Scope 3 Emissions of Business Schools

A unified GHG protocol-based accounting framework

Abstract

This paper offers a clear, practical framework for identifying, measuring, and reporting scope 3 emissions, tailored specifically to the business school context and grounded in the Greenhouse Gas Protocol. Drawing on data from more than 80 schools, it focuses on the most material scope 3 emission sources and provides step-by-step guidance that is accessible regardless of a school's size, resources, or technological advancement. The goal: to bring clarity, comparability, and credibility to scope 3 reporting in the higher education sector.

Built on the

October 2025

Contents

The AERO network

Founded in Spring 2025, the aim of the network is to exchange, share, promote, and advocate decarbonization of business schools.

AERO (Alliance for Environmental Response in Business Schools) focuses on environmental sustainability in business school operations. It does not focus on research and teaching on sustainability.

The founding members of the network are Bocconi University, ESADE, ESSEC Business School, Kozminski University, University of St.Gallen, Stockholm School of Economics, Vlerick Business School, and WHU Otto Beisheim School of Management.

AERO is inclusive and new members are welcome. For more information visit the website www.aero-network.eu

Introduction

Carbon accounting is a highly complex and technical topic, yet of paramount importance for the decarbonization of business schools. Though standards like the GHG Protocol (GHGP, henceforth) and ISO 14064 provide useful guidelines, business schools have specific characteristics that require interpretations and assumptions which, inevitably, limit the comparability of GHG reports across institutions.

This is particularly relevant for scope 3 emissions. These include indirect impacts such as campus renovations, faculty and student travel, commuting, supply chains, and other activities not directly controlled by the school. Although they represent the largest share of a school's carbon footprint, there are numerous ways to quantify and report them, often leading to inconsistencies and incompatibility.

We propose a detailed and pragmatic framework for business schools to identify, measure, and disclose scope 3 emissions, based on the GHG Protocol. The framework includes practical guidance for implementation—offering clear instructions, data sources, and calculation methods to support consistent and actionable scope 3 reporting.

This methodology paper is designed to be read alongside a companion document that surveys what over 80 business schools report in terms of scope 3 emissions. That article provides a shared understanding of key scope 3 categories and reporting practices specific to the sector.

Based on insights from the companion paper, the framework presented here focuses on the categories that account for the largest share of scope 3 emissions in business schools. It serves as a best-practice guide that can be implemented by any institution, regardless of size, status, or available resources.

Widespread adoption of this framework can improve transparency, enable meaningful comparisons across institutions, and enhance fairness in external evaluations such as rankings.

The framework is designed to be applicable regardless of a school’s level of digitization and automation in GHG reporting. While some institutions use dedicated software systems aligned with financial reporting, others rely on Excel or even manual calculations. To support all levels of maturity, this paper is accompanied by a second companion: an Excel file to facilitate implementation of the proposed framework.

We acknowledge that, though the framework is general enough, one size does not fit all. Some business schools have specificities in their emissions that require additional analysis and different ways to compute the emissions, especially for the downstream categories 2 to 7. In these cases, we refer to GHG Protocol Corporate Value Chain (scope 3) Standard article.

The intended audience for this document is broad. It is primarily aimed at sustainability teams responsible for carbon footprint reporting, but it is also relevant for operational units—such as degree programs, campus services, and executive education. These units can apply the framework to inform data-driven decisions toward decarbonization. The document is also valuable for executive committees and boards of directors, as it provides a structured approach to summarize and present scope 3 emissions.

The next section defines scope 3 emissions and explains their relevance to business schools, followed by a comparison of available frameworks. The core and longest section presents the framework. The paper concludes with a summary and a glossary of technical terms.

What scope 3 emissions are and why they matter for business schools

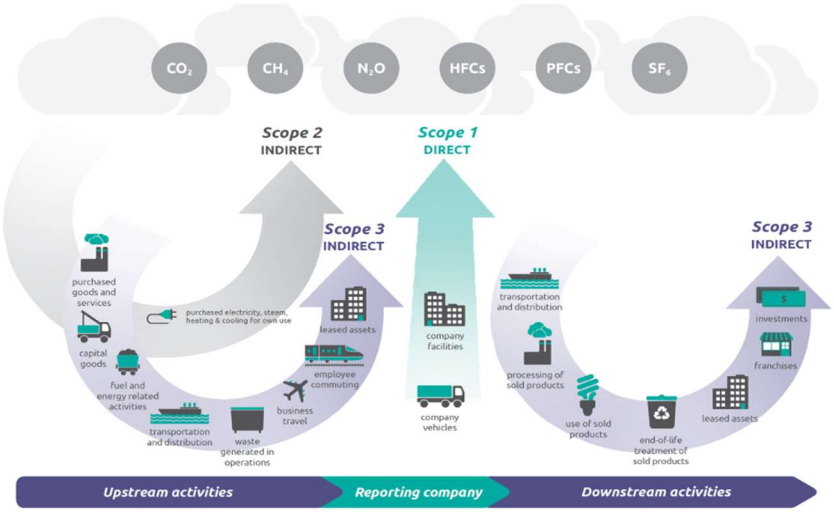
Scope 3 emissions are greenhouse gas (GHG) emissions resulting from the activities of a business school but occurring from sources not owned or directly controlled by the school.

This definition was introduced by the GHG Protocol Corporate Value Chain (scope 3) Standard developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), and this is the most used standard for scope 3 emissions.

