OverheadCAM's Rule Specification: Power and Simplicity

Constructing and maintaining a set of cost allocation rules is an exacting job, especially when a complex enterprise must be modeled accurately. Software shouldn't make it hard. OverheadCAM provides a way of specifying allocation rules so that they are simple, easy to understand, powerful, and free from arbitrary restrictions that allocation software might impose on a specification.

OverheadCAM enables complex organizations to be modeled without the restrictions of processing directives that are purely for the convenience of the allocation software.

An example of a processing directive would be a requirement that step allocations require that particular rules be identified with particular steps. OverheadCAM derives all the necessary information from the rule set. OverheadCAM's way makes important tasks easier and more effective:

+ A business analyst modeling a complex organization can concentrate on business relationships, not on processing restrictions.
+ A system producing OverheadCAM rule input does not need as much global awareness of the structure of the rule set.

In both cases, maintenance to a rule set over time is easier and less error prone.

The capability and simplicity of OverheadCAM will be explained and illustrated with an example. The example will be taken through several stages, at each step adding complexity to the business situation being modeled. This business situation is an "idealized" one, without the variety of operations that would be seen in a large organization. However, as you go through the stages, you will see that the OverheadCAM way of specifying rules gives a precise model of these business situations while maintaining simplicity.

OverheadCAM's rules are grouped into sets. A whole set is all processed at once. There are no architectural constraints on how many sets there can be or on how big or small they can be. Here is a rule, expressed in informal English:

```
HR goes 30% to trucks and 70% to cars.
```

Rules are used just the way you would expect. For example, if this rule were applied to a $1,000,000 expense balance for HR, then Trucks would get $300,000, and Cars would get $700,000.

For computer input to OverheadCAM, the rules would be structured in some way such as XML, comma separated values, or a fixed field length format. The particular format of the rules is not critical. In our example the following format will be used:

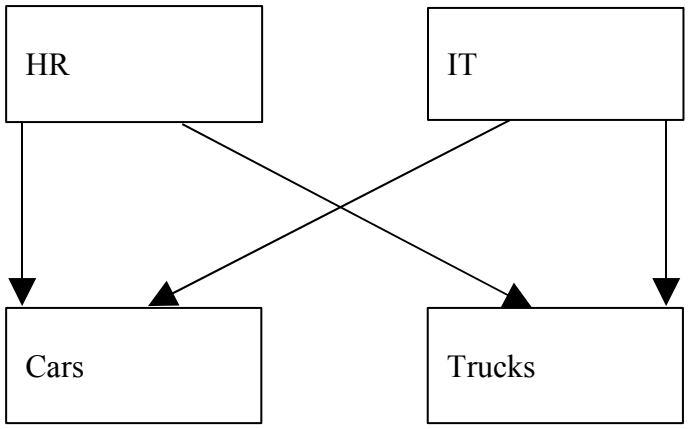
```
HR:  Trucks, .30;   Cars, .70
```

In the rule sets and charts below, **bold** is used to indicate parts that are new or of special interest. In the charts, "flow" of costs is shown without an indication of proportions. OverheadCAM can be configured to accept each of these rule sets exactly as shown and use them to calculate correct results.

Phase 1. Employs direct allocation.
This example has two rules. It illustrates **direct allocation**.

```
HR:  Trucks, .30;   Cars, .70
IT:  Trucks, .60;   Cars, .40
```

