The **Swedish**
National Advisory Board
for **Impact Investing**

Guiding Principle: Enabling technologies as impact investments

Last updated: 18 January 2022

Introduction

Enabling technologies are technologies that enable other sectors or industries to reach impact at greater scale. These enabling technologies eliminate or reduce a clearly defined obstacle that hinders impact at scale.

Let us give you a few examples. If charging times and charge duration (range) are main obstacles for electrical vehicles to be adopted at scale, then fast charging batteries could be defined as an enabling technology. If the lack of relevant data is the main reason why we overconsume energy in residential buildings, then a software that provides us with data we can act on would then be an enabling technology. If the main reason why mental health issues take so long to cure is that we don't discover mental illness early enough, then an efficient screening methodology would be an enabling technology.

Enabling technologies do not create impact themselves. They create better conditions for *others* to create impact. If enabling technologies free up time, reduce cost or provide information, someone else have to *act* on this and *do* something with the freed up time, the increased available financial resources or the data.

Directing capital to organisations that create true impact is key to solve our societies' biggest challenges. Investing in enabling technologies is just as important, if it can be proven that these technologies really *do* enable impact at greater scale.

The Swedish National Advisory Board for Impact Investing believes that investments into enabling technologies should count as impact investments and that companies providing these technologies should count as impact companies. However, the measurable outputs that these investments and organisations deliver (reduced time, reduced cost, improved data etc.) is *not* to be considered impact.

Our Guiding Principles are always work in progress. We will continue to refine them as the knowledge and experience in the impact space grow. We welcome feedback from users of the Principles and we actively seek thoughts and suggestions from users.

This Guiding Principle was last updated on January 18th 2022, and represents, in our opinion, the best approach to classifying enabling technologies on the impact scale.

We hope you will find this framework useful in your impact strategies. Please do not hesitate to send feedback, thoughts and questions to our Secretary, Jenny Carenco: jenny@swedishnab.se.

Stockholm, January 18th 2022

The Board of The Swedish National Advisory Board for Impact Investing

The **Swedish**
National Advisory Board
for **Impact Investing**

What is an 'enabling technology'?

Enabling technologies create conditions for other technologies, sectors or industries to reach impact at greater scale.

Examples of enabling technologies

Enabling technology	Problem solved	Intended output	Impact that it enables
Electric roads, charging while driving	Charging time: Reducing charging times to 0 improves business case for electric vehicles	Number of kWh charged or number of vehicles registered for charging	Reduced carbon emissions resulting from greater shift from fossil fuelled vehicles to electric vehicles.
Operational system for wind power plants	Distributed wind power plants have high operational costs. Improved data and management reduces operational costs and makes wind power cheaper and more competitive.	Cost reduction per kWh stemming from reduced operational costs due to improved data and management.	Reduced carbon emissions resulting from increased use of wind power instead of non renewable energy.
Nudging technology helping individuals make more sustainable choices	Individuals want to live more sustainably but lack knowledge and data on what choices to make and the impact that creates.	Measurable actions taken by individuals using the service.	Reduced water usage, reduced waste, reduced carbon emissions…
Screening technology for mental illness among youth	Mental illness is discovered too late, leading to more suffering and greater care costs. Early detection gives the possibility for preventive or early interventions with better results.	Reduced time to diagnosis or detection, number of individuals screened..	Reduced prevalence of severe mental illness, reduced care costs, reduced suffering.

The **Swedish**
National Advisory Board
for **Impact Investing**

What is *not* an 'enabling technology'?

Merely being part of the supply chain of a sustainable industry or company does *not* qualify as an enabling technology

Examples of what is *not* enabling technologies

Technology	Why is it not an enabling technology?
Wind shields for cars delivered to Tesla and Pole Star	Any car needs a wind shield. A wind shield does not qualify as an enabling technology just because Tesla needs one, unless this particular wind shield significantly increases the impact that Tesla creates.
Accounting software with sustainability features	If the software's main purpose is to manage a company's accounting, then it is not an enabling technology just because you can also log sustainability data in there.
A digital platform which integrates project management and building design with certification systems widely used to certify sustainable buildings.	This is a pure service provider to the sustainable building sector. This software assists in certifying sustainable buildings but does not solve a problem and enable increased impact.
An online software tool for donors and non-profit organizations to keep all their data in one place.	A pure service provider to a sustainable or impactful sector. It is unlikely that this service enables impact at greater scale.
Drone technology to improve how inspections of large energy infrastructure (f.ex wind turbines) are carried out.	A service provider to the wind power market that most likely does not enable increased impact through its service.

