



Board of Governors

Research, Technology Development and Knowledge Application (FY18)

March 20, 2019

Stephen M. Lanier

Vice President for Research



Overview

- Role of research in university identity and reputation –
“*DISTINCTIVELY Wayne State University* <http://strategicplan.wayne.edu>”
- FY18 Report
 - External Research Funding
 - Research Expenditures and Ranking
- Key objectives for research growth
- Thematic Initiatives



Research and Discovery and Institutional Highlights

- One of only nine public, Urban Serving Universities to have the **highest Carnegie Classification** for research intensiveness and community engagement
- Home to the Barbara Ann Karmanos Cancer Institute, one of the 45 National Cancer Institutes–designated comprehensive cancer centers in the US
- Home to the Perinatology Research Branch of the National Institutes of Health - the focus on preterm birth mortality
- New \$93M Integrative Biosciences Center (“IBio”) with thematic foci in multiple areas including environmental sciences, bio and systems engineering, heart disease, metabolic diseases (diabetes, obesity) and brain and bio behavioral health
- 2018 - new Mike Ilitch School of Business
- 2019 – new residence halls (800 beds)
- 2020 - new STEM education center
- 2021 - new Hilberry Gateway performing arts center
- **1868 – 2018** 150 years in Detroit - sesquicentennial celebration



What is the the Carnegie Classification?

Carnegie classification - the leading framework for defining and classifying institutions of higher education

- **Doctoral Universities**
 - R1 - very high research activity
 - R2 – high research activity
 - D/PU - Doctoral/Professional Universities
- **Master's Colleges and Universities**
- **Baccalaureate Colleges**
- **Baccalaureate/Associate's Colleges**
- **Associate's Colleges**
- **Special Focus Institutions**
- **Tribal Colleges**
- **Community Engagement Classification**



Carnegie Classification for Wayne State University

- 2883 public and private universities with 4 yr and above program
 - 130 with R1 classification - very high research activity
 - 337 with Community Engagement Classification
 - 69 have both classifications
- 774 public universities with 4 yr and above program
 - 93 with R1 classification - very high research activity
 - 184 with Community Engagement Classification
 - 56 with both classifications

Wayne State University is one of 56 public doctoral universities with both the R1 Classification and Community Engagement.

Wayne State University is one of 9 Urban Serving Universities (37) with both the R1 Classification and Community Engagement.



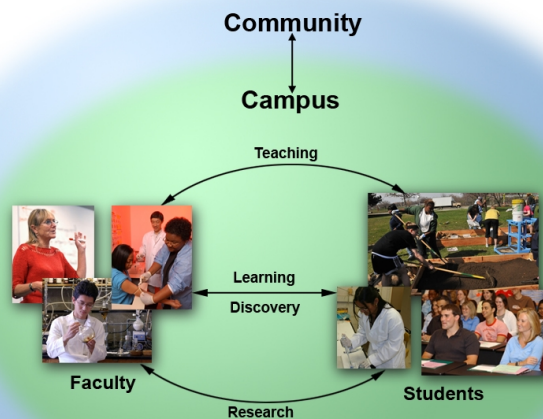
DISTINCTIVELY Wayne State University

<http://strategicplan.wayne.edu>

VISION

Wayne State will be a pre-eminent, public, urban research university known for academic and research excellence, success across a diverse student body, and meaningful engagement in its urban community.

Increase strategic integrative research and nurture the broad ecosystem for scholarly inquiry, discovery, creativity, and knowledge application by leveraging our academic strengths, community engagement mission, and urban location.





The Urban Serving, Public Research University in Detroit

- Economic development - neighborhood by neighborhood
- Educational access and place to call home
- Mobility
- Health Care access and awareness
- Digital Divide
- Integrated partnerships with the city
- Humanities and communities
- Social and Civic engagement
- Research and Development with local and global impact
- Healthy Urban Waters



University Identity: Research and Discovery as a Distinguishing Factor

- Unique integration of education, research, and community and defines excellence
- Competitive differentiator for both education and research
- Provides students with higher quality educational experiences
 - Leading-edge knowledge and methods, critical thinking skills (e.g., analysis, synthesis, evaluation of quality of information),
- Prepares students to be competitive in a knowledge-based economy
- Provides foundation for further education
- Places learning in a context that connects theory in the classroom with practice
 - Knowledge application, evidence-based problem solving, team skills



RESEARCH, DISCOVERY AND KNOWLEDGE
APPLICATION AS AN INSTITUTIONAL
PRIORITY

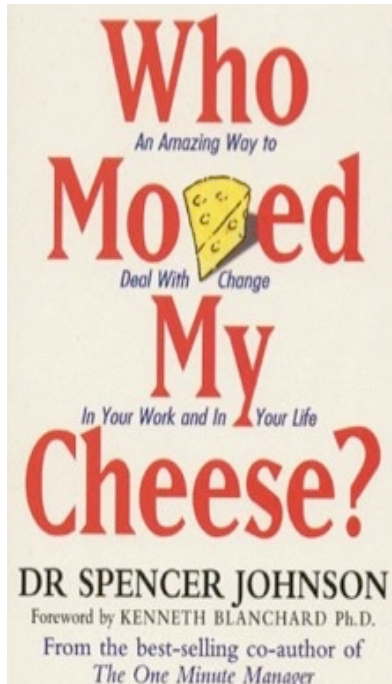
MISSION

TO NURTURE DISCOVERY AND KNOWLEDGE APPLICATION
FOR THE BENEFIT OF SOCIETY AND PROMOTE SUSTAINED
GROWTH OF A DYNAMIC AND INNOVATIVE RESEARCH
ENTERPRISE

