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UNIVERSITY

OFFICE OF

FINANCE & TREASURY

Operationalizing Best Practices for Internal Service and Recharge Centers

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Princeton University

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Session Description

- Many NECA participants are well versed in understanding federal costing requirements as they relate to internal service and recharge centers; however, the challenge is **operationalizing the standards** into compliant best practices.
- The presenters will share their experiences **working with academic departments** to address **common business issues** such as developing equitable billing rates, cost allocation approaches, and treatment of various types of user subsidies.

Learning Objective

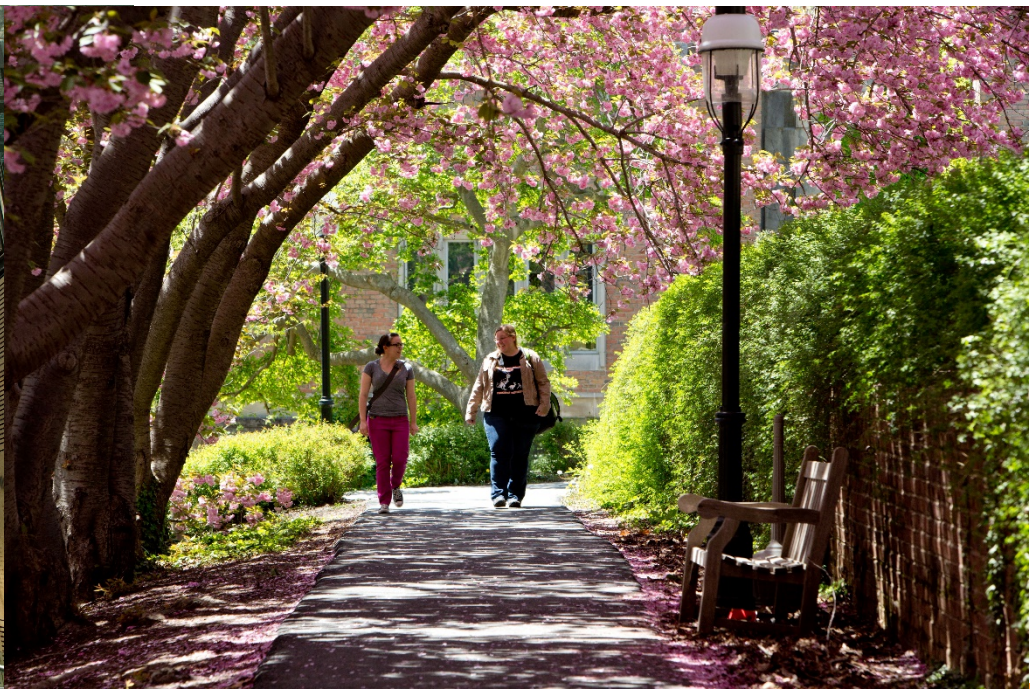
- This session will provide strategies for operationalizing the federal costing requirements as they relate to internal service and recharge centers.

Prerequisite

- Working knowledge of federal costing guidelines as they relate to internal service and recharge centers; particularly, *OMB Uniform Guidance 2 CFR 200.468, Specialized Service Facilities*.



