SMART AIR

SOCIAL IMPACT REPORT










2021

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Presented By

In Collaboration With

GRC BERKELEY GLOBAL RESEARCH AND CONSULTING GROUP

SMART AIR

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GRC is a 501(c)3 nonprofit with the mission of helping global NGOs and social impact startups achieve their goals while simultaneously empowering students to give back to the global community.

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Executive Summary

SUMMARY

Report Overview

This report provides a comprehensive and in-depth look at Smart Air's social impact as an impact-driven social enterprise. It covers an analysis of who Smart Air is, what Smart Air is creating an impact on, how COVID-19 impacted Smart Air's business, and how Smart Air's social impact has expanded on a global level in 2021.

Impact Measurement Methodology

The primary method used to quantitively evaluate Smart Air's social impact is the Social Return on Investment (SROI) methodology. With this methodology, a range of metrics are used to quantify the social impact of all of Smart Air's activities across all areas to calculate a single return on investment value. The SROI is a measurement of the social impact Smart Air creates in monetary value for every 1USD invested in Smart Air.

Purpose

Understanding the breadth and scale of Smart Air's social impact is the key to evaluating and improving Smart Air's social performance. By understanding how and where Smart Air is creating impact, Smart Air hopes to improve its value to society, to bring their vision and mission to more people and places around the world. The report will also be used to communicate Smart Air's social impact to the community at large.

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1 About Smart-Air

SMART AIR

Smart Air is a certified social enterprise, founded in 2014 in Beijing, China, and is the first and only certified B-Corp tackling air pollution. Their mission statement is to protect people from the harms of polluted air through education and the shipment of cost-effective purifiers and clean air tools.

Founding Story

In January 2013, Beijing was facing an 'airpocalypse' with record-high pollution levels. Smart Air founder Thomas Talhelm was a PhD student living in Beijing at that time. When looking at how protect his health, Thomas was shocked to discover how expensive purifiers were.

He did some research, and found that air purifiers are just fans and filters - nothing complex. He purchased a HEPA filter and strapped it to a fan, creating his first 'DIY air purifier'. After running hundreds of tests, the data showed that DIY purifiers are just as effective as the more expensive purifiers. Armed with this data, Thomas decided to show and teach the world how make an air purifier for under $30.

Thomas is now an assistant professor at U Chicago Booth, and Smart Air has grown to be a global social enterprise with an expanded range of purifiers and clean air tools, and an ever increasing database of educational topics to keep people safe from air pollution.

SAY NO to expensive air purifiers

100% of profits go back to the community through clean air purifiers and education content

B-Corp Certifcation

Gold Club Social Enterprises

Smart Air is a Gold Club Social Enterprise and a Certified B-Corp, with a social mission to help everyone breathe clean air through affordable air purifiers and education contents.

Smart Air achieves its mission in two main activities:

- *Utilizing social media, online articles, and workshops to educate people about the harmful effects of air pollution and technical information on air purifiers, masks, and quality monitors*
- *Offering cost-effective air purifiers, filters, and other air monitor tools to help people avoid the harmful effects of air pollution.*

110,000+

Total air purifiers sold and shipped to 14+ countries globally

16,000+

In-person and online workshop participants receiving education about air pollution

19m+

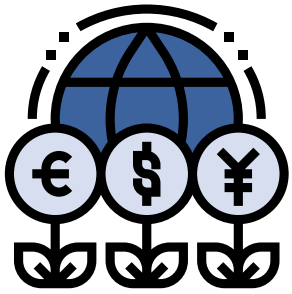
Readers on blog posts and social media content

687+

Air pollution workshops hosted in 29+ cities and 5+ countries

2 Logical Framework

SMART AIR'S APPROACH THROUGH SROI



What is SROI?

Social return on investment (SROI) is an outcome-based measurement tool that helps organizations understand and quantify the social, environmental, and economic value from their activities. Developed from traditional cost-benefit analysis, SROI provides an organization a narrative of how their activities create value while making change in the world using a ratio stating how much social value is created for 1 USD invested.

