Final Report of the Institutional Research and Development Task Force

December, 2021

Task Force Members:

Scott Bradley, Keweenaw Research Center

Laura Brown, Computer Science

Will Cantrell, Graduate School

Sarah Green, Chemistry

Tim Havens, Institute of Computing and Cybersystems

Greg Leonard, Michigan Tech Research Institute

Audra Morse, Civil, Environmental, and Geospatial Engineering

David Reed, Vice President for Research (Chair)

Nick Stevens, Budget and Financial Planning

Andrew Storer, College of Forest Resources and Environmental Science

Larry Sutter, College of Engineering

Jeremy Worm, Advanced Power Systems Research Center

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The Institutional Research and Development (IRAD) Task Force was established to review and update the report of the 2010 Task Force[1]. The specific charge to this Task Force is:

The Task Force is to review Michigan Tech's current IRAD return practices and make recommendations for any changes or adjustments to those practices to be implemented in Fiscal Year 2023. The Task Force should consider at least the following in their deliberations:

1. The 2010 Task Force report and recommendations and any benchmarking information that can be found.
2. The actual costs by component as reflected in the Organized Research F&A rate in the most recent F&A proposal.
3. The percentage and amount of net F&A recovered that is retained in the General Fund, the historical trend in that amount, and the appropriateness of that amount.
4. The appropriateness of direct funding of various components of the F&A rate through IRAD returns.
5. Finally, the Task Force shall recommend any changes to current practices to be implemented in FY23.

The Task Force shall deliver its final report by December 31, 2021.

Purpose of IRAD Funds

The stated purpose of Michigan Tech IRAD funds as defined in the 2010 Task Force report is:

"*Michigan Tech institutional research and development funds are general funds allocated to Deans, Chairs, Center/Institute Directors, and researchers to provide resources to Colleges, Schools, Departments, Centers/Institutes, and researchers for use in enhancing research and graduate studies*."

Since 2010, research at Tier 1 Centers and Institutes (Tier 1 C/I) has expanded dramatically in the numbers of proposals, numbers of employees, and total funding[2]. These organizations are responsible for much or all of their facility and administrative costs, supported by their IRAD returns. Tier 1 funded projects often use the higher uncapped F&A rates as well. The Task Force believes that this increasingly significant use of funds should be included in the stated purpose of IRAD funds.

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[1] Final Report of the Incentive Return Task Force. February 12, 2010. https://www.mtu.edu/president/reports/task-force-report-2010.pdf

[2] Tier 1 Centers and Institutes are self-supporting organizations that receive no general fund support are responsible for much or all of their facility and administrative expenses, employ a number of soft funded staff, have a Director that dedicates a substantial portion of their effort to leading the C/I, and may be a separate organizational unit of the University. Current Tier 1 C/I include: Keweenaw Research Center, Michigan Tech Research Institute, Great Lakes Research Center, Applied Power Systems Research Center, Center for Technology and Training, Institute for Computing and Cybersystems, and Health Research Institute.

Recommendation 1. The Task Force believes that stated purpose of IRAD funds should be revised to explicitly recognize the importance of supporting facilities and administrative infrastructure, particularly in the Tier 1 Centers and Institutes:

"*Michigan Tech institutional research and development funds are general funds allocated to Colleges, Departments, Centers/Institutes, and researchers for use in supporting facility and administrative infrastructure and to enhance research and graduate studies.*"

IRAD Relationship to Facilities and Administrative Cost Recovery

The University collects Facilities and Administrative (F&A) cost recovery from sponsored activities to reimburse the institution for facilities and administrative costs incurred in support of sponsored activities. Such costs are calculated in accordance with the Office of Management and Budget's Uniform Guidance (2 CFR 200) and are audited by the federal government to ensure accurate representation. When funds are expended from a sponsored account, the F&A funds are transferred into the General Fund to reimburse the University for the associated costs. Once in the General Fund, F&A funds are commingled with and are not distinguishable from other University revenues such as tuition and State appropriations.

Michigan Tech has made a resource allocation decision to transfer funds from the General Fund to Colleges, Departments, Centers/Institutes, and researchers that contribute to sponsored activities. The amounts transferred are calculated as a proportion of the F&A cost recovery funds from the sponsored activities, but it is General Fund money that is transferred and not sponsored funding.

FY2021 practice was to transfer an amount equal to 9% of recovered F&A to Colleges, 9% to Departments[3], 18% to a Center or Institute if one is involved in the project, and 10% to the investigators. Tier 1 Centers and Institutes may receive more to the extent they are responsible for their facilities and administrative costs. There are also special returns associated with Use Fees on research equipment and for specific activities such as the College of Forest Resources and Environmental Science to partially support the F&A costs associated with the Ford Center. Finally, in FY2018 VPR began receiving IRAD of 4% of recovered F&A to support Shared Facilities.

Current IRAD Distributions

The IRAD distributions to the various receiving entities for FY2016 through FY2020 are given in Table 1. Over these years, there has been a 19.8% increase in the total F&A recovery for the University and a 21.1% increase in the IRAD distributions. The reason for the difference is that the growth in sponsored activities in the Tier 1 C/I has been greater than the growth in sponsored activities experienced in the academic units.

[3] Colleges without Departments receive both the College and Departmental allocations.

Table 1. IRAD Distribution Summary, FY2016 through FY2020.

