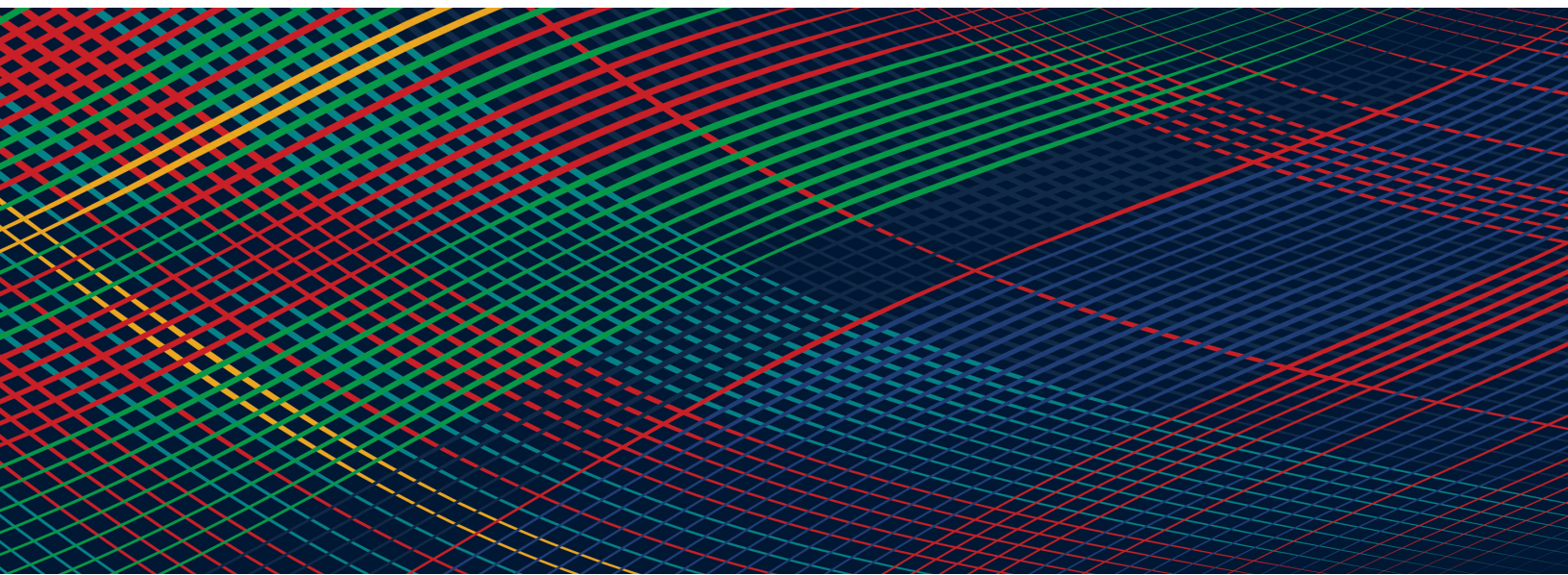


# 2021 Voluntary University Review of the Sustainable Development Goals



**Carnegie Mellon University**  
Sustainability Initiative

# Table of Contents



I.	Opening Statement	<b>5</b>
II.	Executive Summary	<b>6</b>
III.	Sustainability at CMU: Updates Since Publication of the 2020 VUR	<b>9</b>
IV.	<b>Methodology</b>	<b>11</b>
	Internal Engagement with CMU Students, Faculty, Staff and Alumni	<b>11</b>
	External Engagement	<b>12</b>
	Automating SDG Mapping Systems	<b>13</b>
	Education	<b>13</b>
	Research	<b>13</b>
	Practice	<b>14</b>
V.	<b>Results</b>	<b>15</b>
	Transitioning to an Interactive Format for the 2021 VUR	<b>15</b>
	Open-source Automated SDG Mapping System	<b>15</b>
	Feedback Mechanisms	<b>16</b>
	Education	<b>16</b>

# Table of Contents



Research	<b>18</b>
Practice	<b>20</b>
VI. Next Steps	<b>22</b>
VII. Acknowledgments	<b>23</b>
VIII. Acronyms	<b>24</b>
IX. Appendix	<b>25</b>



#GlobalGoalsCMU

# Opening Statement



Dear Colleagues and Community Members:

On behalf of Carnegie Mellon University's (CMU) Sustainability Initiative, I am pleased to share with you the 2021 Voluntary University Review (VUR).



This version marks the second edition of our evolving approach to sharing our efforts to align our education, research and practice with the Sustainable Development Goals (SDGs). I offer my sincere appreciation and gratitude to the students, faculty and staff who have contributed both to the creation of CMU's 2021 VUR but more importantly in helping the university better align with the SDGs.

This new VUR comes after a year of profound disruption and innovation driven by the global pandemic. Although still in the midst of the pandemic, we have already seen the critical need and increased urgency in achieving the SDGs. Viewed through the interconnected lens of the SDGs, we could see how inequalities disproportionately affected different communities, particularly communities of color. We cheered the incredible innovations by which science delivered life-saving vaccines. Yet, we also witnessed the heartbreakingly epic loss of life in areas of the world without equal access to these vital resources.

What has also become clear is that universities offer an important and stable platform from which to advance the SDGs. Universities like Carnegie Mellon offer opportunities to continue to find new ways of incorporating the SDGs into our education, research and practice. Colleagues both within and outside the institution can collaborate and partner with the next generation of innovators. Since launching CMU's VUR, we have found numerous universities interested in our work while pioneering their own approaches to VURs. We applaud their innovations as a mark of success.

In the 2021 VUR, we describe the developments of a number of initiatives to help us track how activities around the university relate to the SDGs. We have relied on the CMU community to help collate and share information on current activities, generate creative improvements to our methodology and identify areas for further growth.