The method revolves around a six-step methodology:

1. *Establishing scope and identifying key stakeholders*
2. *Mapping outcomes to show the relationship between inputs, outputs, and outcomes from each initiative*
3. *Monetizing outcomes by putting a financial value on the activities*
4. *Establishing impact by identifying which outcomes are mainly the result of the firm's initiatives*
5. *Calculating the SROI by adding up all the benefits and comparing them to the initial investment*
6. *Sharing the findings and recommendations with stakeholders*

Summary: Smart Air's Approach

Smart Air's performance in tackling air pollution issues can be broken down into a logical framework, which summarizes the key elements of Smart Air's model to be used for future project monitoring and evaluation. By listing the activities, outputs, outcomes, and the goal (or expected impact), it shows the logic of how the activities will lead to outputs, which in turn lead to outcomes, and in the end, how those initiatives create value for the firm, its stakeholders, and its community. This section outlines ways in which Smart Air leaves a positive effect on stakeholders by changing their lifestyle and quality of life, and assisting them in taking appropriate actions to tackle air pollution issues.

How is Smart Air helping communities deal with air pollution?

By conducting in-depth interviews and questionnaires with various stakeholders, Smart Air's evaluation project team mapped out a picture of what people needed, what problems they are facing when dealing with air pollution, and what Smart Air can do for them. Following the needs of the community and abiding by Smart Air's mission and values, the firm provides affordable and cost-effective air purifiers through various e-commerce platforms, publishes online articles and open-data on air purifiers and pollution, and hosts both in-person and online workshops to share air pollution knowledge and raise awareness towards protective measures with the community.

Smart Air's Purifiers and Filters

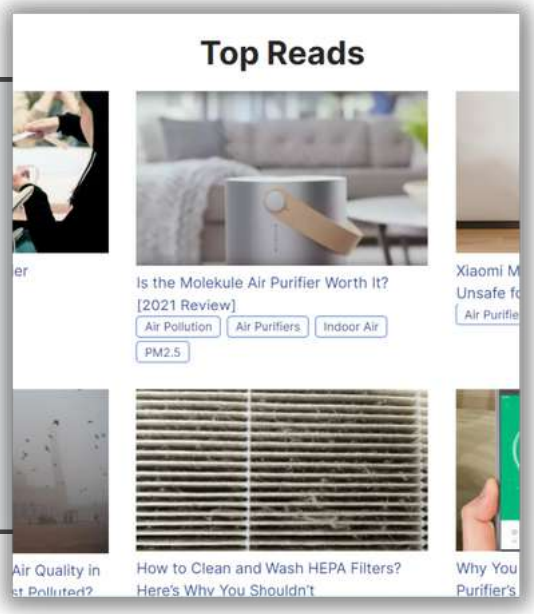
In 2021, Smart Air sold more than 16,291 air purifiers and 9,572 air filters to users in 14 other countries in Asia, Europe and North America, benefiting thousands of people with clean air worldwide.

Smart Air also sold $280,000 worth of air purifiers, filters, and monitors to corporates and businesses in 2021.

Online Education: Articles & Social Media

Smart Air published, translated, and created a total of 339 online articles and videos educating the community on air pollution issues and ways to prevent them.

Smart Air also received more than 6 million views on online platforms, including its official website, Quora, Youtube, Zhihu, Wechat and Tencent Videos.



Air Pollution Workshops

Smart Air hosted more than 72 in-person and online workshops in more than 6 countries and 30 cities worldwide, reaching more than 1,496 people.

Each workshop explains how filters and masks work, and show data that demonstrate exactly how much particulate pollution air filters remove from the air in private homes. Participants also get to build their own DIY air purifiers, with a fan and a HEPA filter.

The following table is a simplified version of the logical frame work that shows the stakeholders' results and impact of Smart Air's 2021 activities in mainland China and other countries:

INPUT	ACTIVITY	OUTPUT	OUTCOME
People Money Equipment Venue	Online Education (online articles and social media content)	Published 198 blog posts, online articles, and videos	Increased knowledge and awareness level on air pollution protection Increased air purifier sales Improvement in health of workshop attendees
	Workshops	Registered 1,496 participants	
	Supply Chain	Operations expanded into 14 Countries	Increased accessibility to clean air
	Selling Air Purifiers	Sold a total of 16,291 purifiers	Increased user's living quality
	Research and Development	Reduced weight of purifier shipment by switching from aluminum to cardboard	Enhanced product quality



Evaluation Team Notes

SROI describes how Smart Air carries out the activities that in turn bring about results for each stakeholder.