	2016	2017	2018	2019	2020
Net F&A Recovery	11,809,129	12,208,555	13,029,936	13,440,496	14,149,752
Colleges ($)	675,786	673,557	706,962	733,921	711,638
Departments ($)	675,786	673,557	706,962	733,921	711,638
Investigators ($)	896,984	896,804	1,026,415	1,131,413	1,030,059
Tier 1 C/I	4,289,779	4,293,325	4,441,931	5,290,350	5,786,101
KRC ($)	1,592,619	1,607,365	1,909,228	1,862,598	1,675,390
MTRI ($)	2,697,160	2,685,960	2,532,703	2,383,285	2,944,804
APSRC ($)				537,603	476,635
CTT ($)				119,346	122,412
GLRC ($)				296,849	309,394
ICC ($)				90,669	110,458
HRI ($)					147,008
Tier 2 + Special ($)	1,596,804	1,651,902	1,969,280	1,085,266	852,178
Shared Facilities ($)			347,465	538,530	543,977
Use Fee Returns ($)	123,379	143,412	218,849	319,845	369,856
Total Distributed ($)	8,258,518	8,332,557	9,417,864	9,833,066	10,005,447
F&A – IRAD ($)	3,550,611	3,875,998	3,612,072	3,607,430	4,144,305

The Task Force notes that in 2020, the only year with complete data from the Tier 1 C/I, that the amount distributed to the Tier 1s was 57.8% of the total IRAD distributed. The Tier 1s use much of their IRAD for facilities and administrative costs in support of their activities; those costs are directly included in the F&A rate calculations for these entities (see Table 7). Thus, much of the IRAD distributed to the Tier 1s is a true reimbursement for F&A costs necessary to conduct research and should possibly be in a different category than IRAD that is, for example, returned to Colleges and Departments to support research and graduate studies. The Task Force notes that this information supports Recommendation 1 (above).

Recommendation 2. The Task Force observes that IRAD returns to the Tier 1 Centers and Institutes are a true reimbursement of the incurred Administrative and Facilities costs that the respective Tier 1's incur, and therefore should not be viewed as a discretionary investment to support research and graduate studies.

Current IRAD Spending

The transaction summary from all the IRAD accounts for FY2016-FY2020 is in Table 2. The Task Force notes that there may be some distortion in FY2020 due to COVID-19; for example, staff salaries are up considerably and international travel is down considerably in that year. Note also that IRAD funds received in one year may be spent in a subsequent year so there may not be direct correspondence between revenues and expenditures in a given year.

Table 2. Transaction summary from IRAD accounts, FY2016-FY2020.

	2016	2017	2018	2019	2020
Total IRAD Distribution	8,258,518	8,332,557	9,417,864	9,833,066	10,005,447
Total Into IRAD Accounts	9,490,873	9,665,398	10,656,038	11,747,644	11,711,256
Transfers to KRC + MTRI *	4,777,977	5,788,641	5,810,088	6,651,377	6,047,552
Net of KRC + MTRI	4,712,896	3,876,757	4,845,950	5,096,267	5,663,704
Expenses					
Faculty Salary	130,114	193,266	142,943	179,014	227,216
Staff Salary	585,556	609,373	732,422	868,285	1,227,416
Grad Student	141,236	141,710	128,285	211,615	143,784
Scholarships/Fellow	54,431	68,819	86,765	135,576	59,143
Undergrad Student	93,732	63,583	71,007	100,313	85,020
Fringes	224,033	239,337	299,538	329,113	487,377
Tuition	39,287	19,592	38,559	64,506	47,346
Supplies and Services	744,867	863,467	1,084,199	982,070	1,082,722
Travel-Domestic	398,557	410,936	500,618	575,577	399,734
Travel-International	118,849	107,864	102,272	156,939	39,044
Capital Expenses	135,101	160,090	134,854	296,129	155,264
Fac/Equip Use	-	-	4,027	3,958	3,958
Admin Fee	-	-	335,192	337,537	-
Consultants	26,433	96,306	19,342	68,782	43,205
Cost Share	224,230	176,911	123,094	223,614	270,301
Faculty Startup	209,874	600,059	330,437	112,408	548,473
Other	-	-	1,338	-	1,260
Other Transfers	403,523	383,982	174,235	86,035	
10,230					
Total Expenses	3,529,844	4,135,925	4,309,109	4,731,021	4,831,521
Overall Net	1,183,052	-258,538	536,841	365,246	832,183

*Note: KRC and MTRI each operate using several D accounts and transfer their IRAD returns into those accounts to cover the expenditures, so it is not easy to summarize.

There is much interesting information in Table 2. The relatively small amounts used for faculty startup and graduate student pay and tuition, for example, were a surprise to the Task Force, especially considering that Table 2 includes expenditures by Colleges, Departments, and Tier 2 C/I. It is also clear that different recipients spend their resources on different things. Individual investigators rarely, if ever, contribute to startup packages, but they and their staff and students probably do most of the international travel.

Benchmarking Other Institutions

The Task Force was able to review a Council of Government Relations (COGR) survey of the uses of F&A funds by universities (2006) and a second COGR survey of F&A rates and negotiation experiences (2017). The Task Force also did a quick internet search to benchmark how other universities use F&A funds recovered from sponsors, particularly how they distributed those internally (Table 3). It is not easy to find this information for many institutions, and there is some subjectivity to grouping information into the columns of Table 3. Some universities go into intricate detail on how these funds are distributed and there was some consolidation in Table 3 to make comparisons easier.

It is important to note that the ways institutions use and internally distribute recovered F&A is dependent on the overall institutional budget model. An institution that uses a responsibility centered budget (RCB) model, is much more likely to distribute 100% of the recovered F&A to a College (e.g. Duke in Table 3), from which the College pays for space and services from other components of the institution, or to distribute the recovered F&A in large proportions, from which such transfers are made.