By continuing our examination of CMU's contribution to advancing the SDGs, we reaffirm the importance we place on conducting voluntary reviews. Through the development and use of key innovations and new tools, we will continue to refine how we conduct these reviews. And by adopting the common language that the world uses to communicate progress, we hope the open-source material we provide in this VUR will help others in higher education throughout the world.

James H. Garrett  
Provost and Chief Academic Officer, Carnegie Mellon University

# Executive Summary



In 2020, Carnegie Mellon University (CMU) became the first university in the world to publish a Voluntary University Review (VUR) of how we as a university were aligning our education, research and practice with the **Sustainable Development Goals (SDGs)**.<sup>1</sup> That first VUR was a year-long undertaking involving the Sustainability Initiative Steering Committee, the Advisory Council, students enrolled in a 2020 summer project course and the contributions of many other students, faculty and staff. A spring 2020 “**17 Rooms**” exercise with the CMU community (consisting of 17 one-hour Zooms for each of the SDGs) provided important input.<sup>2</sup>

The Sustainability Initiative team conducted the 2020 VUR using existing tools and information, recognizing that it was the beginning of an ongoing process that would require continuous refinement and further engagement with the global CMU community.

Over the past year, the Sustainability Initiative team has been working to acquire more information about ongoing activities, map them to the SDGs and innovate in three key areas:

## 1. Education

For the 2021 VUR, the team developed a standard set of keywords and created an algorithm to apply the keywords to large datasets, then applied this algorithm to 14,351 course descriptions from multiple semesters. This work was based on the manual SDG-tagging activity conducted for the 2020 VUR which used a sample of 2,938 courses offered in spring 2020 (a single SDG was assigned to each course). The team also created an online version of the course analysis tool and incorporated a feedback mechanism

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<sup>1</sup> For more on the SDGs, see: <https://sdgs.un.org/goals>

<sup>2</sup> For more on the 17 Rooms, see: <https://www.brookings.edu/project/17-rooms/>

## II. Executive Summary

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for instructors to comment on the mappings. This beta-version analysis tool is open source and can be used by anyone looking at any dataset, including other universities tracking their educational efforts on the SDGs. The team also partnered with the CMU Eberly Center for Teaching Excellence and Educational Innovation to create an interest group for educators using the SDGs in their courses. This effort complements other work by faculty to create external **Communities of Practice** drawing on faculty and students from a number of universities to share best practices in how to teach and partner on the SDGs.<sup>3</sup>

### 2. Research

In 2020, the team mapped 995 publications from 2018-2020 to the SDGs using the beta-version tool **Dimensions** in partnership with University Libraries.<sup>4</sup> Over the past year, the team has continued working with CMU Libraries to centralize and analyze a broader set of research using the **Elements** tool, which collects and maintains academic and research activities of faculty members and displays the information on their profile sites.<sup>5</sup> We identified a set of early adopters to demonstrate the utility of Elements and will roll it out to all CMU faculty throughout the 2021-2022 academic year, together with resources for them to use existing mapping tools on their own.

### 3. Practice

In 2020, the team identified practices that were primarily university-led and manually mapped each activity to one SDG, summarizing the results with infographics. In this 2021 version of the VUR, we refined the definition of “practice activities” to include three categories: university-led initiatives; CMU community member activities; and those of student organizations. We then established an interactive site where each activity is tagged with up to three SDGs so that CMU community members can share their work and search for others using the SDGs.

For the 2021 VUR, the team partnered with CMU Institutional Research and Analysis to conduct a series of focus groups with students, faculty and staff. Undergraduate students proposed integrating the SDGs into the curriculum and existing large-scale initiatives; distilling or translating the SDGs into ideas that students can relate to and feel passionate about; and incorporating technology into the initiative through social media presence or app usage. Graduate students agreed that integrating the SDGs into existing systems and processes should be a priority. They thought the Sustainability Initiative should help stakeholders understand how CMU is operationalizing their commitment to the SDGs and also expand awareness by leveraging student organizations. Faculty expressed interest in incorporating sustainability into teaching and identified the need for a centralized place (virtual or physical) to go for information to increase awareness of the SDGs. Staff thought it would be helpful to demonstrate how their work contributes to progress around the SDGs and the interconnected nature of the goals.

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<sup>3</sup> For more on the Communities of Practice, see: <https://www.brookings.edu/wp-content/uploads/2020/11/16.pdf>

<sup>4</sup> For more on Dimensions, see: <https://app.dimensions.ai/discover/publication>

<sup>5</sup> For more on Elements, see: <https://scholars.cmu.edu/>

## II. Executive Summary

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A development this year, the **new, interactive web pages**, will serve as a foundation for the continuous updating of the VUR and for engagement, both internally and externally, as we grow our knowledge base and develop related programming.<sup>6</sup> The web pages will help advance sustainability integration in response to the needs of students, faculty and staff so they can better understand and use the SDGs in their education, research and practice activities.

While around the world there are countless efforts to identify SDG keywords and automate SDG tagging, we did not identify any that were open source, objective and scalable for the mapping we aim to conduct on an ongoing basis. Working in partnership with CMU students who have expertise in data analytics, we developed an open-source tool for data analysis and SDG mapping that interested parties can use and refine in collaboration with CMU.

The web pages include the SDG keywords employed, open-source analysis tools and interactive visualizations with the analytic results, with feedback mechanisms incorporated to continue strengthening SDG analysis. The web pages support the programs outlined above in education, research and practice.

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<sup>6</sup> To view the interactive web pages, go to: <https://www.cmu.edu/leadership/the-provost/provost-priorities/sustainability-initiative/index.html>



# Sustainability at CMU: Updates Since Publication of the 2020 VUR



When CMU established the Sustainability Initiative in September 2019, we aimed to align our education, research and practice activities with the 21st century understanding of sustainability as represented by the Sustainable Development Goals (SDGs). While the SDGs include environmental stewardship challenges, they represent a paradigm shift in how the world thinks about sustainability that encompasses reducing inequality; creating peaceful, just and inclusive communities; reducing poverty and more. The SDGs also recognize that development happens everywhere in all communities.

