

2022  
**BAYLOR RESEARCH**  
YEAR IN REVIEW



| Baylor University



## WELCOME TO THE **2022 Baylor Research Year in Review**



This is an incredible time to be at Baylor University. More than ever before, we are aligned behind the same objective -- pursuing our distinct goal of preeminence as a Christian research university.

That alignment has resulted, notably, in Baylor University achieving R1 research recognition by the Carnegie Classification of Institutions of Higher Education—one of just 39 private universities to achieve R1. While that is certainly a headline to celebrate, the story of Baylor's expanding research portfolio is best demonstrated in faculty, research staff and students who daily break new ground as they

compete and win on a high-level playing field by earning significant grants, growing their departments or their laboratories and advancing research marked by quality, visibility and impact.

Thank you for your interest in Baylor research. In the pages that follow, you'll see data that demonstrates that growth—a picture of the strategic focus both institutionally and individually. We are further motivated by the reality that there is more to be done.

R1 is not a finish line, but a benchmark on the way to greater impact as a Christian research university, committed to bring our distinct voice to bear in the pursuit of new knowledge and the on the future of higher education. We are committed to further enhancement of every aspect of our research enterprise—advancing solutions to our world's greatest challenges, further building a world-class research infrastructure and doing all this at the highest levels of excellence in ethics and compliance.

**C. Kevin Chambliss, Ph.D.**  
Vice Provost for Research

**[baylor.edu/research](https://baylor.edu/research)**

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## BECOMING A **Preeminent Christian Research University**

For more than two decades, Baylor University has strategically grown its research enterprise, driven by the vision of preeminence as a Christian research university. Those efforts gained significant momentum with the adoption of *Illuminate*, the University's strategic plan. *Illuminate* galvanized strategic alignment throughout the University, which resulted in R1 recognition by the Carnegie Classification of Institutions of Higher Education in 2021.

In living out the priorities of *Illuminate*, Baylor University met and exceeded stretch goals in significant Carnegie Classification metrics:

- Doubling University research expenditures between 2018 and 2022
- Expanding research staff from 53 to 93
- Increasing research doctorates awarded from 112 to 274

Additionally, through Baylor's Lab to Market Collaborative, the University has generated \$15 million in research funding and been awarded 113 patents.

Learn more about the trajectory of *Illuminate* and Baylor's investment that led to R1 recognition.





# ILLUMINATE

## ILLUMINATE

Baylor's pathway to becoming the preeminent Christian research university is guided by the foundational pillars of *Illuminate*, the University's strategic plan. Adopted in 2018, *Illuminate* serves as a roadmap to pursue research and scholarship marked by quality, impact, and visibility, within an environment where Baylor's Christian mission can flourish. Baylor recognizes the opportunity to lead in ground-breaking research to address significant global challenges while meeting the highest standards of conduct expected by the sponsors who entrust the University with research funding.

Our pathway is also guided by the pursuit of research opportunities in the *Illuminate* signature areas of interdisciplinary focus including health; data

sciences; materials science; human flourishing, leadership and ethics; and Baylor in Latin America. Research and collaboration in these areas spans all schools and colleges across the University.

The Office of the Vice Provost for Research (OVPR), under the leadership of the Provost, has shepherded strategic initiatives aligned with *Illuminate* that provide resources to support faculty, staff, and students directly in their research endeavors, as well as to scale the facilities and compliance infrastructure required to support the growth in research.

The timeline below reflects highlights from these ongoing initiatives.

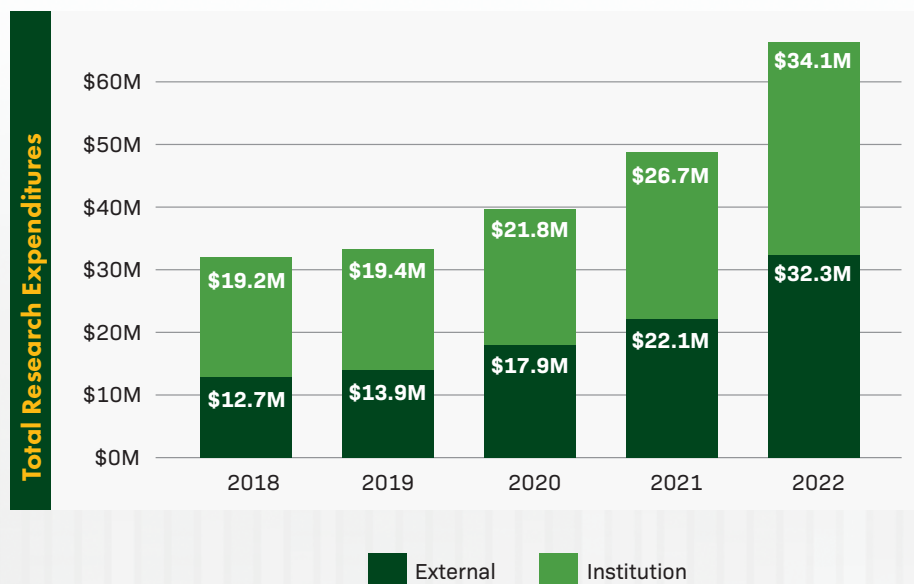


## CARNEGIE METRICS

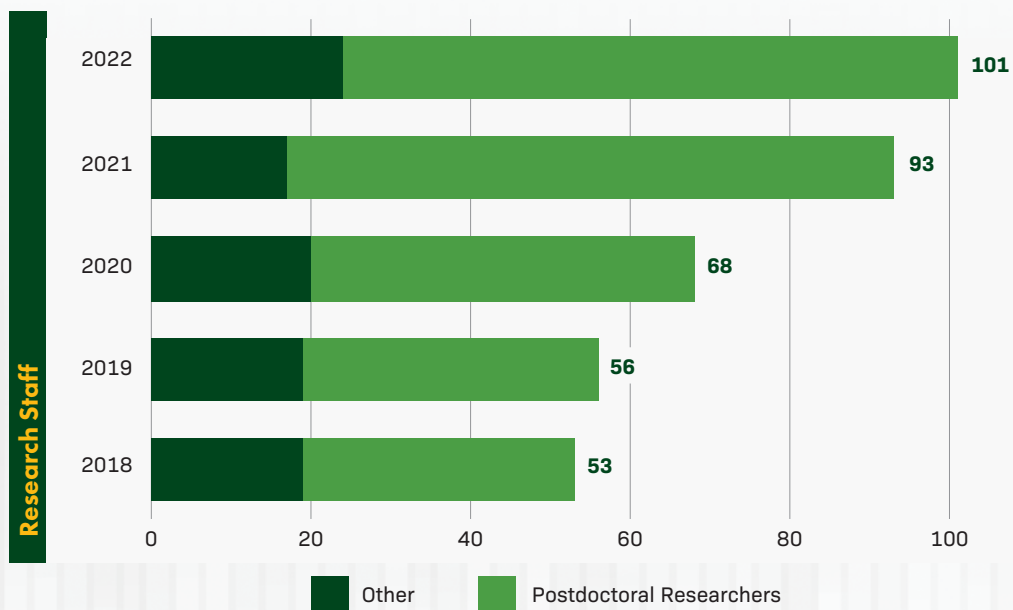
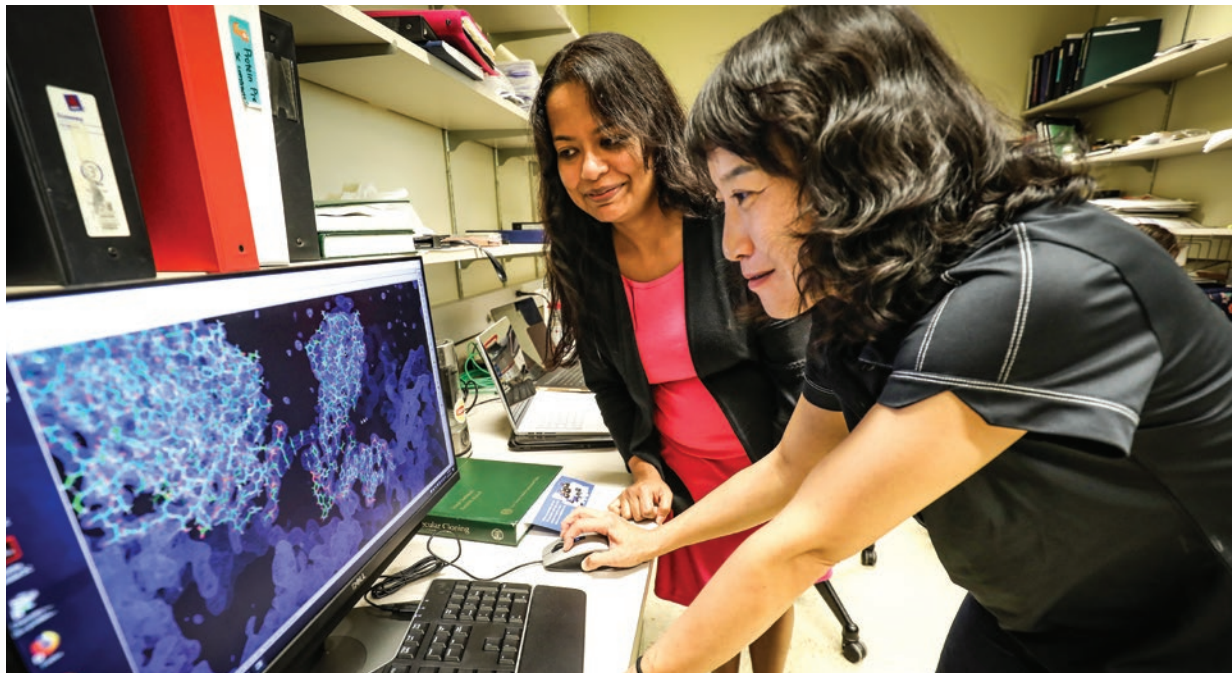
Since the launch of *Illuminate* in 2018 the University has aligned focus and dedicated resources to growing Baylor's research enterprise. In 2019, the University officially announced its pursuit of Research 1 (R1) status, the highest research ranking awarded by the Carnegie Classification of Institutions of Higher Education (Carnegie). In December 2021, Baylor was officially recognized as an R1 institution. This designation was earned three years ahead of the anticipated timeline.