It is clear in Table 3 and from the COGR surveys that there is no common or standard method for utilizing recovered F&A. Some institutions keep the majority in the general treasury (or General Fund at Michigan Tech) while some distribute to both academic administrative units as well as other administrative areas. The ‘Other’ column is Table 3 collects a lot of quite variable information, but the most common distribution grouped as Other was for Facilities or other Operating and Maintenance units.

Institutional uses of recovered F&A can be described as: 1) functional, where there are actual costs covered by the recovered F&A, such as the funds remaining in the General Fund at Michigan Tech; 2) strategic, where, for example, a College or Department might use their share for investments to build capacity through equipment purchase or maintenance; and 3) tactical, such as when an individual PI might use their share to support travel to a meeting, purchase of supplies, etc. There is certainly a rationale for all three, but it is a legitimate question regarding the appropriate proportions of each.

Focusing on the funds distributed to individual investigators, information in Table 3 suggests that 12 of these 20 institutions do not directly distribute any recovered F&A but may distribute through indirect means. At the University of Michigan, the Colleges receive 37% of the recovered F&A and the Deans can, and some do, distribute a portion of that to the investigator (3% in the College of Engineering).

The benchmarking exercise shows that institutions have a lot of flexibility and room for creativity in their use of recovered F&A funds. It is probably more an indicator of the range of possibilities than a source of best practices. Institutional budget models and other institutional characteristics make each institution different and so it is difficult to compare practices across institutions, but these data are informative of the range of options available.

Table 3. Comparison of F&A distribution arrangements at other institutions selected through an internet search in Spring, 2021. If a row totals less than 100, the remainder goes to the general treasury.

Institution	Recipient (%)							
	General	CFO	VPR	PI	Center	College	Sub-college	Other
Boise State		15	35			20	30	
Boston College				13		13	13	
Duke						100		
Emerson	60		10	15			10	5
Fl State			33.33			12.5	37.5	16.67
George Mason		30					35	35
Michigan State						10	10	
RIT	55		23	10		8	4	
UC-Irvine	30.7		15	21.1			17	22.2
U Conn				10		10	10	
U Houston						56	44	
U Kansas				4	6	10		
U Michigan	29		34			37		
U Ne – Lincoln	20.5		53		5.3	15.7	5.3	
U Nv – Reno			60.25	7.75		7.75	7.75	16.5
U So Miss	40		40			10	10	
U Utah					35	15		20
U Washington						35		65
Utah State	70					3	27	
Western Georgia			50	10		5	5	30

With respect to the actual F&A rates, there again is a wide range across institutions. In general, Universities whose cognizant agent (the federal agency responsible for negotiating their F&A rates) is the Office of Naval Research (ONR) tend to have higher rates than universities whose cognizant agent is the Department of Health and Human Services. Some private universities tend to have higher rates, with some over 60% (Harvard, Johns Hopkins, etc.), but most public universities tend to fall between 45 and 55% for their Capped On Campus Research rates, with ONR schools near or somewhat above the higher end of this range.

F&A Component Items

The F&A rate negotiated with, in Michigan Tech's case, the Office of Naval Research, is made up of numerous components and is based on audited analyses of the institutional financial statements based on the Uniform Guidance (UG; 2 CFR 200). There are numerous individual F&A rates, for Organized Research (OR), Instruction, and Other Sponsored Activities (OSA) as defined in the UG. For each there are capped and uncapped rates, and on- and off-campus rates. Although the approved rate for administrative costs is 51.25%, universities are subject to a 26 % cap on recoverable administrative costs for federal grants. However, the full administrative costs can be recovered from other sponsors. On-campus rates include both administrative and facilities costs, but off-campus rates only include administrative costs. At Michigan Tech, one set of rates applies to the main campus (including KRC) in Houghton and a different set applies to MTRI in Ann Arbor. Organized Research makes up about 90% of our total external funding and the components for our OR rate at the main campus are in Table 4.

Table 4. Components of the Organized Research F&A rate for the main campus in Houghton from the F&A proposal to ONR.

Component	Rate	Capped Rate
Administrative		
General Administration	15.45	
Departmental Administration	20.36	
Sponsored Project Administration	15.44	
Subtotal	51.25	26.00
Facilities		
Building	5.64	
Equipment	4.24	
Interest	4.51	
Operations and Maintenance	13.92	
Utility Cost Adjustment	0.67	
Library	1.91	
Subtotal	30.89	30.89
On-Campus Rate	82.14	56.89
Off-Campus Rate	51.25	26.00

Note that Table 4 contains the actual audited rates by component and are different from the final negotiated rates with ONR.

The University receives F&A recovery to cover the costs of specific items identified in Table 4. In some cases, universities directly fund those costs through recovered F&A, including direct funding to Operations and Management, for example. The approach is a way to shift costs from the General Fund to F&A through IRAD returns. Several years ago, Michigan Tech began doing this with the funding for the Shared Facilities, where F&A roughly equivalent to the equipment depreciation (approximately 4% from Table 4) are returned to a pool for the Shared Facilities that is managed by the Vice President for Research. The Task Force believes shifting costs from the General Fund to F&A through IRAD returns is appropriate when the costs directly support sponsored activities and when needs increase as sponsored activities increase. The Task Force specifically discussed the current returns to the Shared Facilities and the possibility of similar returns for the Library. The Task Force notes that subscription costs support sponsored activities and increase regularly, and also that there are new needs, such as support for open source publication, that could possibly be supported with such returns.