We are committed to this approach because the 21st century requires this conception of sustainability which embodies the SDGs and recognizes the interconnections of these goals. We do so by engaging locally in a global conversation that has captivated countries, cities, the private sector and civil society as well as universities all around the world. In short, the SDGs and the Sustainability Initiative are both built for this moment.

In September 2020, CMU published the world's first Voluntary University Review to establish a baseline understanding of how CMU's education, research and practice activities relate to the global objectives set forth in the SDGs. Undertaking a VUR was one of **six charges** from Provost Jim Garrett when he launched the Sustainability Initiative in 2019.<sup>7</sup> The six charges are listed in the appendix.

In line with the next steps laid out in the 2020 VUR, the Sustainability Initiative team has deepened its analysis of engagement with the SDGs at CMU by developing and investigating more sources of information for education, research and practice activities and has incorporated feedback mechanisms

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<sup>7</sup> To view the Six Charges of the Sustainability Initiative, see: <https://cms-staging.andrew.cmu.edu/leadership-3/the-provost/provost-priorities/sustainability-initiative/our-charges-and-commitments.html>

### III. Sustainability at CMU: Updates Since Publication of the 2020 VUR

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to validate findings. We are also using information gleaned from the VUR process to advance on Provost Garrett's five other charges. The 2021 VUR therefore builds on the foundation established through the 2020 VUR process. The detailed results described below are presented in an interactive format on the CMU Sustainability Initiative web pages that will be regularly updated with feedback from students, faculty and staff.

# Methodology



## **Internal Engagement with CMU Students, Faculty, Staff and Alumni**

Following the publication of the 2020 VUR, the Sustainability Initiative team presented findings to numerous CMU units, including the Educational Affairs and Enrollment Committee of the CMU Board of Trustees, the University Leadership Council, CMU Libraries faculty and staff, Dietrich College faculty, Heinz College faculty and staff, the Graduate Student Assembly and the Undergraduate Student Senate.

Information and suggestions received during these interactions helped guide planning for the continuing VUR data collection as well as sharpen internal communications about the Sustainability Initiative. For example, information about the Sustainability Initiative was incorporated into fall 2021 orientation activities for students and faculty, and flyers with more information and a QR code were distributed to all 150 resident advisers to post in the residence halls, with plans to develop programming throughout the year.

The Sustainability Initiative Advisory Council was expanded by adding representatives from the Student Leadership, Involvement and Civic Engagement (SLICE) office and the Alumni Relations office to enhance student and alumni engagement. We continue to identify ways to deepen our partnership with the newly appointed vice provost of diversity, equity and inclusion and chief diversity officer as well as the civic engagement coordinator.

The team hired three student interns to work over summer 2021 on data analytics, communications and research to support innovations in capturing how activities at CMU align with the SDGs. (The data analytics and communications interns continue their work in fall 2021.) The student intern activities included production of a short animated film about the SDGs and their implementation at CMU, the development of profiles of CMU community members who are working on the SDGs, and the creation of data analytics tools and visualizations.

## IV. Methodology

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To improve understanding of student, faculty and staff perceptions of the SDGs and how we might more effectively engage the community, the team worked with the Office of Institutional Research and Analysis to conduct focus groups. From April 26 to May 6, 2021, 46 students, faculty and staff participated in a total of 12 focus groups centered on two overarching research questions. All focus groups were conducted by Zoom and lasted approximately one hour each. They were semi-structured in nature, employing a script with loosely defined criteria and followed by two research questions:

1. How can the university effectively communicate about the Sustainable Development Goals (SDGs) to students, faculty and staff?
2. How have students, faculty and staff engaged with initiatives to elevate and achieve the Sustainable Development Goals (SDGs)?

Groups were divided into undergraduate students, graduate students, faculty and staff, and split between those who responded to the CMU February 2020 Knowledge, Attitudes and Practices survey about the SDGs and those who did not. The detailed findings are being used to inform next steps for the Sustainability Initiative and to help tailor messages and outreach to the various members of the CMU community.

### External Engagement

In conjunction with the release of the VUR in September 2020, Provost Garrett participated in the UN Foundation and Brookings Institution's side event at the United Nations General Assembly on "**American Leadership on the SDGs**."<sup>8</sup> Additionally, CMU representatives participated in multiple events about the SDGs organized by higher education networks including the Sustainable Development Solutions Network (SDSN), the Association for the Advancement of Sustainability in Higher Education (AASHE) STARS, the Network of Schools of Public Policy, Affairs and Administration (NASPAA) and the University Global Compact (UGC).

CMU representatives also participated in the flagship "17 Rooms" exercise convened throughout summer 2020 and summer 2021 by the Brookings Institution and The Rockefeller Foundation and served on the Advisory Committee regarding U.S. Leadership on the SDGs convened by the UN Foundation and Brookings. Following this 2020 17 Rooms exercise, during summer 2021, Heinz faculty and students, with support from The Rockefeller Foundation and in collaboration with a number of university partnerships, explored the impact of COVID relief efforts on a number of social justice issues related to the SDGs by analyzing open data sets. Specifically, the Heinz project group is moving into a phase exploring what data suggest about who is being left behind in a number of North American cities despite the relief efforts. This work, called #JustRecovery, will continue through fall 2021 and spring 2022 and also involves creating a Community of Practice exploring how best to partner with and train the next generation on the SDGs

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<sup>8</sup> To view the event, visit: <https://www.brookings.edu/events/american-leadership-in-advancing-the-sustainable-development-goals-2/>