About Us Princeton University



About Princeton University

People

- 1,261 Faculty
- 5,260 Undergraduate
- 2,845 Graduate

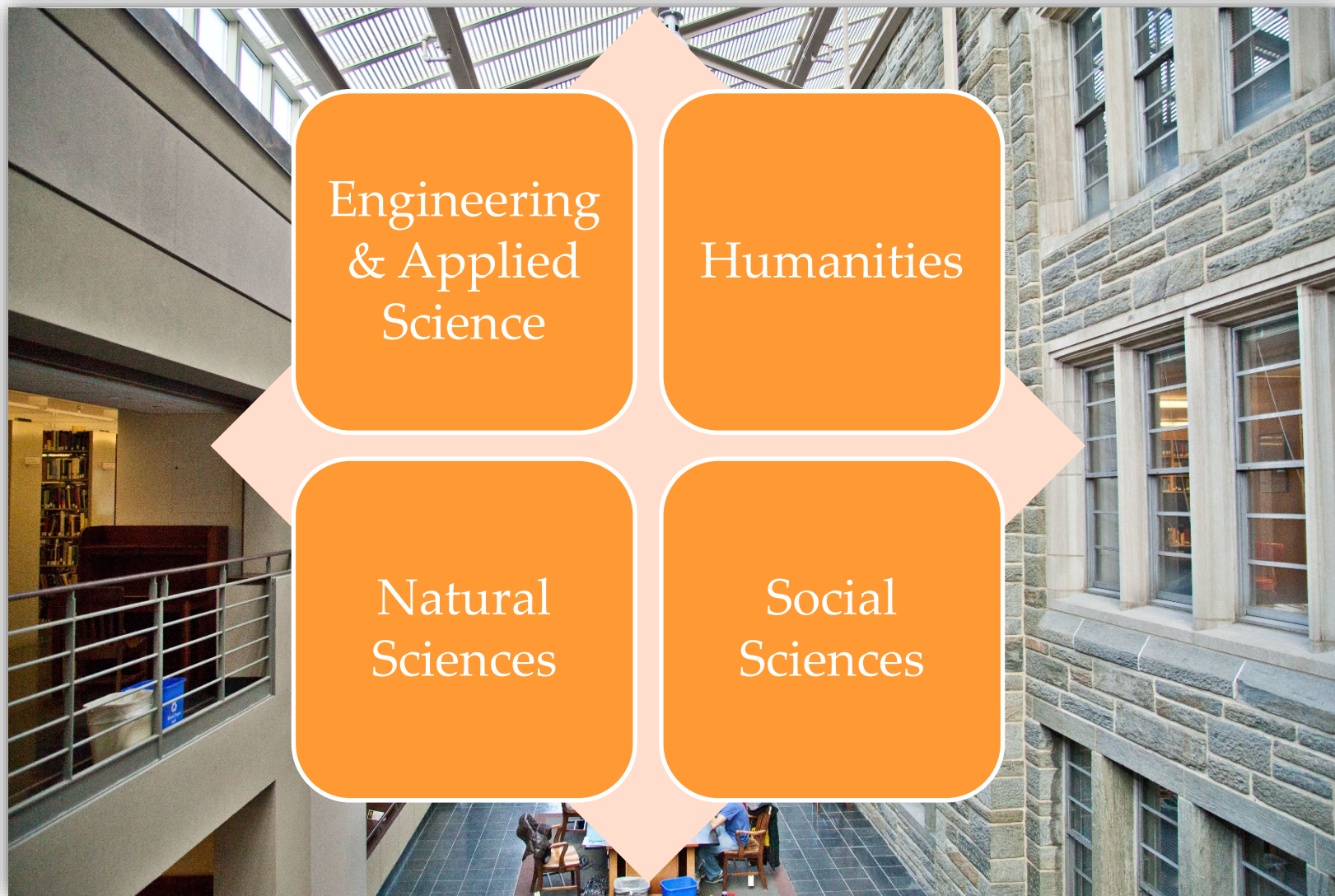
Research

- 1,458 research funding awards
- 37 academic departments

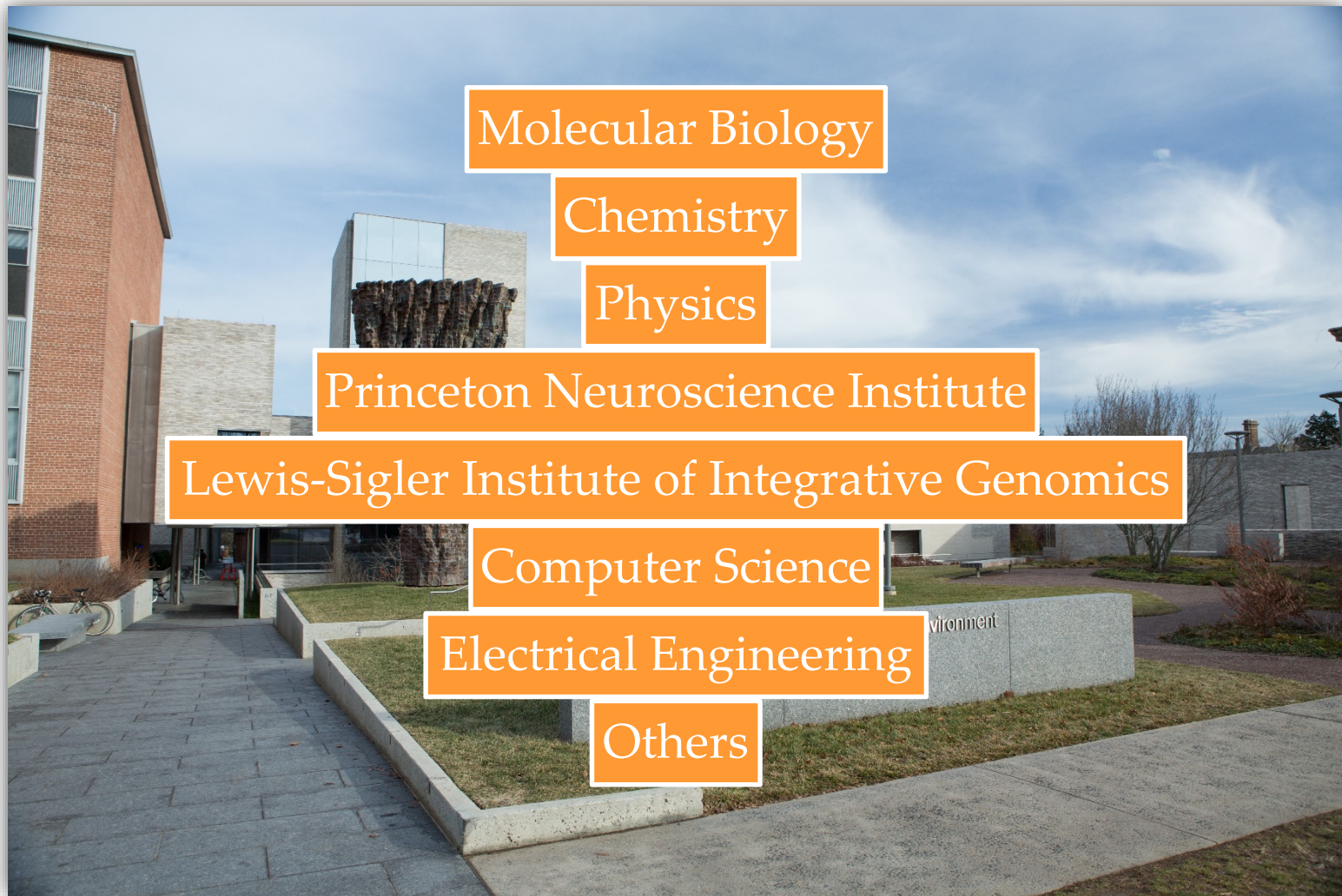
Teaching

- 5 to 1 undergraduate student to faculty ratio
- 200 plus campus buildings

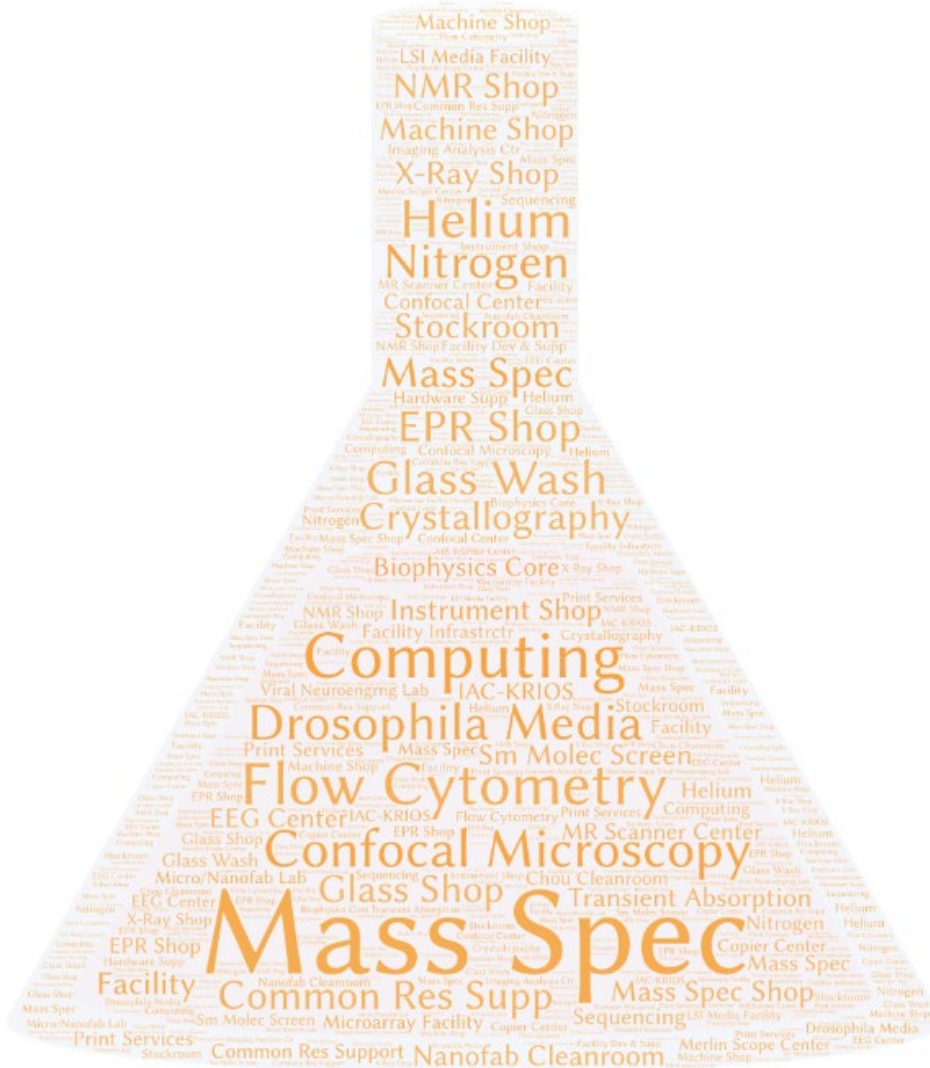
Research Areas



Academic Departments with Recharge Centers



Types of Recharge Centers at Princeton



Costing, Analysis, and Policy - Department Mission

Why

- Produce meaningful analyses of costs, evaluating the impact to business operations, and protect the University where there are federal costing compliance considerations.

How

- Collaborate with our partners in academic units, Office of Research and Project Administration, Facilities, Human Resources, Audit and Compliance, Office of Information Technology, and throughout Finance and Treasury using financial information and data analysis techniques.

What

- Prepare proposals to the federal government to support our F&A rate, our employee benefits rates, and the rates of academic research facilities.