The Carnegie rankings are derived from the following measures of research activity:

- research expenditures in both science and engineering and non-S&E fields,
- research staff in science and engineering (S&E) (postdoctoral scholar and other non-faculty researchers with doctorates), and
- research doctorates in humanities, social science, STEM (science, technology, engineering, and mathematics) fields, and in other/professional fields (e.g., business, education, social work).

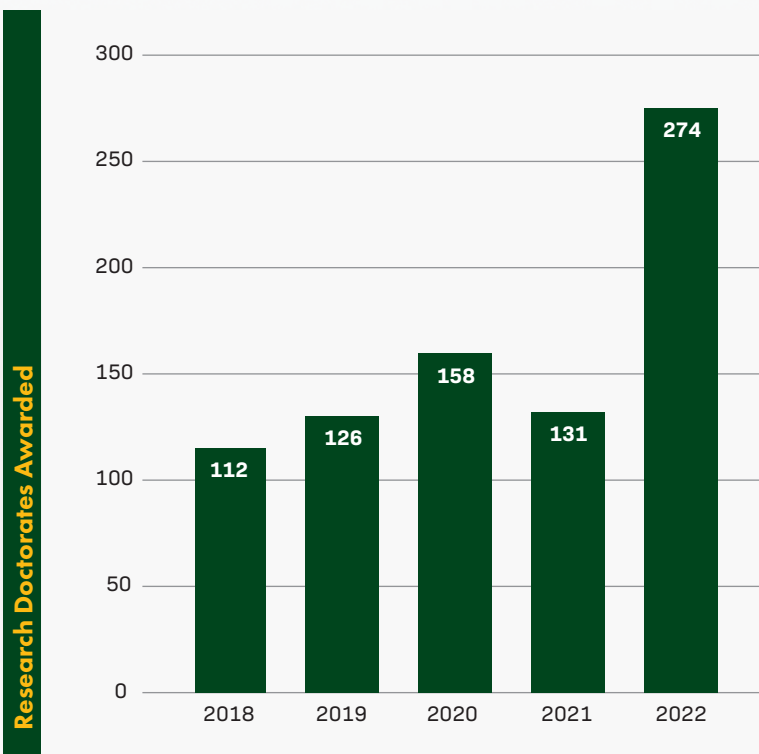


**Research expenditures** are one of the benchmarks used by Carnegie to measure research activity, including expenditures funded from both external sources (grants and contracts) and institutional sources designated for research purposes. The University's overall research expenditures more than doubled from \$31.9 million in 2018 to \$66.4 million in 2022.



**Research staff** includes postdoctoral scholars and other non-faculty researchers with doctorates working in S&E fields. The latter category includes personnel working in research centers, institutes, and core facilities. The increase in research staff has been driven by the implementation of a three-year postdoctoral hiring program with some of the first cycle of new hires starting in the Fall 2020.





**Research Doctorates** Research doctorate programs play a significant role in graduate education at the University and are also a factor in determining R1 status.

Research doctorates include Doctorates of Philosophy (PhDs) in STEM, Humanities, Social Sciences and in other professional areas like Curriculum and Teaching, Entrepreneurship, Health Services Research, Higher Education Studies and Leadership, and Social Work. Other research doctorates also include non-PhD professional programs such as the Doctor of Education (EdD), the Doctor of Psychology (PsyD), Doctor of Musical Arts (DMA), and the Doctor of Science (DSc).

The increase in research doctorates from 2021 to 2022 is primarily due to the full impact of the new online EdD in Learning and Organizational Change. (Data provided courtesy of the Graduate School.)





## Research HIGHLIGHTS

The past year has heralded much to celebrate at Baylor University. Well before Baylor achieved R1 recognition, Baylor faculty met and exceeded stretch institutional goals to advance significant research that addresses key societal challenges.

Numerous milestones from the last year include:

- The Global Flourishing Study, at \$43.4 million, became the largest funded research project in Baylor history.
- Baylor University met and exceeded the Give Light philanthropic campaign's \$1.1 billion goal, providing significant funding for research, including more than 20 endowed chair positions.
- The Postdoctoral Scholars Program more than doubled the number of postdoctoral researchers on campus.

Countless members of the Baylor Family— faculty, research staff, administrators, donors and more— advanced the Baylor mission through their efforts and generosity, supporting the vision and fueling Baylor's pursuit of preeminence as a Christian research university.



## GLOBAL FLOURISHING STUDY

In 2021, Baylor celebrated the largest funded research project in University history with the launch of The Global Flourishing Study (GFS)—a \$43.4 million, five-year initiative surveying 240,000 individuals in 22 countries to investigate the factors that determine human flourishing. The longitudinal survey is directed by Byron Johnson, Ph.D., Distinguished Professor of the Social Sciences at Baylor

and Director of the Institute for the Studies of Religion. Partners on the project include Harvard University, Gallup and The Center for Open Science.

GFS represents the largest undertaking of its kind. Over the next five-plus years, the team will analyze longitudinal data on the patterns, determinants, and social, psychological, spiritual, political, economic, and health-related constituents and causes of human flourishing. Overall, the goal is to build a mature field of study around the science of human flourishing, producing research findings that will influence the direction of social and health policy.

Given its scope, joint support from a consortium of funders was needed to make the Global Flourishing Study financially viable, including support from the John Templeton Foundation, the Templeton Religion Trust, the Templeton World Charity Foundation, the Fetzer Institute, the Paul Foster Family Foundation, the Wellbeing for Planet Earth Foundation, Well Being Trust, and the David & Carol Myers Foundation.



## GIVE LIGHT AND THE FOSTER ACADEMIC CHALLENGE

The generosity of the Baylor Family has dramatically accelerated the University's research growth and capacity for future expansion. In 2022, *Give Light*, Baylor's fundraising campaign, surpassed the \$1.1 billion mark in overall giving.

Within *Give Light*, the Foster Academic Challenge provided new endowed chair positions with significant matching funds to attract top researchers to Baylor. With the successful completion of the Foster Academic Challenge, which saw 14 new endowed research

chairs created, the University announced the *Illuminate* Chair Matching Program. The new matching program aims to build on the success of the Foster Academic Challenge and create new endowed faculty chairs through similar matched gifts to meet faculty needs in priority areas within the University.

In all, more than 20 endowed chairs have been established through the programs, and faculty have been successfully recruited from other leading institutions to bring their research labs, teams and projects to Baylor.