## IV. Methodology

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### Automating SDG Mapping Systems

Beginning with keywords provided by Elsevier for the company's SDG tagging research, the team identified similar words (based on a metric called cosine similarity) and augmented the Elsevier dataset.<sup>9</sup> From this expanded list, we selected the top 250 words for each SDG. We then created a package in R, a free software environment for statistical computing and graphics, to provide a tool that can quickly load datasets of words (e.g., from a course description) and perform data analysis related to the mapping of text to the SDGs.<sup>10</sup>

### Education

For the initial analysis of CMU's curricular offerings in the 2020 VUR, the team manually reviewed 2,938 courses offered in spring 2020 as a one-semester sample, mapping one course to one goal. While this was an informative process, it was also time consuming and left room for interpretation by each team member, leading to variability and problems with consistency. Additionally, there was not an easy way to display all of the courses and their related SDGs. However, the effort provided a baseline for understanding the ways CMU is contributing to the advancement of the SDGs through education.

Using course descriptions from fall 2019 through fall 2021 provided by the registrar, we applied the new data analysis and visualization tools described above to 14,351 CMU courses and uploaded the results to the CMU Sustainability R Shiny App where the CMU community can see how classes and departments map to the SDGs, and also provide feedback on the mappings to improve the process.<sup>11</sup> Each course was equally weighted and mapped to all relevant SDGs. Courses that involve capstones or systems work, fellowships or internships, research and seminars are mapped to Goal 17: Partnerships for the Goals, representing CMU's distinctive focus on experiential learning, an approach that is emerging as especially promising in advancing the SDGs at universities.

### Research

In the 2020 VUR, the team used the beta version of the Dimensions tool, a software product (by Digital Science Inc.) that uses an artificial intelligence algorithm to perform automated SDG tagging of research articles, but we've since recognized that more types of research should be incorporated into the analysis.<sup>12</sup> To build on the initial assessment, the team partnered with University Libraries to employ the Elements tool (by Symplectic Elements Inc.), which collects and maintains academic and research activities of faculty members and displays the information on their profile sites.

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<sup>9</sup> For more on Elsevier SDG keywords, see: <https://elsevier.digitalcommonsdata.com/datasets/9sxdykm8s4/2>

<sup>10</sup> For more on R, see: <https://www.r-project.org/>

<sup>11</sup> To view the results and provide feedback on how CMU courses map to the SDGs, see: <https://cmusustainability.shinyapps.io/sdg-mapping/>

<sup>12</sup> To view Dimensions, see: <https://app.dimensions.ai/discover/publication>

## IV. Methods

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The team curated sample profiles for a set of early adopters to guide all faculty members in completing their Elements profiles in the near future. The process included an initial mapping by the team, followed by a 30-minute interview to discuss and confirm the data, as well as the top three SDGs for each early adopter.

### Practice

In the 2020 VUR, the Sustainability Initiative team identified 221 practices and mapped each to a single goal. Building on our initial efforts to map CMU activities to the SDGs, we refined the definition of “practice activities” to uncover more ways that CMU extracurricular, service and outreach practices contribute to the SDGs. Additionally, we developed a [Tableau](#) site to represent how these activities relate to the SDGs.<sup>13</sup> The practice activities include policies undertaken by the university administration, CMU community practice activities with external partners, and student organizations.

For the university policies, we identified 208 practices and developed a Tableau depicting each activity tagged with up to three SDGs. Each activity was manually tagged by the team and linked to the source website so that anyone interested in how CMU is addressing an SDG can easily access the relevant information.

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<sup>13</sup> For university-led practices mapped to the SDGs, see: [https://public.tableau.com/app/profile/cmu.sustainability/viz/CMUSustainabilityPractices\\_16322468091180/Dashboard](https://public.tableau.com/app/profile/cmu.sustainability/viz/CMUSustainabilityPractices_16322468091180/Dashboard)

# Results



## **Transitioning to an Interactive Format for the 2021 VUR**

Based on feedback students, faculty and staff provided in the focus groups as well as through other engagement, we determined that CMU data collected and mapped to the SDGs also needed to be presented in an interactive format, rather than only as a static report, so that we could continue to grow our knowledge base throughout the year and develop related programming that would help move this ambitious agenda forward.

One benefit of the SDGs is that they can demonstrate how a single activity contributes to a range of objectives. While our initial analysis mapped a single activity to a single goal, we have now created tools to map a single activity to multiple SDGs in recognition of the interdisciplinary nature of this work and to better understand how they may be complementary to other efforts across our campuses and communities.

## **Open-source Automated SDG Mapping System**

In line with Goal 17 (Partnerships for the Goals), the team is posting the SDG keyword lists from SDSN and Elsevier as well as the augmented Elsevier dataset using the metric called cosine similarity, and providing open-source coding for anyone interested in using a set of keywords to analyze their work. All of this information can be found on [GitHub](#).<sup>14</sup> We welcome input from all who are interested in collaboratively working to improve this process.

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<sup>14</sup> For the open-source keywords and coding, see: <https://github.com/CMUSustainability/SDGmapR>

## V. Results: Making the SDGs Interactive at CMU

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### Feedback Mechanisms

We also incorporated feedback mechanisms to not only correct and refine our analyses and analytic tools but also to facilitate discussions about the many ways that activities can contribute to the SDGs. These discussions can help uncover connections that otherwise would not be identified by simply tagging activities with goals.

### Education

As a university, we have a particular commitment to educate the next generation. The Sustainable Development Goals provide a framework for students and educators to understand the cross-cutting impact of the goals as well as CMU courses, especially with a focus on experiential learning. We have developed interactive web pages for the CMU community to search and identify how their courses are contributing to educating the next generation about the SDGs, and we provide resources for educators to use in the classroom.

