Incentive-based Budget Model Subcommittee Report
Preface

To fully understand this report, you are encouraged to learn more about IBB by reviewing all of the informational and educational materials on the IBB website.

We are committed to meeting with anyone, anytime, anywhere to discuss IBB. If you would like to schedule a meeting, please contact Alberto Citarella, University Budget Director.

The following report is one of eight separate reports that will be used to develop a comprehensive Incentive-based Budget Model for the University of Vermont. Each of the eight subcommittees was asked to address a particular component of the overall IBB budget model.

The proposed algorithms contained within the reports are not intended to be a perfect accounting of revenue generation and resource usage across the University. They do, however, provide a solid foundation upon which the initial IBB model will be based, and they support the project’s Guiding Principles and the University’s Academic Excellence Goals.

Each report has only been vetted by the subcommittee that wrote it. It is possible that the proposed algorithms presented by the eight IBB subcommittees may, at times, contradict each other.

The IBB Steering Committee will use these reports as the basis for its further discussions and final recommendation on an integrated IBB budget model. It is possible that the Steering Committee may need to adjust the proposed algorithms to create a coherent, comprehensive and workable budget model.

It is strongly recommended that you read all eight subcommittee reports; they are all interrelated. If, after reading a report, you have feedback to share, please complete the survey that accompanies the report.

January 29, 2014
Subcommittee Charge
"[To provide] a minimum of two algorithms to allocate the cost of University-wide common goods and administrative services among the revenue-generating Responsibility Centers."

Subcommittee Membership
Polly Parsons (Chair), Mike Austin, Shari Bergquist, Stephen Dempsey, Rose Feenan, Cathy Krupp, Patricia Redmond, Mara Saule, Ross Thomson, Gregory Warrington.

Introduction
A primary goal of incentive-based budgeting is to increase the transparency of the costs of centralized university services and the resulting flow of benefits to various units across the university. While it is true that some centralized services are used primarily by certain units and certain subpopulations within the university, most of these services benefit units collectively and inter-relatedly as a common good. Even if there were one "true" system of algorithms that reflected all of these interrelationships, the complexity and cost to implement such a system would be prohibitive. The method of allocating costs of centralized services among the units that use them should therefore be based on a simplified, yet theoretically defensible, correlation between resource usage and the selected cost driver(s) employed. As such, the algorithms we present in this report are approximations of the most important interrelationships among the university parts.

For the purposes of this report, each university unit is either a responsibility center or a cost center. A Responsibility Center, such as the College of Arts & Sciences, is primarily defined by its revenue-generating capability and its use of and dependence on centralized services. A Cost Center, such as Payroll or Admissions, is a unit that does not generate revenue, but that does support the responsibility centers through the provision of centralized services or resources.

The purview of this Committee¹ does not include the categorization of units into centers nor do we take any position on the appropriate sizes of budgets of cost centers or the merits or quality of the services they provide. The aim of the Committee is to describe a clear, easily implementable method by which the costs of services can be allocated to the responsibility centers in a manner consistent with resource usage. In addition to the cost and responsibility centers, there are three components to our models.

Cost Driver: A cost driver is a characteristic (activity, action or state) of a responsibility center that influences how much it uses certain services. For example, the "student headcount" associated with a responsibility center will influence how much it benefits from various student-oriented services such as the Registrar. Similarly, the "total expenses" of a responsibility center will influence how much it uses Financial Analysis & Budgeting. Because the cost allocations depending on these drivers have the potential to affect operating behaviors and economic decisions by all units (responsibility centers and cost centers alike), drivers should be universally understood, uniformly applied, and transparent to all participants.

Cost Allocation Methodology: There are 79 individual cost centers that were considered (see Table 1) and for each of those specific drivers were identified and used to allocate costs to the responsibility centers. Each allocation methodology is a weighting of drivers that precisely encodes how to apportion the costs of a center to the responsibility centers. The two algorithms proposed are comprised of multiple cost allocation methodologies.

For example, suppose cost center A, with a budget of $100,000 devotes 80% of its effort performing a set amount of work for each student on campus and the remaining 20% helping faculty and staff. An allocation methodology of "80% student headcount, 20% faculty/staff headcount" might be appropriate.