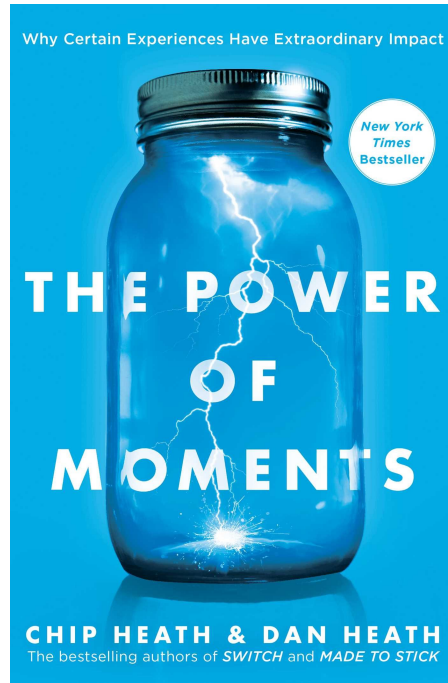
ESTABLISH AN ENVIRONMENT IN WHICH THE CREATIVE
ABILITIES OF AN OFTEN DISPARATE GROUP OF HIGHLY
TALENTED INDIVIDUALS CAN FLOURISH



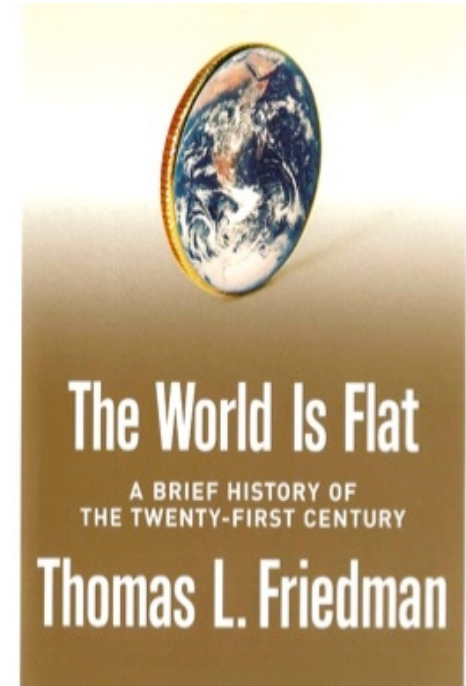
DETROIT



ADAPTING TO
CHANGE
BE NIMBLE AND
AWARE



BRIEF EXPERIENCES
CAN
CHANGE LIVES



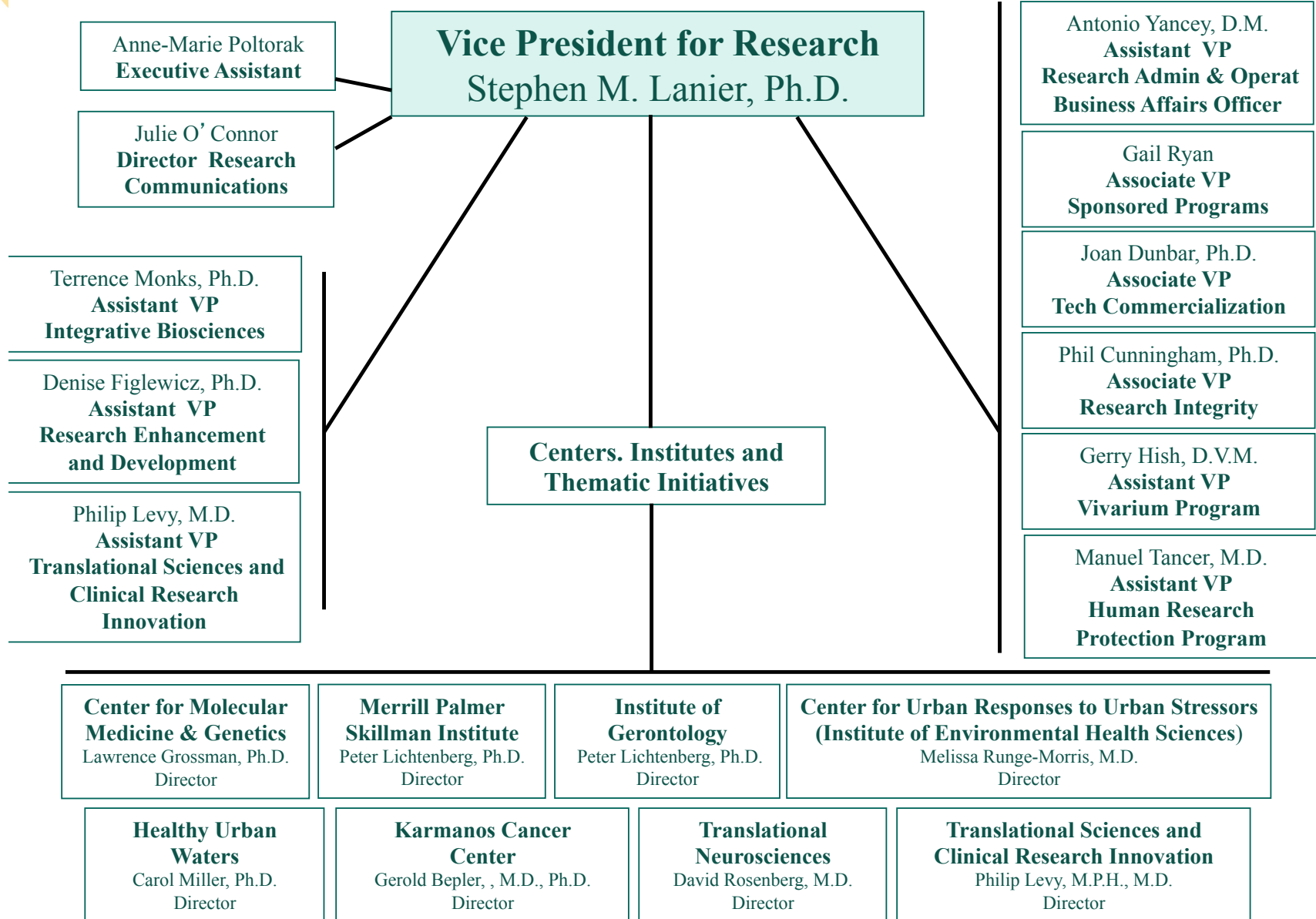
GLOBAL
CONNECTIVITY

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- Role of research in university identity and reputation –
“*DISTINCTIVELY* Wayne State University <http://strategicplan.wayne.edu>”
 - FY18 Report - Where we were, where we are and where we are going -
 - External Research Funding
 - Research Expenditures and Ranking
 - Key objectives for research growth
 - Thematic Initiatives