To support this work, the Sustainability Initiative engaged four students and an advisor in the spring 2021 CMU course “Statistics & Data Science: Undergraduate Research” to develop an automated approach to analyzing courses using the SDGs and hired one of the students as a data analytics intern to build on this work. A new team of students in the fall 2021 CMU “Statistics & Data Science: Undergraduate Research” course is exploring additional ways to analyze the data.

The information gathered using the text analytics tool developed for the SDG mapping of courses has been rolled up into this [Tableau](#), with the top courses for each SDG listed in the classes table.<sup>15</sup> The CMU community can also use the [R Shiny App](#) to search 14,351 courses from fall 2019 to fall 2021 to see how they relate to the SDGs and make SDG-informed decisions about their courses.<sup>16</sup> We will continue to update the site each semester with information from the registrar. (Note: If you are part of the CMU faculty, we encourage you to search your course numbers to see if the information is correctly reflected, and if it is not, send corrections to [sustainability@cmu.edu](mailto:sustainability@cmu.edu). The team will be reviewing changes on a periodic basis.)

Figure 1 is a screenshot of the interactive graphic representation of the aggregated results obtained with the course mapping tool for the five semesters from fall 2019 through fall 2021 based on course descriptions provided by the registrar. As indicated in Figure 1, the most commonly occurring SDG tags across all courses included in the analysis were for Goal 4 (Quality Education), Goal 8 (Decent Work and Economic Growth), Goal 9 (Industry, Innovation and Infrastructure), Goal 13 (Climate Action) and Goal 17 (Partnerships for the Goals).

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<sup>15</sup> To view CMU courses mapped to the SDGs, see: <https://public.tableau.com/app/profile/cmu.sustainability/viz/CMUClassesSDGMapping/Dashboard1>

<sup>16</sup> To view R Shiny App with CMU courses mapped to the SDGs, see: <https://cmusustainability.shinyapps.io/sdg-mapping/>



## V. Results: Making the SDGs Interactive at CMU

This is a beta-version automated system, based on a set of keywords, and we are in the process of reviewing the results with a group of instructors. As we engage instructors, the system will be refined to represent coursework more accurately. For now, the aim is for students, faculty, and staff to discover courses outside of their primary discipline to enhance the range of courses taken by students and coordinated with other faculty.

Again, if you have comments, suggestions, questions or feedback, please contact [sustainability@cmu.edu](mailto:sustainability@cmu.edu).

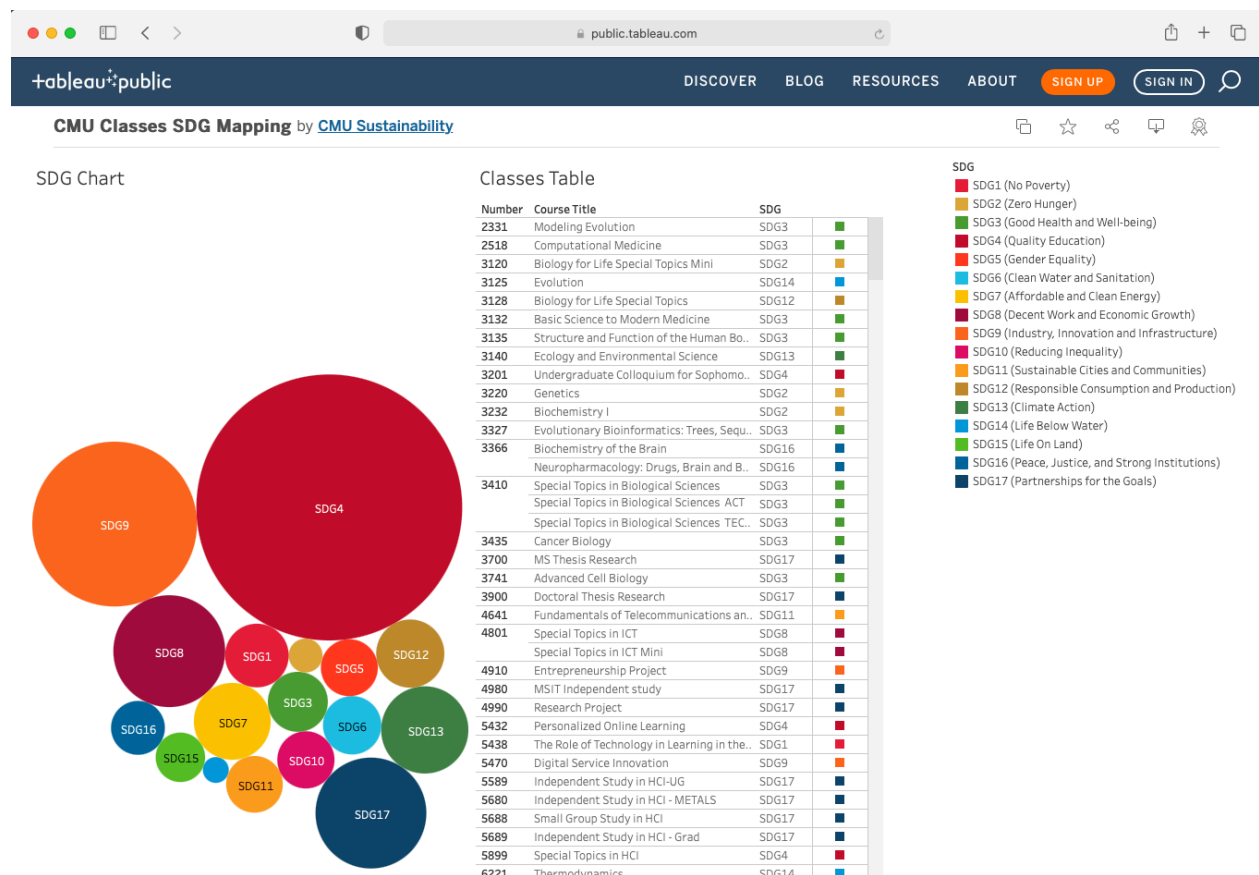


Figure 1. Screenshot of the Tableau with results from SDG mapping of 14,351 CMU courses from fall 2019-fall 2021

## V. Results: Making the SDGs Interactive at CMU

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Recognizing that many CMU educators already use the SDGs and related concepts in their courses, the Sustainability Initiative partnered with the Eberly Center to convene a group of educators using the SDGs in their coursework to share their experiences and learn from each other. The two-phase process began with roundtables with early adopters in May and June 2021. Information gleaned from these roundtables will inform seminars in the 2021-2022 academic year with a broader group of educators who have heard about SDGs and want to learn more about using the framework in their classrooms.