¹ Although a subcommittee of IBB, we refer to our group in this report as the Committee, since we broke down further into various other subcommittees to achieve certain tasks.
for this cost center. Then 80% of cost center A's budget, or $80,000, is allocated to the various responsibility centers according to the percentage of students associated with them. If 10% of students and 15% of faculty/staff are associated with responsibility center B, then center B would bear $8,000 (10% x $80,000) due to its student headcount and $3,000 (15% x $20,000) due to its faculty/staff headcount.

Cost Pool: A cost pool is a group of cost centers for which the same allocation methodology is appropriate. For example, the Center for Student Ethics and Standards and the Center for Health & Well Being serve similar populations of students. If “100% student headcount” were to be used as the allocation methodology for both of these cost centers, they could be placed in the same cost pool. The aggregate costs of the units within each pool are then allocated to the responsibility centers using the common allocation methodology of the pool.

Description of the process by which the algorithms were developed:

As an aid to further direct our work, the Committee agreed early on to enlarge the Guiding Principles of Incentive-based Budgeting in the Committee's charge to include the following specific objectives:

1. The cost allocations should be consistent with resource usage.
2. The allocation methodologies should be
   (a) easy to understand,
   (b) easy to implement, and
   (c) based on simple formulas involving a handful of standardized drivers.
3. The drivers should be familiar and based on readily obtained data.
4. The cost pools should
   (a) arise naturally as groups of units with comparable allocation methodologies,
   (b) provide a useful summary of the various service-expense categories.

As our first task, the Committee broke into two working groups to independently create two “intuitive” models based solely on our existing knowledge of how each of the 79 cost centers served the university. This exercise resulted in two “first pass” intuitive models (comprised of four cost pools for one work group and seven cost pools for the other work group.) These two models turned out to be in substantial agreement with the models we ultimately conclude below from our more exacting process.

It was decided that in order to justify any model we produced, it would be necessary to gather detailed information regarding individual cost centers. To this end, we surveyed the leaders and VPs responsible for the cost centers. These individuals were asked to describe the populations they served, explain how they served these populations, and to suggest relevant drivers. Using additional information from the FY13 UVM Source Book, the Committee used a very granular approach by treating each cost center as a separate cost pool with the objective of determining its uniquely ideal cost allocation methodology.

Some cost centers support the university at large whereas others provide service to specific groups. For many of the latter centers we received data estimating the percent effort spent serving each of six university populations (undergraduates, graduate students, students in the College of Medicine, non-degree students, faculty, and staff). These cost centers were grouped into a handful of preliminary cost pools according to similar percentage profiles. Then, taking into account the relative budgets of each cost center, a mathematically weighted allocation methodology was determined for each group. For example, if cost center A has a budget of $1 million and an allocation of “80% student headcount, 20% faculty/staff headcount” while cost center B has a budget of $500,000 and an allocation of “20% student headcount, 80% faculty/staff headcount,” then pooling these two cost centers together yields a cost pool of $1.5 million, and a weighted average allocation methodology of “60% student headcount, 40% faculty/staff headcount.” That is, since two-thirds of the total cost pool is comprised of cost center A’s budget, twice as much weight is given to its cost drivers than those for cost center B.

From this work we discovered that many of the cost centers had very similar drivers. Working groups within the Committee then proceeded to iteratively combine those cost centers with similarities into larger cost pools. The process started with cost centers whose allocation methodologies in the granular 79 cost
pool model were the same and proceeded to include cost centers with successively divergent, yet similar, allocation methodologies. For the 79 cost centers we concluded that six cost pools were sufficient to accommodate even minor differences in allocations. Furthermore, the six cost pools could be further collapsed into 4 cost pools which increased the ease of understanding and implementation but resulted in some loss of specificity in the allocations.

**Proposed Algorithms:**

*Proposed Algorithm #1: Six Cost Pools:* The six cost pool model provides groupings of cost centers with very similar allocation methodologies. The pools and drivers are as follows: (see Table 1 for detailed breakdowns).