The Smart Air team interviewed more than 200 participants of workshops to understand the benefits of the workshop and their willingness to buy air purifiers. The team also surveyed four workshop partners to understand the impact of their workshops on the organization and their employees.

Among the participants, 80% indicated that the knowledge provided in the workshop would help them improve their respiratory health to a greater extent and 10% would buy an air purifier.

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Questionaries & Interviews

Conducted by Smart Air to understand users' behavior and preference for air purifiers

200

Participants

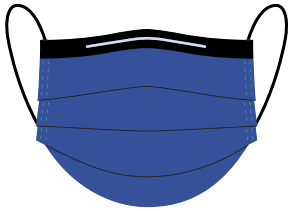
200 people, including users and Smart Air employees, participated in the surveys



3 Case Study: COVID-19

OVERVIEW

The COVID-19 pandemic impacted Smart Air in a multitude of ways. Prior to the pandemic, Smart Air's educational content revolved primarily around air purifiers and air pollution. However, the pandemic highlighted a need for reliable information and data. Given the airborne nature of the virus, it was within Smart Air's expertise to educate the public on the facts to help curb the spread of COVID-19. Demand for air purifiers in public spaces also rose to combat the virus. As a result, Smart Air's user base grew globally, with content expanding to cover not only air pollution but virus protection as well. This case study takes a deeper look into these changes and how they have shifted the direction of Smart Air's social impact.



ONLINE EDUCATION

AT A GLANCE

The table below outlines Smart Air's key outputs, outcomes, indicators, and the corresponding financial proxy value. Calculations rest on reasonable assumption.

ACTIVITY	OUTPUT	OUTCOME
Online Education: Blog and Online Articles Social Media Content Workshops	87.5% of workshop participants answered that they would wear a mask, this was a 24.24% increase from pre to post workshop. 17 articles written on COVID-19 in 2021 379 total backlinks to most popular COVID-19 DIY mask blog post.	**Increased knowledge** level on air filtration impact on **preventing the spread** of COVID-19 **Improved health** due to protective actions taken

ONLINE EDUCATION: A CLOSER LOOK

SMART AIR YOUTUBE CHANNEL

Smart Air's YouTube content began to include informational videos on Covid-related myth-busting and face masks. As the virus spread, so did misinformation and confusion surrounding topics like masks and how to protect oneself. To help provide answers, Smart Air made several mask-related videos to educate the public. The most popular video, "What's the difference between N95 and KN95 masks?" amassed **over 500k views.**

Additional mask-related content on the Smart Air YouTube channel

Click here to view the Smart Air YouTube Channel

CLEAN AIR BLOG

The Clean Air Blog, Smart Air's blog hosted on its website, also began to include Covid-related content. At the onset of the pandemic, there was much misinformation circulating on the internet; people were unsure about how to combat airborne viruses, and what air purifiers to purchase. To help educate the public, Smart Air published 17 Covid-related articles, and even added a new category to their Clean Air Blog.

ARTICLE SPOTLIGHT: AIR PURIFICATION

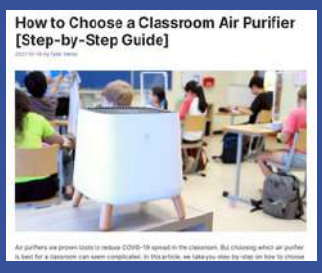
ASHRAE Recommended Air Changes Per Hour

Click image to view article

This article is an example of the many articles posted on the Clean Air Blog that educate the public on the importance of frequent air circulation for a healthy environment, especially for protection against corona virus.

Choosing the right air purifier for an office, school, or church

Click images to view articles



These three articles are guides on how to choose an air purifier to protect against viruses based on CDC regulations.

ARTICLE SPOTLIGHT: MASKS

Do DIY Cloth Masks Protect Us From COVID-19?

Click image to view article

This article is an example of the many articles on the Clean Air Blog that helped educate the public on masks. This particular article addresses the rise of DIY cloth masks due to the mask shortage, and assesses their effectiveness.

Does Microwaving Masks Disinfect Viruses?

Click images to view articles

This article uses scientific research to discuss the facts on microwaving masks to disinfect it. This was particularly useful for the public as people tried to disinfect and reuse their face masks due to the shortage.