Based on these conversations, we provide resources on the education web page for educators who are interested in using the SDGs in their courses. We aim to help connect these educators with each other through the Eberly Center interest group and to highlight specific examples through an ongoing video documentation process. This internal CMU work will be supplemented by a growing Community of Practice of university educators who are using the SDGs to teach and partner with the next generation, particularly on social justice and human rights.

### Research

The early adopter profiles on Elements are now being rolled out so students and the CMU community can use this information to make SDG-informed decisions on course selection, research advisors and collaborators, and participation in extracurricular activities.

Additionally, University Libraries is providing instruction for educators who want to use the software products **Scopus** and Dimensions to see how their publications are tagged with SDGs by those tools.

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<sup>17</sup> For the SCOPUS link, see: <https://www-scopus-com.cmu.idm.oclc.org/search/form.uri?display=basic#basic>; for the Dimensions link, see <https://app.dimensions.ai/discover/publication>

# Elements Early Adopters

Affiliation	Name	Role	
College of Engineering	David Dzombak	Hamerschlag University Professor and Department Head, Civil and Environmental Engineering	  
College of Engineering	Daniel Armanios	Associate Professor	  
College of Fine Arts	Erica Cochran Hameen	Assistant Professor	  
College of Fine Arts	Vivian Loftness	University Professor	  
Heinz College of Information Systems and Public Policy	Silvia Borzutzky	Teaching Professor of International Relations and Politics	  
Heinz College of Information Systems and Public Policy	Matthew Mehalik	Adjunct Professor of Environmental Policy	  
Heinz College of Information Systems and Public Policy	Sarah Mendelson	Distinguished Service Professor of Public Policy and Head of Heinz College in Washington, D.C.	  
Heinz College of Information Systems and Public Policy	Chris Labash	Assistant Teaching Professor	  
Heinz College of Information Systems and Public Policy	Karen B. Clay	Professor of Economics and Public Policy	  
Mellon College of Science	Diane Turnshek	Special Lecturer	  
Steinbrenner Institute	Neil Donahue	Director, Steinbrenner Institute for Environmental Education and Research; Thomas Lord University Professor of Chemistry, Departments of Chemistry, Chemical Engineering, and Engineering and Public Policy	  
University Libraries	Julie Chen	Librarian	  

## V. Results: Making the SDGs Interactive at CMU

### Practice

Figure 2 presents a screenshot of the aggregated results of mapping the SDGs to the university policies analyzed as practice activities. As a higher education institution that employs thousands, many of our policies focus primarily on Goal 4 (Quality Education) and Goal 8 (Decent Work and Economic Growth). However, Figure 2 also demonstrates that many policies are related to Goal 10 (Reduced Inequalities), an important area of renewed commitment to equity initiatives, and Goal 16 (Peace, Justice and Strong Institutions) due to extensive governance mechanisms undertaken by the university.

Is there an activity missing? Do you think a practice is related to different SDGs? Let us know by contacting [sustainability@cmu.edu](mailto:sustainability@cmu.edu).