The Task Force specifically addressed Shared Facilities and the Library, but other items could be considered during the budget process. Operations and Maintenance, for example, could be supported, but it is not clear to the Task Force how those costs would scale as sponsored activities increase. Similarly with Building Depreciation and Interest components, though it would be possible to set funds aside to support debt service for the modernization of research facilities. It does seem logical to assume that those needs would increase as sponsored activities increase.

Recommendation 3. The Task Force recommends that consideration be given through the normal budget process to shift support for some of the components of the F&A rate to IRAD returns and reduce or eliminate support for those items from other sources, such as the General Fund.

> **Recommendation 3a. It is appropriate to do this when the funds would directly support sponsored activities and when the needs scale with changes in sponsored funding levels.**
>
> **Recommendation 3b. The Task Force recommends that these returns be set at the approximate percentage of the F&A rate component, and that this percentage only be adjusted periodically when F&A rates are re-negotiated with ONR (currently every four years).**
>
> **Recommendation 3c. In particular, the Task Force recommends that the Shared Facility funding be set at 4% of net F&A recovery and that consideration be given to supporting the Library at a level of 2% of net F&A recovery through IRAD distributions.**

Net ICR Remaining in General Fund

The proportions of Michigan Tech's recovered F&A that remained in the general fund for 2016-2020 are given in Table 5. Over these years, the percent of recovered F&A remaining in the General Fund ranged from 23.9 to 31.7% and increased from $3,875,998 in 2017 to $4,144,305 in 2020, an increase of 17.6% or $593,694, and then decreased back to $3,527,834 in 2021. The amount varies from year to year with the amount of externally sponsored expenditures, but also varies with the amount of OR vs Instructional or OSA, the number of projects with capped vs uncapped rates, and the amount of on- vs. off-campus activities. The net also changes with the relative proportion of sponsored activities by the Tier 1 Centers and Institutes. Generally, a lower proportion of net F&A remains in the General Fund when Tier 1s are contributing to a higher proportion of sponsored activities.

The Task Force had access to F&A recovery and IRAD distribution data going back to 1995. The Task Force notes that from 2005, the year before Michigan Tech acquired the Michigan Tech Research Institute, to 2007, the first full fiscal year MTRI was part of Michigan Tech, the amount of retained F&A in the General Fund increased by 39.6%, or $1,145,582, but the proportion of the net F&A recovery that was retained in the General Fund declined by over 6% from 2005 to 2007.

Thus, the percentage recovery is a less useful metric than the total amount of F&A retained. In fact, the Task Force urges all recipients of IRAD funding to focus on the size of the pie and not the relative fraction their slice represents.

Recommendation 4: The Task Force believes that the focus should be on the dollar amounts distributed to recipients or remaining in the General Fund and not the percent of net ICR being distributed or remaining in the General Fund.

Table 5. Amount and proportion of net F&A recovery remaining in the General Fund, 2017-2021.

	2017	2018	2019	2020	2021
Net F&A Recovery ($)	12,208,555	13,029,936	13,440,496	14,149,732	14,738,285
IRAD Distributed ($)	8,332,557	9,417,864	9,833,066	10,005,447	11,218,449
Remaining in GF ($)	3,875,998	3,612,072	3,607,430	4,144,305	3,527,834
Remaining in GF (%)	31.7	27.7	26.8	29.3	23.9

Tier 1 Contribution to the General Fund

Because sponsored projects at Tier 1s include faculty PIs, isolating the contribution to the General Fund specifically from the Centers and Institutes is not possible. For example, in the Great Lakes Research Center there are many projects with Faculty as Principal Investigators and the returns are shared with the Deans and Chairs and others. However, there is no report to determine how much of the F&A recovered on GLRC projects actually goes to other recipients. The information still should be indicative of the relative change over time in the amount retained in the General Fund from the Tier 1s, but we cannot obtain the exact number.

Table 6 shows the institutional amount of F&A recovered from activities in the Tier 1 institutions and the amount returned to the Tier 1s as IRAD returns. The difference between these two numbers is an overestimate of the net IRAD returns remaining in the General Fund from the Tier 1 activities because the institutional IRAD returns remaining is inflated, but should roughly proportionally indicate the change in the amount remaining in the General Fund from the Tier 1 activities.

Table 6. Funds recovered from activities in the Tier 1 Centers and Institutes and the IRAD returns to the Tier 1s.

	2017	2018	2019	2020	2021
Tier 1 F&A	6,536,970	7,669,293	8,090,040	9,305,405	10,340,992
Tier 1 IRAD Returns	4,391,702	4,764,793	4,813,513	5,197,140	6,004,348
Difference	2,145,268	2,904,500	3,277,327	4,108,265	4,336,644
Increase from 2017	-	+ 35.4 %	+ 52.8 %	+ 91.5 %	+ 102.5 %

From Table 6, the approximate contribution to the General Fund from the Tier 1s approximately doubled from 2017 to 2021. As can be seen in Table 7 below, most of the new rates are equal to or greater than the rates in FY20 or FY21. This discussion highlights the importance of the Tier 1 Centers and Institutes to the institutional total F&A recovery. This is highlighted in Figure 1 that shows the trend in the proportion of institutional F&A that comes from research in the Tier 1s. In 2016, this proportion was 52% while in 2021 it was fully 70% of the total recovered funds, as compared to the proportion of the total institutional expenditures in the Tier 1s, which ranged from 27% in 2016 to 46.3% in 2021.