- Develop costing data by combining related financial information, transaction attributes, and statistics in order to create costing, trend, and predictive forecast models.

Highlights of Costing Requirements

OMB Uniform Guidance 2 CFR § 200.468 - Specialized Service Facilities

Highly Complex or
Specialized

Apply Subsidies

Charge Based on
Actual Usage

Schedule of Rates

Do Not
Discriminate
Between Federal &
Non-Federal Users

Recover only
Aggregate Costs

Direct and Indirect

Adjust Rates at least
Biennially

Apply
Deficit/Surplus

Allocate Immaterial
Costs as Indirect

Alternate Costing
Arrangements with
Cognizant Agency

Break-Even Rate
Analysis

Terminology



General Types of Core Facilities

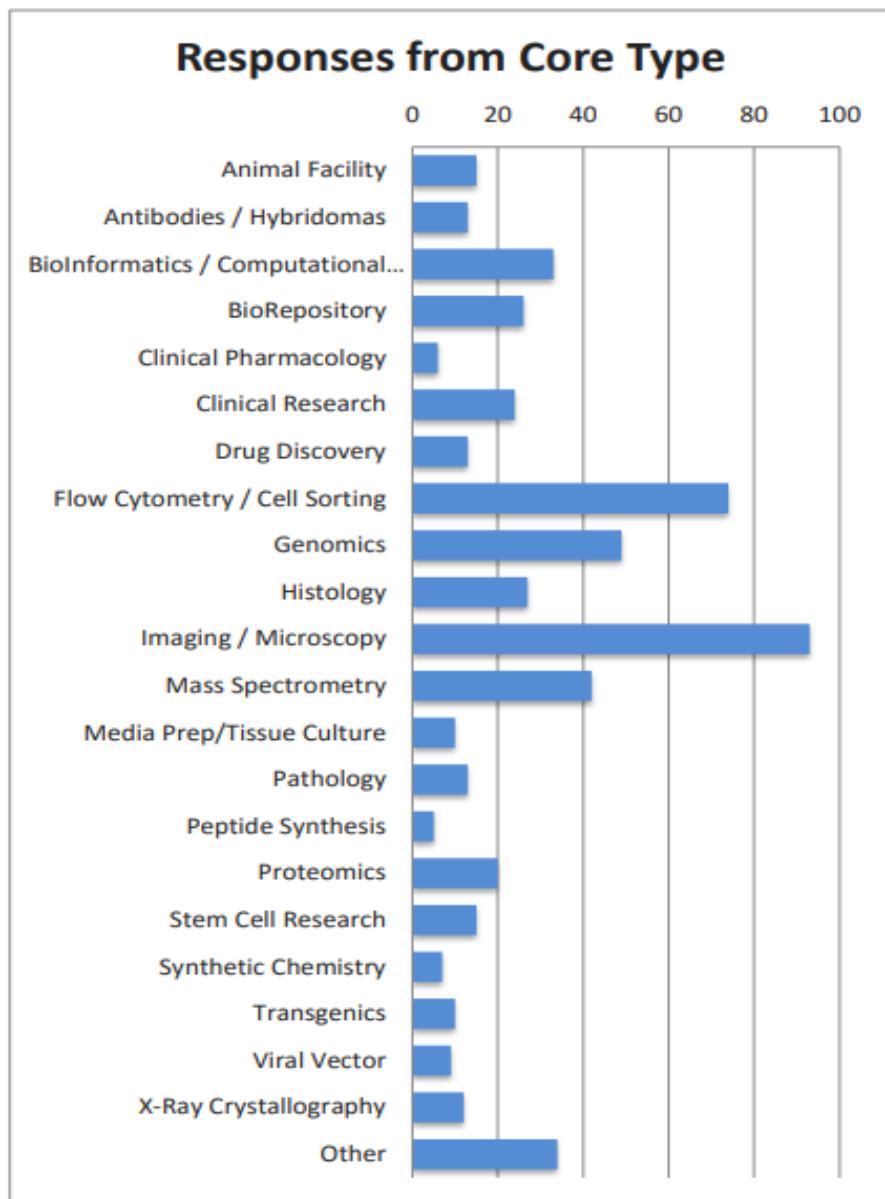
Animal Facilities (Zebrafish, Fly, Mouse, Vivarium)
Antitumor Assessment
Assay Development
Behavioral Research
Biochemistry
Bioinformatics
Biomechanics
Biomolecular
Biopathology
Biophysics
Biorepository
Biostatistics
Cancer Center
Cellular Analysis / Cell Line
Cell Biology
Cell-Sorting
Cell Therapy/Engineering
Clean Room
Clinical (Services, Research, Trials, Grade Production)
Computational Biology
Cytogenetics
Cytology
DNA Analysis
Embryonic
Environmental Health and Safety