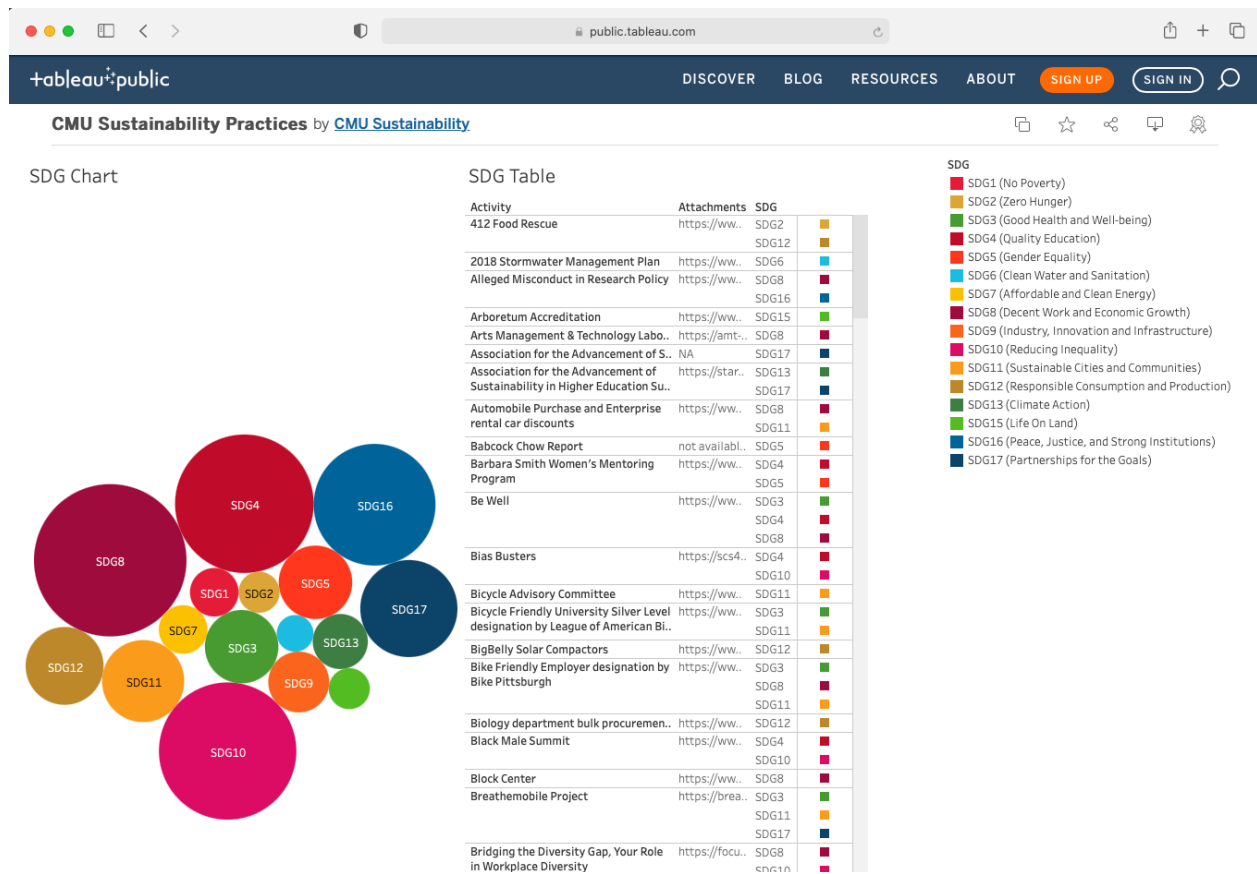


Figure 2. Screenshot of the Tableau with results from mapping of SDGs to 208 university policy practice activities

Recognizing that there are countless initiatives by CMU students, faculty and staff with different timeframes and audiences, the Sustainability Initiative team encourages students, faculty and staff to input information through an online form so their activities are represented on a Tableau site for CMU community practice activities. Anyone can then explore ongoing activities and become involved.

## V. Results: Making the SDGs Interactive at CMU

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Student organization activities have mostly been on hiatus for the past year due to the pandemic, so we are developing an outreach strategy for the academic year 2021-2022 in partnership with SLICE to educate student organizations about the SDGs and encourage them to engage in the Sustainability Initiative as they reconvene. Rather than create a whole new website for student organizations, we plan to incorporate the SDG framework into the existing SLICE site so all the information can be found in one central place.

# Next Steps



The Sustainability Initiative team will continue to pursue the six 2019 charges from Provost Garrett. In line with the provost's charge to advise on strengths, weaknesses, opportunities and challenges regarding CMU's engagement with the SDGs, we established an Advisory Council subcommittee to frame annual processes that solicit and collect feedback from the campus community. The interactive outreach will be launched in fall 2021. Regarding the charge to develop processes to identify opportunities for the university to consider, a second Advisory Council subcommittee is creating a transparent process to evaluate opportunities proposed by the campus community.

The Sustainability Initiative's new, interactive web pages will serve as a foundation for engagement both internally and externally as we grow our knowledge base and develop related programming that will help move this agenda forward.

CMU will continue to report on our activities and progress toward the SDGs through annual updates to our Voluntary University Review, refining our methods and incorporating feedback from the CMU community as well as local and global partners who share our commitment to a more just and equitable world for all.

# Acknowledgments



The Sustainability Initiative is grateful to work with collaborative colleagues and students to help advance embedding the SDGs into the CMU campus culture. The Sustainability Initiative continues to grow because of the tremendous efforts and collaborations of students, faculty and staff from various departments and colleges over the past year. The Steering Committee and Advisory Council have worked closely with the Institutional Research and Analysis Office, the Eberly Center for Teaching Excellence and Educational Innovation, University Libraries, the Office of the Vice Provost for Education, SLICE (Student Leadership, Involvement and Civic Engagement) and other CMU units and organizations to advance the understanding of how CMU's education, research, and practice activities relate to the SDGs. In particular, we thank Keith Webster, dean of University Libraries, and Elizabeth Vaughan, associate dean of Student Affairs, for chairing the Advisory Council subcommittees to collect and sort suggestions from the CMU community, in line with the provost's six charges. The summer sustainability interns also made significant contributions in analyzing and illustrating how CMU is advancing the SDGs. Examples of their work appear in this report and also in the new, interactive Sustainability Initiative web pages launched this fall.

The VUR was conducted with the engagement, input, and work of hundreds of students, faculty, and staff at Carnegie Mellon. The VUR team thanks all who participated in the focus groups, shared their experiences in the Eberly Center interest group, and served as early adopters for Elements. We also appreciate the thoughtful analysis by the students and their advisors in the Statistics and Data Science Undergraduate Research course 36-490, and the students researchers in the CEE Summer Research Program for summer 2021.

Thanks to The Rockefeller Foundation for supporting the #JustRecovery project.

Please see the full list of contributors in the appendix.

# Acronyms



AASHE	Association for the Advancement of Sustainability in Higher Education
CMU	Carnegie Mellon University
NASPAA	Network of Schools of Public Policy, Affairs and Administration
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SLICE	Student Leadership, Involvement and Civic Engagement
STARS	Sustainability Tracking, Assessment & Rating System
UGC	University Global Coalition
UN	United Nations
UNF	United Nations Foundation
VUR	Voluntary University Review



# Appendix



## Official Charge issued by Provost James Garrett Jr. on September 23, 2019

The Sustainability Initiative's Steering Committee and Advisory Council will lead the following charges:

- **Grow awareness** of the Sustainable Development Goals (SDGs) across the university;
- **Elevate** the university's engagement with the SDGs;
- **Oversee** a process of community engagement known as a "Voluntary University Review";
- **Develop processes** to identify and present high-priority opportunities for the university to consider;
- **Advise** on the strengths, weaknesses, opportunities and challenges regarding CMU's engagement with the SDGs; and
- **Communicate** to the university and the world about our SDG progress and commitments.

