

# 2023 Economic Impact of CU Innovations

March 2024



## Innovations

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**



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## Introduction

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### Study Overview

Silverlode Consulting was engaged by CU Innovations (CUI) to estimate the economic impact of its technology commercialization activities on the State of Colorado and the U.S. during 2023.

IMPLAN, one of the most widely used and accepted methodologies for estimating regional economic impacts, was used to complete the analyses.

While the innovations managed by CUI have had tremendous societal impacts in terms of improved health, reduced cost, and other benefits, these impacts are not accounted for in this report.

### CU Innovations Overview

CUI, which is located on the University of Colorado (CU) Anschutz Medical Campus, brings together industry partners, entrepreneurs, and investors to help CU researchers create biomedical technology that improves the quality of life worldwide. CUI serves as the central hub for a pioneering collaboration involving research, data science, clinical care, venture capital, and the pharmaceutical industry.

In addition to scientific discovery support, CUI translates discovery into impact through intellectual property management and protection services and expertise in patents, copyrights, and licensing.

CUI also helps companies market and develop their technologies through commercialization strategy and implementation. CUI provides access to an extensive portfolio of biomedical technologies, clinical validation opportunities, and resources for startup development.

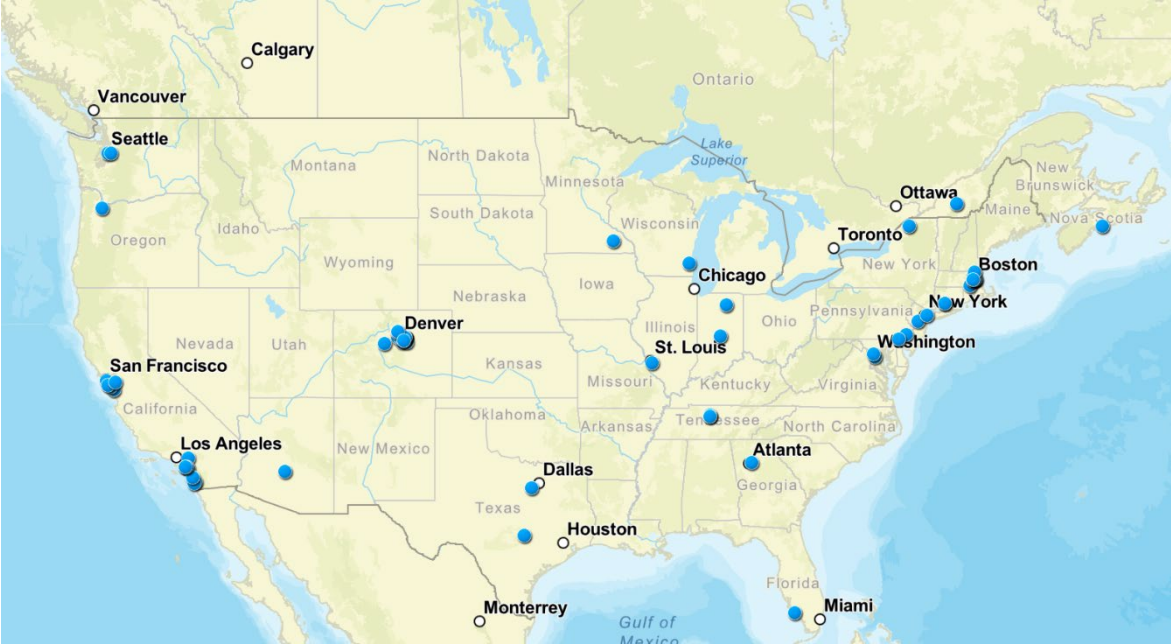
In 2023, CUI's activities resulted in 145 invention disclosures, 189 patents filed, 41 licensing deals, \$375 million of startup financing, and \$35 million of gross revenue to the University of Colorado campus.

The CU Healthcare Innovation Fund, which is a collaboration of the CU Anschutz Medical Campus, UHealth, and Children's Hospital Colorado, currently has more than \$100 million in assets under management, has evaluated more than 900 companies, and has strategic relationships with more than ten multinational healthcare corporations.

The SPARK Program, which helps CU Anschutz Medical faculty to translate their discoveries to enhance patient outcomes, has resulted in \$6.2 million invested in SPARK teams, \$20 million of follow-on funding raised by SPARK teams, and the creation of 14 startups.