Epidemiology
Epigenomics
Flow Cytometry
Gene Manipulation
Gene / Micro RNA
Expression
Gene Transfer Vector
Genomics / Genome
Analysis and
Technologies
Genotyping
Glassware Washing
Good Manufacturing
Practice
Histology
Histopathology
Imaging (Cell,
Molecular, PET,
Translational)
Immunology
Immune Function /
Monitoring /
Surveillance
Immunophenotyping
Investigational Products
Irradiation
Lipidomics
Machine Shop

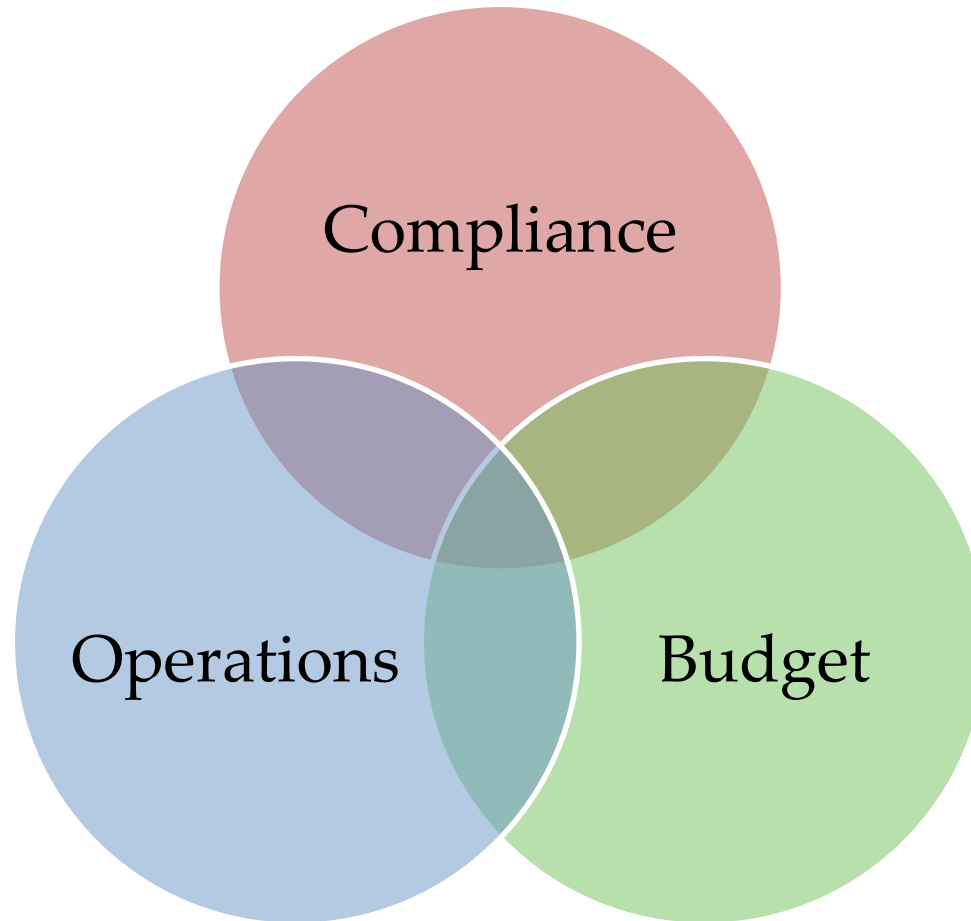
Major Instrumentation
Magnetic Resonance
Mass Spectrometry
Materials
Characterization
Media Preparation
Medicinal Chemistry
Metabolomics
Microarray
Microchemistry
Microfluidics
microCT
Microscopy (Electron,
Fluorescence, Optical)
Molecular Microbiology
Molecular Structure and
Modeling
Morphology
Neuroscience
Nuclear Magnetic
Resonance
Nuclear Radiation
Nucleic Acid
Nutrition and Food
Science
Oncology (Translational)
Organic Synthesis
Pathogenesis

Pathology
Pharmacology (Analytical,
Research)
Phenotyping
Physiology
Preclinical Modeling /
Imaging
Protein Production /
Analysis
Proteomics
Regulatory Knowledge
and Research Support
Research Engineering
Research Informatics
Semiconductor
fabrication clean room
facility
Sequencing
Shared Equipment
Social Science Core
Specimen Accessioning
Staining
Stem Cell
Training Resources
Transgenics
Viral Vector
Web Survey
X-ray Crystallography