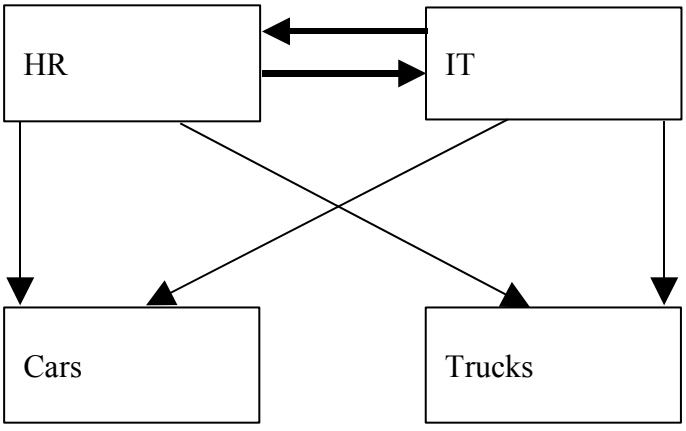
Phase 1



Phase 2. Adds reciprocal allocation.
This one has two rules that are similar to those in Phase 1, but adds a reciprocal relationship between HR and IT. This represents the common situation where service organizations provide services to each other. After all, IT has staff and HR uses computer resources. This illustrates direct allocations and **reciprocal allocations**. An additional destination or allocation target has been added to each rule.

```
HR:  IT,  .05;   Trucks, .30;   Cars, .65
IT:  HR,  .10;   Trucks, .60;   Cars, .30
```

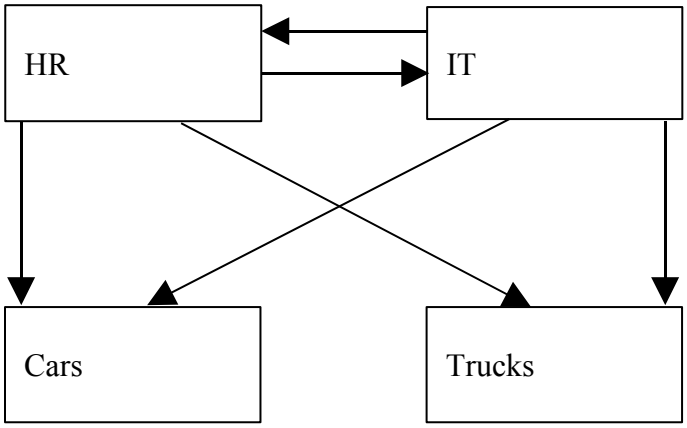
Phase 2



Phase 3. Adds use of a measurement basis instead of fractions.
This is like Example 2 except that the rule for IT is specified with personal computer counts instead of fractions. Figures from IT's PC inventory system are used for the basis. The sum of the basis counts can be reconciled to the overall total by adding the count of PC's used by the IT department itself. (The counts in the example are chosen to yield the same proportions as shown in example 2.) This illustrates direct allocations, reciprocal allocations, and **allocations using a measurement basis instead of fractions**.

```
HR:  IT,  .05;   Trucks, .30;   Cars, .65
IT:  HR,   20;   Trucks, 120;   Cars,  60
```

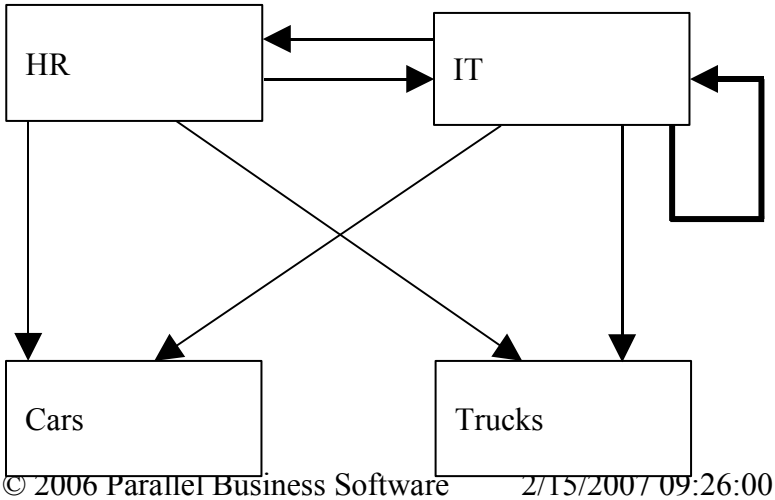
Phase 3 (This is the same form as Phase 2)



Phase 4. Adds self-allocation.
To avoid the step of reconciling the total number of PCs to the sum of those used in the basis, IT uses its own PC count in the basis, as well as the counts of the other departments. This is equivalent to the basis in Phase 3 and does not change the effect. This illustrates direct allocations, reciprocal allocations, allocations using a measurement basis instead of fractions, and **self-allocation**.

```
HR:  IT,  .05;   Trucks, .30;   Cars, .65
IT:  HR,   20;   Trucks, 120;   Cars,  60;   IT,   5
```