Economic Impact of CU Innovation

CUI works with companies across the U.S. as well as in Canada, the United Kingdom, Poland, China, and Australia. The map below depicts the location of U.S. and Canadian companies served by CUI in 2023.



## Data and Analysis

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During 2023, CUI had commercial relationships with 86 organizations around the globe that resulted in payments or in-kind services between CU Innovations and the organization. Silverlode organized these relationships into three broad categories to enable the estimation of the associated economic impacts:

### **1. Equity investments in early-stage businesses (37 companies)**

These companies received equity investments in 2023 and/or prior years and significant technical or other in-kind services from CUI. Therefore, the full economic impact of the operations of these companies is reflected in the aggregate economic impact estimates presented in this report.

### **2. Revenue-based licensing (8 companies)**

These companies paid royalties to CUI based upon the revenue of one or more company products or services that were enabled through a licensed CUI technology. Silverlode used the company revenue that resulted from the licensed technology as the basis for estimating the economic impact of these commercial relationships. The aggregate economic impacts presented in this report include the economic impact associated with products or services utilizing the licensed technologies, not that of the entire companies.

### **3. Other (41 companies)**

These companies paid compensation to CUI primarily to option, purchase, or license a technology where the compensation was not directly tied to the revenue of a company product or service. In these cases, the estimated economic impact of these commercial relationships was estimated based upon these payments.

IMPLAN was used to complete the analyses. 2022 IMPLAN data, the most current data available at the time, was used for this study.

CUI provided information about the companies with which they worked in 2023 that was necessary to perform this study. To the extent available, this data included 2023 headcount, payroll, revenue, location, industry information, equity investments by CUI, payments by the company to CUI, and a description of the nature of the relationship with CUI. In instances where company data was incomplete, the missing data was estimated by IMPLAN using industry averages for the geography being modeled.

Additional information about the data sources, methodology, and terms used in this study can be found in the Study Methodology section near the end of the report.

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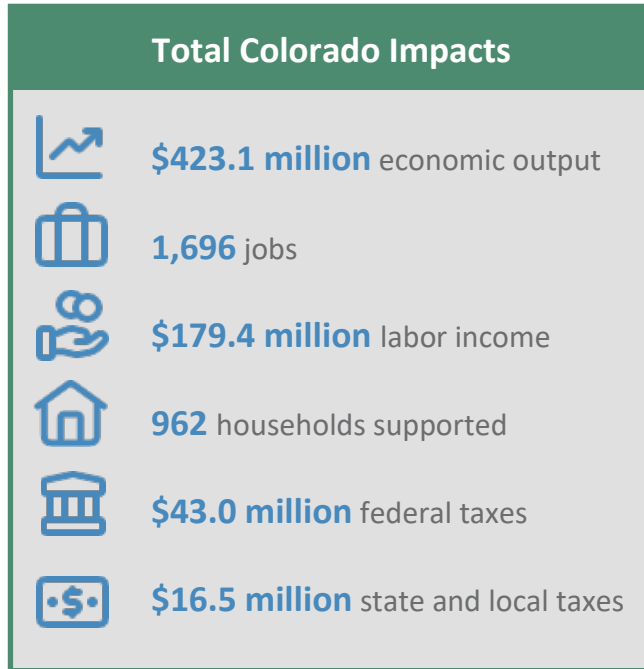
## Colorado Impacts

CU Innovations' technology commercialization activities in 2023 generated an estimated \$423.1 million of economic activity (economic output) in the State of Colorado.

The services and funding CUI provided to companies supported 691 direct jobs and 1,005 indirect and induced jobs, resulting in a total of 1,696 jobs in Colorado.

An estimated \$179.4 million of annual labor income, including benefits, was associated with these jobs. The average annual per-person earnings of the direct jobs in Colorado, including benefits, is \$154,828, which is nearly 2.1 times the statewide average. These jobs and earnings sustained an estimated 962 households in Colorado.

Economic activity in Colorado arising from CUI's commercialization activities also generated an estimated \$43.0 million of federal taxes and \$16.5 million of state and local taxes during 2023.