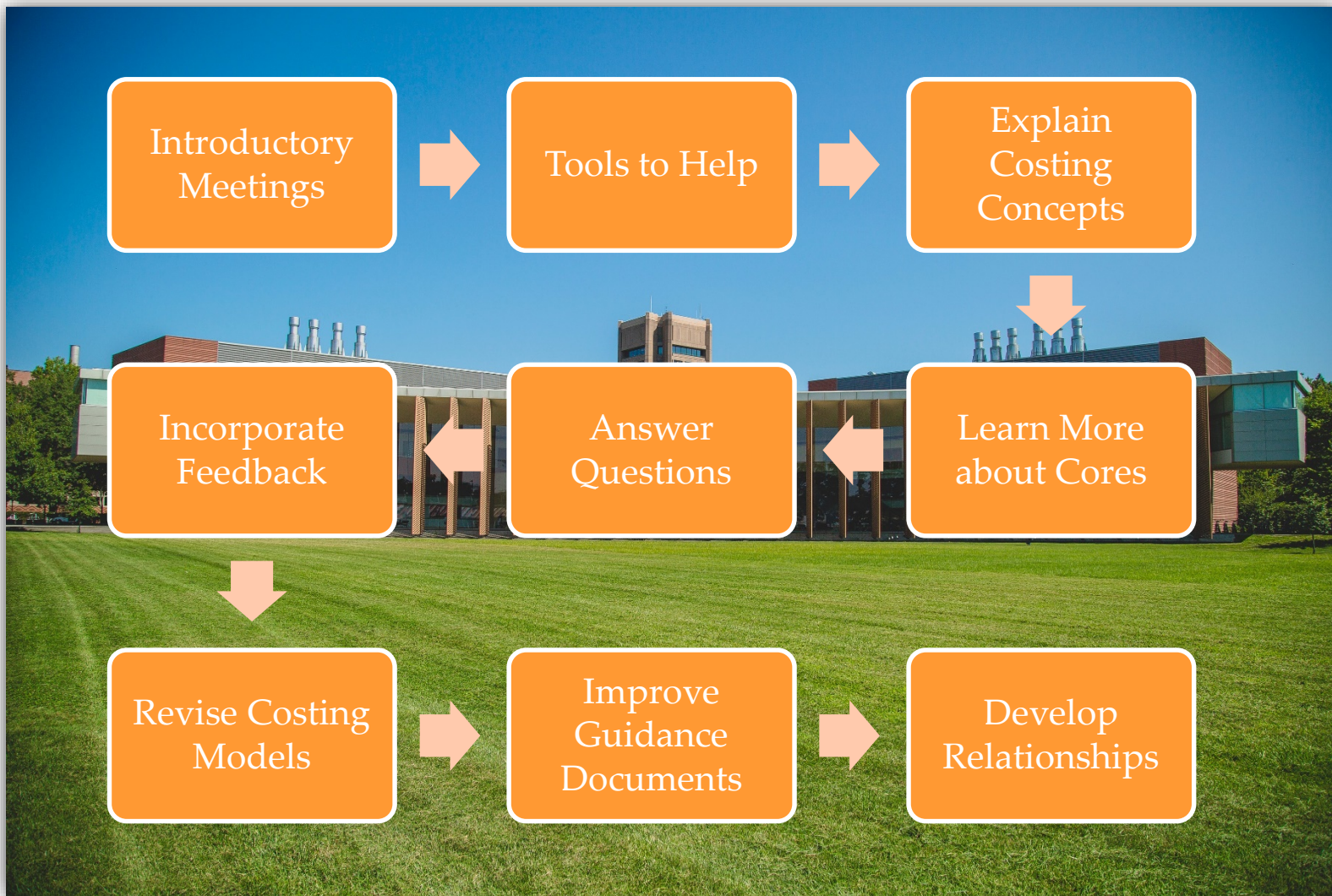
Core Facilities Grouped by Type



Competing Priorities



Interacting with Academic Departments



Examples of Initial Costing Tendencies

1. Aligning rates with comparable peer core facilities
2. Subsidizing in the aggregate and not calculating costs for individual services
3. Calculating hourly rates based on 100% utilization
4. Not including all allocable items of cost
5. Estimating precise per unit costs and never seeing whether the per unit costs gets you to the total budgeted costs
6. Confusing break-even cost analysis to setting billing rates
7. Perspectives—when to look backward and when to look forward and reconciling on a cash vs. accrual basis
8. Treatment of subsidies

Aligning Rates with Comparable Peer Core Facilities

Issue

- Arbitrary rates without a cost analysis do not prove the costs of each service and may not be compliant
- Oftentimes, there are not “apples-to-apples” comparisons; peer institutions may be subsidizing their cores, may have different equipment, and/or different staffing levels

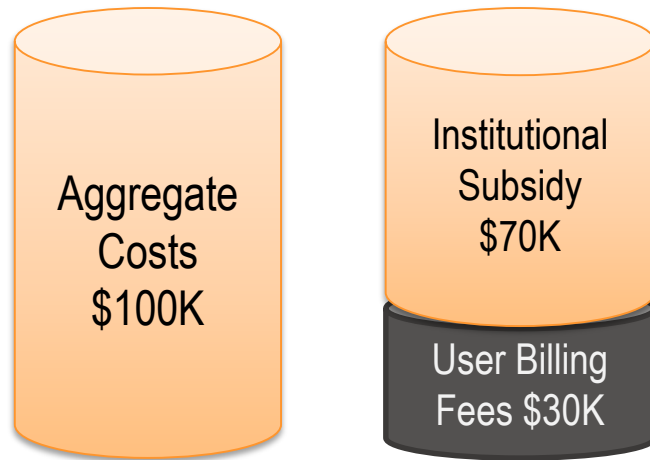
Recommendation

- Prepare a cost analysis estimating costs, assigning costs to the appropriate services where possible, projecting usage, and seeing
- Look at the cost assumptions to differentiate services
- Compare your calculated costs to billing rates
- Then, compare your calculated costs to peer core billing rates and they may in fact be very close.

Subsidizing in the Aggregate and Not Calculating Costs for Individual Services

Issue

- We are required to calculate the cost of each service; however, there may be some validity to this argument



Recommendation

- Prepare a Cost Analysis
- Consider simplifying the service offerings by looking for common cost denominators and group like services vs. highly customized, ad-hoc services
- Analyze usage to get better understanding of the likelihood of all services being used