This shift to a higher proportion of expenditures being in the Tier 1s has an impact on the General Fund budget. For example, in 2021, the F&A recovery increased, but the amount remaining in the General Fund decreased. The amount of recovered F&A funds remaining in the General Fund amounts to several million dollars. The proportion derived from activities in the Tier 1s has increased steadily over the past five years to about 70% of the total. It may be important for the Budget Office to take this into consideration during the budget process and refine the process for estimating F&A recovery funds in future years. Given the new F&A rates (Table 6) increased the most for the Research, Uncapped rates and that much of the work in the Tier 1s is under the Research, Uncapped rates, this trend of increasing proportions of total F&A recovery coming from Tier 1s is likely to continue as the new rates take effect. It is clear that the Tier 1s are the drivers of institutional F&A recovery, and this is likely to continue and will probably even be enhanced in the coming years.

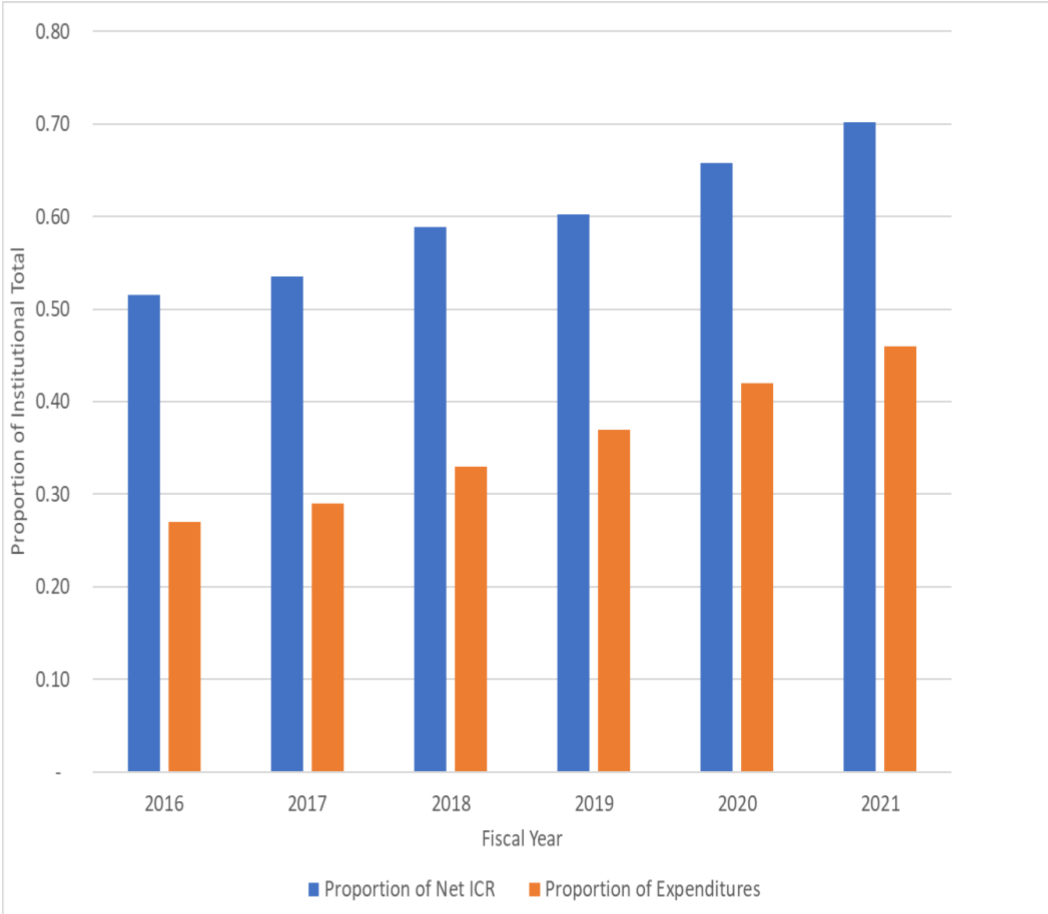

Figure 1. The proportion of total institutional F&A recovery due to activities in the Tier 1 Centers and Institutes.

Impact of New F&A Rates

In 2021, Michigan Tech negotiated new F&A rates with the Office of Naval Research for FY21-FY24. The new rates are given in Table 7. When rates change, the changes only apply to new funding or funding increments; active funding retains the same rate from the time of award to the project end date. As a consequence, new rates blend in overtime and net ICR changes gradually as new projects are awarded. For example, in FY21, there were three different Organized Research, capped rates for active projects (53%, 55%, and 56%), depending on the rates in effect at the time a project was initially awarded. Many projects have a one year or shorter duration and most funding is less than three years duration, but some projects may be awarded for up to five years.

As noted above, it can take up to five years for new rates to completely be in place. Since we negotiate new rates with the Office of Naval Research every four years, it is quite likely that there will be another set of new rates before all active projects will have the FY22-24 rates, which creates a moving target that never completely stabilizes. An estimated analysis, as presented in Table 8, shows the potential financial impact of the new F&A rates on total recovered F&A funds. It must be remembered though that the new estimated institutional net ICR recovery is probably an overestimate, but it could also be an underestimate, depending on the mix of projects, their applicable F&A rate at time of award, and the historical pattern of changes in the negotiated F&A rates.

Table 7. Negotiated F&A rates for FY20, FY21, and FY22-24.