IN THE NEWS

In addition to publishing content on their own platforms, Smart Air partnered with BBC on Weibo and Bloomberg on YouTube to produce educational content on DIY masks. In both videos, Smart Air discussed how to create an effective DIY mask, and their research methodology.

AIR PURIFIERS

As the pandemic spread around the world rapidly, so did the demand for air purifiers as a means to combat the airborne virus. However, for many people, this was their first exposure to understanding air purifiers and air quality. Consequently, many opportunists attempted to capitalise on the misinformation and panic amongst the population to sell marked-up air purifiers that sometimes did more harm than good.

EDUCATING THE PUBLIC


Schools: Don't Use This Air Purifier for COVID-19 Protection

Since the COVID-19 outbreak, thousands of schools in the US have spent millions of dollars on air purifiers for their classrooms. And that makes sense. Re-opening schools is vital, and protecting teachers and students from COVID-19 transmission in the process is something to take seriously.

Schools: Don't Use This Air Purifier for COVID-19 Protection

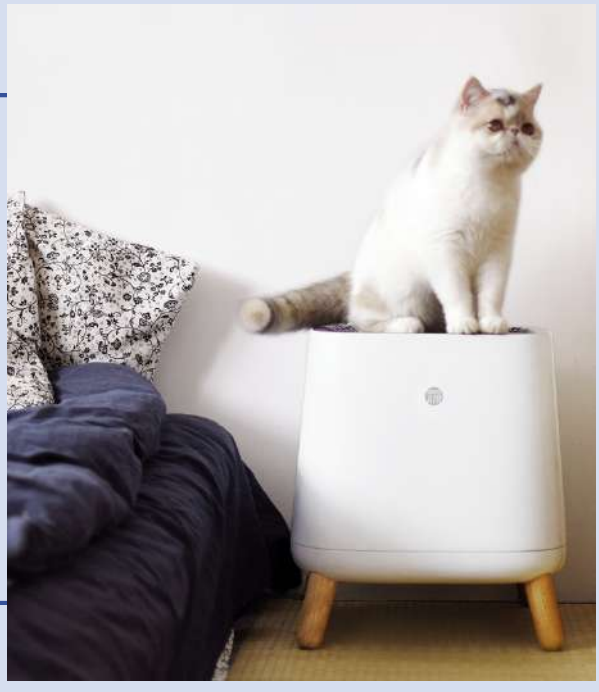
Click image to view article

As schools installed air purifiers to create a safe environment to re-open, many purchased ionizers. These ionizers actually released toxic chemicals, and did little to clean the air. Hence, there was a dire need for Smart Air's educational efforts and effective air purifiers.

Science-Backed Air Purifiers

In addition to their battle against misinformation, Smart Air offers cost effective air purifiers that actually provide clean air with none of the toxic chemicals. This is backed by hundreds of hours of publicly published test data.

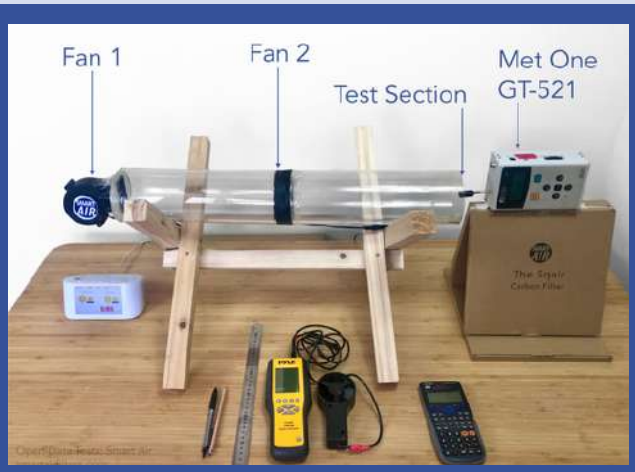
During the pandemic, Smart Air provided over $70,000 worth of air purifiers to schools and hospitals around the world.



SUMMARY - COVID-19 CASE STUDY

As part of Smart Air's campaign against the spread of Covid-19 and misinformation, Smart Air published over 28 articles and 16 videos dispelling common myths and providing useful tips to protect against the virus. Additionally, Smart Air provided over $70,000 worth of effective air purifiers to schools and hospitals, protecting the most vulnerable members of society. Overall, Smart Air served as a much-needed source of transparent and reliable science-backed information for a tumultuous time in history.