## POSTDOCTORAL SCHOLARS PROGRAM

In just three years, Baylor has nearly doubled the number of postdoctoral researchers (postdocs) on campus through the Postdoctoral Scholars Program. Nearly \$12 million in investment has enabled Baylor to grow from 37 postdoctoral researchers in 2019 to nearly 90 heading into the 2022-23 academic year.

As they serve faculty and students within laboratories across campus, postdocs bring unique insights from their own educational journeys while expanding their own capabilities at Baylor. As their numbers grow, they accelerate Baylor research and represent a significant part of the research staff expansion that played a role in Baylor becoming an R1 institution.

The Postdoctoral Scholars Program provides postdocs with resources, opportunities and connection to enhance their time at Baylor and their future career aspirations.



## RESEARCH Metrics

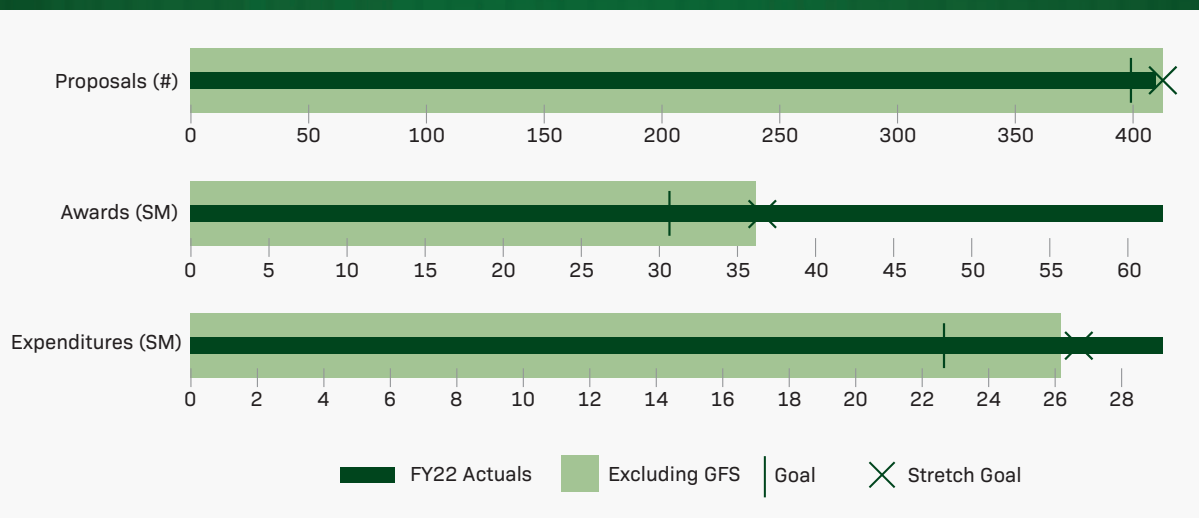
The Office of the Vice Provost for Research assists the Provost in setting annual goals and stretch goals for research activities. These goals include benchmarks for the number of proposal submissions, research award dollars, and externally funded research expenditures.

Stretch goals are set beyond normal expectations and provide a secondary goal to work toward at the high end of the range for the activity if the original goal is achieved. For 2022, our faculty generally met or exceeded all of the established goals and stretch goals as shown in the following charts, including:

- An increase in the average dollar amount per proposal from \$235,000 in 2017 to \$447,000 in 2022
- A 10 percent increase in the percentage of federal proposal submissions
- More than doubling award funding over the last year to \$62.8 million
- Increasing federally funded research expenditures by 48 percent
- Continued growth in life science expenditures and human subjects research

This success demonstrates the excellence of Baylor faculty and institutional alignment in pursuing and achieving meaningful research expansion.

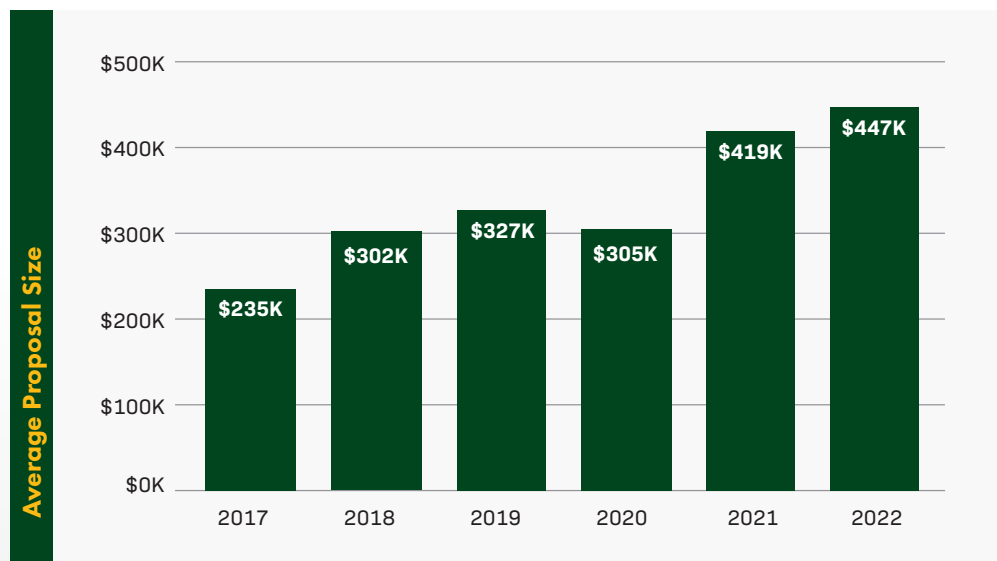
Research Goals: Final Report for FY 2022





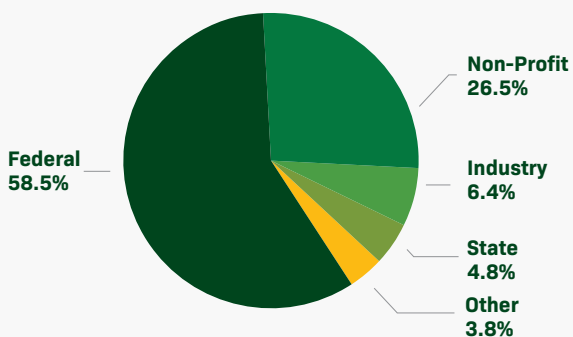
## PROPOSALS

Although our projections for 2023 show the number of proposal submissions will remain flat or experience a slight 5% increase, we continue to see an increase in the average size of proposals. Since 2017, **the average dollar amount per proposal has risen by over \$212,000**, increasing from \$235,000 in 2017 to \$447,000 in 2022 as shown below. We anticipate the number of proposal submissions will grow in future years as additional faculty are hired.

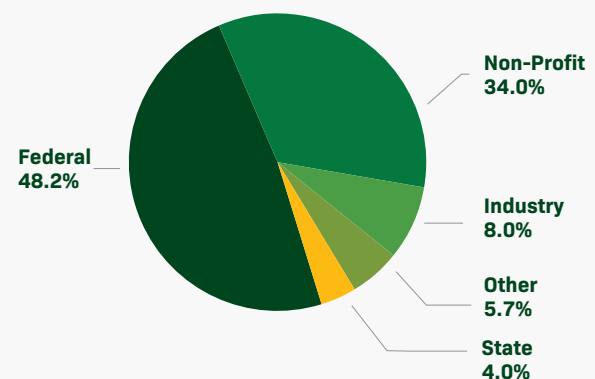


A contributing factor to the growth in average proposal size is the trend toward more federal proposal submissions. As shown below, the **percentage of federal proposal submissions for 2022 was more than 10% higher** than the three-year average for 2019 through 2021.

