

HPM | Module_4_Cost_Allocation

All right, class. We are going to start another tutorial here. And this one is on-- this is going to be on cost allocation. I'm going to demonstrate how to solve a cost allocation problem that is very similar to the one that you're going to be assigned to do in this module.

So in the cost allocation problem, we've identified our support units, which we have labeled over here. And so the support units that we have, that are going to affect our income producing units and the costs, they are going to be allocated out, our financial services, which equates to \$1 million 950,000. Facilities is \$4 million 200,000. The housekeeping is \$1 million 600,000. Administration \$4 million. 400. And personnel is \$2 million 250,000.

So these are the costs that we're going to allocate to our front line departments. And we have to come up with a methodology to get those out there, OK? So we know what the support unit cost are and the cost pools is what each one of these buckets are. And we also know what the cost drivers are, OK? And those are down here.

And the drivers that we've chosen for financial services, are going to use Patient Service revenue to drive those, OK? For facilities, we're going to use the square footage or the footprint of each of the income-producing units, which is orthopedics, pediatrics, outpatient, and other income departments. And for housekeeping, we're going to use housekeeping hours.

For administration, we're going to use salary dollars, and personnel we're also going to use salary dollars as a cost driver to take these expenses and move them into these indirect cost, OK?

And just kind of as a refresher. So an income-producing unit has direct costs. They have the cost associated with running their departments and those costs that are only associated with just their unit. And then they have the shared cost of their organization. And that's what these support unit expenses are, OK? They're the support within the organization and costs that have to be moved down to the income-producing units. And we're going to methodically, through the methodology that we're going to learn here, move those expenses out.

And our cost drivers are what we've determined. They're the piece of this calculation what generates those expenditures, the service-- the type of service that's being provided. And some of them are easier to see than others. It's like facilities, the square foot, it's the footprint of each of these income producing units. They're going to pay for the space that they have and to pay for the facilities service through that square footage calculation. And housekeeping, we're going to pay for this housekeeping service through the hours that are used by each of these income producing units.

So let's kind of get started. And I actually have already started the work up on this and in the process of allocating

needs the support unit cost to the income producing units. And so let's take a look at the formulas to start with.

So for the orthopedics department, under financial services, the calculation that we're using is-- and we said that patient service revenue is the driver here. So in orthopedics, what we're going to do is we're going to take their portion-- their proportion of the patient service revenue, which is 10 million 500,000 divided by the total patient service revenue, which is 48 million 645. So that ratio there, that 10.5 over 48.645 is multiplied times the total amount of financial services, which is 1 million 950,000. And that's what this formula says here. B-37 divided it by B-42 times R-11, OK?

And we do the same thing for pediatrics. OK. For pediatrics, we take 8 million 654 divided by 48 million 645 times that same one million 950, OK?

And when we do that, we proportionately spread the financial services support unit cost across each one of these income producing units. And it's based upon this, the amount of patient service revenue that they're producing. OK. We know that we've done this correctly when we get out here to the total and this total equals the total in financial services. OK? If this doesn't match, it for some reason one of these does not match this bucket in total, when they're all spread across, then we have a mistake in our formula somewhere.

So use that as a check. We want to make sure that whatever you're putting in here, it has to match in total what we have here. And that kind of tells you a little bit about how this works. So in essence, each of these income producing units are buying for the services and trying to become as efficient as possible, OK? Through the use of their square footage and their housekeeping. And their salary dollars because if they're more efficient than their competing departments, it's going to-- it helps to lower their indirect costs allocation.

And their allocation will be less if they're efficient through the use of each of these. And if all the departments are efficient through those services, then, potentially, the cost of the services would go down. OK? So that's the idea here, is that to try to drive each of these income producing units to be as efficient as possible, in the use of these resources and if we create the correct cost drivers, we can do that. OK?

So let's finish up this worksheet. And you can see how it works out. So for housekeeping hours, in this case, we're going to do this formula. So this is going to be equal to the housekeeping for orthopedics divided by the total, OK? And then multiplied times our total housekeeping.

And the same thing with the pediatrics department. We're going to take the pediatrics divided by the total. Out there watching and then multiply that times the total same way for our outpatient divided by total and then same way for income producing units. Other income producing units. And then that's multiplied again by the housekeeping.

If we did this correctly, and we did, we get the 1,600,000, which equals this 1,600,000 for department cost. Now let's do the administration. And that is for orthopedics, that's equal to this salary dollars, our cost driver, for that. And their salary dollars are 2 million 935 divided by the total salary dollars for the organization. And we're going to multiply that times this administration cost.