Testing Face Masks



Bringing Clean Air Around The World

4 Social Value

SUMMARY

This section aims to quantify the social return that Smart Air has achieved in the past year. In 2021, Smart Air operated in numerous countries, increasing the social value that has been returned through its operations. Using the SROI model, we can analyze Smart Air's inputs and outputs to determine the true monetary value of impact.

Figure 1: Smart Air World Map

QUANTIFYING SOCIAL IMPACT

Over the past year, Smart Air has sold its products to customers from across 14 countries internationally (figure 1). Smart Air has experienced large growth in this year, as they have invested $2,037,857 collectively in research and development, raw materials, shipping, logistics, and inputs. Further, Smart Air hosted 1,496 participants in their workshops, reached 6,734,746 views across numerous social media platforms, and 16,291 air purifiers sold internationally. Using the SROI model, a monetary value can be determined in order to accurately summarize and quantify the social return on investment made by Smart Air.

SOCIAL VALUE 2021

FOR EVERY 1 USD INVESTED IN 2021,

SMART AIR DELIVERED 4.59 USD IN SOCIAL VALUE.

Total value of inputs and outputs for Smart Air's activities in the US and China were used to evaluate the above SROI value. In 2021, Smart Air invested **$2,093,809.57** in projects relating to clean air including: products, marketing, research and development, and wages. This direct input created social value equivalent to **$9,620,979.10.**

84.58USD

Workshops and online content activities result in 84.58USD for every 1 USD Smart Air invested

2.39USD

Supply chain, from manufacturing to supplying of air purifiers, give net SROI value of 2.39USD

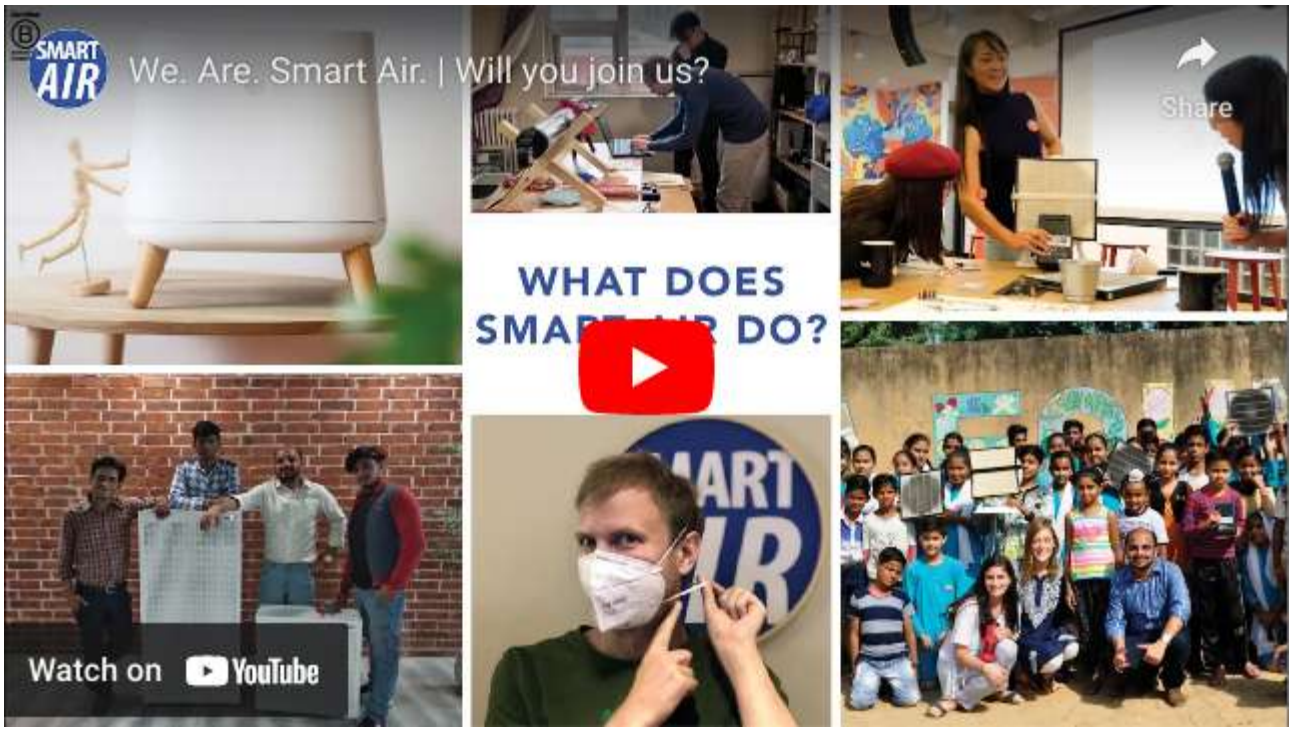
*For a full breakdown of how these numbers were calculated, refer to Appendix