## Sustainability Initiative Leadership and Contributors, Academic Year 2020-2021

### a. Sustainability Steering Committee Co-Chairs and Voluntary University Review Leadership

- **David Dzombak**, Hamerschlag University Professor and Department Head, Civil and Environmental Engineering, College of Engineering
- **Steven Guenther**, University Engineer and Assistant Vice President of Facilities Management and Campus Services
- **Alexandra Hiniker**, Executive Fellow for Sustainability Initiatives, Office of the Provost
- **Sarah Mendelson**, Distinguished Service Professor of Public Policy and Head of Heinz College in Washington D.C.

### **b. Sustainability Steering Committee Support**

- **Quinten Brown**, Executive Administrator to the Provost, Office of the Provost
- **Christa Cardone**, Senior Writer, Office of the Provost
- **Noele Creamer**, Director of Communications, Office of the Provost
- **Rebecca Culyba**, Associate Provost, Office of the Provost
- **Alexandra Spetz**, Project Administrator, Office of the Provost

### **c. Sustainability Initiative Advisory Council, Academic Year 2020-2021**

- **Nina Baird**, School of Architecture, College of Fine Arts
- **Don Coffelt**, Facilities Management and Campus Services
- **Neil Donahue**, Steinbrenner Institute, Mellon College of Science and College of Engineering
- **Evan Feder**, Graduate Student Assembly
- **Rayid Ghani**, Machine Learning Department, School of Computer Science and Heinz College of Information Systems and Public Policy
- **Lauren Henry**, Alumni and Constituent Engagement, University Advancement
- **Barb Kviz**, Green Practices, Facilities Management and Campus Services
- **Vivian Loftness**, College of Fine Arts
- **Nick Muller**, Tepper School of Business and College of Engineering
- **Dan Nagin**, Heinz College of Information Systems and Public Policy
- **Katie Posko**, Heinz College of Information Systems and Public Policy, Class of 2021
- **Elizabeth “Lib” Rosemeyer**, Office of Title IX Initiatives
- **Edmund Russell**, Dietrich College of Humanities and Social Sciences
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- **Rick Siger**, Office of the President
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- **Liz Vaughan**, Student Leadership, Involvement and Civic Engagement, Student Affairs
- **Keith Webster**, University Libraries

### d. Additional Faculty and Staff

- **Amy Burkert**, Vice Provost for Education
- **Sharon Carver**, Director, Dietrich College of Humanities and Social Sciences
- **Amanda Dabbs**, University Communications & Marketing
- **Shannon Lynn Foster**, Institutional Research and Analysis
- **Jason Glenn**, University Libraries
- **Jennifer Goldinger**, University Registrar
- **Chad Hershock**, Eberly Center
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- **David Scherer**, University Libraries
- **Emma Slayton**, University Libraries
- **Lawrence Synett**, University Communications & Marketing
- **Emily Weiss**, Eberly Center

### e. Eberly Center Interest Group Participants

- **Silvia Borzutzky**, Heinz College of Information Systems and Public Policy
- **Erica Cochran Hameen**, College of Fine Arts
- **Gwen Dipietro**, College of Engineering
- **Neil Donahue**, Steinbrenner Institute, Mellon College of Science, and College of Engineering
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- **Susan Raponi**, College of Fine Arts
- **Andreea Ritivoi**, Dietrich College of Humanities and Social Sciences
- **Diane Turnshek**, Mellon College of Science

### f. Elements Early Adopters

- **Daniel Armanios**, College of Engineering
- **Silvia Borzutzky**, Heinz College of Information Systems and Public Policy

## IX. Appendix

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- **Julie Chen**, University Libraries
- **Karen B. Clay**, Heinz College of Information Systems and Public Policy
- **Neil Donahue**, Steinbrenner Institute, Mellon College of Science, and College of Engineering
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- **Matthew Mehalik**, Heinz College of Information Systems and Public Policy
- **Sarah Mendelson**, Heinz College of Information Systems and Public Policy
- **Diane Turnshek**, Mellon College of Science

### Students | Summer 2021

#### a. Sustainability Interns

- **Bobuchi Ken-Opurum**, Graduate Student, School of Architecture, Research Sustainability Intern
- **Khushi Nandgaonkar**, Undergraduate Student, College of Fine Arts, Communications Sustainability Intern
- **Peter Wu**, Undergraduate Student, Mellon College of Science, Data Analytics Sustainability Intern

#### b. 36-490: Undergraduate Research Course

- **Peter Freeman**, Professor, Dietrich College of Humanities and Social Sciences
- **Zach Branson**, Advisor, Dietrich College of Humanities and Social Sciences
- **Lavanya Chawla**, Undergraduate Student, Tepper School of Business
- **Jiayue Guo**, Undergraduate Student, Dietrich College of Humanities and Social Sciences
- **Peter Wu**, Undergraduate Student, Mellon College of Sciences
- **Chloe Yan**, Undergraduate Student, School of Computer Science

#### c. Civil and Environmental Engineering Summer 2021 Research Program

- **Annie Hu**, Graduate Student, College of Engineering
- **Jordan Joseph**, Graduate Student, College of Engineering

#### d. Heinz Summer 2021 #JustRecovery Team

- **Corey Harper**, Assistant Professor, College of Engineering and Heinz College of Information Systems and Public Policy
- **Nicole Annunziata**, Graduate Student, Heinz College of Information Systems and Public Policy
- **Andrew Nunn**, Graduate Student, Heinz College of Information Systems and Public Policy
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