Increase strategic integrative research and nurture the broad ecosystem for scholarly inquiry, discovery, creativity, and knowledge application by leveraging our academic strengths, community engagement mission, and urban location.



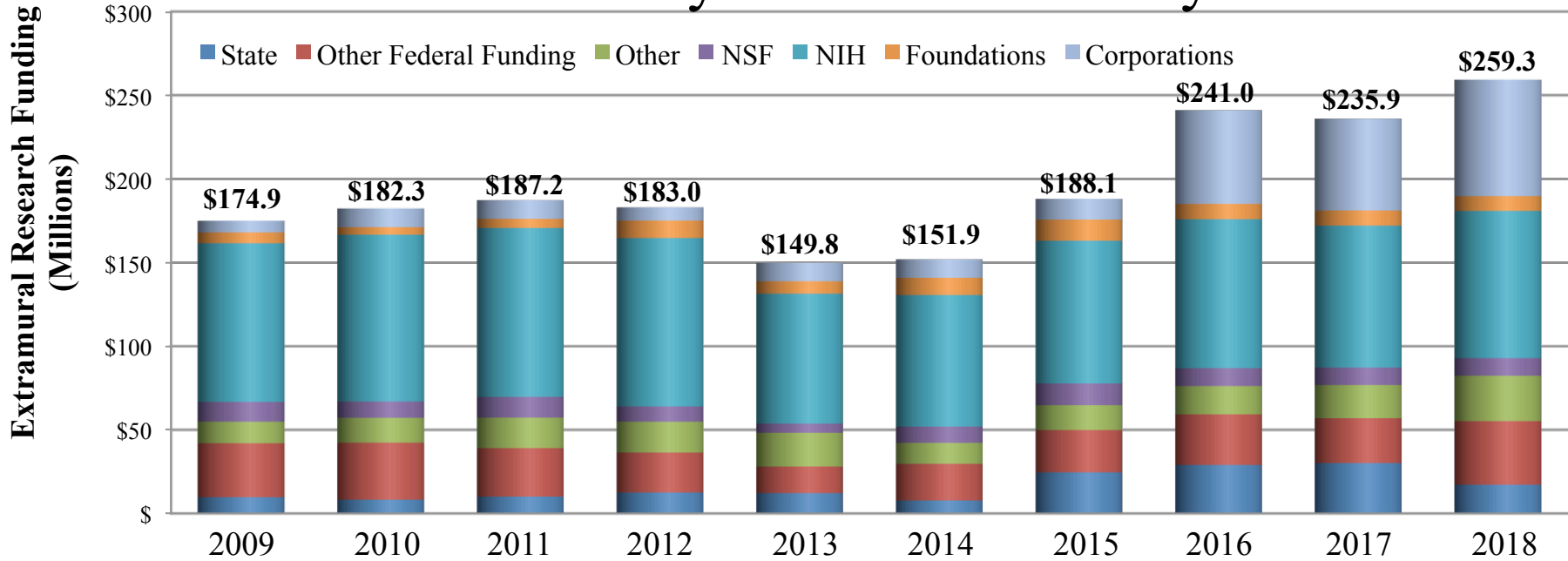


Key objectives for research growth going forward

- Identify and support the development of thematic initiatives that leverage strengths across colleges
- Diversify funding portfolio
- Strengthen strategic affiliations
- Reinvest in physical and intellectual infrastructure (Recruit/Retain)
- Provide broader platforms for student research opportunities
- Expand and accelerate technology transfer platforms
- Workforce development
- Work with intercollege, faculty advisory groups to move forward with implementation