Calculating Hourly Rates based on 100% Utilization

Common Method

40 hours x 52 weeks = 2,080 hours

2,080 hours less 160 hours vacation less 40 hours sick

less 88 hours holidays = 1,792

Salary divided by 1,792 = billing rate

Alternative Method

Determine percent effort in service center

Determine billable time in service center

Divide pro-rated salary by billable time to arrive at billable rate

Compare percent effort to billable hours for reasonableness

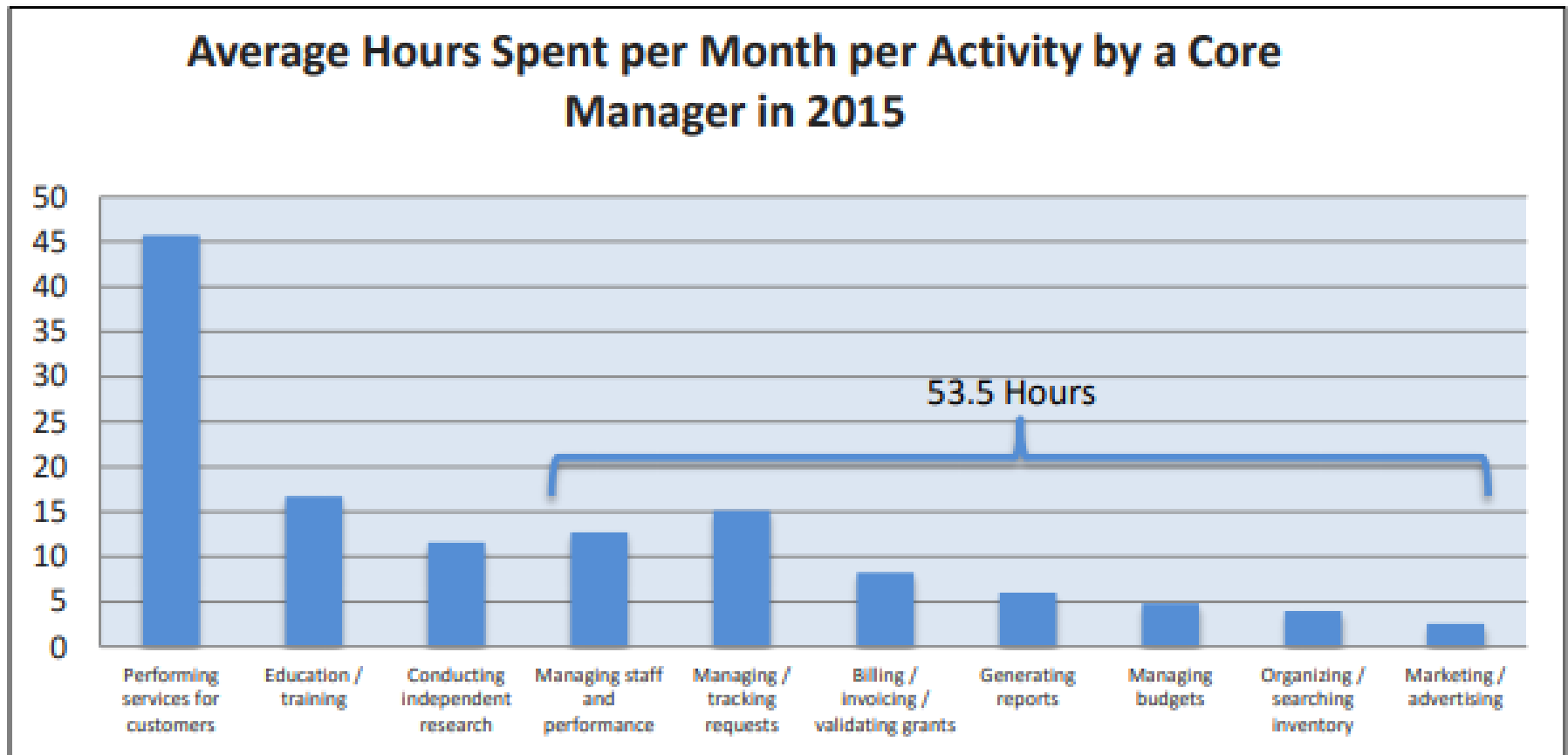
Issue

- Too many hours in the denominator does not accurately reflect cost of services
- This method does not account for all activities in a core facility

Recommendation

- Determine the percent effort service center staff will devote to the recharge center final cost objective
- Within that level of effort, estimate denominator of billable hours
- Compare the total activity to percent effort to validate reasonableness

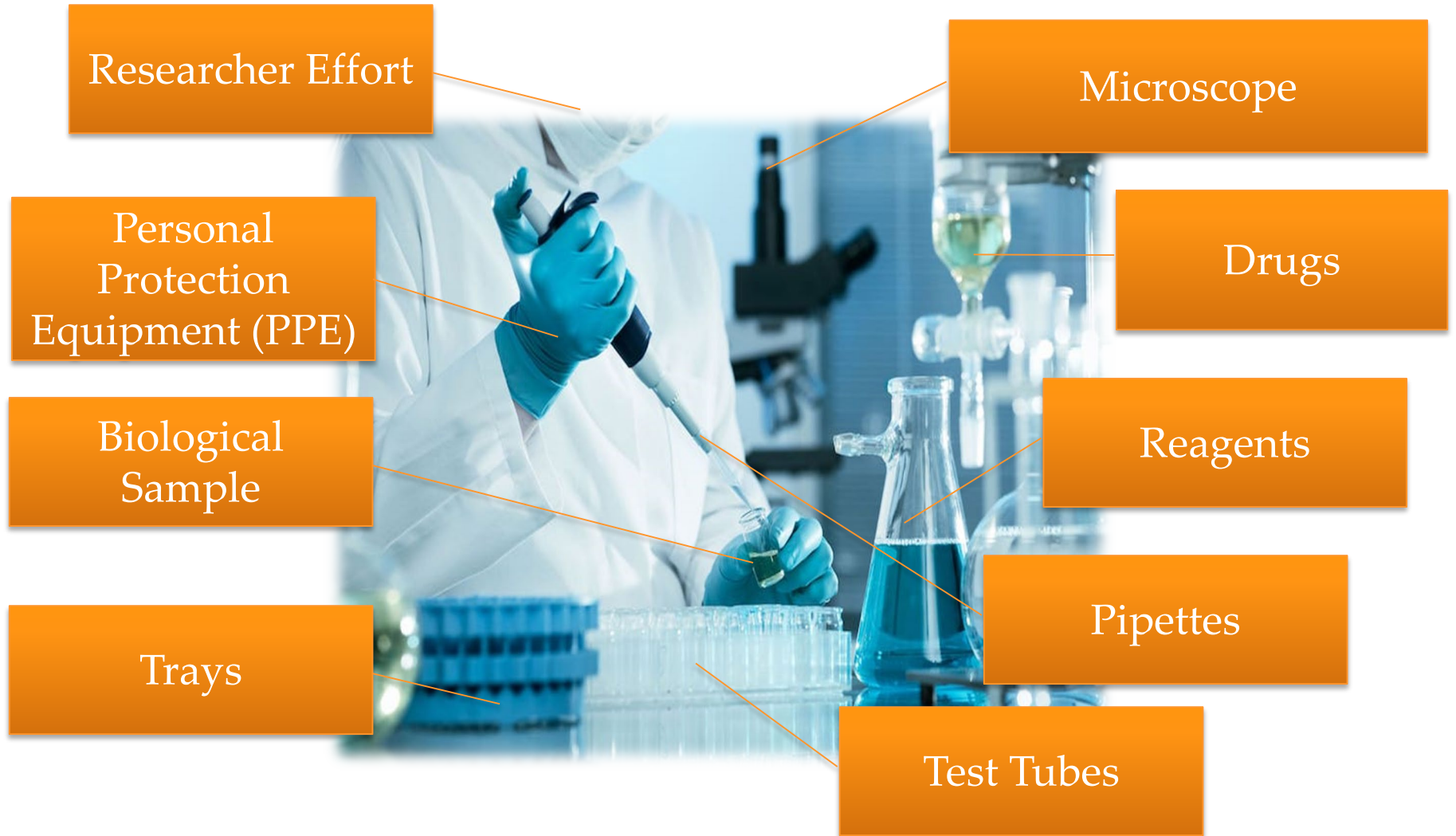
Calculating Hourly Rates based on 100% Utilization



Determining all allocable items of cost



Determining all allocable items of cost



Estimating precise per unit costs and never seeing whether the per unit costs gets you to the total budgeted costs



Sample Experiment:	
Effort	\$50
PPE	\$1
Sample	\$30
Trays	\$5
Drugs	\$49
Reagents	\$80
Pipettes	\$10
Test Tubes	\$5
Cost	\$230
Billable Usage	2,000
Total Costs	\$460,000