5 Stakeholder Analysis

SUMMARY

By outlining potential stakeholders and describing their interests, characteristics, behaviors, and degrees of involvement, Smart Air can better understand the impact of their initiatives on users, employees, communities, and the environment.

In line with the SROI analysis, stakeholders are analysed according to the following activities: workshops, online education, and supply chain. Broader stakeholders include corporate and individual customers, workshop community partners, workshop participants, readers of published contents, and third party beneficiaries. Further details of other Smart Air's stakeholders and their degrees of involvement are defined below.



STAKEHOLDER BREAKDOWN

STAKEHOLDERS	DEGREE OF INVOLVEMENT
Participants / Students in the workshops	Individuals who signed up for in-person and online workshops
NGOs and Corporations (Investors)	Partnering with Smart Air for educational contents and workshops
Volunteers/Teachers	Smart Air employees or other individuals leading and teaching the workshops
Communities/Schools	Smart Air's online educational contents increased awareness in communities and schools
Hospitals / Public Health Services	Indirect involvement from Smart Air by improving consumers living standard
Suppliers	Provide raw materials for Smart Air to produce their products
Manufacturers	Directly are the main source of production
Researchers (Smart Air)	Conduct research and experimentation to assess the effectiveness of purifiers
Government Authorities	Impose rules for buying and selling that Smart Air must follow specific technical performance requirements (important for production)
Product Vendors & Distributors	Provide a platform for Smart Air to sell
Corporate & Individual Consumers	Purchase and use Smart Air Purifiers
Secondhand Beneficiaries	Get to experience Smart Air filters' effects without necessarily paying from their pocket

STAKEHOLDER DIAGRAM

Appendix

SROI CALCULATION OVERVIEW
SROI VALUATION PROCESS
FEASIBILITY & LIMITATIONS

SROI Analysis

SROI APPROACH: IMPACT MAP

The impact map defines the inputs, outputs, and outcomes for each activity that Smart Air conducts. By breaking down and outlining each activity separately, Smart Air can better understand how their efforts bring about social impact on a global scale.

ACTIVITY	INPUT	OUTPUT	OUTCOME
Online Education (Blog and Online Articles) (Social Media Contents)	$22,841.34 spent on input resources for social media $12,373.50 spent on human capital for social media $8,022.69 spent on 4 purifier effectiveness videos and video editing equipment	Published 198 blog posts, online articles, and videos Attained 55,898 followers in 11 different social media platforms Reached over 3,420,746 viewers through current social media platforms Created 3,111 posts with a total of 21,430 likes, forwards, comments, and engagements	Increased knowledge level and awareness on air pollution protection Increase in Air Purifier Sales Improvement in health of workshop attendees Highlighted the negative effects from COVID-19*
Workshops	$12,714.08 spent on developing both in-person and online workshops	After attending a workshop 83.44% of participants followed Smart Air's social media Registered 1,448 participants	*Explored in Covid-19 Case Study

Supply Chain	$1,848,894.43 Parts & Raw Materials $435,089.83 Labor $137,969.52 Transportation $15,882.69 Storage	Economical, and Efficient Air Purifiers, Filters, and Monitors	Increased Access to Clean Air
Selling Air Purifiers	$8,022.69 Marketing $4,462.56 Customer Service	Sold a total of 16,016 purifiers	Increased Customer Living Quality
Research and Development	$26,346.40 Labor & Research Equipment	Reduced the weight and carbon footprint of air purifiers shipment and production by switching from aluminum to cardboard	Increased Access to Clean Air

SROI CALCULATION

The final step of the SROI methodology involves dividing Smart Air's present value (value of outputs) by the total value of the inputs. This calculation gives us the SROI ratio which represents how much social value Smart Air generates for every 1 USD that is inputted.