External Research Funding Wayne State University



Sponsor	2011	2012	2013	2014	2015	2016	2017	2018
Corporations	\$11,033,138	\$7,842,816	\$10,945,325	\$11,055,679	\$12,384,515	\$55,932,671	\$54,748,102	\$69,543,757
Foundations	\$5,456,621	\$10,492,617	\$7,529,182	\$10,263,209	\$12,646,443	\$9,222,187	\$9,113,596	\$8,825,604
NIH	\$101,044,397	\$100,624,278	\$77,684,181	\$78,603,871	\$85,336,002	\$89,000,331	\$84,904,068	\$87,991,234
NSF	\$12,388,334	\$9,097,402	\$5,404,977	\$9,827,735	\$12,992,732	\$10,673,480	\$10,376,183	\$10,600,396
Other	\$18,289,803	\$18,425,375	\$20,229,869	\$12,520,963	\$14,823,738	\$17,010,776	\$19,811,924	\$27,080,937
Other Federal Funding	\$28,889,528	\$23,918,390	\$15,843,184	\$21,879,113	\$25,351,610	\$30,265,253	\$26,833,344	\$38,077,078
State	\$10,138,066	\$12,550,118	\$12,174,377	\$7,769,870	\$24,542,587	\$28,935,050	\$30,149,726	\$17,137,433
Total	\$187,239,887	\$182,950,997	\$149,811,095	\$151,920,440	\$188,077,626	\$241,039,748	\$235,936,943	\$259,256,439

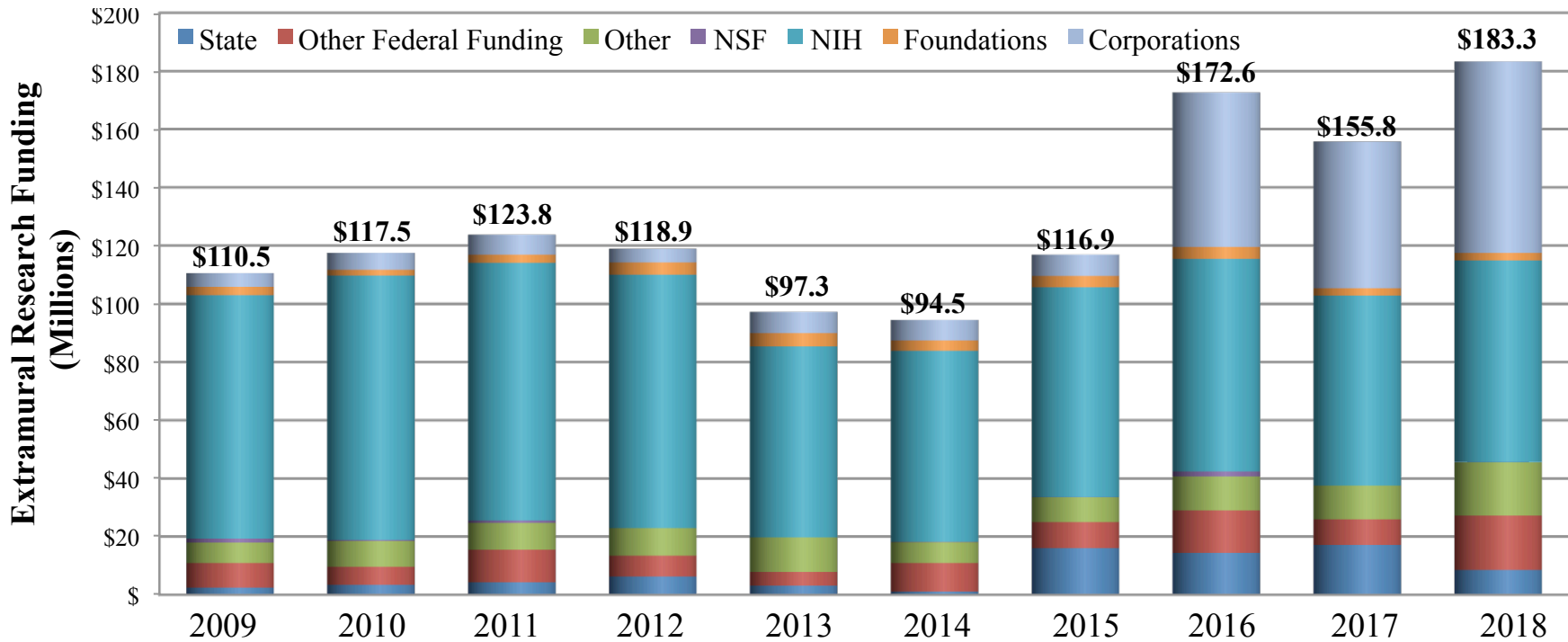


External Research Funding College, School and Research Center/Institute

	FY 2015	FY 2016	FY 2017	FY 2018
University Total	\$188,077,626	\$241,039,748	\$235,936,943	\$259,256,439
Medicine	\$116,923,561	\$172,649,852	\$155,797,750	\$183,311,270
Arts & Sci	\$21,124,216	\$16,696,751	\$19,101,321	\$20,705,798
Engineering	\$12,605,980	\$14,191,456	\$15,442,019	\$14,120,858
Vice Pres Res	\$4,179,404	\$7,768,487	\$9,767.34	\$8,909,986
Pharm Health Sci	\$4,871,394	\$4,247,657	\$5,159,980	\$5,641,893
Nursing	\$3,593,876	\$4,973,418	\$5,067,142	\$5,306,808
Social Work	\$760,456	\$967,249	\$2,800,274	\$3,769,929