# Submissions by Sponsor Type -2022

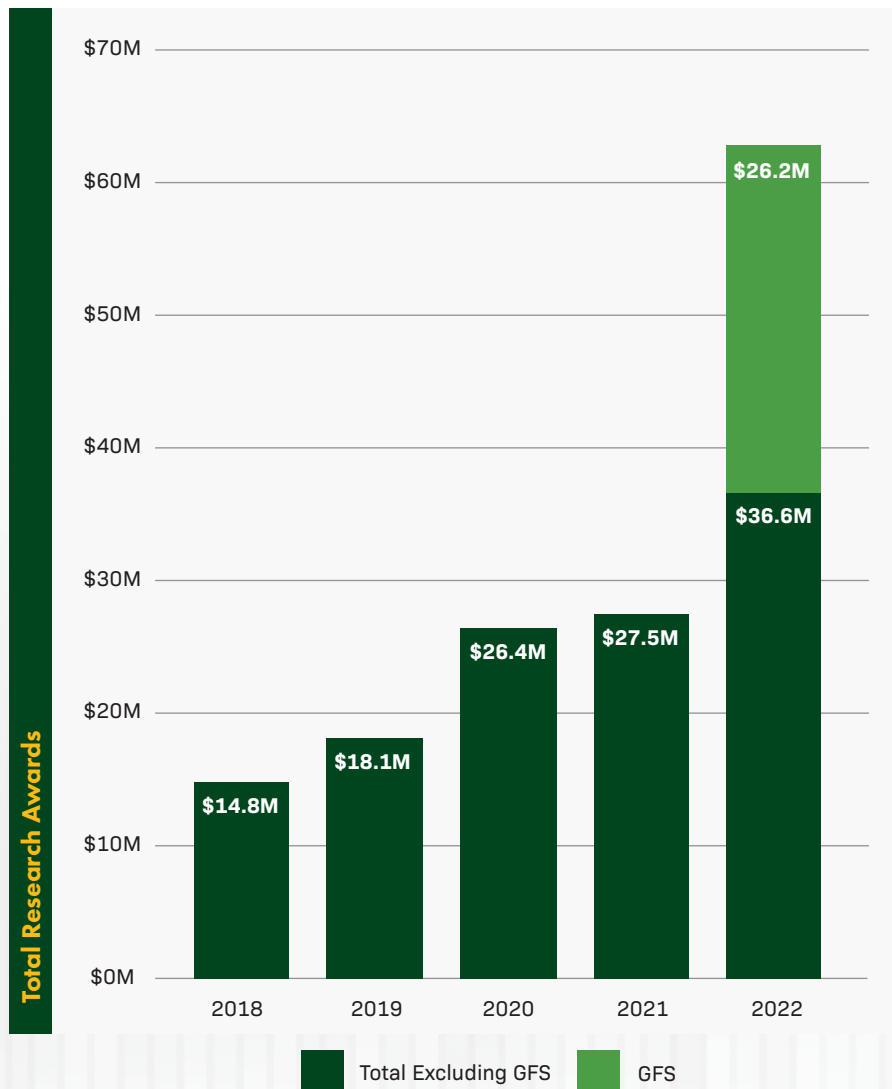


3-Year Average (2019-2021)



## AWARDS

In 2022, the University launched its largest research project in its history, the Global Flourishing Study (GFS), conducted by the Institute for Studies of Religion. This project contributed \$26.2 million to the total research awards—a total for the year of \$62.8 million. Excluding GFS, **research awards still increased by 33%** from 2021 to 2022 and by 147% from 2018 to 2022 as shown below.



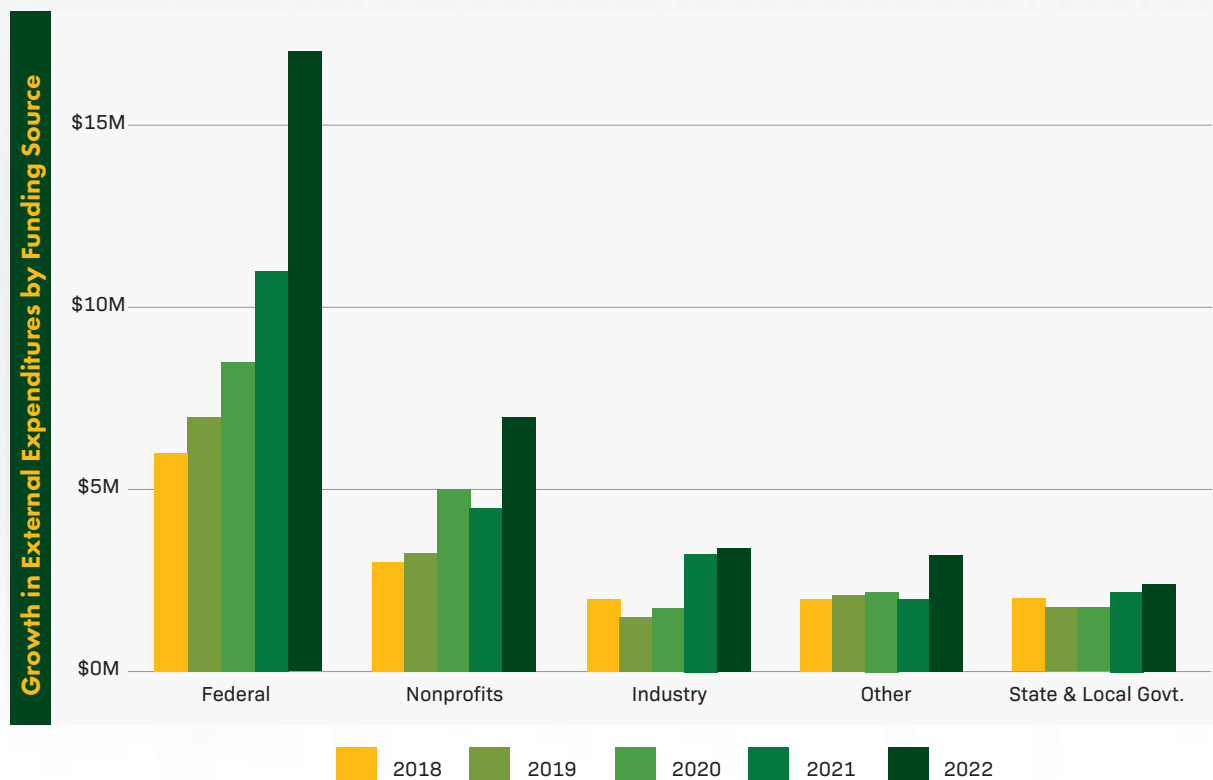
Awards totaling almost \$2 million dollars at the time of the Ignite conversion that were received in FY 2020 but not set up until FY 2021 are included in FY 2021.