The GHGP classifies scope 3 emissions into upstream and downstream, covering the whole value chain of any corporation. Roughly speaking, upstream emissions relate to suppliers (or cradle-to-gate) and downstream to clients (or gate-to-grave).

In the context of business schools, examples of upstream emissions are outsourced services (e.g. catering, cleaning, and cloud services), mobility of professors and staff, and renovation of campuses. Examples of downstream emissions are mobility of the students and participants in executive education, and financial investments (e.g. endowments).

Upstream emissions are divided into 8 categories and downstream are divided into 7 categories, as shown in the seminal figure below of the GHGP.



Particularized to business schools, the eight upstream categories are:

1. **Purchased Goods and Services**: Emissions from the production of goods and services bought by the business school and amortized in the institution's accounts.
2. **Capital Goods**: Emissions from e.g. renovation and construction of campuses, IT equipment, and furniture.
3. **Fuel- and Energy-Related Activities** (not included in scope 1 or 2): Value chain emissions from the production of fuels and energy purchased and consumed by the business school.
4. **Upstream Transportation and Distribution**: Emissions from the transport and delivery of goods (e.g., educational material, furniture, food and beverages) to the school by third parties.
5. **Waste Generated in Operations**: Emissions from third-party disposal and treatment of waste generated by the business school.
6. **Business Travel**: Emissions from staff and professors traveling for business purposes in vehicles not owned or controlled by the school.
7. **Employee Commuting**: Emissions from employees traveling to and from work, including homeworking.
8. **Upstream Leased Assets**: Emissions from the operation of assets leased by the company (lessee), not included in scope 1 or 2.

And the seven downstream categories are:

1. **Downstream Transportation and Distribution**: Emissions from transporting degree students and participants of executive education in vehicles not owned or controlled by the company. It also includes emissions from accommodation.
2. **Processing of Sold Products**: Emissions resulting from the use of products or technologies developed by the school and sold or licensed to others, such as branded items, electronics, case studies, and business games.
3. **Use of Sold Products**: Emissions from the use of goods and services sold by the business school.
4. **End-of-Life Treatment of Sold Products**: Emissions from the disposal of products the institution has sold.
5. **Downstream Leased Assets**: Emissions from buildings or equipment owned by the business school but leased to others, such as startups, incubators, spin offs, and alumni associations.
6. **Franchises**: Emissions from partner institutions or campuses operated under the university's brand but not under its direct control.
7. **Investments**: Emissions from companies or projects financed through the institution's endowment, pension funds, or other investment portfolios.

Accounting and reporting scope 3 emissions are important for business schools for three reasons. **First**, scope 3 emissions constitute the **largest share of a business**

school's total GHG footprint. While scope 1 and 2 may be significant, (e.g., emissions from use of energy use on campuses can be high if the business school has culturally protected buildings or if the primary source of energy is coal), the environmental impact of travel—especially by air—is even more significant. Many academic programs bring in participants from around the world, and while individual students book their flights, the school determines the format, frequency, and location of these programs, making these emissions a shared responsibility.

Second, business schools play a unique role in shaping future leaders and promoting sustainable business practices. Managing their own climate impact, including scope 3 emissions, is essential if they **walk the talk and lead by example**, creating a positive and lasting impact.

Third, business schools that systematically measure and actively reduce their scope 3 emissions demonstrate a commitment to comprehensive sustainability management – i.e. not only on research and education but also on the school's own footprint. They thereby strengthen their **competitive position and enhance their attractiveness** to prospective students, researchers, industry partners, and rankings and accreditations. Related to this, they have the chance to take a leading role in business and society.

Measurement and comparability across business school requires a standardized methodology. A homogenized framework allows to obtain clear and consistent insights into an institution's own emissions, and then to enable fair and meaningful comparisons across schools. Otherwise, institutions that take action to reduce emissions may not get credit for their efforts, while others might appear more sustainable than they are. **A clear and consistent framework for scope 3 measurement and reporting is necessary for shared accountability and progress**.

Additionally, offering internationally-oriented programs —whether by welcoming a diverse group of incoming students traveling to campus and/or by including international modules, trips, or semesters for outgoing students —is a key USP for renowned business schools. Addressing the carbon emissions associated with these activities, therefore touches on a core element of the institution's identity.

GHG Accounting standards available

This section outlines the principal protocols and standards used to measure them. The most widely recognized standards are:

1. GHG Protocol as explained above
2. ISO 14064-1:2018 developed by the International Organization for Standardization (ISO). This standard provides principles and requirements for the quantification and reporting of GHG emissions. It offers less specific guidance on scope 3 categories, but it is compatible with ISO certification.

Table 1. GHG Protocol and ISO 14064 standards

	Advantages	Disadvantages
GHG Protocol	• Broad acceptance and compatibility with corporate GHG inventories. • Detailed guidance for various sectors, including calculation methods for each category. • High consistency and comparability across organizations.	• Data-intensive and complex, requiring estimates and assumptions. • May be resource-demanding for smaller organizations.
ISO 14064-1:2018	• Internationally recognized. • Compatible with certification processes. • Can be integrated with other management systems.	• Less specific guidance on scope 3 categories. • Less detailed sector-specific methodologies compared to the GHG Protocol.

Both the GHG Protocol scope 3 standard and ISO 14064-1:2018 are key tools for managing greenhouse gas emissions, but they serve different roles. **The GHG Protocol is ideal for detailed scope 3 value chain accounting**, especially for voluntary reporting, supply chain engagement, and science-based target setting. In contrast, **ISO 14064-1:2018 offers a certifiable, organization-wide framework suitable for compliance and audit purposes**. Many organizations use both — leveraging the GHG Protocol for emissions management and ISO standards for reporting and certification.