	Direct	Indirect & Induced	Total
<b>Estimated Economic Impacts</b>			
Economic Output	\$ 201,344,000	\$ 221,733,000	\$ 423,077,000
Jobs	691	1,005	1,696
Labor Income	\$ 106,986,000	\$ 72,377,000	\$ 179,363,000
Households Supported	392	570	962
Federal Taxes			\$ 43,027,000
State and Local Taxes			\$ 16,464,000

## U.S. Impacts

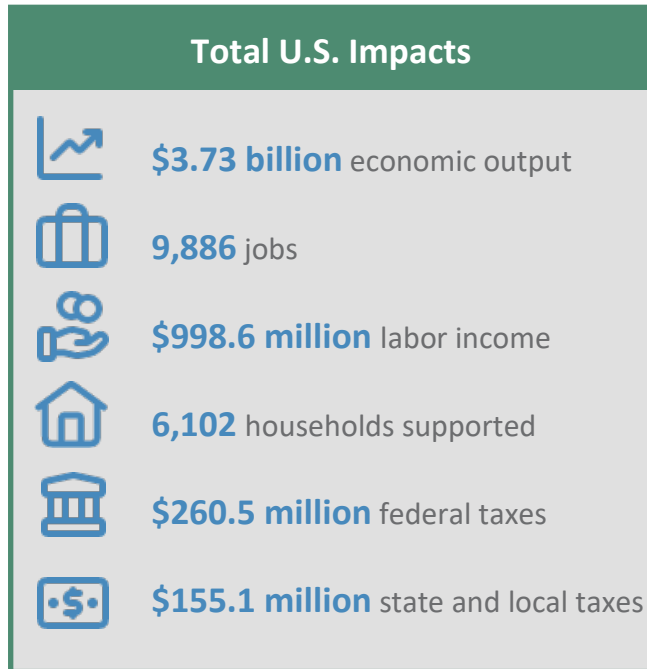
CU Innovations' commercialization activities in 2023 generated an estimated \$3.73 billion of economic activity (economic output) in the U.S.

The services and funding CUI provided to companies supported 2,460 direct jobs and 7,426 indirect and induced jobs, resulting a total of 9,886 jobs in the U.S.

An estimated \$998.6 million of annual labor income, including benefits, was associated with these jobs. The average annual per-person earnings of the direct jobs in the U.S., including benefits, is \$167,780, which is nearly

2.3 times the national average. These jobs and earnings sustained an estimated 6,102 households across the country.

Economic activity in the U.S. arising from CUI's commercialization activities also generated an estimated \$260.5 million of federal taxes and \$155.1 million of state and local taxes during 2023.



	Direct	Indirect & Induced	Total
<b>Estimated Economic Impacts</b>			
Economic Output	\$ 1,701,278,000	\$ 2,028,325,000	\$ 3,729,603,000
Jobs	2,460	7,426	9,886
Labor Income	\$ 412,739,000	\$ 585,910,000	\$ 998,649,000
Households Supported	1,518	4,584	6,102
Federal Taxes			\$ 260,500,000
State and Local Taxes			\$ 155,083,000