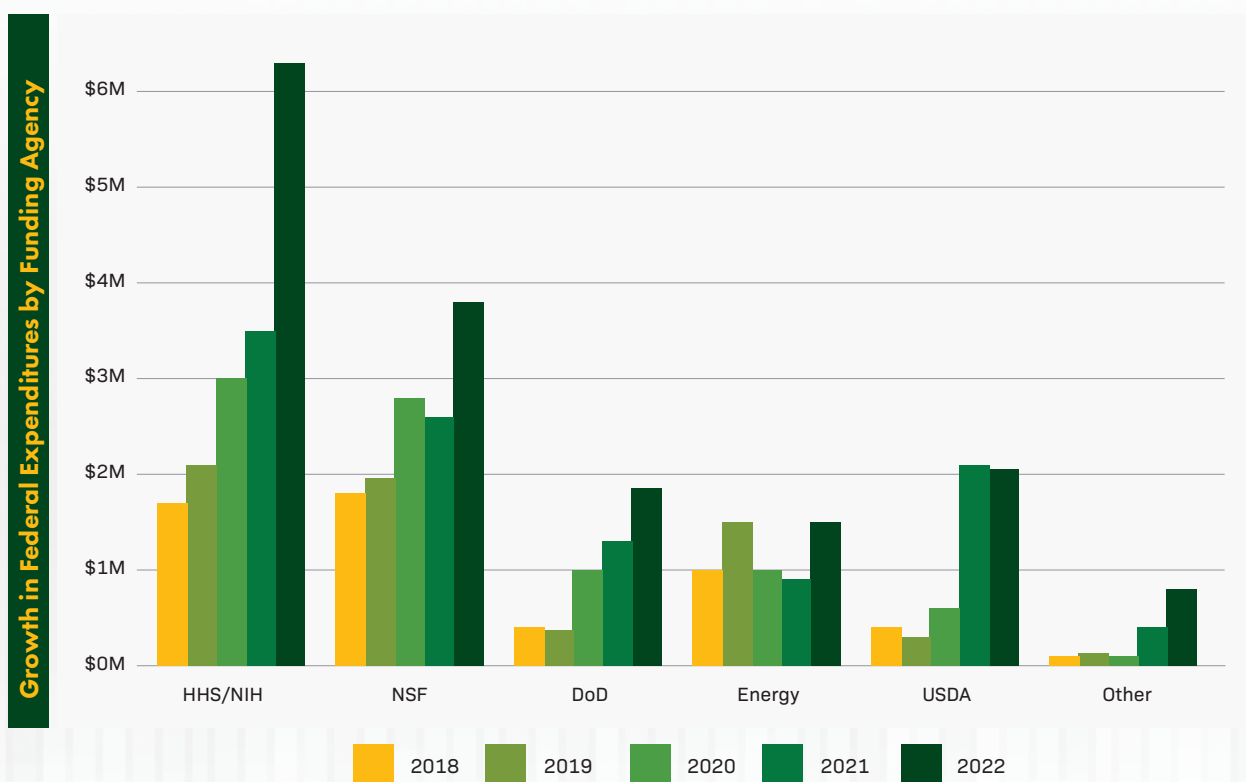
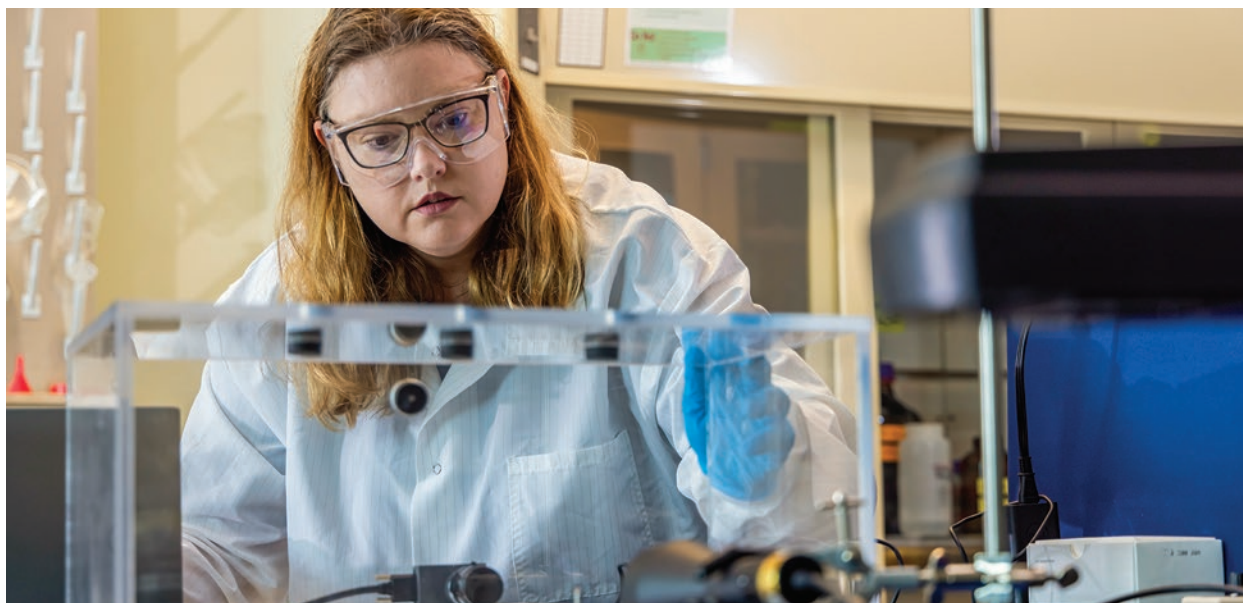




## EXTERNALLY FUNDED RESEARCH EXPENDITURES

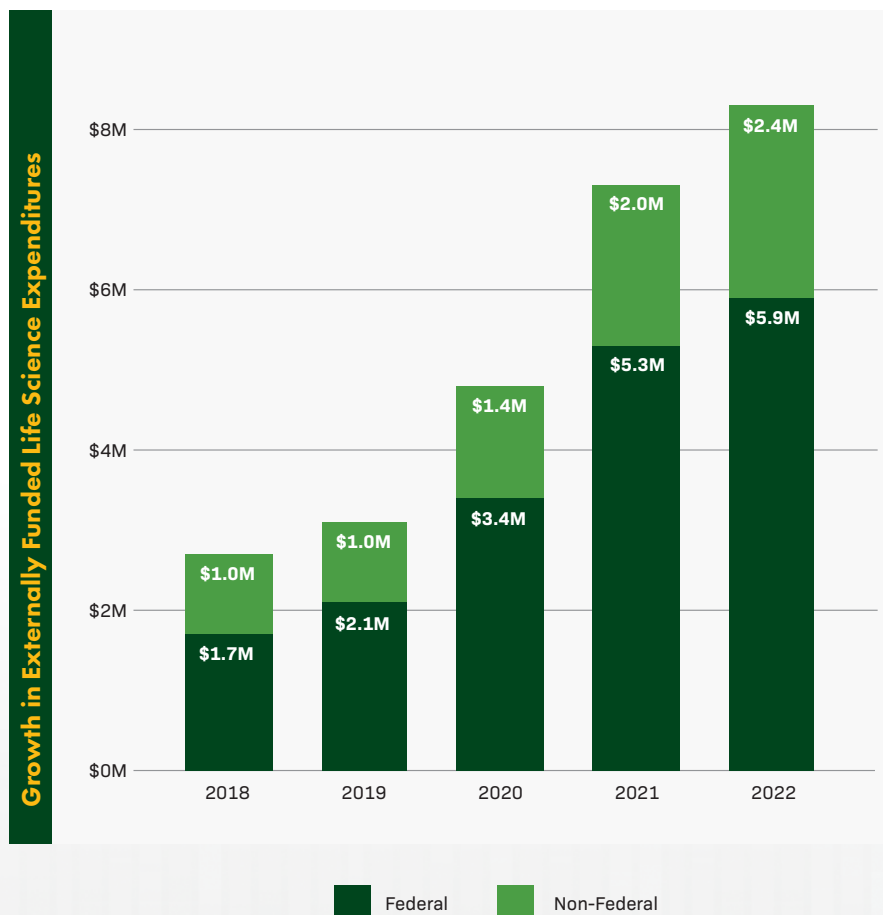
Since 2018, research expenditures funded from external sources (grants and contracts) have grown by an average of 33% year-over-year. This growth was led by a steady annual increase of 20-25% in **federally funded research expenditures** from 2018 to 2021, and a staggering increase from 2021 to 2022 of 48%, as shown in the graph below.





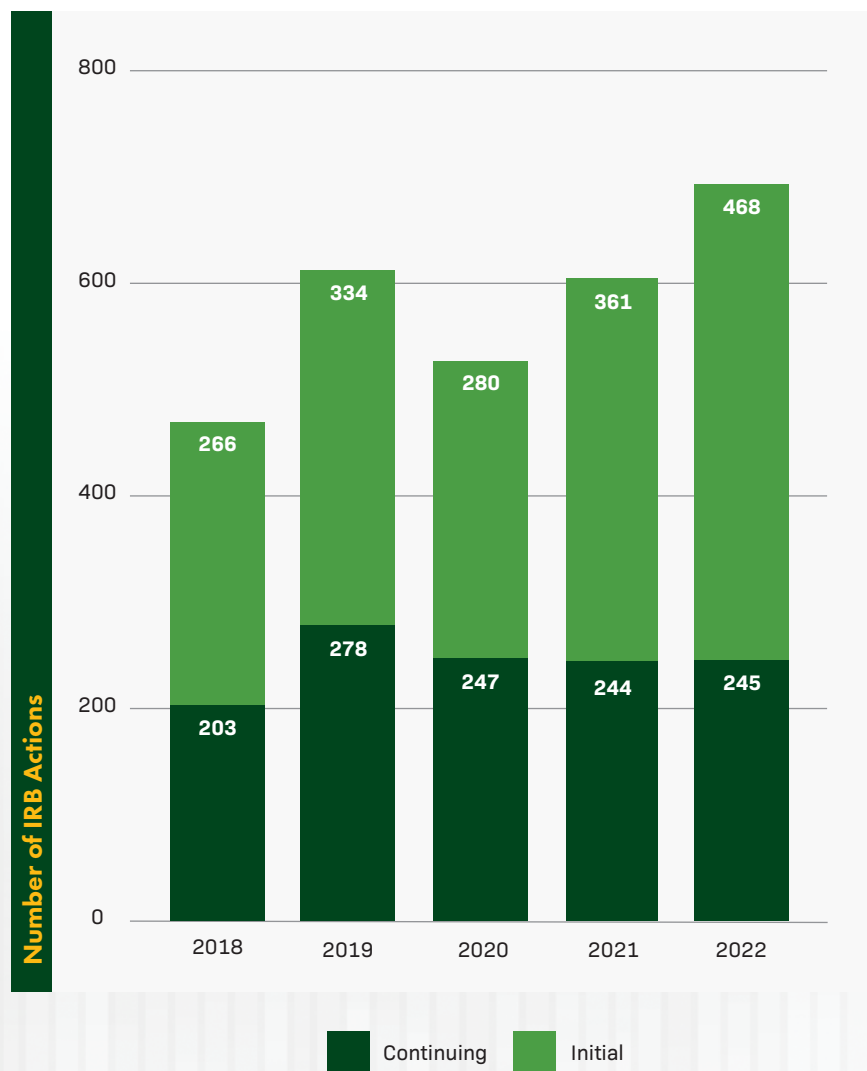
The growth in federal research expenditures has been primarily driven by increased funding from the **National Institutes of Health (NIH)** and the **National Science Foundation (NSF)** as illustrated here.





