows how components of GVA (income and earnings) might be incorporated into a holistic definition of individual well-being.

Therefore, a new definition of value may include GVA as a foundation in understanding the contribution that a business makes to the well-being of its stakeholders. However, we recognise that it is merely one facet of the impact that a company has on people.

67 Shinwell & Shamir, 2018, Kapoor & Debroy, 2019

3.

APPENDICES

3.1. SOCIAL AND ECONOMIC INDICATORS

Table 8: Social and economic indicators

Indicator	Sub-indicator	Context	Frameworks defining measurements e.g. [68]
Social			
Occupational Health & Safety	Injury	Short absence	GRI (403-9 WEF IBC Health & well-being
		Long absence	
		Partial incapacity	
		Full incapacity	
		Fatality	
	Illness	Short absence	GRI (403-10), WEF IBC Health & well-being
		Long absence	
		Partial incapacity	
		Full incapacity	
		Fatality	
Training	Training hours	Number of employees, total wages (all employees), number of people leaving in year, average age of employees per country	GRI (404-1), SASB HC 101 - 15
Child Labour		Number of child labour cases, GNI per capita, HUI per country	GRI (408-1), WEF IBC Dignity & equality
Forced Labour		Number of forced labour cases	GRI (409-1), WEF IBC Dignity & equality
Living Wage		Number of employees earning below/above living wage, living wage per country, health gap	WEF IBC Dignity & equality
Economic			
GVA	GVA – Production approach	Revenue	GRI (201-1 and 201-4, 207), WEF IBC Net economic contribution, Net investment
		Other operating income	
		Net changes in inventory of finished goods	
		Work in progress	
		Raw materials	
		Other operating expenses	
	GVA – Income approach	Profit (after taxes) plus interest expenses, net of financial income	
		Depreciation / impairment expenses	
		Employee benefits expense	
		Tax expenses (less production subsidies)	

68 Note that these frameworks define indicators in physical terms (mass, volume, etc.). Valuation is not addressed in them.

3.2. LIST OF FIGURES AND TABLES

3.3. LIST OF ACRONYMS

DALYS	Disability-Adjusted Life Years
GVA	Gross Value Added
GNI	Gross National Income
HALYs	Health-Adjusted Life Years
HUI	Health Utility of Income
IO	Input Output
LW	Living Wage
P&L	Profit & Loss
QALYs	Quality-Adjusted Life Years
NVA	Net Value Added
TEV	Total Economic Value
VBA	Value Balancing Alliance
VSL	Value of a Statistical Life
YLL	Years of Lost Life

3.4. GLOSSARY

Term	Definition	Source
Amortisation	Accounting definition for intangible assets according to IAS 38.8: Amortisation is the systematic allocation of the depreciable amount of an intangible asset over its useful life.	IFRS (2022a)
Asset	Asset definition according to the IFRS Conceptual Framework (rev. 2018), Par. 4.3: An asset is a present economic resource controlled by the entity as a result of past events (An economic resource is a right that has the potential to produce economic benefits).	IFRS (2018)
Capital	Stocks of value on which all organisations depend for their success as inputs to their business model, and which are increased, decreased, or transformed through the organisation's business activities and outputs. The capitals are categorised in this framework as financial, manufactured, intellectual, human, social and relationship, and natural.	IIRC (2013)
Child labour	Work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development.	ILO (2019)
Depreciation	Depreciation definition for tangible assets according to IAS 16.6: Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.	IFRS (2022b)
Disability Adjusted Life Years (DALYs)	A burden of disease measure based on the number of years lost from premature death, disease, or disability. The loss of one healthy year of life due to death or illness is equal to one DALY. DALYs were developed by the World Bank and World Health Organization in 1993 to both quantify disease and disability burdens globally and set intervention priorities. Instead of a scale of health like QALYs, DALYs are related to a degree of disability for a specific disease or disability from none (0) to death (1).	Gold et al., (2002)
Discount rate	Definition of a discount rate that must be used for calculating the amount of provisions: Pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability. The discount rate(s) shall not reflect risks for which future cash flow estimates have been adjusted.	IFRS (2010)
Driver (direct and indirect)	Any natural or human-induce factor that directly or indirectly causes a change in an ecosystem.	TEEB (2010)
Downstream	Processes that occur in the life cycle of a product or service subsequent to the processes owned or controlled by the reporting company.	Adapted from WRI & WBCSD (2011)
Effects	Intended or unintended change due directly or indirectly to an intervention.	DAC/OECD (2010)
Externality	Consequence of an activity that affects interested parties other than the organisation undertaking the activity, for which the organisation is neither compensated nor penalised through markets or regulatory mechanisms.	ISO (2019a)
Extrapolated data	Data specific to another process or product that has been adapted or customised to resemble more closely the conditions of the given process in the studied product's life cycle.	WRI & WBCSD (2011)