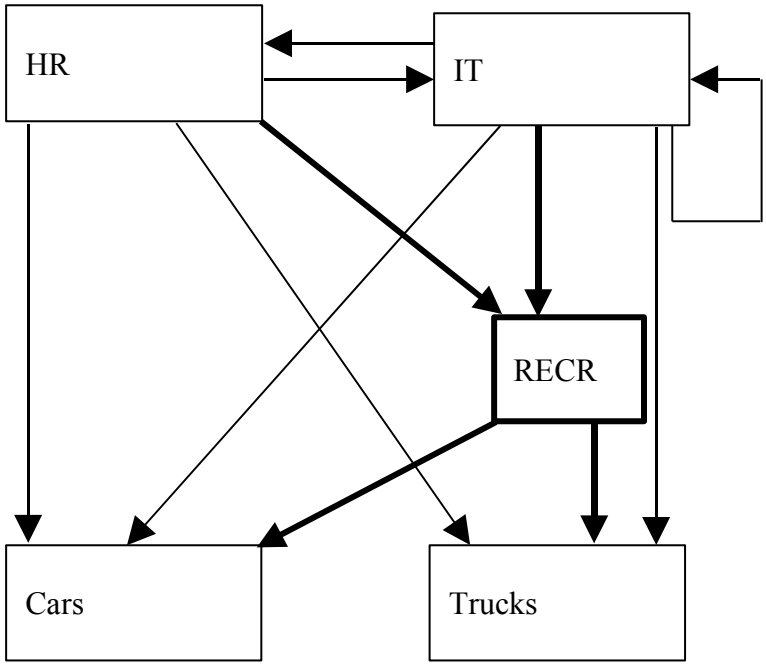
Phase 4



Phase 5. Adds step allocation.
This stage adds an intermediate rule. We'll call it a recruiting project, abbreviated RECR. It is a joint effort of IT and HR. Its expenses go 50-50 to Trucks and Cars. Costs are allocated to the project in one step, and then to the production departments in another. This illustrates direct allocations, reciprocal allocations, allocations using a measurement basis instead of fractions, and **step allocations**.

```
HR:   IT,     .05;   Trucks, .30;   Cars, .60;   RECR, .05
IT:   HR,      20;   Trucks, 120;   Cars,  60;   IT,     5;  RECR,  10
RECR: Trucks, .50;   Cars  , .50
```