For business schools in the EU, it is worth noting the relation with the Omnibus Package. The package simplifies the Corporate Sustainability Reporting Directive (CSRD), narrowing its scope to business schools with at least 1,000 employees and either ≥ €50 m turnover or ≥ €25 m balance sheet total. For business schools still in scope,

GHG emissions reporting remains mandatory under the European Sustainability Reporting Standards (ESRS), which include scope 1, scope 2, and material scope 3 emissions.

Although the GHG Protocol is not explicitly required by name in the Omnibus or ESRS, its scope structure is fully adopted, and the methodology is considered a compatible and widely recommended standard. Other frameworks like ISO 14064 can be used if they align with ESRS definitions, but **the GHG Protocol remains the dominant and de facto standard for business schools aiming to ensure compliance, comparability, and auditability** of their emissions.

A unified GHGP-based framework for business schools

As shown in the previous section, the most common framework for measuring and reporting scope 3 emissions is the GHGP. Despite this consensus, there are disparities on the categories used and the emissions considered in every category.

In this section, **we present a unified GHGP-based framework for scope 3 emissions for business schools**. As mentioned earlier, this standardization is important for transparency and comparability.

For most business schools, scope 3 emissions typically represent **more than 80%** of all emissions, and they mostly come from mobility of students and faculty as well as participants in executive education. For other business schools, emissions from heating and cooling are the largest (these are scope 1 and/or 2). The latter is the case of business schools located in areas where the main source of primary energy is coal, campuses consist of heritage-protected buildings, when the student body is mostly local and with limited international course experience, or when international mobility of faculty members is scarce.

Three calculations

Generally speaking, **emissions can be computed in three different ways.** The first one uses the following equation:

$$Emissions = \sum activities \times emission\ factor$$

This is the **activity-based calculation**. Examples of activities are those mentioned above (catering, mobility, renovations, etc) and the emission factor is a coefficient that estimates the GHG emissions per unit of a specific activity. For instance, tons of CO2 equivalent per kilogram of waste.

Sometimes, activity data is not available, or it is not easy to compute, and a second calculation is needed. In these cases, activity is replaced by expenses (then called "**spend-based calculation**"):

$$Emissions = \sum expenses \times emission\ factor$$

Some examples of activities for which expenses might be used are renovations, IT equipment, or external services (e.g., marketing services, consulting services, etc.).

While activity data and expenses can be obtained internally in the business schools via the accounting or purchasing systems, **emission factors come from databases** that may even have specific factors for each activity-based and spend-based category. Also, emission factors are often updated and there can be important differences between global and regional/national factors.

A broad range of databases exist, with differences in terms of the applicable geographic scope. Well-known databases are UK BEIS (Department for Business, Energy & Industrial Strategy) and the French ADEME.[1] Other databases are from API, AIB, Ecoinvent, Exiobase, Agribalyse, EEA, NAEI, IEA, IPCC, and CHSB.

The third calculation is at a more granular level. Some manufacturers and suppliers do their own life cycle analysis and provide GHG emissions specific to the usage of good of services by the business school. This is the **supplier-specific calculation**.

Business schools can be helped by consultants or experts to choose the appropriate emission factors and databases, though there is a trend towards more internalization due to the expertise and know-how that business schools acquire throughout the years. The schools need to be aware that **spend-based emissions factors are less precise than activity-based and supplier-specific** since the former rely on sector averages. It is therefore preferable for a business school to collect as much activity data as possible.

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Vlerick Business School

We use the three calculations depending on the source of emissions. What follows are examples from catering and IT and cloud computing.

Activity-based

Our catering provider reports detailed information on our consumption of food and beverages. The classification is exhaustive with 21 items, from pastry to fish and shellfish, and from dairy to poultry. Data for every item is in kilos. For instance, in 2024 catering used 10,451kg of vegetables, which multiplied by an emission factor of 1,14, leads to 9,13 tons of CO2e.

Spend-based and supplier-specific

Initially, we computed emissions from IT and cloud services using expenses, which amounted to 875,000 EUR. Using the expense-based calculation, we used an emission factor of 0,269 ton of CO2e per 1000EUR, leading to 235 tons of CO2e.

The year after, we fine-tuned the emissions from IT and cloud services since we used supplier-specific calculations. One of the main IT and cloud services providers is Microsoft that reports for every client the GHG emissions due to the usage of its services. We counted as our emissions Microsoft's scope 1 and 2. In addition, we

[1] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024

https://data.ademe.fr/datasets/base-carboner

inquired with other IT and cloud service providers (e.g. Salesforce and Unit4) and we looked for additional sources on information.

As a result, in 2024, 35% of the IT and cloud service emissions are computed with supplier-specific calculations, while the emission for the remaining 65% are calculated spend-based. Despite the increase of usage of IT and cloud services, refining our calculations allowed to decrease the emissions to 223 tons of CO2e.

Setting the boundary

How far should a business school account for the emissions of its supply chain and the students? For instance, should a business school account for the emissions due to the manufacturing of the data centres used for cloud computing and AI, an MBA student flying for a new job in another continent, or the cattle farmed for steaks served in the campus restaurant?