1. **Administration** (24 cost centers). Driver: Expenses
2. **Organizational Support** (7 cost centers). Driver: Faculty and staff headcount.
   These cost centers serve specifically faculty and staff.
3. **Student/Academic** (22 cost centers). Driver: Adjusted student headcount and/or student FTE.
   A responsibility center's use of student/academic cost center services is broadly proportional to their number of students. The number can be defined in two ways: student headcount and student FTE. For some services full time and part-time students require different levels of support. Adjusted student headcount (number of full time students and the number of part time students divided by three: $FT + PT/3$) accounts for those differences. The student FTE (student credit hours in that unit divided by 30 for undergraduates and by 24 for graduate students) accounts for the fact that students often do not reside solely within a single responsibility center. Using a combination of adjusted student headcount and student FTE provides a cost allocation methodology that acknowledges those important distinctions. With regard to the percentage used for each, we advocate using the same combination of adjusted headcount and FTE that is to be used in determining student revenues (yet to be reported by a separate IBB subcommittee). Hence if revenues from undergraduate students were determined with 80 percent going to student FTE and 20 percent to adjusted student headcount, then expenses of this cost pool would be allocated similarly.
4. **Community** (8 cost centers). Driver: Total headcount (adjusted student headcount+faculty headcount+staff headcount).
   These centers are equally valuable to all university members. This refers specifically to faculty and staff who receive compensation from the university.
5. **Libraries and IT** (17 cost centers). Drivers: Total FTE (students, faculty and staff), total headcount, student FTE and faculty and staff headcount.
   The libraries divided their drivers equally between total FTE and total headcount, and IT equally between student FTE and faculty/staff headcount. The percentages for each driver were determined by weighting libraries and IT by their relative expenses. The university should

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2 The Committee discussed at length the difference between using revenue vs. expense as a driver. Realizing that there were incentives and disincentives to both, the Committee chose expenses. Expenses are able to be controlled more rapidly, and responsibility centers would experience the result of reducing expenses quicker than taking action to increase revenue. In addition, expense-based allocation incents cost reduction at the responsibility center level, resulting in lower indirect expense assignments, whereas basing on revenues dis-incentivizes revenue enhancements. In some cases the latter could actually engender a perverse incentive to decrease revenue at the responsibility center level. Furthermore, the Committee discovered that most universities used expense vs. revenue as a driver which lent additional credibility to the decision.

3 During this process, the Committee discovered that the drivers themselves had nuances that could result in significant variation in the costs being allocated to each responsibility center. For example, if headcount was used as a driver, then this would include adjunct faculty and distance education students which could significantly inflate costs charged to the responsibility centers when in fact, very little services would be realized. Further, if FTE was used a driver, then it would not account for part-time faculty and temporary employees who do not carry an FTE. Therefore, responsibility centers would be undercharged for services regularly received. As IBB evolves it will be important to refine the headcount and FTE driver definitions to address these nuances.
identify measures of faculty and staff headcount and FTE similar to the adjusted student
headcount used in the Student/Academic cost pool.

The Foundation is unique in that it is a separate entity from UVM that ultimately should be self-
sustaining. Some of its costs can be met by a tax on gift revenues, but this cannot be the sole
driver because some gifts don't go to responsibility centers, too high a tax on gifts would negate
the purpose of the gifts, and gift revenues are too variable to meet the annual costs of the
Foundation. Because of the uniquely autonomous and soon-to-be self-sustaining quality of the
Foundation, we recommend that it be funded by subvention. If we think of it as a responsibility
center that ultimately will meet its costs, then a subvention seems appropriate in the
transition. Otherwise, expense would be the recommended driver using the same rationale as the
Administrative and University Services cost pool.

**Proposed Algorithm #2: Four Cost Pools:** The four cost pool has the advantage of ease of understanding
and implementation but there is less specificity of the cost allocation when compared to the six cost pool
model. (See Table II)

1. **Administration** (31 cost centers). Drivers: Expenses and staff and faculty headcount.
This pool combines Administration and Organizational Support pools of the six-pool model. The
weights reflect the relative sizes of these two pools
2. **Student/Academic** (22 cost centers) Drivers: Adjusted student headcount/student FTE.
3. **Community** (25 cost centers). Drivers: total headcount, total FTE , student FTE , staff and faculty
headcount
This combines Community and Library and IT cost pools of the six-pool model, using the same
drivers. The share attributable to each driver depends on the sizes of respective expenditures of
these cost centers.
4. **UVM Foundation** (1 cost center) Drivers: Expenses/Subvention

**General Comments on the two algorithms:**
1. The two proposed algorithms ultimately make the same allocations to the responsibility centers.
The four-pool model achieves the same allocations as the six-pool model by trading more
granular cost pools for more complicated allocation methodologies.
2. The Committee recommends that the exceptions to any model used be kept to a minimum.