- Issues and Recommendations
 - This level of detail appears thorough; however, the cost analysis needs to be validated
 - Typically, multiple services are offered in the same core facility that share people, supplies, and equipment; therefore, a comprehensive cost analysis for the entire service center produces a more thorough cost analysis
 - A comprehensive cost analysis will be more reliable and less labor intensive than calculating costs for individual cost components

Sample Cost to Rate Comparison

Projected Statement of Activity		
Revenue		
Revenue	\$ 167,925.00	
Projected Total Revenue	\$ 167,925.00	
Costs		
Fixed Costs		
Exempt Staff	\$ 240,720.00	
Hourly Paid Staff	\$ -	
Non-Labor Fixed Costs - Supplies, Service Maintenance Contracts, Travel and Outreach	\$ 82,425.00	
Equipment Depreciation	\$ -	
Prior Year Deficit or (Surplus)	\$ 15,123.00	
Sub-Total	\$ 338,268.00	
Variable Costs		
Sub-Total	\$ 125.00	
Total Costs		
Projected Total Costs	\$ 338,393.00	
Projected Total Surplus or (Deficit)	\$ (170,468.00)	-50.38%

Sample Cost to Rate Comparison

Cost Analysis						
	Unassigned Costs	Service 1	Service 2	Service 3	Service 4	Service 5
Assignable Fixed Costs	76,683.00	61,704.00	76,788.00	91,917.00	12,912.00	15,816.00
Complexity Modifier		5	3	3	4	1
Projected Usage		875.00	420.00	799.00	35.00	5.00
Weighted Value		4,375.00	1,260.00	2,397.00	140.00	5.00
Weighted Percentage		53.50%	15.41%	29.31%	1.71%	0.06%
Allocated Fixed Costs		\$ 41,028.27	\$ 11,816.14	\$ 22,478.80	\$ 1,312.90	\$ 46.89
Total Assignable Fixed Costs		102,732.27	88,604.14	114,395.80	14,224.90	15,862.89
Projected Usage		875.00	420.00	799.00	35.00	5.00
Fixed Cost per Unit		\$ 117.41	\$ 210.96	\$ 143.17	\$ 406.43	\$ 3,172.58
Variable Costs						
description		\$ -	\$ -	\$ -	\$ -	\$ 25.00
description		\$ -	\$ -	\$ -	\$ -	\$ -
description		\$ -	\$ -	\$ -	\$ -	\$ -
description		\$ -	\$ -	\$ -	\$ -	\$ -
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description		\$ -	\$ -	\$ -	\$ -	\$ -
description		\$ -	\$ -	\$ -	\$ -	\$ -
Total Variable Costs per Unit		\$ -	\$ -	\$ -	\$ -	\$ 25.00
Projected Total Variable Costs		\$ -	\$ -	\$ -	\$ -	\$ 125.00
Total Cost per Unit		\$ 117.41	\$ 210.96	\$ 143.17	\$ 406.43	\$ 3,197.58
Proposed Rate per Unit		\$ 30.00	\$ 50.00	\$ 150.00	\$ 25.00	\$ 1,500.00
Variance - (Favorable) / Unfavorable		\$ (87.41)	\$ (160.96)	\$ 6.83	\$ (381.43)	\$ (1,697.58)

Side-by-side rate to aggregate cost comparison

Cost Analysis						
	Unassigned Costs	Service 1	Service 2	Service 3	Service 4	Service 5
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Projected Statement of Activity

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Sub-Total	\$ 338,268.00

Variable Costs

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Total Costs

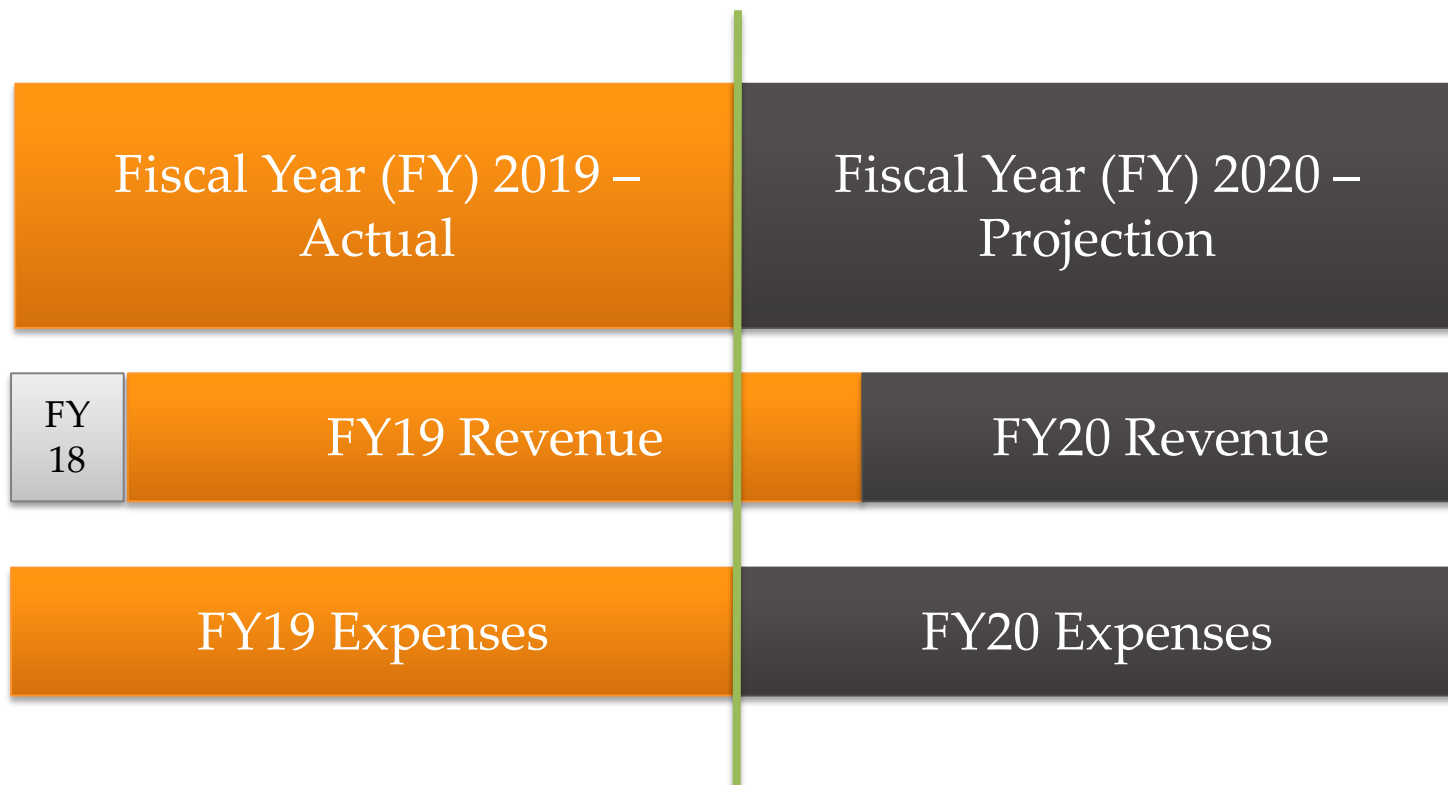
Projected Total Costs	\$ 338,393.00
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Projected Total Surplus or (Deficit)	\$ (170,468.00)	-50.38%
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Perspectives—when to look backward and when to look forward and reconciling on a cash vs. accrual basis