This is a fundamental question as scope 3 emissions can vary enormously. For instance, if a business school uses Microsoft data centres located in France, the emissions due to the usage of these centres are small. That is, the corresponding scope 1 and 2 emissions of Microsoft are small since most electricity in France is predominantly generated in nuclear plants which produce low-carbon electricity. But if the emissions due to the manufacturing of the data centres are considered (known as embedded emissions and scope 3 for Microsoft), then the emissions for the business school are significantly bigger.

The example of Microsoft also illustrates double counting, or when the same emissions are reported by multiple companies in the value chain. Another example is in customized education. Should emissions of employees of a company that travel to campus for customized education be counted by the employer (as business travel) or by the business school (as commuting to the course)?

The principle to determine what to account is decision-power or control. For instance, business schools can decide upon the following

- Offer meals without red meat or even vegetarian
- Opt for international course experiences reachable by train
- Provide digital books instead of physical
- Adopt a sustainable travel policy for staff and professors
- Allocate the endowment on Paris-aligned investments
- Admit international students from overseas

However, business schools cannot decide upon

- How an aircraft is built and its embedded emissions

- How a data centre is manufactured and its embedded emissions
- The travel policy of the employer of a student after graduation
- The mobility policy of a city and the energy mix of a country

In the sequel we follow this principle.

The categories

We present the scope 3 categories of the GHGP and how they apply to business schools. As explained in the previous section, the eight upstream categories are pertinent for business schools, while only downstream transportation and distribution is commonly measured and reported. The latter includes travel and commuting of degree students and participants in executive education.

We therefore focus on the eight upstream and downstream transportation and distribution categories, and we briefly comment upon the other categories at the end of the section, which are to be included if material for the business school.

For each category, the following template is used:

1. What is the activity of a given category?
2. What is the data source?
3. What are the assumptions?

For example, for the first category "purchased goods and services":

1. The **activity** is the cradle-to-gate emissions from the production of products and services purchased by the business school.
2. An example of **data source** (but not the only one, see below for more details) is the volume in cubic meters of water consumed across all campuses and facilities of the business school.
3. For this data source, the **assumption** for the emission factor is spend-based calculation and using sector averages for most categories.

Some business schools interpret the guidelines of the GHGP slightly different and choose a different categorisation of emissions or do not (yet) account for sub-categories. Since this is intended to reflect the individual circumstances of the business schools, it is important that every business school is as specific as possible on the details of its GHG accounting. By doing so, transparency between business schools can be increased and comparisons become possible.

Therefore, we encourage business schools to make **clear statements in its GHG report on the scope of its operational control and the source of the used emission factors, and list the subcategories included** to the associated emissions for each upstream and downstream category within scope 3. To simplify this task, business schools can use the companion excel file.

Upstream category 1: Purchased goods and services

As just mentioned, the activities covered here are all the **cradle-to-gate emissions from the production of products and services purchased by the business school and used across all campuses and facilities.**

This category focuses on recurring items and services consumed or used in operations.

Emission categories are:

1. Water consumption
2. Cleaning products
3. Catering products (e.g., food and beverages)
4. Library: products (books, newspapers, magazines) and services (databases, online libraries)
5. Paper prints
6. IT and cloud services
7. Postal services
8. Moving services (e.g., relocation of new faculty)
9. External marketing (gift, merchandise, layout services, mailings, advertisement, video production, translation services, etc)
10. Consulting services
11. HR services (external trainings, childcare, employee benefits, etc)
12. Real estate services (structural maintenance, gardening, etc)
13. Campus maintenance (re-painting, re-lightning, etc)
14. Other (specify)

The assumptions are

1. Water: measured in cubic metres
2. Catering products: kilos and litres of the different foods and beverages. Granularity is possible by dividing between multiple categories.[2]
3. Everything else is typically measured according to expenses, with the following remarks:
    a. Goods and services have different emission factors.
    b. IT and cloud services: the largest providers, such as Microsoft, have activity data for every client, and hence emissions are provided by the supplier. For smaller providers, expenses can be used.
    c. Moving of the new employee and his/her family is activity-based while moving of belongings is measured in expenses.

[2] For instance: Cold cuts and salads, confectionery, fish and shellfish, bread, cereals, cold drinks, cookies, nuts and snacks, dairy, fruits and nuts, herbs and spices, hot drinks, snacks, red meat and game, oils and fats, paper materials and products, pastry, poultry, soups, sauces and broths, sugar and sweeteners, sweet spreads, textiles, luggage and personal care, vegetables.

IN PRACTICE

Stockholm School of Economics

In 2024, SSE strengthened its commitment to sustainability by enhancing its catering operations and formalizing a set of Sustainability Guidelines for Events. These guidelines are rooted in WWF's food sustainability principles and aim to minimize indirect emissions while promoting responsible consumption.

A significant portion of event-related emissions stem from catering. Currently, SSE works closely with selected catering suppliers for larger special events who have sustainability policies and have committed to responsible practices as outlined in the institutional guidelines. Meals for these events are designed with a strong emphasis on plant-based ingredients, organic and locally sourced produce, and the exclusion of red-listed or environmentally harmful food items. Event planners are encouraged to use WWF's "One Planet Plate" tool, which limits the emissions from any single meal to a maximum of 0.5 kg of CO_2. This tool not only aids in estimating the carbon impact of meals but also guides menu planning in line with SSE's sustainability objectives.