The Swedish
National Advisory Board
for Impact Investing

Should enabling technologies report on impact?

NO.

Enabling technologies are not themselves responsible for creating impact and can not be held accountable for outcomes in their target sectors.

Enabling technologies only create optimized conditions for the target sector to deliver impact. They make the target sector's technology or service cheaper, faster, smarter or more accessible – whatever the main obstacle for impact at scale is.

Enabling technologies should report on outputs, meaning how much they reduce or eliminate the obstacle, using relevant indicators such as currency units, time units or number of users.

The **Swedish**
National Advisory Board
for **Impact Investing**

Classifying an enabling technology as an impact investment

Step 1	Verify that the sector or industry that the enabling technology targets can deliver outcomes that fulfil the criteria for impact	*Use our Guiding Principle: Definition of Impact to determine that the outcomes that the enabling technology will help increase are in fact outcomes that fulfil the criteria for impact.*
Step 2	Define the obstacle in this sector or industry that hinders impact at scale	*Use objective reports, data and expertise to define and demonstrate the obstacle that hinders impact at scale.*
Step 3	Demonstrate how the enabling technology helps overcoming the obstacle	*Using common knowledge, objective reports, data or expertise to demonstrate how the enabling technology significantly reduces obstacles or improves the abilities of the targeted sector or industry to deliver impact at scale.*
Step 4	Select output indicators that demonstrate the reduction of the obstacle by the enabling technology	*Select indicators that represent the outputs necessary to enable impact at scale. This can be number of users, levels of cost reduction or reduced lead times.*
Step 5	Verify that the output is of sufficient scale, depth and duration	*Demonstrate that the outputs are significant enough. F.ex. a cost reduction of 1% is probably not significant enough, but 10% might be.*
Step 6	Establish a measurement and reporting plan	*Establish a plan for how the outputs should be measured, when, by who and at what cost.*
Step 7	Measure, evaluate and report	*Conduct measuring and data collection, interpret results, report.*

The **Swedish** National Advisory Board for **Impact Investing**

Step 1	Verify that the sector or industry that is targeted can deliver outcomes that fulfil the criteria for impact
What is a targeted sector or industry?	The targeted sector or industry are the ones that will, if they use the enabling technology right, actually deliver the impact. A fast charging technology will enable no increased impact if it doesn't help increase the sales of electric vehicles. An energy management software for buildings will enable no impact if the building owner does not act on the data.
What are outcomes?	Outcomes is the change that the target sector intend to achieve through the use of the enabling technology. This can for example be reduced CO_2 emissions, reduced food waste, improved health, reduced unemployment, increased access to education or increased access to clean water. Use the Guiding Principle: Definition of Impact, summarized in the table below, to validate that the intended outcomes of the target sector qualify as impact. Only if they do can the enabling technology be classified as an impact investment.

Criteria for impact			
WHAT	The problem that is addressed is *prioritised* for people, society and/ or planet	The activity or investment is delivering *outcomes* not outputs	The problem addressed can be quantified and outcomes can be *measured* using relevant indicators
WHO	The target group, area or planet experiencing the problem is *underserved* with regards to the outcomes		
HOW MUCH	The outcomes delivered have sufficient *scale*	The outcomes delivered have sufficient *depth*	The outcomes delivered have sufficient *duration*
CONTRIBUTION	The outcomes delivered represent a *counterfactual* improvement, i.e. are better than what would likely have occurred anyway		

The **Swedish** National Advisory Board for **Impact Investing**

Step 2	Define the obstacle in this sector or industry that hinders impact at scale
What can be obstacles to impact?	Many technologies, sectors or industries – or even a target group of individuals – have the *intention* of creating impact through their activities, but factors such as cost, financing, usability, convenience, security or access to data are hindering this impact to occur at scale. For an enabling technology to be classified as an impact technology, the obstacle it eliminates or reduces should be among the main obstacles for impact at scale in the target sector.

