SERVING THE WORLD THROUGH RESEARCH

How do you measure the impact of university research?

I often field this question from both internal and external partners, and as a public university, we often turn to our annual research expenditures. The University of Michigan has consistently ranked first in research volume among the nation’s public universities, and during FY2019, we reported a record $1.62 billion in research expenditures. Numbers like this are important in order to comprehend the vast amount of research led by U-M, but even more important is our collective focus on how that funding benefits society as a whole. With support from internal and external partners, our researchers help spur advancements in a variety of areas ranging from drug discovery and aging to sustainability and the arts. And it remains incredibly important that society realizes the benefits of our research and scholarship. That means translating ideas, discoveries and technologies from the lab to the marketplace. During FY2019, our faculty and staff excelled in translating U-M research and scholarship, resulting in a record 502 inventions. U-M will continue to serve the world through research. And based on the support and expertise of individuals worldwide, the university is well prepared to meet the challenges we face in a world of rapid change, and to continue our contributions to the public good.

Sincerely,

Rebecca Cunningham
Interim Vice President for Research
Consider some of the emerging challenges we face in today's society: firearm violence, climate change, water quality. These are all complex issues, and we cannot address them strictly through the single lens of engineering, medicine or the humanities. Integration helps us foster new research and develop creative solutions to address the world’s most pressing challenges.

**Firearm Injury Prevention**

Firearm violence is a serious public health problem that causes about 100 deaths per day across the United States. The university launched an initiative that encourages and coordinates research across disciplines to develop new knowledge and data on firearm violence. By creating stronger infrastructure for research, educational activities and community outreach related to firearm injury prevention, U-M is better equipped to address the complexity of this public health problem by integrating the perspectives of multiple disciplines to find solutions.

**Global CO₂**

As global carbon dioxide emissions continue to accelerate, a diverse set of solutions is critical to reduce, reverse and remove those emissions and prevent further atmospheric warming. The university’s Global CO₂ initiative aims to reduce the equivalent of 10 percent of current atmospheric carbon dioxide emissions each year by 2030. That equates to roughly 4 gigatons, which could potentially be converted into concrete and other construction materials, fuels and carbon fiber for use in lightweight vehicles and fabrics.

**Great Lakes**

The Great Lakes comprise more than 20 percent of the world’s supply of surface freshwater. And about 40 million people get their drinking water from the Great Lakes. U-M researchers in disciplines ranging from science and engineering to public policy and sustainability are partnering with communities and government agencies to address the root causes of, and potential solutions for, the most important issues impacting the Great Lakes, including harmful algal blooms, invasive species and rapid water level changes.
~16,000
U-M EMPLOYEES SUPPORTED BY RESEARCH FUNDING

502
NEW INVENTIONS

$118M
IN INDUSTRY-SPONSORED RESEARCH EXPENDITURES
$1.62B
IN RESEARCH EXPENDITURES

$888M
IN FEDERALLY-SPONSORED RESEARCH EXPENDITURES

22 NEW STARTUPS

Table 1. Technology Transfer Results

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<thead>
<tr>
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<th>FY18</th>
<th>FY19</th>
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<tbody>
<tr>
<td>New Startups</td>
<td>21</td>
<td>22*</td>
</tr>
<tr>
<td>New Inventions</td>
<td>484</td>
<td>502*</td>
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<tr>
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<td>License &amp; Option Agreements</td>
<td>218</td>
<td>232*</td>
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*Denotes U-M Record

Figure 3. Research Expenditures by Unit

Table 1. Technology Transfer Results