Increased funding from the NIH has been important in advancing the *Illuminate* health initiative. Research expenditures in the life sciences from all external funding sources have increased almost threefold from \$2.7 million in 2018 to \$8.3 million in 2022.

The steep growth in 2021 was primarily due to the response of Baylor researchers to challenges presented by the pandemic in partnership with the U.S. Department of Agriculture (USDA) to test innovative strategies and alternative models for the delivery of meals to children in rural areas. Funding from a private foundation for investigation of a therapeutic for COVID-19 patients further fueled this growth. The University has made strategic hires in other *Illuminate* initiatives, Data Sciences and Materials Sciences, which we expect to result in growth in Department of Defense and Department of Energy funding in the coming years.



**Actions by the Institutional Review Board (IRB)** have grown by 52% from 2018 to 2022 due to the increased number and complexity of projects in the life sciences.





## BAYLOR LAB TO MARKET (L2M)

The Baylor Lab to Market (L2M) collaborative is the key mechanism of stewardship for the University's intellectual property produced by faculty research. The Lab to Market Collaborative is a unity of effort throughout and beyond the Baylor campus, bridging the Office of the Vice Provost for Research (Technology Commercialization and Industry Engagement Division), Hankamer School of Business, Office of General Counsel, our capital partner and faculty/students throughout the University. This alignment provides support and resources for Baylor faculty to navigate funding, intellectual property protection, prototyping and more toward a tangible goal — the translation of their research ideas into real-world products with societal impact.

**113**  
**PATENTS**

*Baylor was recognized in 2022 in the top 100 universities globally for utility patents by the National Academy of Inventors and Intellectual Property Owners Association.*

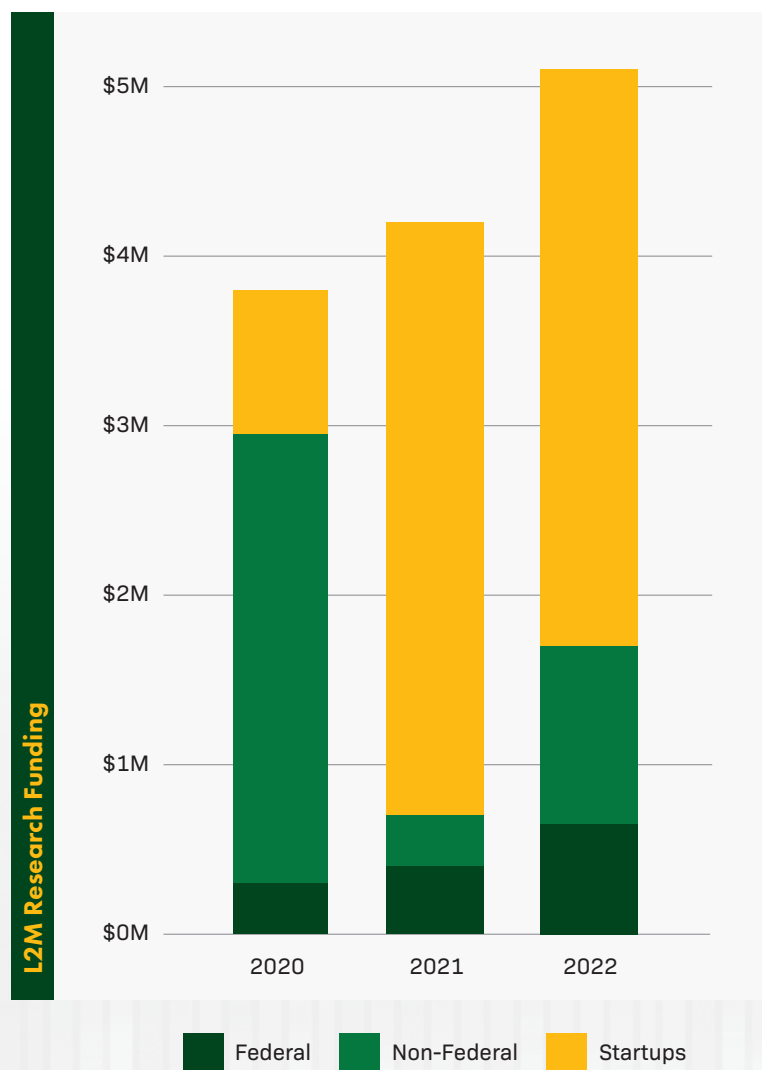
**4**  
**COMPANIES**

*L2M has launched four high-tech startup companies since 2020*

**15<sup>+</sup>**  
**MILLION**

*Over 15 million dollars in research funding has been generated through L2M and industry engagement since 2020*

Additionally, Lab to Market has received a \$1.5 million grant that includes support for prototyping efforts by the U.S. Department of Commerce.



The L2M collaborative generates funding for research from various sources targeting commercialization and industry partnerships. An important component of the L2M initiative is the funding re-invested by Baylor high-tech startup companies in university research which grew from \$838,000 in 2020 to \$3.5 million in 2022.





## **BAYLOR AMONG TOP 100 WORLDWIDE UNIVERSITIES GRANTED U.S. UTILITY PATENTS IN 2021**

Baylor University was listed in the Top 100 Worldwide Universities Granted U.S. Utility Patents in a 2021 report

released in September 2022 by the National Academy of Inventors and the Intellectual Property Owners Association. The report utilized data obtained from the U.S. Patent and Trademark Office and highlights the vital role patents play in university research and innovation.

Published annually since 2013, the report ranks the top 100 universities named as the first assignee on utility patents granted by the USPTO. Baylor was ranked for the first time in 2021, and is among only three Texas universities and an additional 59 prestigious U.S. research universities and 38 international research institutions included in the report.

Through the Office of the Vice Provost for Research, the Technology Commercialization and Industry Engagement division, which includes the Lab to Market Collaborative, assists Baylor faculty by assessing, protecting and commercializing their inventions and innovations that solve real world problems and provide a tangible benefit to society.



## Institutional Investment IN RESEARCH

Baylor's ambitious research vision requires significant investment in infrastructure. In recent years, the University has invested in a variety of programs and new hires to support a growing research enterprise, and has seen the fruit of those efforts in sources and balance of funding.

- \$34.1 million in institutional research expenditures in 2022
- F&A accountability
- OVPR expansion and administrative support
- Compliance and Research Administration (CARA), the University's electronic research administration system

As Baylor faculty pursue awards in greater scope and volume, and as the University adds to their numbers through additional faculty positions, building an infrastructure capable of supporting that growth remains a key priority.