Examples

Target sector or industry with impact potential	Obstacle for impact at scale
Electric transportation	Charging times, charge duration (range). If charging times and range were similar to that of fossil fuelled vehicles, the shift to electric vehicles would be significantly faster.
Wind power	Energy storage: Cost of wind power is to a large extent driven by loss of produced energy due to inefficient energy storage capabilities.
Sustainable buildings	Energy data and analysis: Energy is inefficiently used in many buildings due to lack of data on what drives energy consumption and when, as well as the analysis of what actions that need to be taken in order to cut energy usage.
Solar mini grids for house hold use	Access to financing: Many households in developing countries can't finance the installation of solar cells to replace their diesel generators at home. A smart financing service would greatly reduce this obstacle to deployment at scale.
Individuals in need of a healthier lifestyle	Knowledge and data: Many individuals are unable to make healthy choices because they lack the knowledge of what is and what is not a healthy food choice.
Public health care	Methodology for early disease detection: Some diseases are curable if detected early, rapidly and at a low cost.

The **Swedish**
National Advisory Board
for **Impact Investing**

Step 3	Demonstrate how the technology helps overcoming the obstacle
What defines as 'overcoming the obstacle'?	For an enabling technology to be considered an impact technology, it should significantly contribute to eliminate or reduce the obstacle to impact at scale. First of all, the obstacle in it self should be one of the main obstacles to impact at scale for the target sector or industry. Second, the enabling technology should have such effects on that obstacle that it can have a game changer role in achieving impact at scale. What qualifies as 'significant' will be subjective in many cases. We suggest that the users of this Guiding Principle are transparent in their assumptions and hypothesis and that the levels of change considered 'enough' are based on common or scientific knowledge.

Examples

Target sector or industry with impact potential	Obstacle for impact at scale	What would qualify as a sufficient reduction of the obstacle and why?	What would NOT qualify as a sufficient reduction of the obstacle and why?
Electric transportation	Long charging times, insufficient charge duration (range).	Charging times and range in line with customer acceptance, f.ex. 30 minutes to full charge, range equivalent to fossil fuel tank	Reduction in charging times from 2 hours to 1 hour and 45 minutes.
Wind power	High cost and inconvenience due to insufficient energy storage capabilities	Cost reduction in line with end customer price acceptance or sufficient to reach new customer segments of important size.	Cost reduction of insignificant size (f.ex. 2%) or that lasts for an insufficient time (f.ex. only 1 month)
Sustainable buildings	Lack of energy data and analysis makes cutting energy consumption difficult	Access to data and data analysis that is immediately actionable by the end user to significantly cur energy consumption	A few extra data points that are not actionable
Solar mini grids for house hold use	Lack of access to suitable financing	Access to financing that gives a majority of target households acceptable monthly costs	Financing only attractive to very few

The **Swedish**
National Advisory Board
for **Impact Investing**

Step 4	Select output indicators that demonstrate the reduction of the obstacle by the enabling technology
What is an output indicator?	An output is the measurable result on eliminating or reducing the obstacle that the enabling technology achieves. The same indicator can be used to quantify the obstacle. For example, "electricity from wind power is X€ more expensive per kWh than nuclear electricity" or it takes X more minutes to charge an electric vehicle than what it takes to fill up a tank". In the first example, the output indicator would be "cost reduction" expressed as a percentage or as currency units. In the second example, the output indicator would be "reduced charging times" expressed in minutes.
What is a good indicator?	The indicators should: • be measurable in the short or medium term • reflect the development of the obstacle in an objectively acceptable way (obstacle "Few building owners with access to actionable energy data" - indicator "Number of building owners using our service") • not be binary ("there are…" / "there are not…"), since binary indicators makes it impossible to measure development over time, and do not capture step by step improvements towards a set goal. • not be mistaken for the intended output ("increased…", "reduced….."). Reduced cost is an intended output, "€ per kWh" is an indicator. • be estimated and measured via statistics and available data, medical or chemical measurements, questionnaires, etc.