Rate	FY20	FY21	FY22-24	Percent Increase (FY22/FY20)*100%
Instruction (Capped, On-Campus)	52.50	54.00	54.00	7.8
Instruction (Capped, Off-Campus)	26.00	26.00	26.00	0.0
Research (Capped, On-Campus)	53.00	54.60	56.50	3.8
Research Capped, Off-Campus)	26.00	26.00	26.00	0.0
Research (Uncapped, On-Campus)	70.20	72.30	78.00	11.1
Research (Uncapped, Off-Campus)	43.10	44.40	46.00	6.7
Other (Capped, On-Campus)	37.00	35.80	35.75	- 3.4
Other (Capped, Off-Campus)	26.00	26.00	26.00	0.0
MTRI				
Research (Capped, On-Campus)	51.40	52.90	56.50	9.9
Research (Capped, Off-Campus)	26.00	26.00	26.00	0.0
Research (Uncapped, On-Campus)	81.70	84.20	90.00	10.2
Research (Uncapped, Off-Campus)	56.30	58.00	57.00	1.2

Table 8 contains an estimated impact of the new FY22-24 F&A rates on total F&A recovery at the institutional level. The impact on individual units and IRAD recipients depends on their mix of applicable rates. From the totals, the estimated impact of the new rates upon full implementation is approximately $ 1 million, or 7.4%.

The new FY22-24 F&A rates also have an impact on the General Fund and will need to be considered by the Budget Office during the budget process. This Task Force also considered this increase in the F&A rates during its deliberations leading to the final recommendations.

Table 8. Estimated impact of the FY22-24 new negotiated F&A rates on institutional level total F&A recovery.

Predetermined Rate Rates	Actual F&A Recovery in FY21 ($)	Projected Recovery Under Fully Implemented FY22-24 ($)
Instruction (Capped, On-Campus)	787	808
Instruction (Capped, Off-Campus)	-	-
Research (Capped, On-Campus)	5,238,498	5,534,166
Research Capped, Off-Campus)	-	-
Research (Uncapped, On-Campus)	4,010,789	4,450,978
Research (Uncapped, Off-Campus)	209,342	227,661
Other (Capped, On-Campus)	867,841	842,243
Other (Capped, Off-Campus)	529,177	529,177
MTRI		
Research (Capped, On-Campus)	739,731	815,821
Research (Capped, Off-Campus)	-	-
Research (Uncapped, On-Campus)	2,027,468	2,221,833
Research (Uncapped, Off-Campus)	-	-
TOTAL	13,623,633	14,626,686

Turnover Rate

There is a concept in a number of disciplines that relates to the turnover rate, or how fast a pool of resources is replaced. It is possible to look at a similar measure in the IRAD accounts; what is the balance at the end of the fiscal year compared to the funds transferred into that account during the year? With that it is possible to look at the question of whether funds are being hoarded in accounts and rarely used.

Table 9 shows the turnover rate in the IRAD accounts across the entire institution for the last five fiscal years. In a year where more funds were transferred in than the end of year balance, the turnover rate is greater than one. In Table 8, 2017-2019 were relatively consistent in turnover, but in 2020, and 2021, years impacted by COVID-19, the turnover rate fell. We had seen earlier (Table 2) that items like travel were down dramatically due to COVID-19. A similar concept is residence time, or how long do funds remain in an account before they are spent. This is the reciprocal of turnover rate. And the results in Table 9 are similar with funds being resident in an index for less than a year in 2017-2020, and for more than a year in 2021, again like due to impacts from COVID-19.

There are certainly IRAD indices, particularly for the PI return (this appears to mostly occur with older or retired faculty), where the balances remain the same for several consecutive years. The Task Force believes that these exceptions could and probably should be addressed by policy. *In general, it seems that the funds are mostly being used within a year of when they are transferred in, with a low level of accumulation from year to year that roughly corresponds with the growth of IRAD transfers in total* except for recent years impacted by COVID-19.

Table 9. Turnover rate and residence time for all institutional IRAD accounts.

	2017	2018	2019	2020	2021
6/30 IRAD Balance	7,631,532	8,224,630	8,704,594	9,534,300	12,620,087
IRAD for Year	8,337,557	9,417,864	9,833,066	10,005,447	11,219,449
Turnover Rate (/year)	1.092	1.145	1.130	1.049	0.888
Residence Time (years)	0.916	0.873	0.885	0.953	1.126

Discussion

The Task Force discussion identified a number of competing interests, needs, and boundary conditions that we felt should be incorporated into any recommended changes to the existing rates. It is clear that the new negotiated F&A rates for FY2022-2024 will lead to increased F&A recovery simply because most of the rates are higher than the previous rates. This provides some flexibility in revising rates while meeting the boundary discussions discussed below.

From Table 5, it can be seen that Net F&A Recovery increased at a 4.8% annual rate from 2017 through 2021. The Task Force did not explicitly consider annual increases in developing the recommendations below, but note that these increases are expected to continue and to be confounded with and in addition to the changes in the negotiated F&A rates. This should provide a margin of conservatism in the calculated impacts of the recommended new return rates as the new F&A rates are incorporated into sponsored projects.

Needs

The Task Force identified several needs that should be considered in recommending any changes to the existing rate structure. While a list of needs can be arbitrarily long, the Task Force felt the following three were most prominent that aligned with the intended uses of IRAD funds:

- The Library has struggled with increasing subscription costs for many years. Roughly two percent of the negotiated Research rates are based on Library costs. Adding a 2% IRAD distribution to the Library will help it maintain support for research by connecting the allocation to the growth in research expenditures. This is similar to the Shared Facilities allocation in current practice.
- Principal Investigators struggle with identifying available funds for required cost share on external grants. There are several situations the Task Force is aware of where proposals were not submitted because sufficient cost share could not be identified. This sometimes occurs for example, with teams preparing National Science Foundation Major Research Instrumentation grants, one of the primary sources of external funding for laboratory equipment, which require a 30% cash match. It would be possible to develop either a central fund to support required cash cost share, or additional funds could be provided to Colleges, Departments, Centers, or Institutes to make it easier for them to provide cost share commitments.
- Departments, Colleges, Centers, Institutes, and Shared Facilities are responsible for providing safe working conditions for externally sponsored activities. Associated costs often increase with increased research activities, particularly in the areas of chemical safety and in the operation of equipment. There are also biosafety concerns that must be addressed. There are no specifically identified funds for these activities. That should probably be addressed, but in the meantime Deans, Chairs, and Directors often use IRAD funds to cover costs associated with ensuring safe working conditions.