External Research Funding School of Medicine



Sponsor	2011	2012	2013	2014	2015	2016	2017	2018
Corporations	\$6,865,492	\$4,684,566	\$7,345,083	\$7,058,517	\$7,331,757	\$53,092,825	\$50,457,165	\$65,821,674
Foundations	\$2,812,201	\$4,239,398	\$4,586,973	\$3,549,945	\$3,879,000	\$4,110,077	\$2,510,891	\$2,561,166
NIH	\$88,573,045	\$87,068,572	\$65,599,777	\$65,680,152	\$72,115,640	\$73,103,019	\$65,270,894	\$69,367,298
NSF	\$806,797		\$30,411	\$76,622	\$74,738	\$1,683,288	\$35,642	\$22,414
Other	\$9,216,417	\$9,472,982	\$11,848,311	\$7,212,518	\$8,520,052	\$11,668,821	\$11,612,283	\$18,282,503
Other Federal Funding	\$11,186,298	\$7,182,985	\$4,749,803	\$9,787,183	\$8,939,032	\$14,572,441	\$8,770,276	\$18,742,301
State	\$4,327,549	\$6,266,004	\$3,108,814	\$1,106,524	\$16,063,342	\$14,419,381	\$17,140,599	\$8,513,915
Total	\$123,787,799	\$118,914,508	\$97,269,172	\$94,471,462	\$116,923,561	\$172,649,852	\$155,797,750	\$183,311,270



GROWTH IN EXTRAMURAL RESEARCH FUNDING TO THE UNIVERSITY SINCE 2013

Research awards, grants and contracts

- Total extramural research funding reported increased from \$149,811,095 (2013) to \$259,256,439 (2018)
- 2018 Extramural Research Funding is a record for Wayne State University
- Federal extramural research funding increased by 38% since 2013

2013 extramural federal research funding = \$98,932,342

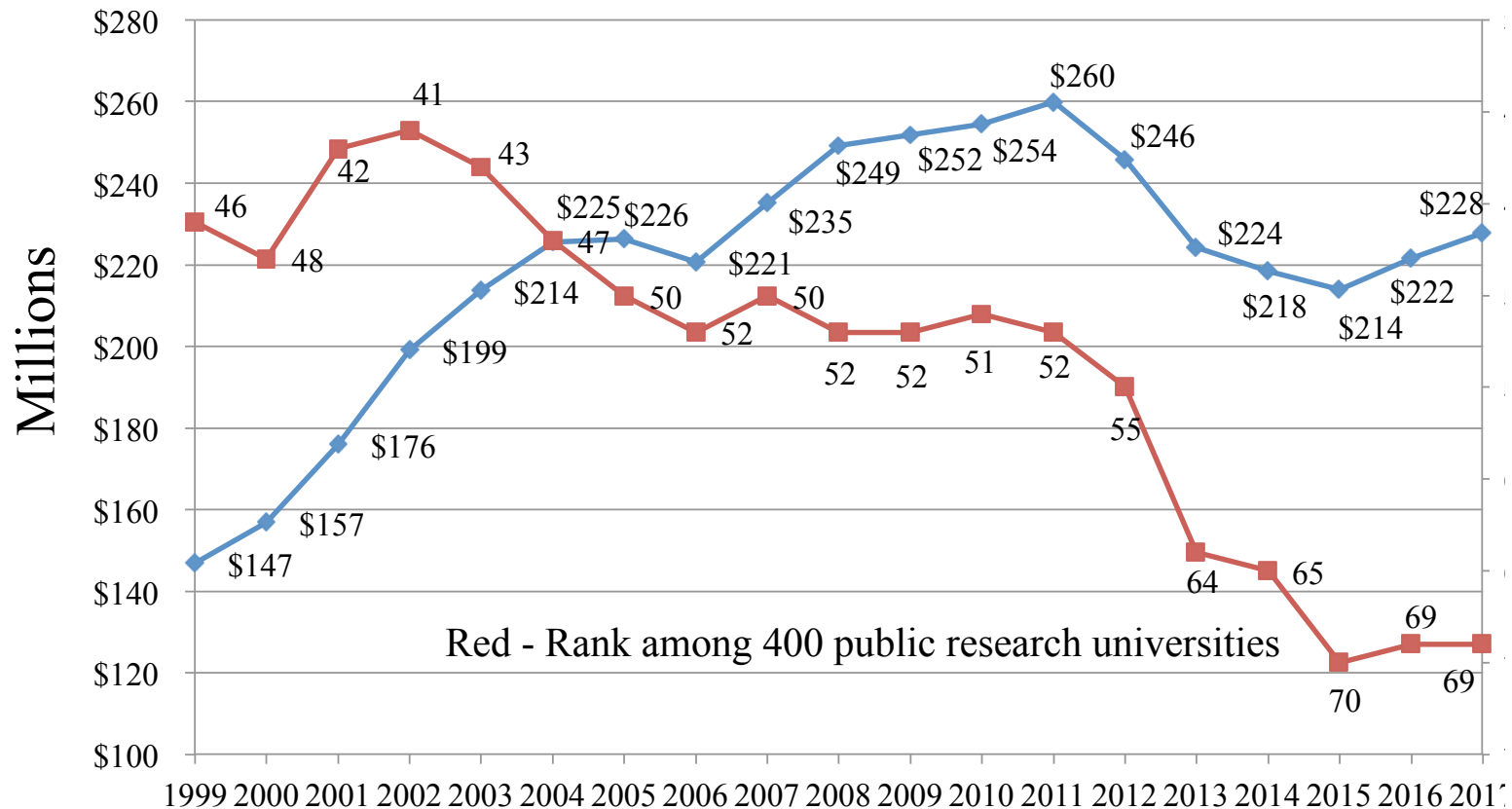
2018 extramural federal research funding = \$136,668,708

- Growth in clinical trials and inclusion of full clinical trial portfolio (cancer center) in the award and expenditures reports for the university
- Sustained increase in extramural funding during period of major disruption at the School of Medicine, which drives ~70% of the research funding portfolio