| Step 5	Verify that the output is of sufficient scale, depth and duration
Why do we need to do this?	All positive change is good. But for this change to be considered *sufficient*, the outputs have to reach a certain level of significance. These levels are not standard or absolute numbers, but are determined by what levels that are needed to achieve the intended overarching goal, eliminating or reducing an obstacle to impact at scale. For example, if we work to reduce costs for batteries, what we *really* want to achieve cheaper electrical vehicles, leading to more people being able to buy them. If we do achieve a cost reduction, but that the reduction is so small that it does not allow to really make the car any cheaper (insufficient depth), then we have probably not had any impact on our overarching goal. If we want to provide financing for solar mini grids to make it possible for more people to install those, providing a financing solution only open to 1% of the target group (insufficient scale), maybe even the 1% already served by banks, we will not have contributed to significantly increase the number of households that replace diesel generators by solar cells. Setting outcomes targets on scale, depth and duration is crucial in order to evaluate the impact created. If we develop a nudging technology o help people make sustainable choices, but that our users only use the service for one month (insufficient duration), then the intended behavioural changes will probably not last long enough to have any significant impact on our planet. Determining what is sufficient scale, depth and duration will be subjective in many cases. We suggest that the users of this Guiding Principle are transparent in their assumptions and hypothesis and that the levels of change considered 'enough' are based on common or scientific knowledge.
What is scale?	Scale is the share of the target user group that uses the service or technology. This can f.ex. be number of users.
What is depth?	Depth is how much change that we create on the obstacle addressed. This can f.ex. be level of cost reduction, time reduction or increased access to data points.
What is duration?	Duration is how long the change has to last for there to be any real enabling effect.

The **Swedish**
National Advisory Board
for **Impact Investing**
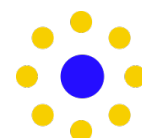
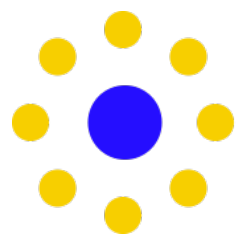| Step 6	Establish a measurement and reporting plan
What is a measurement plan?	A measurement plan includes *HOW* you will measure the indicator or collect data, *WHO* will do the measuring, *WHEN* it should be done and *HOW MUCH* it can cost.
HOW to measure or collect data	Indicators can be measured or collected as internal or external data. Measurement methods often include user surveys and questionnaires. External or internal data can be number of users, number of kwh charged, number of data sets extracted, service cost reduction compared to benchmark etc.
WHO should measure or collect data?	Measurements in our own target or usergroup can be done internally. It might always be a good idea to contract an external and independent organisation for surveys and measurements if the cost is reasonable. Data collection is preferably done internally, since the external data collected should be from independent and objective sources. The risk for bias is therefore less. It will often come down to resources such as time and cost.
WHEN should measurements take place or data be collected	The frequency and timing of measurement and data collection depends entirely on what it is that we measure or what kind of data we collect. In some cases, it is important to measure frequently to make sure we reach the intended change. Other data can be collected less frequently.
HOW MUCH can the measurement or data collection cost	The rule of thumb is that the cost of measurement and data collection should always be as low as possible, but enough to reach good quality and high data integrity. It is not reasonable that 50% of the activity's budget should go to measuring the outputs, nor is it reasonable that the cost of measuring exceeds the value created for the target group or for society. On the other hand, if measuring carries a significant cost, but is the only way to ensure that what we do is working, then it is likely an important part of over all costs of the activity.

The **Swedish**
National Advisory Board
for **Impact Investing**

Step 7	Measure, evaluate and report
Conduct measuring or data collection	Follow the measurement or data collection plan.
Evaluate outputs across scale, depth and duration	Verify if the outputs have reached - or have the potential to reach - targets of scale, depth and duration.
Demonstrate the enabling of impact	Using independent data or common knowledge, showcase how your outputs have or will enable impact at scale in the target group, sector or industry.
Report on outputs	Report the outputs in an easy-to-understand way. Demonstrate how much outputs you intend or are capable of creating over time and how those outputs will enable impact at scale. Use infographics and illustrations. Explain why the used indicators were selected if it is not evident. Be transparent wit any hypothesis made and estimations of target scale, depth and duration. Describe where data was collected or how measurements were conducted. Identify and describe potential bias or weaknesses in the measurements. Describe how continuous measuring and data collection will ensure sufficient output duration if that can not immediately be established. Encourage input and feedback - continue the learning.

The **Swedish** National Advisory Board for **Impact Investing**