Boundary Conditions

In working to develop its recommendations, the Task Force incorporated several boundary conditions during its deliberations. These were basically self-imposed constraints that were incorporated into the recommendations.

- Because IRAD returns are General Fund dollars that the University commits to support research and graduate activities, the Task Force advocates prioritizing strategic uses over tactical uses of the returned funds. The Task Force explicitly recognizes that the boundary between 'strategic' and 'tactical' is often fuzzy and subject to interpretation, but for the Task Force 'strategic' implied investments that were expected to increase capacity and support further growth in externally sponsored funding. One example is the contributions to research equipment acquisition by Colleges, Departments, and Centers/Institutes.
- The General Fund budget requires that several million dollars of net F&A recovery remain in the General Fund. While the Task Force believes it is time to change the way these funds are projected in the budget process it also believes that it is important not to reduce the funds remaining in the General Fund during the development of its recommendations.

Other Considerations

There were several other considerations the Task Force recognition in developing the recommendations below:

- The Task Force also explicitly recognizes that the various recipients of IRAD returns have different access to other discretionary funds. A College Dean, for example, may have other discretionary funds available while a faculty Principal Investigator may not have ready access to other discretionary funds. In this way, IRAD funds are truly an incentive for faculty to seek external funds.
- The incorporation of the new F&A rates will not benefit all IRAD recipients equally. From Table 7, the largest increases are in the Research, Uncapped rates, so IRAD recipients with funded projects where these rates will apply will preferentially benefit from the new rates. We could not explicitly take this into account in developing the impact of the new F&A rates or in estimating our projected returns, but we did recognize that this was a factor in developing our recommendations. And within any IRAD return category, the Task Force recognizes that there may be recipients that are impacted more positively or more negatively than the estimated average due to their mix of applicable rates.

Conclusions

The Task Force wants to again emphasize that the approximately $11 million that the University allocates from the General Fund to support the research community through IRAD transfers is very impactful and very much appreciated. The Task Force also acknowledges that the $4,075,707 that remains in the General Fund after the IRAD distributions is very important to the University Budget and any recommended changes to the IRAD return rates must not reduce this number. Finally, the Net ICR used in the pro forma in Table 10 to estimate the F&A recovered under the new rates is $15,828,916. The Vice President for Research does monthly projections of expected F&A recovered for the fiscal year; at the end of the first quarter of FY22 (September 30, 2021) the estimate is $16,000,000, which is very close to the value used in the pro forma.

In the University budget for FY22, adjustments were made to the IRAD return rates to cover a budget shortfall of approximately $600,000 on a temporary basis while this Task Force conducted its work. The Task Force notes that Departments and Colleges received the largest proportional reductions. The Task Force further notes that the Departments and Colleges are responsible for most of the costs of faculty startup, safety and health conditions for research activities, and cost share when required by external sponsors. None of these needs have specifically budgeted funds and commonly come out of Departmental and College IRAD funds. The Task Force believes that the IRAD returns for Departments and Colleges should be returned to 9%.

Table 10. Pro forma projections using recommended rates.

Recipient	FY21 Actual		FY22 Projected		Recommended	
	Rate*	Return	Rate	Return	Rate	Return
Net ICR		14,783,283		14,783,283		15,828,916
College	9%	696,290	7.5%	580,242	9 %	747,815
Department	9%	696,290	7.5%	580,242	9 %	747,815
PI	10%	1,052,677	10 %	1,052,677	9 %	1,017,518
Shared Facilities	4%	595,010	3.5%	520,634	4 %	639,041
Use Charge	26%	633,988	25 %	609,604	25 %	654,715
Library	-	-	-	-	2 %	316,518
Tier 1 Center/Institute	VAR	6,710,997	VAR	6,539,826	VAR	7,022,570
Tier 2/ Special Returns	18%	825,197	17 %	779,353	18 %	886,262
Total Returns		11,210,449		10,662,576		12,033,315
Net to General Fund**		3,527,834		4,075,707		4,113,180

* The percentage return rates are the percentages applied to the base for the given recipient; for a college, for example, the base is the Net F&A recovered from sponsored projects within that college.
** The calculated Net to General Fund assumes the Library General Fund budget will be reduced by the projected return amount ($316,518) when these recommendations are implemented.

The Task Force examined the question of whether recovered F&A funds should be used to support components of the F&A rate. We believe this is appropriate when the cost of an activity grows in concert with an increase in sponsored activities, that the return amount should be approximately equal to the percentage contribution of that component to the On Campus, Capped F&A rate for that component, and that these return percentages should be examined whenever new rate agreements are negotiated. The Task Force believes that currently, such returns are appropriate for the Shared Facilities and the Library. The Task Force therefore recommends that the Shared Facility returns be returned to 4%, approximately equal to the research equipment depreciation component of 4.24%. The Task Force also believes that a return should be established to the Library in the amount of 2%, approximately equal to the Library component of 1.91%. The Task Force notes that increasing research places increasing demands on Library resources and that resources like Digital Commons have become required for publication in many journals. In addition, subscription costs are increasing and the establishment of page costs for publications in open-access journals are all areas where faculty need the Library's assistance. The Task Force further notes that the Budget Office may want to consider similar returns for Building Depreciation, Interest, Operations and Management, and Utilities. In FY21, at the new rates this would have corresponded to 10.15% ($1,500,503) for Building Depreciation and Interest and 14.59 % ($2,156,735) for Operations and Maintenance and Utilities.