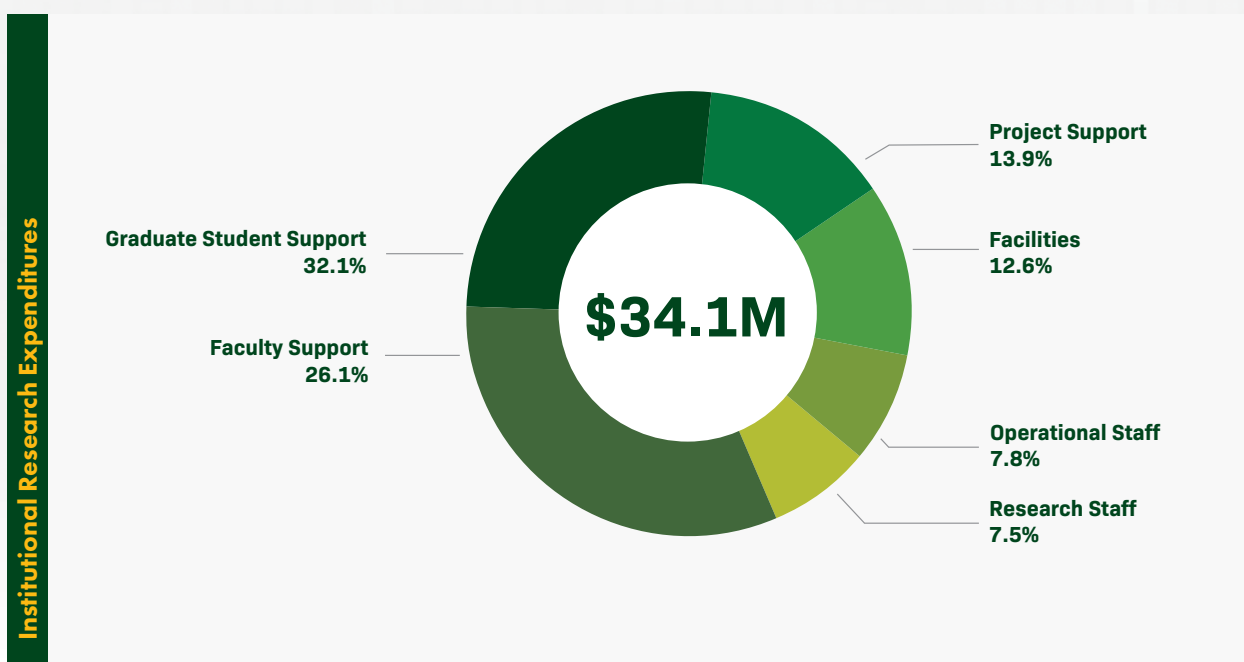
## CATEGORIES

The University provides financial support for research through a variety of mechanisms intended to stimulate growth in external funding for research. As one example, the University invested in a postdoctoral scholar hiring program in fiscal year 2021 with the goal of funding 65 new positions over three years. Postdocs provide high-level expertise in conducting research and mentoring students, thus providing additional capacity for faculty to publish research results and pursue new grant opportunities that drive more external funding. The table below defines the **broad categories of support** provided by the University.

CATEGORY	DESCRIPTION
Facilities	Core facilities, Baylor Research and Innovation Collaborative & Baylor Sciences Building operations, Vivarium, Cancer Prevention and Research Institute of Texas Lab, major equipment
Faculty Support	Startups, sabbaticals, supplemental compensation, discretionary funds
Graduate Student Support	Tuition remission, stipends, medical insurance
Operational Support	Unit level centers/institutes, support staff, undergraduate students, other expenses
Project Support	Cost share, internal grants, waived F&A costs
Research Staff	Postdocs, other research staff

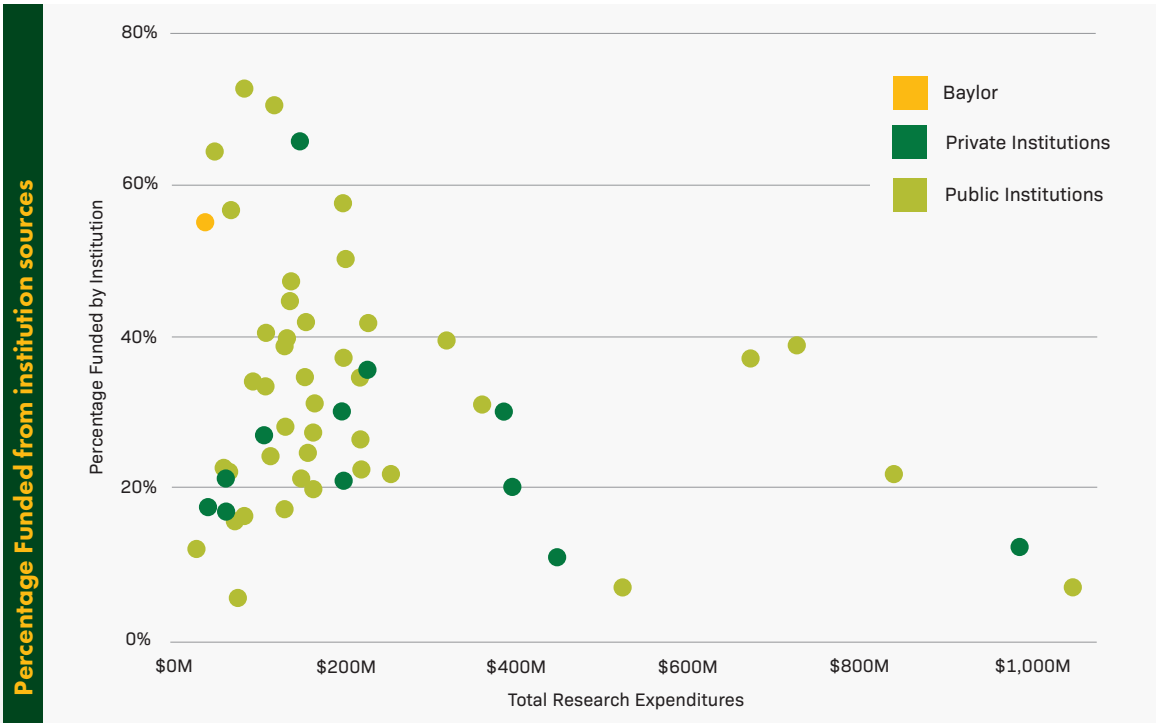


In 2022 the University provided a total of \$34.1 million of institutional funds to support research. The following chart shows the **proportionate spending for each category of institutional support**. Notably, \$22.4 million or 66% of the \$34.1 million total was in direct support of faculty, postdocs, and graduate students.



# BENCHMARKING

Since 2018, the percentage of total research expenditures funded by the University has decreased from 60% to 51% as external funding has continued to grow. The chart below shows how Baylor currently compares with other non-medical R1 institutions in the **percentage of research funded from institutional sources** with most of the institutions falling within the 20% to 40% range of financial support.



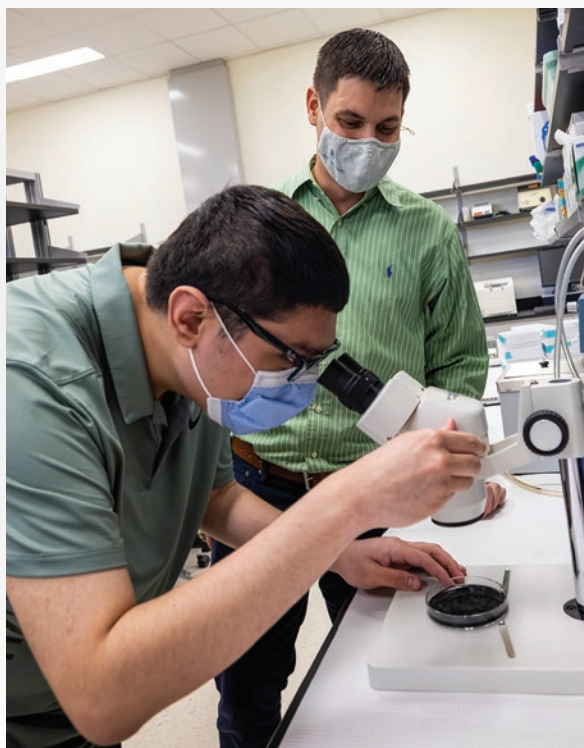
As the research enterprise at Baylor matures and external funding grows, we anticipate a base-line level of financial support from the institution between 30% and 35%, while we expect the overall investment to continue to grow.



## FACILITIES & ADMINISTRATIVE COST RECOVERIES

The University receives funding for research from various types of sponsors. Generally, sponsors include funds to cover the direct expenditures of conducting research such as the salaries and benefits of faculty and others working on the project, laboratory supplies, specific research equipment, and travel to conduct field work or to disseminate research results, as well as facilities and administrative (F&A) expenditures, also known as indirect or overhead costs. F&A costs are real research support costs that cannot be readily aligned to a single project.

Federal and industry sponsors typically pay a higher F&A rate than other sponsor types like foundations or other non-profits that may have internal restrictions on the amount of F&A their organizations will support.