Waste management is another integral component of the footprint assessment (see also "in practice" of upstream category 5). To reduce food surplus, attendees receive reminder emails prior to events, encouraging cancellations in case of non-attendance. Leftover food, where feasible, is redistributed to students and staff. Waste is carefully sorted using clearly marked recycling and composting bins, and additional waste services are arranged for large-scale events. Single-use plastics have been eliminated in favor of reusable or compostable alternatives, and tap water is served in carafes rather than plastic bottles.

SSE also takes venue and transportation emissions into account. While most events are held on campus to reduce travel and ensure compliance with the school's environmental standards, external venues are selected based on accessibility by public transport and the presence of sustainability certifications, such as LEED or ISO 20121. Attendees are encouraged to walk, cycle, carpool, or use public transportation (see also "in practice" of downstream category 1).

A case in point is the transformation of campus Kämpasten's restaurant, which achieved KRAV (a label for organic food) certification in 2024. Campus Kämpasten is SSE's executive education conference facility, located near Sigtuna, within easy reach of Arlanda airport. This certification ensures that a significant portion of the food served meets rigorous standards for animal welfare, biodiversity, and climate impact. Over the course of the year, the share of KRAV-labeled food increased, with the ambition to reach higher certification levels as availability and budget allow. Energy efficiency efforts at Kämpasten such as solar panels and window films have reduced electricity

use at the site. These initiatives are complemented by expanded recycling programs, the removal of single-use plastics, and a strong focus on low-carbon menus at events.

Sodexo manages campus Kämpasten's restaurant operations, maintaining high standards in sustainability, food quality, and overall service. Food waste remains relatively stable and challenging to reduce, largely due to Sodexo's approach of using only raw ingredients, preparing meals from scratch, and serving them in a buffet format. SSE receives regular food waste reports to support ongoing monitoring and improvement efforts.

Upstream category 2: Capital goods

The activities covered are the **production of capital goods purchased by the business school.**

Unlike the previous category, this one focuses on long-term durable assets, or on products used to produce other products over time.

Emission categories are

1. Renovation and construction of campuses and facilities
2. Furniture
3. Laptops and other IT equipment
4. Other (specify)

Unless the suppliers have done their Life Cycle Analysis and have activity data, the assumption for the three categories is based on expenses.

IN PRACTICE

Vlerick Business School

The main campus in Ghent was built in 1905 as the major seminary of the Ghent diocese though during the world wars, it was used by the German Army as a casern. The seminary vacated the building in 2002 and, after deep renovation, it was occupied by the School in 2003.

To fit the building for a sustainable future, it is ongoing a second wave to renovations. Examples of renovations are repairing and insulating the roof, replacing old single glazing windows for new double glazing, installing solar panels, replacement of emergency lighting, electricity works, replacement of HVAC systems, replacement of the boiler, and reparation works on the ceilings.

These renovations entail GHG emissions. The calculation is spend-based and in 2024 emissions were 579 tons of CO2e. The emission factor used is a sector-wide and the

source of expenses is an excel file with all investments collected through the accounting department.

Esade

In 2023 we conducted the renovation of 1,800 m^2 for the construction of 8 new educational classrooms and collaborative spaces for students. New furniture (fixed and mobile) and audiovisual equipment (ICT) were incorporated in the new space. Additionally, new infrastructure and HVAC systems, lighting, data network and fire protection systems have been installed.

The emissions due to these renovations were calculated based on the investment expenditure and sector emission factors. The total was 1239,3 tons of CO2e, disaggregated as follows: software applications (0.53), construction (548.63), machinery and equipment (143.89), office machines and computers (309.34), other fixed assets (231.57), other services (0.17), IT products (5.18).

Upstream category 3: Fuel and energy related activities

In addition to the on-site emissions from scope 1 and 2, this category covers upstream emissions related to fuels and electricity.

More specifically, the activities covered in this category are

1. **The extraction, production, and transportation** of fuels consumed in the generation of electricity, steam, heating, and cooling that is consumed by the business school.
2. **The generation** of electricity, steam, heating, and cooling that is **lost** in a transmission and distribution system.

The distinction with scopes 1 and 2 is important. Scope 1 are emissions due to the on-site combustion, such as direct use of fuel in a diesel backup generator. Scope 2 are emissions that occur at the facility where the energy is generated, but they are attributed to the business school that uses the energy. **Category 3 are emissions that come from upstream activities related to the production and transportation of fuels and energy that the business school purchases.**

IN PRACTICE

Kozminski University

In 2024, the university undertook a detailed calculation of its indirect emissions (for 2023) related to the production and distribution of electricity and fuels beyond scopes 1 and 2. While Kozminski does not operate energy-generating facilities itself, it sources

electricity and heat from external providers—making upstream emissions in category 3 relevant for a full GHG inventory.

To estimate emissions in this category, the university used supplier-specific and activity-based data whenever possible. Volume of electricity and district heating consumption (in MWh) was sourced from utility bills, and emission factors were drawn from the Polish National Centre for Emissions Management (KOBiZE).

As for the first sub-category (extraction, production, and transportation), only transportation was considered. Consumption of fuel for vehicles (gasoline and diesel) was sourced from the invoices (fleet reports) and the emission factor calculated based on ORLEN (the largest Polish fuel stations operator) fuel data sheets. As a check, the emissions where also computed using a tool provided by GHG Protocol and results were very similar. In addition, fuel combustion emissions are very small (27 tCO2e), and hence this sub-category may appear as immaterial, and it is therefore omitted.