Research Expenditures

National Science Foundation Reports and University Ranking





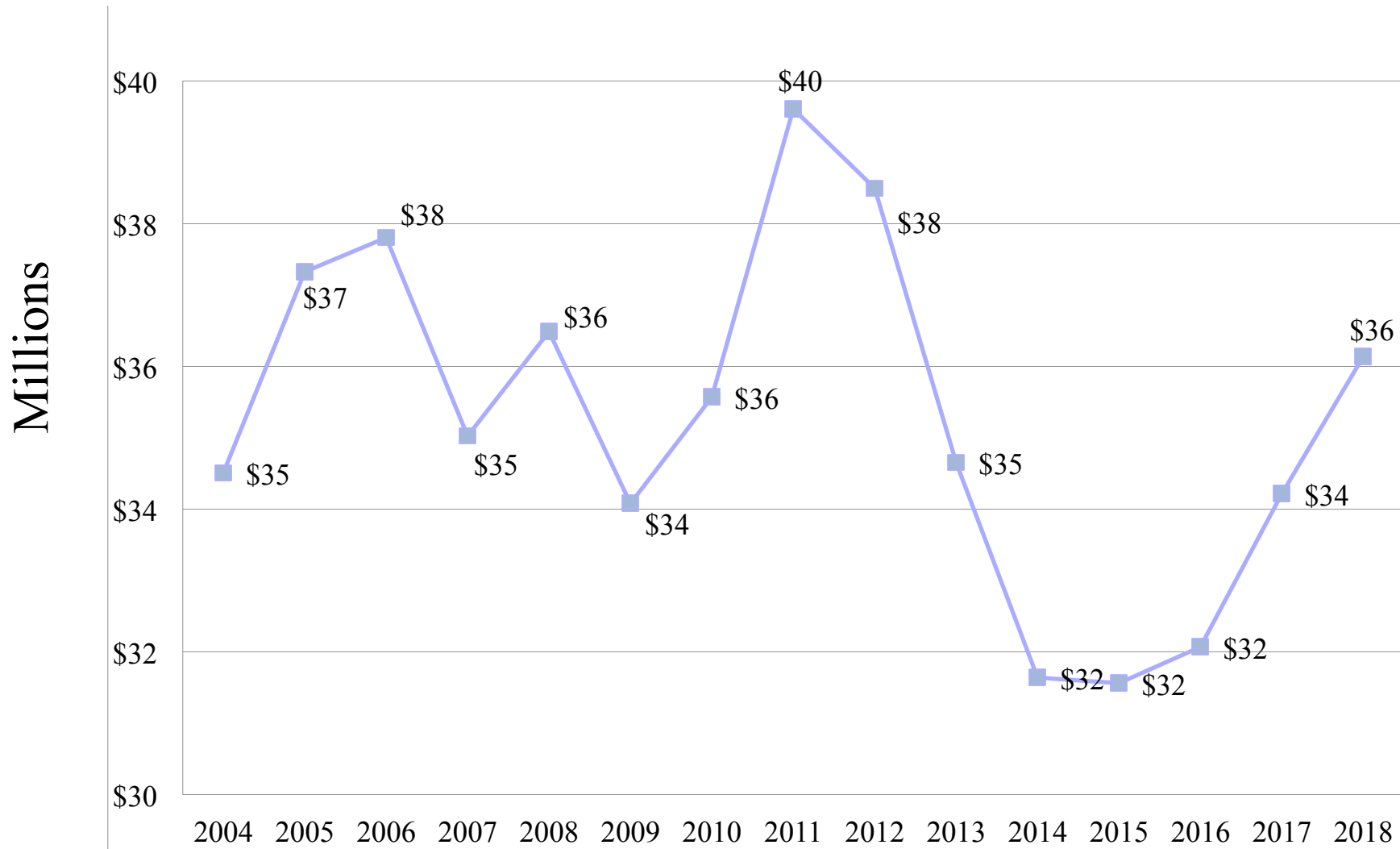
GROWTH IN EXTRAMURAL RESEARCH FUNDING TO THE UNIVERSITY SINCE 2013

- Research expenditures – **2016 is the first increase in research expenditures since 2011**
- Reversal of 4 year decline in National Science Foundation reported research expenditures with increases in 2016 and 2017 (2018 expenditure data not yet collected)
- Reversal of 4 year decline Facilities & Administrative Costs Recovered - from a low of \$31M in 2015 to over \$36M in 2018

With 2019, this is the first four year period of continuous increase in F & A cost recovery since at least 12 years ago.



Facilities & Administrative Costs Recovered - generated by expenditures of awarded grants/contracts





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THEMATIC BASED INITIATIVES TO ADDRESS LOCAL, REGIONAL AND GLOBAL SOCIETAL CHALLENGES