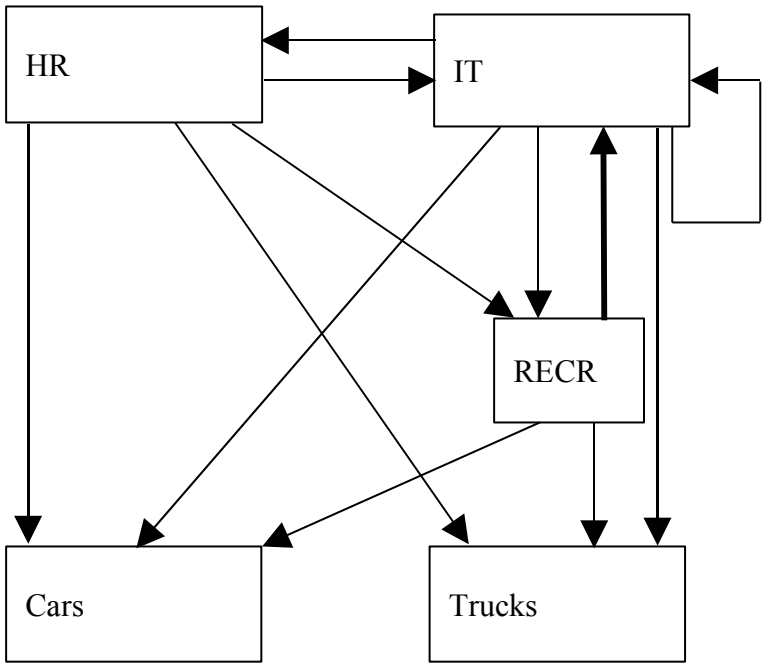
Phase 5



Phase 6. Adds upstream reciprocal allocation.
We learn that the project is to recruit programmers for IT as well as engineers for the production departments. Accordingly, IT will get a share of the cost allocation from the project. This illustrates direct allocations, reciprocal allocations (peer-to-peer), allocations using a measurement basis instead of fractions, step allocations, and **upstream reciprocal allocation**.

```
HR:   IT,     .05;   Trucks, .30;   Cars, .60;   RECR, .05
IT:   HR,      20;   Trucks, 120;   Cars,  60;   IT      5;  RECR,  10
RECR: IT,     .10;   Trucks, .45;   Cars, .45
```

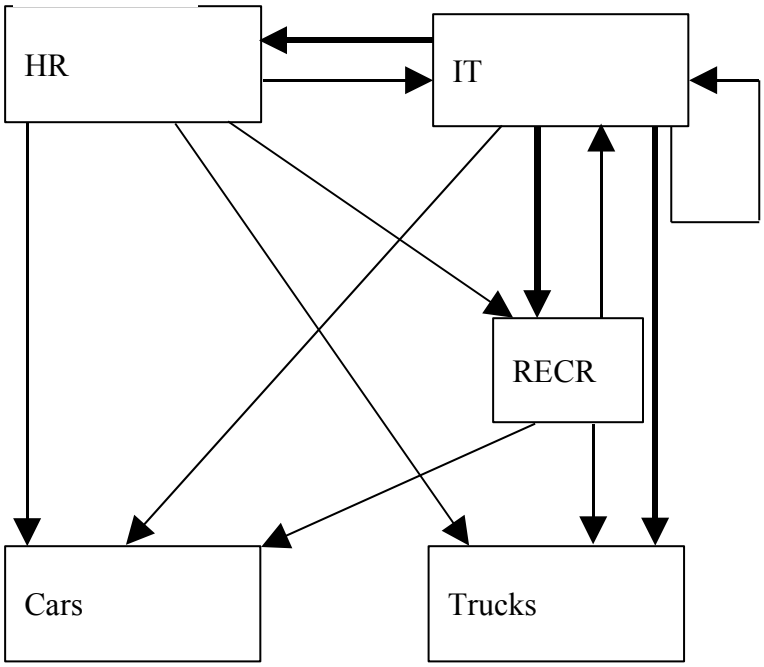
Phase 6



Phase 7. Emphasizes allocation across steps.
This is the same allocation set as Phase 6. However, this phase emphasizes the feature that step allocations do not have to be in lock step. Note that costs from IT are allocated across three step levels: HR, RECR, and Cars/Trucks. This phase illustrates direct allocations, reciprocal allocations (both peer-to-peer and upstream), allocations using a measurement basis instead of fractions, step allocations, and **allocation across steps**.

```
HR:   IT,    .05;   Trucks, .30;   Cars, .60;  RECR, .05
IT:   HR,     20;   Trucks, 120;   Cars,  60;  IT,     5;  RECR,  10
RECR: IT,    .10;   Trucks, .40;   Cars, .45
```

Phase 7



Summary
OverheadCAM add does not add complication to the specification process:

+ Each rule is simple in content, and stands alone.
+ Step rules do not have to be grouped and identified as such.
+ Step allocations do not have to be done in lock step, all in a bunch.
+ Rules in reciprocal relationships do not have to be grouped and identified as such.
+ Rules in reciprocal relationships do not have to be done in lock step, in a bunch.
+ Direct, step, and reciprocal rules can be mixed without any special identification.
+ Rules specified by a measurement basis do not have to be identified for special treatment.
+ Measurement basis rules can be mixed with those specified with fractions.
+ A containing program that produces a set of rules for OverheadCAM is less complex.
+ Complex organizations can be modeled without the restrictions of processing directives that are purely for the convenience of the allocation software.

All this while delivering greatly superior performance.