The second sub-category (losses) is also omitted after reviewing specificity of the utility sector in Poland and data availability. KOBiZE explicitly says that their emission factors include all elements of category 3, so additional laborious data manipulations would need to be performed, while input figures are not easily obtainable. In addition, the energy sector in Poland is mostly vertically integrated, so own consumption and network losses are already accounted in the emission factors provided by the generation and distribution companies.

Kozminski assessed that the additional burden of data sourcing and calculations is not justified by the informative value of new figures, even though it led to the inflation of scope 1 emissions (by roughly 7-8% - which is an industry benchmark for generation and network losses) and respective decrease of scope 3 emissions.

Upstream category 4: Transportation and distribution

The activity covered is **transportation and distribution of i) products between tier 1 suppliers and the business school and ii) its own operations in vehicles not owned by the business school.**

Emission categories are:

1. Transport of
    a. purchased goods such as office supplies, educational materials, and IT equipment
    b. furniture and equipment
    c. services for events, including the travel of speakers and attendees. This includes alumni events if the alumni association is integrated in the business school. Same goes for incubators.

    d. food and beverages to campuses and facilities
    e. other (specify)
2. Warehousing of educational materials and office supplies

As for category 2, unless the suppliers have computed the emissions of transport and warehousing, the assumption is based on expenses.

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University of St Gallen

Emissions include on the one hand specific transportation services, and on the other hand transport emissions from other upstream activities.

For specific transportation services such as courier services, moving services of office furniture between different university buildings, and moving support for new (international) faculty, spend-based data is available and used to calculate emissions using specific emission factors. In some cases, the accounting data includes additional information which allows a calculation of tonne-kilometres. This information can be used for more precise activity-based calculations.

For other upstream transport activities undertaken by suppliers, no actual data is available. Emissions for these activities are calculated by our external carbon accounting service provider, using estimated emission factors based on spend-based data from the two categories purchased goods and services, and capital goods.

For all assumptions, geographic differences are considered. This means that transportation services distinguish between national and international transportation, and assumptions on the upstream transportation distance of goods and services (i.e., considering domestic production vs. import).

Upstream category 5: waste generated in operations

The activity is the **collection and processing of waste generated (cardboard and paper, PMD, glass, compost, and general) on campus and in facilities**.

The source of data is on volume of the different waste streams, and the assumption is that weight is measured in kilograms.

IN PRACTICE

Kozminski University

In 2024, the university began a structured assessment of emissions from waste. The effort focused on quantifying emissions from five major waste streams: mixed MSW (municipal solid waste), mixed paper, mixed plastics, glass, and construction waste.

Data was obtained directly from the facility management department and the university's waste collection contractor, which provided monthly volumes for each waste type. Then the waste streams were identified: paper, plastic and glass are 100% recycled, while MSW and construction waste are landfilled. Other options may include incineration; however, this is not utilised for now in the Warsaw municipal area.

Waste volumes were converted from metric into short tonnes and matched with respective emission factors from the EPA database. For example, landfilled mixed MSW was associated with an average emission factor of 0.58 kg CO_2e per short tonne. In comparison, recycled mixed paper (category applicable for typical office usage) had a significantly lower factor of 0.03 kg CO_2e per short tonne, while recycled plastics were in between at a level of 0.22 and 0.03 kg CO_2e per short tonne.

Over the year, Kozminski's facilities generated approximately 48 metric tonnes of waste, of which only 4% was sorted for recycling. Using activity-based calculation methods, total emissions from waste treatment and disposal were estimated at 23.5 tons of CO_2e. The university also identified that general and unsorted waste contributed overwhelmingly to emissions (98,7%), prompting a targeted campaign in 2025 to reduce and better separate waste streams. The team has identified that, e.g., multimaterial (paper and plastic wrap) packaging is used in cafeterias, making its recycling much more difficult – and the customer typically does not separate the materials and the package ends up in MSW.

Upstream category 6: business travel

The activity is **transportation, accommodation, and meals of staff and professors for business-related activities in vehicles owned or operated by third parties, such as aircrafts, trains, buses, and passenger cars**.

The source of data are expense bills by the business school for business trips by plane, train, car, and bus, along with bills for accommodation and meals.

The assumption is activity-based for mobility, and expense-based for accommodation and meals.

Important to note on flights is the radiative forcing index (RFI). This is also important in category 1 of downstream (mobility of degree students and executive participants). The warming potential of a molecule of CO2 equivalent on surface is at most half than at 10km altitude. Flight emissions therefore need to consider RFI and business schools

need to check with the travel agent if RFI is considered in the emissions. If they are calculated on surface, emissions need to be multiplied by at least 2.[3]

IN PRACTICE

WHU

Emissions resulting from employee business travel were calculated based on travel expense reports and standard emission factors. The emission factors used for the calculations are derived from the Ecoinvent and DEFRA 2022 databases.

Based on the data provided in the travel expense reports, the distances travelled were estimated using the following assumptions:

For car and taxi journeys, it was assumed that the vehicles were occupied by a single person.

For rental car travel, the distance was estimated based on an assumed average daily rental cost and a fixed daily mileage included.

For taxi travel, the base faredepending on the country in which the taxi ride occurred — was subtracted from the total cost stated in the travel expense report. The remaining amount was then divided by the country-specific average price per kilometre. This approach considers the variability of taxi fares across different countries.

Distances travelled by train were obtained from the WHU travel portal.

Flights were categorized by distance as follows: very short-haul (< 800 km), short-haul (≥ 800 km and < 1,500 km), medium-haul (≥ 1,500 km and < 4,000 km), and long-haul (≥ 4,000 km). This classification corresponds to the Ecoinvent database structure. Travel to and from the airport was considered separately and is reflected in additional items listed in the travel expense reports (e.g., taxi, train, private car, rental car).