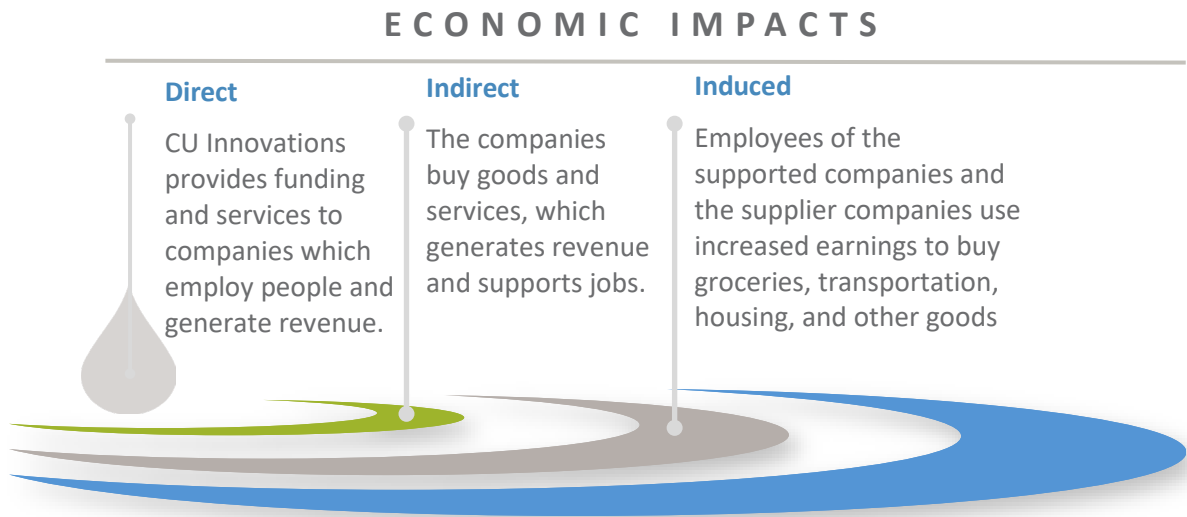
## Study Methodology

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### Economic Impact Analysis

Economic impact analysis comprehensively examines how an organization, industry, or event affects a region's economy. All economic activities create "ripples" in the economy, called indirect and induced effects. These ripple effects are quantified using a methodology known as Regional Input-Output Analysis.

Economic and fiscal impacts can be divided into component parts, which are referred to as direct, indirect, and induced. A **Direct** effect describes an initial change in the economy and is the starting point for economic impact analysis. Changes in an economy create "ripples" of economic activity throughout the region being analyzed, with the ripples being described as indirect and induced effects. **Indirect** effects represent changes in the industries that provide goods and services to the economic activity being modeled (e.g., suppliers and service providers). **Induced** effects represent the impact of changes in household spending resulting from the direct and indirect effects. **Total** impact refers to the final cumulative result of all rounds of direct, indirect, and induced activity. The graphic below depicts the ripple effect.



## Terminology

	Direct Impacts	Indirect and Induced Impacts
<b>Economic Output</b>	The total value of goods and services produced by the activity being modeled. Output is roughly equivalent to sales or revenue associated with the direct activity.	IMPLAN estimate of the total value of goods and services produced by indirect and induced economic activity. Output approximates sales or revenue associated with this activity.
<b>Jobs</b>	Jobs directly engaged in the activity being analyzed and supported for one year.	IMPLAN estimate of the number of jobs supported by the purchase of goods and services by the activity being modeled (indirect) as well as by changes in household spending (induced).
<b>Labor Income (Earnings)</b>	Wages and benefits associated with direct jobs.	IMPLAN estimate of the total labor income (wages, benefits, and proprietor income) associated with the indirect and induced economic activity.
<b>Households Supported</b>	Estimate of the number of households supported by the economic activity being analyzed.	Estimate of the number of households supported by indirect and induced economic activity.
<b>State and Local Taxes</b>	IMPLAN estimate of all taxes paid to state and local units of government as a direct result of the economic activity being analyzed.	IMPLAN estimate of all taxes paid to state and local units of government due to indirect and induced economic activity.
<b>Federal Taxes</b>	IMPLAN estimate of all taxes paid to the federal government as a direct result of the economic activity being analyzed.	IMPLAN estimate of all taxes paid to the federal government due to indirect and induced economic activity.

## IMPLAN

IMPLAN (IMpacts for PLANning), one of the most well-respected and widely used methodologies for assessing regional economic impacts, was used to estimate the annual impact of the operating activities of CUI. IMPLAN is a general input-output model initially developed by the U.S. Forest Service in the 1970's and is used by more than 1,000 universities, government agencies, and consultants to estimate the economic and fiscal impacts of investments and/or changes in one or more industries.

Data underlying the IMPLAN model is updated annually using thousands of data points from over 90 sources. The main sources for this data include:

- U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)
- U.S. Bureau of Economic Analysis (BEA) Regional Economic Accounts (REA)
- U.S. Census Bureau County Business Patterns (CBP)
- U.S. Bureau of Economic Analysis National Income and Product Accounts (NIPA)

## Silverlode Consulting

Silverlode Consulting was founded in 2002 by two leaders of EY's and PwC's consulting practices. As a national leader in economic impact analysis, Silverlode has helped hundreds of organizations, ranging from non-profit arts groups to multi-national corporations, to measure their impacts on their communities and communicate those impacts to their stakeholders.

By meticulously estimating and effectively communicating the jobs, earnings, taxes, and other impacts of projects, the presence of an organization, or an investment in a community, our work has helped clients to gain approvals, secure funding, and positively shift public opinion. More information about our firm and our work in economic impact analysis can be found on our website at [www.silverlodeconsulting.com](http://www.silverlodeconsulting.com)