WORKSHOPS AND ONLINE CONTENT

INPUT VALUE	OUTPUT VALUE
$22,841.34 + $12,373.50 spent on resources/capital for social media + $8,022.69 spent on 4 purifier effectiveness videos and video editing equipment + $12,714.08 spent on developing both in-person and online workshops	$24,334.55 worth increase in knowledge level and awareness + $16,790.42 worth increase in Air Purifier Sales + $4,691,660.54 worth improvement in health of workshop attendees
Total = $55,951.61	Total = $4,732,785.51

SUPPLY CHAIN

INPUT VALUE	OUTPUT VALUE
$153,852.21 spent on warehousing costs and logistics + $1,857,659.35 spent on raw materials, packaging, customer service, and payment provider transaction fees + $26,346.40 spent on research and development	$447,937.48 worth increase in accessibility to air purifiers + $4,436,683.25 worth increase in customer living quality + $3,572.86 worth reduction in carbon footprint
Total = $2,037,857.96	Total = $4,888,193.59

$$\text{SROI RATIO} = \frac{\$9,620,979.10 \text{ (Value of Outputs)}}{\$2,093,809.57 \text{ (Value of Inputs)}} = 4.59$$

VALUATION

This step of the SROI methodology involves assigning indicators to each outcome mentioned above. Using financial proxies, we gave each indicator a monetary value that represents Smart Air's social impact.

The table below outlines Smart Air's key outcomes, indicators, and the corresponding financial proxy value. Calculations rest on reasonable assumption.

Outcomes	Indicator	Financial Proxy	Value
Increase in Knowledge Level and Awareness	Willingness to engage and share Smart Air's social media activities after workshop	Total cost of workshops in relation to average external distribution of materials by three partners.	$24,334.55
Increase in Air Purifier Sales	% of workshop participants that proceeded to buy air purifiers after attending a workshop.	Median cost of air purifier in relation to the total % of customers who purchased an air purifier after attending a workshop.	$16,790.42
Improvement in Health of Workshop Attendees	Reduced individual health care costs relating to respiratory health	Average cost of respiratory health care in Asia in relation to the % of workshop participants that indicated the gained knowledge would improve their respiratory health	$4,691,660.54

Increase in Accessibility to Air Purifiers	Units of air purifiers sold	Expense saved from purchasing a Smart Air purifier vs competitor brand	$106,436.29
Increased Customer Living Quality	Pollution levels of consumer living spaces	Average cost of respiratory health care in China and the US in relation to the % of customers that indicated the purchase of a Smart Air purifier resulted in health improvements	$4,494,779.30
Reduced Production Footprint	Pollution levels by Smart Air suppliers	Reduced shipping cost and carbon footprint from transitioning to environmentally-friendly materials	$3,572.86

FEASIBILITY & LIMITATIONS

FEASIBILITY

Smart Air is a social enterprise that operates on a traditional business model but does not primarily operate for profit. The traditional economic outcome measurement tools, such as cost-benefit analysis, results, and utility analysis, can not fully reflect its mission to achieve social values.

As an assessment tool that combined qualitative and quantitative approaches, SROI can effectively help social enterprises like Smart Air conduct more comprehensive impact assessments, which could also assist in communicating and understanding the value generated by project activities.

The SROI methodology is an assessment tool that enables self-monitoring, mutual understanding, and effective communication. It not only helps project operators allocate resources more effectively, it also helps stakeholders to understand the value of project activities, instead of only considering project inputs.

LIMITATIONS

SROI involves a lot of value calculations and data processing, hence the ideal data collection process would involve a good degree of variable control. Many indicators were not monitored as assessments were not taken into account in the initial design of the project, which resulted in an incomplete collection of relevant data.

In addition, the calculation of SROI requires reference to third-party organizations on top of the project's own data while much basic data is difficult to obtain from public sources. The completeness and accuracy of data acquisition have an important influence on the accuracy of evaluation results. The source and quality of data acquisition may lead to the deviation of evaluation results from the actual situation.

Nevertheless, due to the budget and time constraints of this project, the scope of the business assessment is limited to the impact of mainland China and the US in 2021, as well as a COVID case study. The source and size of the sample and tracking time are also limited for these reasons.