Emissions resulting from accommodation and meals were not included in this calculation.

ESADE

Emissions resulting from hotel stays use the information provided by our travel agency (number of nights per country and year) and using DEFRA's emission factors for hotel stays. In cases where no specific emission factor was available for a country, average values from neighbouring countries in the same region or from the Cornell Hotel Sustainability Benchmarking Index were used.

[3] There is no scientific agreement on what an accurate RFI is, though there is agreement that 2 is the minimum and the discussion is on the range 2 to 4.

To calculate emissions from rental car travel, the estimated distance traveled is based on the number of rental days provided by the travel agency. If origin and destination points were available, the distance between the two cities was used. If origin and destination were the same, a daily distance of 20 km was assumed. The emission factors used for calculating GHG emissions in this category were obtained from DEFRA.

Similarly for emissions from flights and train rides. Travel data was obtained from traveler-level records provided by the travel agency. For air travel, emission factors were differentiated as follows: domestic flights (<1,000 km), short-haul flights (1,000–3,700 km), and long-haul flights (>3,700 km). Train travel was split into domestic and international journeys.

Airport coordinates were obtained using Google's Places API, and distances between airports were calculated using the Vincenty algorithm on the WGS-84 ellipsoid (highly accurate even for long-haul flights). Emission factors used for GHG calculations in this category were sourced from DEFRA as well, and specific factors were applied for each transport mode.

Finally, Esade works with a company that manages taxi transportation between campuses. Based on the kilometres reported by the provider and the emission factor included in their carbon footprint report, emissions related to this source were calculated.

Upstream category 7: employee commuting

The activity is **transportation of staff and professors between their homes and the campuses**. This includes commuting by bus, train, car, and bike. Emissions related to homeworking are also included in this category.

The source of data are distances traveled for each of the different transportation modes and the number of days employees work remotely.

Assumptions can be set in different ways. A practical method is with a survey that gathers a representative sample of the commuting of staff and professors. Another one is via HR since in some countries commuting with public transport is (partly) reimbursed and some employees may enjoy a company car. In other countries, it is possible to buy anonymized mobility data from mobile operators.

IN PRACTICE

ESSEC

To calculate emissions linked to the daily commute of employees to their workplace, ESSEC has chosen the following method.

First, we ask our HR department how many employees receive reimbursement for public transportation (this is a regulatory requirement in France: employers must cover at least 50% of transportation costs). We consider that these colleagues travel by public transport, and therefore the carbon impact is negligible (carbon-free electric rail system).

For other staff members, we assume they travel by car. We take the number of kilometres between their city of residence and ESSEC premises and apply an emission factor corresponding to an average car.

It should be noted that this calculation attributes a higher footprint than it really is to colleagues who come by bike or by foot. We estimate that those who do so live a maximum of 15 km away - if they come cycling - and 3 km - if they come walking. The attributed carbon footprint remains negligible compared to our carbon footprint overall.

The other proxy we apply regards the number of days working on campus: we apply a rate of three days per week, even though, again, this number is actually variable (some people come four or five days, and some are working part-time and only come one or two days).

Upstream category 8: leased assets

The category refers to assets used by the school but owned and operated by third parties under an operating lease. The emissions are associated with the energy consumption and use. Leased assets for a business school are **office or educational spaces such as classrooms or administrative offices situated in external buildings, IT equipment under service agreements, vehicles, event venues and conference spaces (especially when hosting large academic or professional events outside of the main campus), storage units used for archives or promotional materials, and furnishings and audiovisual equipment**.

The source of data is the lease contracts, procurement records, and facility management reports.

The assumptions are activity-based (due to energy consumption) for offices, classrooms, venues, storage units, and vehicles (mileage), and expenses for IT equipment, and furnishings and audiovisual equipment.

IN PRACTICE

Stockholm School of Economics

SSE leases a number of unfurnished student apartments across Stockholm to support international students, PhD candidates, and visiting faculty.

While SSE does not own these buildings and does not have operational control over their energy systems or structural maintenance, the School does assume responsibility for certain aspects of the housing, most notably electricity contracts and furnishing.

SSE purchases electricity for these apartments, which is then resold to tenants. In accordance with the Greenhouse Gas Protocol, these emissions are reported under category 3 of scope 3 (Fuel- and energy-related activities), since the electricity is considered purchased for resale.

In addition, SSE procures a standardized furniture package for each apartment, including beds, desks, chairs, and kitchenware. These purchases are accounted for under category 1 of scope 3 (Purchased Goods and Services) but are also relevant to category 8 due to their use in leased assets.

Although the apartments are spread across Stockholm, they are all easily accessible by public transport or within walking distance of the main campus. This significantly reduces the need for car travel and contributes to lower commuting-related emissions for students.

Downstream category 1: transport and distribution

This category is by far the largest for most business schools. The activity includes the **traveling of degree students and participants in executive education**.