**How the Algorithms Support the Guiding Principles**
1. *Creates incentives that promote academic quality and excellence:* As a tuition-driven university
on the revenue side that is cost-driven on its operations side, there is a dysfunctional disconnect
between academic quality/excellence (requiring more revenues) and the state of the University’s
fiscal affairs (requiring lower costs). Tactical decisions are made at the central level and are based
on revenues taken in at the central level; yet, responsibility center managers are closest to the
operations of their units and should therefore be more attuned to the opportunities and capabilities
available to them to enhance the quality of their programs. In order to do this, however, they
should have more flexibility to identify and keep funds they raise for these unique purposes. The
cause-effect cost pool algorithms we have developed should keep responsibility center managers
attuned to the fact that their operations vitally depend on general support services as well their
own direct costs. Consequently, whether ratcheting up certain operations or downsizing others,
responsibility centers will see relevant changes in their indirect cost assignments.
2. *Creates incentives at all levels of the university that promote financial sustainability:* Managers
can only be sensitive to what they know. The transparent indirect cost algorithms we propose will
therefore be additional information currently unknowable by these managers. If the IBB Model
works as intended, the allocations of indirect costs to responsibility center managers will increase
their sensitivity to the size of the indirect costs, which may require pressure being brought to bear

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Cost Pools
on centralized services to reduce costs. If allowed to negotiate with administration, responsibility center managers could also work to shed light on new ways to improve efficiency and effectiveness on the part of common good providers. Cost centers will therefore be “under the spotlight” to improve their accountability for the size and nature of such costs.

3. **Encourages innovation and entrepreneurship throughout the university:** The traditional centralized decision-making model leaves little room for Deans and other responsibility center managers to be creative in terms of revenue generating opportunities. However, if a responsibility center directly benefits from the creation of a new revenue stream it is far more likely that new innovative programs will be created not only within a single responsibility centers but across responsibility centers to build on the diverse strengths of the institution. The proposed models will also encourage cost reduction. Using expense as a driver for some of the cost pools will encourage responsibility centers to closely monitor their own expenses. Similarly, when responsibility centers are paying the equivalent of a fee-for-service for the cost centers, the effectiveness and efficiency of the cost centers will increase as well.

4. **Provides transparency, clarity, and predictability:** These aspects have been addressed and supported throughout our report.

5. **Can be easily understood, is easy to implement and operate, and is flexible:** These aspects have been addressed and supported throughout our report.

*Can operate in all cycles of the economy, whether robust or downturn:* The methodologies we propose are not inherently susceptible to exogenous changes in the economy because the algorithms are independent of the actual amount of revenue and expenses which will likely change over time.

**Related Issues for Steering Committee Consideration:**

1. Although the Committee briefly discussed how summer activities would factor into this exercise, the question arose as to whether the Steering Committee should look at it differently.

2. The Steering Committee needs to clearly define revenue and expenses in a consistent manner. For both revenue and expense related drivers, the source of funds or expenditure type (restricted, unrestricted or both) needs to be identified.

3. The Committee recommends that data from the fall semester be the proxy that is used for planning unless there is a demonstrated significant change across the fall and spring semester.
### Table 1: 6 Cost Pools