### Examples of F&A



**COMPLIANCE  
ACTIVITIES**



**HAZARDOUS WASTE  
DISPOSAL**



**INTERNET & DATA  
STORAGE**



**LABORATORIES**



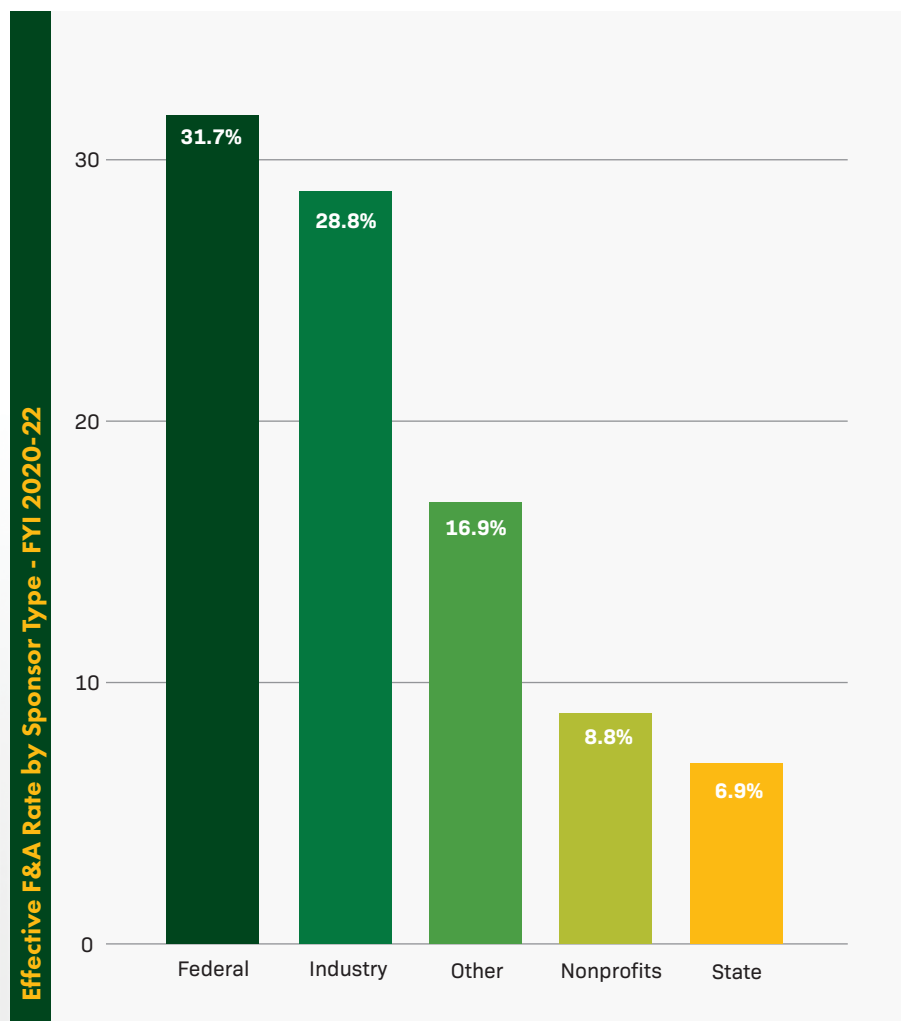
**PAYROLL,  
ACCOUNTING &  
PURCHASING**



**SAFETY PRACTICES**



**UTILITIES**



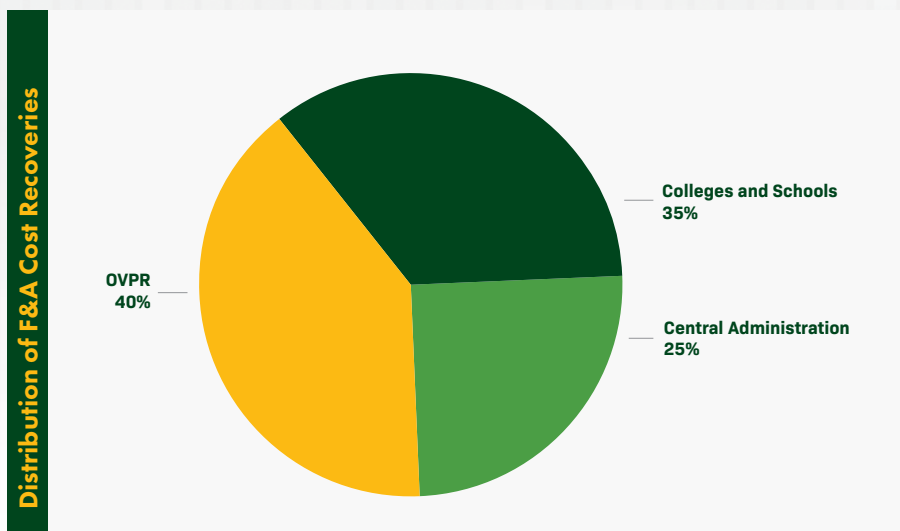
The chart above illustrates the impact of the **mixture of the award portfolio on the amount of F&A costs** recovered by the University.

On average, for 2020-2022, federal sponsors provided the highest effective F&A recovery rate at 31.7%.



## OVPR F&A USE AND ACCOUNTABILITY

The funds provided by sponsors to cover F&A costs are shared within the University, with 25% going to central administration to cover operating budget expenditures, 35% going to the colleges and schools to be used at the discretion of Deans, Chairs and Principal Investigators in advancing research activities, and 40% going to the Office of Vice Provost for Research (OVPR) to cover costs of the research administration infrastructure and to pursue and contribute to strategic research opportunities. Some examples of the use of OVPR F&A recoveries include contributions toward shared research equipment, intellectual property evaluations related to faculty inventions, and data security to enable faculty to conduct research subject to heightened security requirements.





## RESEARCH COMPLIANCE AND ETHICS

As a Christian research university, holding to the highest ethical standards of compliance is foundational to who we are as an institution. OVPR is committed to supporting faculty to ensure these standards are met.

The **research administration infrastructure** is designed to provide consistent, compliant, and high-quality pre- and post-award administrative support to all Baylor research faculty in an increasingly complex and competitive research environment. The team includes University Research Administrators (URAs), Pre- and Post-Award Administration, Research Data and Systems and Research Compliance groups that provide support to researchers throughout the lifecycle of the grant or contract.



## COMPLIANCE AND RESEARCH ADMINISTRATION



Baylor is implementing an industry-standard, electronic research administration system branded as Compliance and Research Administration (CARA). The system will be operational in 2023.

Notable CARA features include:

- In-system budgeting and robust routing options
- In-system dashboarding and reporting
- Intra-system internal controls, proposal error checking and compliance
- Integration with Ignite, Baylor's enterprise system, for project set-up and integration with CITI for training certification

CARA represents an important step in further enhancing the University's research infrastructure, providing an online portal for faculty and OVPR staff to navigate each step of the grant process, from pre- to post-award, along with regulatory and compliance management.



# OVPR ADMINISTRATIVE SUPPORT

The CARA system will facilitate OVPR’s ability to track industry standard research administration key performance indicators (KPIs) to measure the quality of services provided over the life cycle of the award. OVPR will work with campus constituents in the future to set targets for these KPIs. The table below provides examples of the types of KPIs being considered.

KPI	MEASUREMENT
Proposal Revisions	Percentage of proposals that do not require administrative revisions prior to submission to sponsor
New Award Set-Up Turnaround Time	Number of days from receipt of notice of award to date account is established in the financial system and available for faculty to spend
Account Monitoring	Percentage of accounts reviewed with faculty in a given month
Cost Transfers	Number and dollar amount of cost transfers both in total and processed more than 90 days after expenditure item date
Residual Balance Disposition	Number of fixed price accounts with unspent funds of greater than \$1,000 and the project period ended more than 60 days ago



## Looking Ahead

### ILLUMINATE FORWARD

What's next for Baylor research? After achieving R1 designation, the University is committed to building on the successes of *Illuminate* to further support research marked by quality, visibility and impact—a goal for which there is no finish line.

Now, Baylor is moving into *Illuminate Forward* — the next five years of Baylor's strategic plan. Continued investment will grow the faculty and provide additional opportunities for students to engage in research.

Among the goals of *Illuminate Forward* is the hiring of 100 new faculty members, who now will be recruited to an R1 institution.

Baylor fills a distinct role as an R1-designated, Christian research university, and we are committed to stewarding that responsibility through sustained support of current faculty and students, along with those yet to come. Baylor will continue systemic investment in new positions, programs and resources, creating a multiplier effect that elevates Baylor's educational and research endeavors.





Baylor University

[baylor.edu/research](https://baylor.edu/research)