For degree students, traveling means:

1. One round trip from home to the campus where they study. This is particularly important for international students. When a student is accepted, the emissions of the first commute to campus (and forth) are part of the school's emissions.
2. Commuting. There can be large differences between bachelor, masters, full time MBA, and executive MBA. A proportion of the students of the executive MBA live abroad and commute by plane, while for the other degrees the students live on campus or nearby.
3. Intercampus mobility
4. Transport during internships that are an integral part of the study program, including commuting for local internships and a round trip for international internships
5. Transport during national and international course experiences, such as visits to companies and overseas trips organized by the business school. Emissions due to accommodation and meals are included.
6. Exchanges with other business schools

For participants in executive education, transportation essentially means commuting and study trips. On some occasions, courses are in collaboration with other business

schools. A pro-rata of the commuting is agreed. For customized education, most courses are on campus or in the company's facilities.

As for category 7 "employee commuting", usually the best way to establish the assumption is with a survey, which can biennial. BA, masters, full time MBA, executive MBA, open executive education, and customised executive education require different assumptions.

IN PRACTICE

ESSEC

This category is by far the largest in our carbon footprint. We divide the calculation into two subcategories: mobility related to the academic experience and mobility of international students.

For activities related to the academic experience, we include all travel undertaken by students for:

1- International internships: a return trip between the place of residence and the internship location

2- Academic exchanges: a return trip between the place of residence and the city where the partner university is located

3- Inter-campus mobility

4- Study trips

For international student mobility, we count one return trip per year between the city of residence and the student's affiliated campus.

For both sub-categories, we assume that they are carried out by plane. Next years, we will refine the calculation with the option of deducting the emission savings made by students that report to use low-carbon mobility (e.g., train) which is encouraged with "sustainable mobility vouchers."

Comments on the remaining downstream categories

Categories 2, 3, and 4: Processing, use, and end-of-life of sold products

Activities included in this category are emissions due to the processing, use, and end-of-life of sold case studies, business games, online courses, merchandising, etc.

Category 5: Downstream leased assets

This category includes the sub-units that form own business units differently related to the mother business school and are hosted on campus and use the school's

equipment. Examples are incubators, spin-offs, alumni associations, and publishing houses.

Category 6: Franchises

Emissions from partner institutions or campuses operated under the university's brand but not under its direct control. An example is an overseas campus in collaboration with a local partner that manages it.

Category 7: Investments

Business schools often have endowments, pension funds, or other investment portfolios that are managed by professional asset managers. These investments can be allocated in a variety of assets like public and private equity and debt, real estate, or even research and innovation funds. Often, asset managers use the PCAF framework, which is an application of this category to loans and investments.[4] Business schools can report the emissions provided by the asset manager.

In many cases, these investments are significant, even higher than the school's income, and they decisively contribute to the operations and the implementation of the strategy. The investments are therefore material and, following the logic of the framework, should be included in scope 3 reporting. Materiality can be assessed as revenues from the investments higher than a percentage of the school's annual income.

[4] PCAF stands for the Partnership for Carbon Accounting Financials. Their latest report on Financed Emissions can be downloaded here: https://carbonaccountingfinancials.com/en/standard#a

Conclusions

Scope 3 emissions—those arising from activities not directly controlled by the institution but occurring in its value chain—constitute the largest share of a business school's carbon footprint. The most significant contributors include student and executive travel, staff commuting, business travel, and the procurement of goods and services.

Despite the critical role of scope 3 emissions in shaping a school's overall climate impact, reporting practices remain highly inconsistent across the sector. This lack of standardization hinders comparability and transparency, posing a challenge to meaningful progress towards decarbonisation. To address this, there is an urgent need for business schools to adopt a more consistent and strategic approach to scope 3 measurement and reporting, focusing particularly on those dimensions with the greatest environmental relevance. Doing so will not only improve the credibility of emissions reporting but also support more effective climate action in higher education.

As part of the ongoing work of this network, this paper provides critical guidance to support business schools and higher education institutions in advancing their climate accountability. It offers a practical framework for reporting scope 3 greenhouse gas emissions using the GHG Protocol. This document aims to foster a more harmonized, transparent, and actionable framework, with detailed guidelines and concrete examples tailored to the most relevant scope 3 categories for higher education.

The proposed framework is designed to be replicable, transparent, and adaptable—supporting both activity- and spend-based calculations, encouraging the disclosure of assumptions, and promoting the use of credible emission factor databases.

Last, the framework will evolve over time with the new developments on carbon accounting. Indeed, the GHGP standards are under revision, which will be the first major revision for some of them in 20 years. The revised versions are due out in 2027. AERO will keep a close eye on the revision and adapt accordingly.

Glossary

- Cradle-to-Gate: The total environmental impact of a product from raw material extraction (cradle) to the point it leaves the manufacturing site (gate), excluding use and disposal.
- Gate-to-Grave: The environmental impact of a product from the moment it leaves the production facility (gate) through its use and final disposal (grave).
- Paris-Aligned Investment: An investment strategy that aims to support limiting global warming to well below 2°C, preferably 1.5°C, in line with the Paris Agreement Goals.
- Radiative Forcing Index: A multiplier used to account for the additional warming effects of aviation emissions beyond CO_2 alone, such as contrails and nitrogen oxides.
- Scope 1 GHG emissions are direct greenhouse gas emissions from sources that are owned or controlled by an organization, such as emissions from company vehicles or on-site fuel combustion.
- Scope 2 GHG emissions are indirect greenhouse gas emissions from the generation of purchased electricity, steam, heating, and cooling consumed by an organization.
- Scope 3 GHG emissions are all other indirect greenhouse gas emissions that occur in an organization's value chain, including both upstream and downstream activities such as business travel, purchased goods, and product use.
- USP: the Unique Selling Proposition is a unique benefit exhibited by a business school that enables it to stand out from competitors.