<table>
<thead>
<tr>
<th>Cost Pool</th>
<th>Driver</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>11590 Davis Center</td>
<td>11240 Treas. &amp; Tax Serv.</td>
<td>10100 Audit Serv.</td>
</tr>
<tr>
<td>30000 Sen. VP &amp; Provost</td>
<td>11270 Cost Acct.Svcs.</td>
<td>10305 Compliance</td>
</tr>
<tr>
<td>11400 Fin. Analysis &amp; Budget</td>
<td>11220 Fin. Rpt &amp; Accq Svcs.</td>
<td>10000 President’s Office</td>
</tr>
<tr>
<td>20001 Admin. Bus. Serv. Ctr.</td>
<td>00003 Treas. Operations</td>
<td>11575 Police Services</td>
</tr>
<tr>
<td>11550 Procurement Serv.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Support (7 cost centers)</td>
<td>Faculty and Staff Headcount</td>
<td></td>
</tr>
<tr>
<td>30050 Faculty Senate</td>
<td>11531 Environ. Safety</td>
<td>11280 Payroll Svcs</td>
</tr>
<tr>
<td>11300 Human Resources</td>
<td>11530 Risk Mgmt &amp; Safety</td>
<td>11320 HRS Learning Svcs.</td>
</tr>
<tr>
<td>Student/Academic (22 cost centers)</td>
<td>Adjusted Student Headcount/Student FTE</td>
<td></td>
</tr>
<tr>
<td>30200 Adm. &amp; Enroll Mgmt</td>
<td>30430 Career Serv.</td>
<td>30230 Liv &amp; Learn Ctr.</td>
</tr>
<tr>
<td>11250 Student Fin. Svcs.</td>
<td>30210 VP Enroll Mgmt.</td>
<td>30440 Ctr. Stdnt Ethics &amp;Snd</td>
</tr>
<tr>
<td>30420 Acad. Support Prog.</td>
<td>30454 Student Life</td>
<td>30410 Student &amp; Comm. Rel</td>
</tr>
<tr>
<td>30220 Registrar</td>
<td>30400 Dean of Students Off.</td>
<td>30450 Ctr. Hith&amp;Well Being</td>
</tr>
<tr>
<td>30240 International Educ. Svcs.</td>
<td>30231 Res. Lrg Cmty</td>
<td>30456 Student Govt. Assoc.</td>
</tr>
<tr>
<td>58200 Grad. Coll</td>
<td>30452 Res. Life</td>
<td></td>
</tr>
<tr>
<td>Community (8 cost centers)</td>
<td>Total Headcount</td>
<td></td>
</tr>
<tr>
<td>10090 ALANA Student Ctr.</td>
<td>10050 Women's Ctr.</td>
<td>30100 Cultural Pluralism</td>
</tr>
<tr>
<td>Libraries/IT (17 cost centers)</td>
<td>30% TotalIFTE+30%TotalHeadcount+20%Student FTE +20%Fac/Staff Headcount</td>
<td></td>
</tr>
<tr>
<td>58328 Bailey Howe Library</td>
<td>58326 B. Howe-Collect Mgmt</td>
<td>58330 Dana Med. Lib.</td>
</tr>
<tr>
<td>58300 Libraries - Dean's Office</td>
<td>58312 Ctr. Teach/Learning</td>
<td>11600 Entp. Tech. Svcs.</td>
</tr>
<tr>
<td>58370 B. Howe-Acc&amp;Tech Svcs.</td>
<td>58374 B. Howe Res. Collect.</td>
<td>11630 ETS Client Svcs.</td>
</tr>
<tr>
<td>UVM Foundation</td>
<td>Expenses/Subvention</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: 4 Cost Pools

<table>
<thead>
<tr>
<th>Cost Pool</th>
<th>Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration (31 cost centers)</td>
<td>75%Expenses+25% Faculty and Staff Headcount</td>
</tr>
<tr>
<td>Administration + Organizational Support = 31 cost centers</td>
<td>adjusted student headcount/student FTE</td>
</tr>
<tr>
<td>Student/Academic (22 cost centers)</td>
<td>adjusted student headcount/student FTE</td>
</tr>
<tr>
<td>Community (25 cost centers)</td>
<td>50%TotalHeadcount+25%TotalIFTE+12.5% Student FTE+ 12.5% Staff and Faculty Headcount</td>
</tr>
<tr>
<td>Community + Libraries/IT = 25 cost centers</td>
<td>expenses/subvention</td>
</tr>
<tr>
<td>UVM Foundation</td>
<td>Expenses/Subvention</td>
</tr>
</tbody>
</table>

Cost Pools