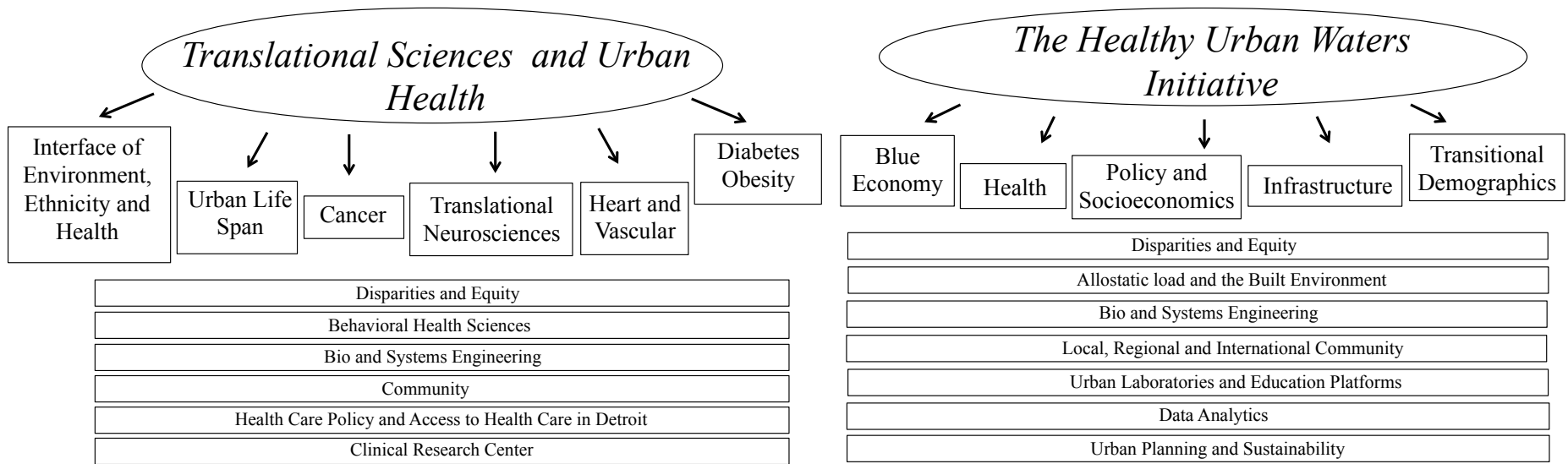
Wayne State University has launched a broad Integrative Biosciences Initiative (IBio) dedicated to research, discovery, education, training and knowledge application across a range of biomedical challenges.

Coordinated, multidisciplinary research teams and programmatic initiatives involving translational thrusts focused on pathophysiologies and accumulated stressors affecting health in evolving urban environments.



THEMATIC BASED INITIATIVES TO ADDRESS LOCAL, REGIONAL AND GLOBAL SOCIETAL CHALLENGES

<https://ibio.wayne.edu>





THEMATIC INITIATIVES

- Behavioral Health
- Bio & Systems Engineering
- Cancer
- Metabolic disease - Diabetes and obesity
- Computational Physics
- Cross Border Initiatives
- Healthy Urban Waters
- Health Disparities
- Environmental Health Sciences
- Reproductive Sciences
- Translational Neurosciences Initiative
- Translational Sciences and Clinical Research Innovation
- Urban Life Span



Faculty Positions in Integrative Biosciences



Wayne State University (WSU) is recruiting up to 15 faculty (open rank) for research and development programs as part of the continued expansion of a broad institutional initiative in Integrative Biosciences. This initiative leverages a new 200,000 sq. ft. Integrative Biosciences Center (IBio) that houses coordinated inter- and trans-disciplinary research teams, and a Clinical Research Center. Programmatic themes include a focus on pathophysiology and accumulated stressors affecting health in evolving urban environments with a strong emphasis on basic disease mechanisms, clinical translation and community health impact.

Ten faculty have been recruited to date as part of the IBio initiative and we are now entering the next phase of thematic-based, programmatic growth. Faculty recruitment (tenured, tenure-track, or research-track) will focus on six primary thematic areas: Behavioral Health (#043728); Bio & Systems Engineering (#043729); Environmental Sciences and Health (#043725); Health Disparities (#043726); Metabolic Diseases (Cardiovascular, Diabetes and Obesity) (#043727); and Translational Neurosciences (#043730). Each theme includes basic discovery-driven research as well as translational, community and implementation sciences cutting across departments, programs, centers, and colleges.

Faculty recruits (tenured or tenure-track) will integrate with departments and colleges or schools consistent with their areas of expertise and shared interests and engage in all aspects of our academic mission including research, education and service. Faculty are expected to either already have established extramural research funding and/or are on a clear path to secure and sustain extramural funding in support of their research programs.

Candidates must have a Ph.D., M.D., Pharm.D. and/or related degree(s) in disciplines aligning with the focus areas and possess a demonstrated track record of exceptional science, creative discovery and/or knowledge translation and application. We would be pleased to receive applications from groups of faculty from one or several institutions who may wish to work together. Qualified candidates should submit applications to the specific thematic position posting # identified above through the Wayne State University Online Hiring System https://jobs.wayne.edu/applicants/jsp/shared/Welcome_css.jsp. Applications should include a *curriculum vitae* and a brief narrative describing their research and how it relates to the Integrated Biosciences initiative (<http://www.IBio.wayne.edu>) with a cover letter addressed to the IBio Steering Committee Chair, Stephen M. Lanier, Ph.D. Vice President for Research. Review of applications for the next phase of recruitments will begin immediately with applications accepted through October 30, 2018. Competitive recruitment packages are available with salary and rank based on qualifications.

Wayne State University, which holds the highest Carnegie Foundation for the Advancement of Teaching designations in both research and community engagement, is a premier, public, urban, comprehensive research university located in the heart of Detroit where students from all backgrounds are offered a rich, high quality education. Our deep-rooted commitment to excellence, collaboration, integrity, diversity and inclusion creates exceptional opportunities for students and faculty in a diverse, global society. WSU encourages applications from women, people of color, and other underrepresented people. Wayne State is an Affirmative Action/Equal Opportunity Employer.