- Issues
 - Academic departments may get confused whether the cost analysis is backwards or forward looking
 - Deficits or Surpluses may be explained on an accrual accounting basis when in reality, the General Ledger shows a fund balance on a cash basis
 - Determining how over/under recoveries will be factored into the next fiscal year's billing rates

Perspectives—when to look backward and when to look forward and reconciling on a cash vs. accrual basis



Perspectives (continued)

- Recommendations
 - i. Project costs using last fiscal year as the baseline for projecting the next fiscal year
 - ii. Project next fiscal year usage by looking at top users and seeing if there are any changes such as new recruits, new awards, or any other material events
 - iii. Once the usage for next fiscal year has been determined, then adjust costs to account for increases/decreases in next fiscal year usage
 - iv. Having fixed and variable costs well defined in a comprehensive cost analysis model will allow for ease of modeling
 - v. Understand why prior year had a deficit or surplus and work that into your next fiscal year's cost analysis
 - vi. Document what happened for audit trail and reference when doing this again next fiscal year

Types of Subsidies

1) Department or Institution Subsidizes Aggregate Costs

- Service Center charges less than cost per service, Department or Institution picks up the difference

2) An Entity Subsidizes Entire Service Center

- Core Grant
- Gift or Endowment Funding

3) An Entity Subsidizes a Targeted User Group

- Cancer Center
- Graduate Student

4) Shared Resource

- Department or Institution provides core service at no charge to internal users

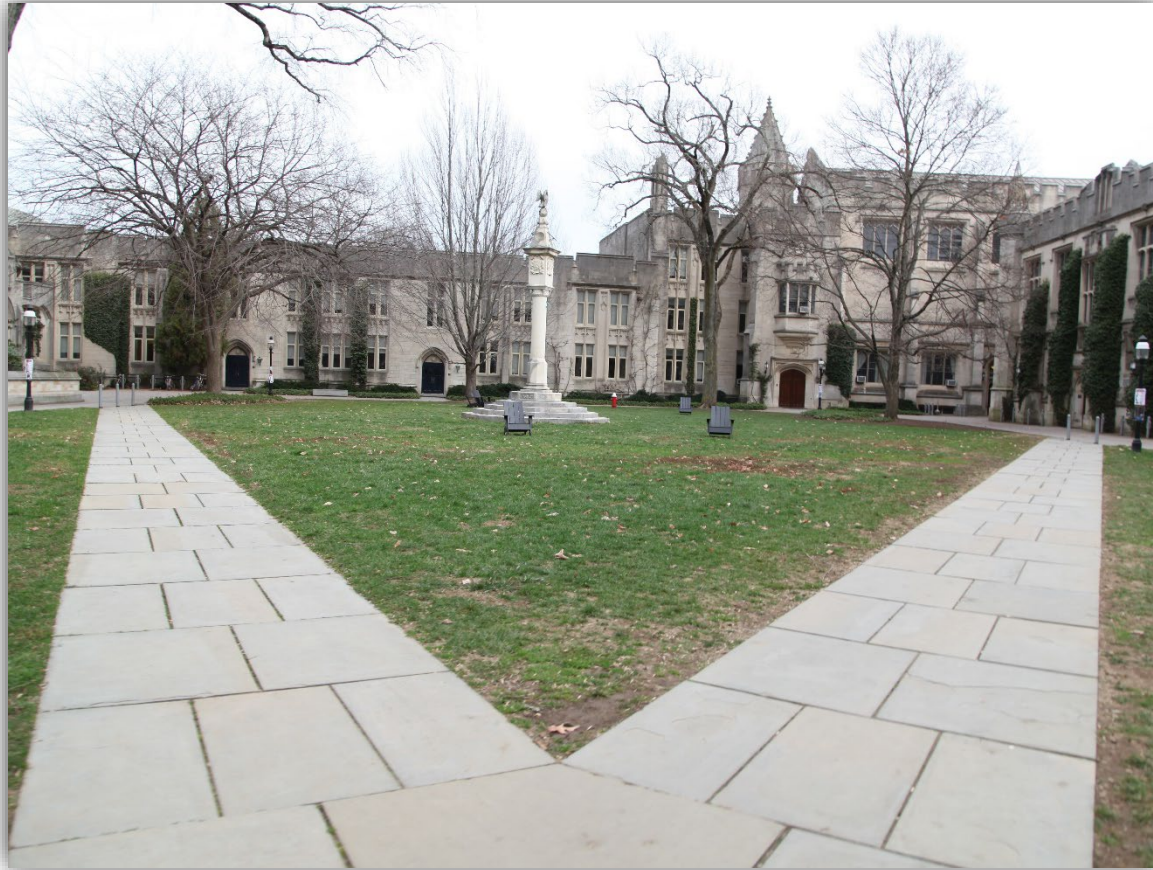
Recommended Best Practices to Operationalize Compliance Requirements

1. Set clear expectations in a service / recharge center policy for rate setting, billing, allowability, and year-end over/under recoveries
2. Define roles and responsibilities for cost analysis preparation, review, rate setting, billing, and funding of deficits
3. Establish a timeline for annual cost analysis tasks
4. Meet the core facility directors and academic business managers to better understand their operations, share compliance requirements, and insights on strengthening the process
5. Provide a cost analysis template to demonstrate an approach, but ultimately customize a model to reflect how the service / recharge center works

Recommended Best Practices to Operationalize Compliance Requirements

(continued)

6. Translate the compliance expectations without bogging the academic departments down with unnecessary regulatory jargon
7. Always consider the perspectives of the core director and academic business managers when making recommendations—their priorities are their core operations, budgetary impacts, and compliance
8. Keep lines of communication open by checking in with the academic departments during the fiscal year
9. Acknowledge each core's issues will not neatly fit into a predetermined answer
10. Be open to new ideas and testing the boundaries of your creativity when it comes to costing solutions



Concluding Discussion



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