Term	Definition	Source
Forced labour	All work or service which is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily.	ILO (1930)
Gate-to-gate	Product's life cycle starting with production.	ISO (2019a)
Gate-to-grave	Product's life cycle from use, end-of-life treatment, recycling, and final disposal.	ISO(2019a)
Gross National Income (GNI)	Gross national income (GNI) is defined as GDP plus compensation of employees receivable from abroad plus property income receivable from abroad plus taxes less subsidies on production receivable from abroad less compensation of employees payable abroad less property income payable abroad and less taxes plus subsidies on production payable abroad.	United Nations et al. (2012)
Gross Domestic Product (GDP)	Gross domestic product (GDP) is an aggregate measure of gross value added for all resident institutional units. It can be measured in three conceptually equivalent ways: (a) Income measure of GDP: The income measure of gross domestic product (GDP) is derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on both production and imports; (b) Expenditure measure of GDP: The expenditure measure of gross domestic product (GDP) is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports; (c) Production measure of GDP: The production measure of gross domestic product (GDP) is derived as the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of output.	United Nations et al. (2012)
Gross Value Added (GVA)	Gross value added (GVA) is defined as output (at basic prices) minus intermediate consumption (at purchaser prices); it is the balancing item of the national accounts' production account. GVA can be broken down by industry and institutional sector. The sum of GVA over all industries or sectors plus taxes on products minus subsidies on products gives gross domestic product. By subtracting consumption of fixed capital from GVA the corresponding net value added (NVA) is obtained. The concepts of "GVA at market prices", "GVA at producer prices" and "GVA at basic prices" are no longer used in ESA 2010.	Eurostat (2020)
Health Adjusted Life Years (HALYs)	Summary of population health measurements that combines death and morbidity impacts.	Gold et al., (2002)
Human Capital	The knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social, and economic well-being.	Social & Human Capital Coalition (2019)
Human well-being	Concept prominently used in the Millennium Ecosystem Assessment – it describes elements largely agreed to constitute 'a good life', including basic material goods, freedom and choice, health and bodily well-being, good social relations, security, peace of mind, and spiritual experience.	TEEB (2010)
Impact	Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.	DAC/OECD (2010)