The Tier 1 Centers and Institutes now have over half of Michigan Tech's research expenditures and seventy percent of the F&A recovery. The higher percentage of F&A recovered is due to their large number of projects with Uncapped F&A rates. The Tier 1's each have different cost structures and thus different IRAD return rates to cover those costs. MTRI covers their office lease, all utilities, internet and IT costs, and office staff, while CTT does not have space or utility costs. The Task Force recommends that the minimum Tier 1 IRAD rate and the Tier 2 return rate be set at 18% and notes that this will return the Centers and Institutes to parity with the Departments and Colleges that was recommended to promote interdisciplinary research by the 2010 IRAD Return Task Force. The Task Force recognizes that the ratio of fixed to variable costs in the Tier 1's vary with the amount of funding and note that there are significant increases in the Uncapped F&A rates in the new agreement with ONR. Thus, it is recommended that the MTRI and KRC returns be reduced to 78% and 59%, respectively.

The Task Force recommends return of the returns to Shared Facilities to 4%, add a return to the Library of 2%, increase the returns to Colleges and Departments to 9%, and increase the returns to Centers and Institutes back to a minimum of 18%. The proposed distribution should increase resources available to support research activities across campus. The Task Force recommends a reduction in the Individual PI returns to 9%, but believes this will be offset by the increases noted above.

Finally, the Task Force notes there are some Special Returns, such as for the Ford Center within the College of Forest Resources and Environmental Science, and the Task Force recommends that these not be changed or altered beyond what is indicated in Table 10.

Recommendation 5. The Task Force recommends that the University adopt the recommended rates in Table 10 in Fiscal Year 2023.

Summary of Recommendations

Recommendation 1. The Task Force believes that stated purpose of IRAD funds should be revised to explicitly recognize the importance of supporting facilities and administrative infrastructure, particularly in the Tier 1 Centers and Institutes:

"*Michigan Tech institutional research and development funds are general funds allocated to Colleges, Departments, Centers/Institutes, and researchers for use in supporting facility and administrative infrastructure and to enhance research and graduate studies.*"

Recommendation 2. The Task Force believes that IRAD returns to the Tier 1 Centers and Institutes are a true reimbursement of the incurred Administrative and Facilities costs the respective Tier 1's incur, and should not be viewed as a discretionary investment to support research and graduate studies.

Recommendation 3. The Task Force recommends that consideration be given through the normal budget process to shift support for some of the components of the F&A rate to IRAD returns and reduce or eliminate support for those items from other sources, such as the General Fund.

> **Recommendation 3a. It is appropriate to do this when the funds would directly support sponsored activities and when the needs scale with changes in sponsored funding levels.**
>
> **Recommendation 3b. The Task Force recommends that these returns be set at the approximate percentage of the F&A rate component, and that this percentage only be adjusted periodically when F&A rates are re-negotiated with ONR (currently every four years).**
>
> **Recommendation 3c. In particular, the Task Force recommends that the Shared Facility funding be set at 4% of net F&A recovery and that consideration be given to supporting the Library at a level of 2% of net F&A recovery through IRAD distributions.**

Recommendation 4: The Task Force believes that the focus should be on the dollar amounts distributed to recipients or remaining in the General Fund and not the percent of net ICR being distributed or remaining in the General Fund.

Recommendation 5. The Task Force recommends that the University adopt the recommended rates in the Table below in Fiscal Year 2023.

Summary Table. Recommended IRAD rates for FY23.

Recipient	Return Rate
Colleges	**9 %**
Departments	**9 %**
Individual PIs	**9 %**
Shared Facilities	**4 %**
Use Charge	**25 %**
Library	**2 %**
Tier 1 Centers and Institutes	
KRC	**59 %**
MTRI	**78 %**
APSRC*	
CTT	**18 %**
GLRC	**40 %**
ICC	**18 %**
HRI	**18 %**
Tier 2 Centers and Institutes/Special Returns	**18 %**

*The Task Force notes the APSRC return formula changed on July 1, 2021 and there is not yet a full fiscal year of experience with that structure, so we recommend no change to that rate.

Acronyms

APSRC	Advanced Power Systems Research Center
C/I	Centers and Institutes
CFO	Chief Financial Officer
COGR	Council of Government Relations
CFR200	Code of Federal Regulations - OMB (Office of Management and Budget) policy
CTT	Center for Technology and Training
F&A	Facilities and Administrative Costs
FY	Fiscal Year
GF	General Fund
GLRC	Great Lakes Research Center
HRI	Health Research Institute
ICC	Institute for Computing and Cybersystems
ICR	Indirect Cost Recovery
IRAD	Institutional Research and Development Funds
KRC	Keweenaw Research Center
MTRI	Michigan Tech Research Institute
ONR	Office of Naval Research
OSA	Other Sponsored Activities
OR	Organized Research
O&M	Operation and Maintenance
PI	Principal Investigator
RCB	Responsibility Centered Budget
UG	Uniform Guidance (2 CFR 200)
VPR	Vice President for Research