Founded in 1868, Wayne State University offers more than 370 academic programs through 13 schools and colleges to nearly 28,000 students. The campus in Midtown Detroit comprises 100 buildings over 200 acres including the School of Medicine, the Eugene Applebaum College of Pharmacy and Health Sciences and the College of Nursing. The university is home to the Perinatology Research Branch of the National Institutes of Health, the Karmanos Cancer Center, a National Cancer Institute-designated comprehensive cancer center, and a National Institute of Environmental Health Sciences Core Center - *Center for Urban Responses to Environmental Stressors (CURES)*.

Thematic Recruitment Initiative – Phase II



Key objectives for research growth going forward

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- **Expand and accelerate technology transfer platforms**
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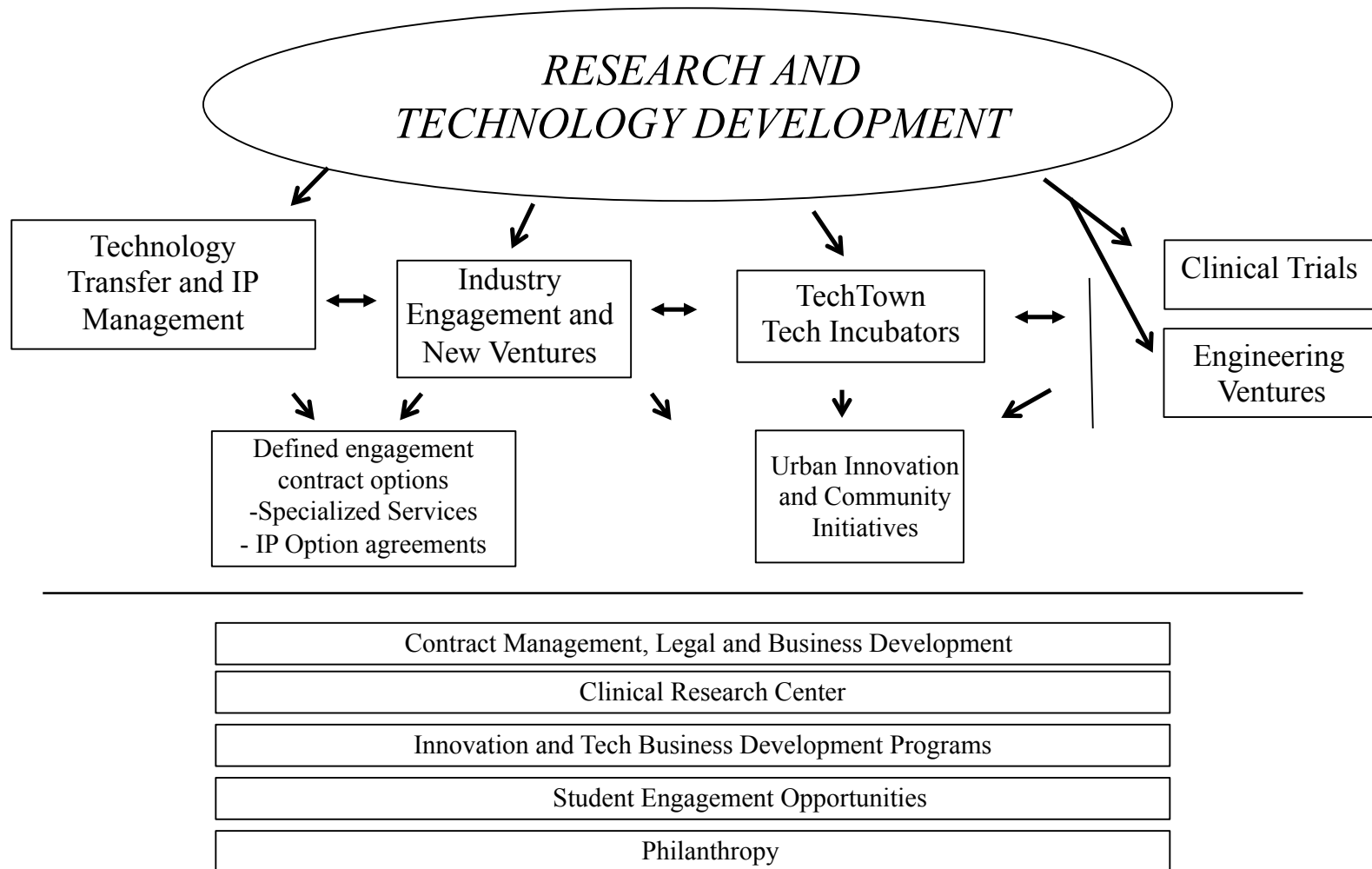


Technology Commercialization - Expand and accelerate technology transfer platforms

- Continued upward trend on licensing revenue, start up companies and Small Business Innovation Research Grants
- New sponsored research agreement options for industry engagement
- New Translational technology partnership with industry partner on site
- New Innovation and Industry Engagement Facility
- Expanded Business Corporate Partnerships Development Support
- Optimizing organizational structure around best practices for innovation ecosystem
- External funding (selected examples)
 - Michigan Economic Development Corporation - \$1,073,875 -Michigan Translational Research Acceleration Program
 - \$200,000 - Technology Transfer Talent Network
 - New Economy Initiative \$500,000



The Innovation Ecosystem at Wayne State University





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THE FLOW

The Idea

The Discovery

Incubation and Nurturing

Development

Knowledge Application

Benefit for Society