Term	Definition	Source
Impact pathway	An impact pathway describes how, as a result of a specific business activity, a particular impact driver results in changes in natural capital and how these changes in natural capital affect different stakeholders.	Natural Capital Coalition (2016a)
Input	The financial, human, and material resources used for the development intervention.	DAC/OECD (2010)
Living Wage	The living wage defines a basic but decent level of life that allows a household to get good nutrition, housing, health, and education.	Vionnet (2020)
Materiality	Accounting under IFRS: According to the conceptual framework for IFRS, rev. 2018), Par. 2.11, materiality is defined as: Information is material if omitting, misstating, or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial reports (see paragraph 1.5) make on the basis of those reports, which provide financial information about a specific reporting entity. In other words, materiality is an entity-specific aspect of relevance based on the nature or magnitude, or both, of the items to which the information relates in the context of an individual entity's financial report. Consequently, the Board cannot specify a uniform quantitative threshold for materiality or predetermine what could be material in a particular situation.	IFRS (2018)
Materiality	A matter is material if it could substantively affect the organisation's ability to create value in the short, medium, or long term.	IIRC (2013)
Measurement	In the protocol, the process of determining the amounts, extent, and condition of natural capital and associated ecosystem and/or abiotic services in physical terms.	Natural Capital Coalition (2016)
Monetary valuation	Procedure for determining monetary value.	ISO 14008 (2019b)
Outcome	The likely or achieved short-term and medium-term effects of an intervention's outputs.	DAC/OECD (2010)
Output	The products, capital goods and services which result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.	DAC/OECD (2010)
Own operation	Gate-to-gate: environmental aspects and potential environmental impacts throughout a product's life cycle from production (LCA addresses the environmental aspects and potential environmental impacts (e.g. use of resources and environmental consequences of releases) throughout a product's life cycle from raw material acquisition through production, use, end-of-life treatment, recycling, and final disposal (i.e. cradle-to-grave).	ISO (2006)
Primary data	Data from specific processes in the studied product's life cycle.	WRI & WBCSD (2011)
Purchase Power Parity (PPP)	Currency exchange rate between two countries at which the same bundle of goods can be bought.	ISO (2019b)

Term	Definition	Source
Quality Adjusted Life Years (QALYs)	A health measure that incorporates quality of life and life expectancy based on average samples of health ratings from groups of people and/or professionals. One year in full or perfect health is equal to one QALY. Health-related quality of life (HRQL) is plotted on a scale of 0 (death) to 1 (full health) (see diagram below). The QALY was developed primarily for cost-effective analysis (CEA) in the late 1960s to determine the effectiveness of different medical treatments, technologies, and interventions.	Gold et al., (2002)
Secondary data	Process data that are not from specific processes in the studied product's life cycle.	WRI & WBCSD (2011)
Social capital	The networks of relationships among people who live and work in a particular society, enabling that society to effectively function.	Social & Human Capital Coalition (2019)
Total Economic Value (TEV)	Total Economic Value (TEV): a framework for considering various constituents of value, including direct use value, indirect use value, option value, quasi-option value, and existence value.	TEEB (2010)
Upstream	Processes that occur in the life cycle of a product or service prior to the processes owned or controlled by the reporting company.	Adapted from WRI & WBCSD (2011)
Upstream	GHG emissions or removals associated with processes that occur in the life cycle of a product prior to the processes owned or controlled by the reporting company.	GHG Protocol (2011)
Valuation	The process of estimating a value for a particular good or service in a certain context in monetary terms.	TEEB (2010)
Value of a Statistical Life (VSL)	Represents the value a given population places ex ante on avoiding the death of an unidentified individual.	OECD (2012)
Value to society	The costs and benefits to wider society, also referred to as external, public, or stakeholder value (or externalities).	Natural Capital Coalition (2016a)
Willingness to accept compensation (WTA)	Minimum amount of money an individual is prepared to accept as compensation to forgo an environmental improvement or to tolerate an environmental loss.	SO (2019b)
Willingness to pay (WTP)	Maximum amount of money an individual is prepared to pay to secure an environmental improvement or to avoid an environmental loss.	ISO (2019b)
Years of Life Lost (YLL)	Years of Life Lost (YLL) takes into account the age at which deaths occur by giving greater weight to deaths at younger age and lower weight to deaths at older age. The years of life lost (percentage of total) indicator measures the YLL due to a cause as a proportion of the total YLL in the population due to premature mortality. YLL is calculated from the number of deaths multiplied by a standard life expectancy at the age at which death occurs. The standard life expectancy used for YLL at each age is the same for deaths in all regions of the world and is the same as that used for the calculation of Disability Adjusted Life Years (DALY). Additionally, 3% time discounting and non-uniform age weights, which give less weight to years lived at young and older ages, were used as for the DALY. With non-uniform age weights and 3% discounting, a death in infancy corresponds to 33 YLL, and deaths at ages 5 to 20 to around 36 YLL.	WHO (2020)

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SOURCES

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