We're going to do the same thing for pediatrics. Same thing for outpatient surgery.

And then, the last one is other income departments. I can see that this makes up more than half, the total salaries are in this unit. You can see more than half of the administration costs end up in there proportionately.

So proportionately, we're spreading those across and we're picking up those expenses out of the support units.

And then the last one is personnel. And so personnel uses the same cost driver, and that's not uncommon. It makes sense to use salary dollars for these. And Another potential cost driver for personnel or for administration could be like a headcount or total number of employees in your unit would be another good cost driver to use to allocate these costs.

OK. In this case, it's personnel. We're going to pick up and this is pediatrics divided by the total. So we're systematically moving all of these expenses from the support units to the income producing units. This gives us our best opportunity to evaluate our organization. These are the departments that are producing income.

They have their own direct cost plus they have the support cost. People call it overhead, indirect costs, those are synonymous. Indirect costs or overhead cost. And In this situation, those mean the same thing. And then we're going to do the same thing for the outpatient surgery. Multiply that times personnel. And the last one is other income producing units.

OK. And you can see we did that one correctly, as well. So it equals this. And our total, by the time we're done here, is everything has been moved from the support units to these income producing units. OK. Then we can evaluate each one of these in their bottom line, how well they're doing. OK.

There's another way to look at this, too, and your book outlines this way. So this is one methodology of moving those expenses over. Another way to do this is what we call the utility method or the utility rate. And so the way this one goes is we determine a rate for each of these cost drivers here, OK?

And so for patient service revenue, what we're saying is for every patient service revenue that is produced, there's a \$0.4 charge for financial services that is associated with that, OK? So income-producing units are generating revenue. For every dollar of revenue that they generate, they're also kicking up a \$0.04 charge through the facilities department to help support those patient service revenues. OK?

So the way that this calculation works is, we took our facilities cost up here, our R-11, which is this 1 million 950, and we divided that by B-42, or our total patient service revenue, OK? And we come up with this utility rate.

Then we take that \$0.04 and we and we multiply it times-- for orthopedics, we multiply it times this 10 million 5, OK? And when we do that, we get this, we get 420,906. you? Can see it generates the exact same bottom line in the same numbers up here, too. It produces the same output that we had here. It's just another way of looking at it.

When we look at facilities-- and this, a lot of people like this way, or they look at this and it makes more sense to them because in this case here, for facilities, what we're saying is that for every square foot that you occupy, your chart \$7.78. OK? So orthopedics departments occupying 63,500 square feet are being charged \$7.78 per square foot, or \$493,797 in total, OK/ and it equals the same as what we did up here. It's just another way of looking at this.

Like I said, a lot of people kind of like this way, they see it as kind of more descriptive. If we did housekeeping, what we would do is we would take the total housekeeping bucket, which is this one million \$600,000 and we're going to divide that by the total housekeeping hours that have been provided.

And when we get that, we get a number, like 37, 47. So what that tells us is for every housekeeping hour that's used within these departments, they need to be charged 37 47 for that service. So if we just run this line across, and we say, 37 47 times for the orthopedics, they used 8,200 hours, their total cost for that service is \$307,000 for the year. End and for pediatrics, it's the same 37 times 6,500. And let's see-- so for outpatient surgery, it's times 9,500. And for other income, departments 37, 47 times, they use 18,500 in that.

And when we do that, again, we get a number that matches what our total housekeeping arc. So you can go through the rest of those and drop those in the same way. Again, we use our totals here. Total use of the resources or the total expenses in those buckets divided by these total resources that are used.

But the ideas were systematically moving these expenses from support units out to the income producing units. And we have to have cost drivers that make sense to do that, and that help build-- that are fair and that help build efficiencies within the income producing units because we want these units to be as efficient as possible. So we need to make cost drivers that so that promote that. OK?

So there's another piece to this. And I want to go through this. So we haven't talked about this, but there's this proposed new department that Akron Charity Hospital is proposing. And we want to know what the outcome of that is. If they were to add this new department, what would it do to the bottom line of each of these current

support units? OK. Now I want you to think about that, and how you think that that would impact the other departments.

And on the surface-- and we're making the assumption in this problem that these support unit costs don't go up. May not be a good assumption. You may think about that, if we added a new unit here, would we need additional support units or support unit cost to support that additional income producing unit? We may or we may not. We may have enough efficiencies built in that we would be able to absorb that.

So let's do this. So one way that we can do this, let's keep what we have intact here, OK? And if we carry the sheet over it and just create a whole other sheet, and call out with the radiology department. The way we do this we just go to Format, if you say Move or Copy Sheet, and we're on this cost allocation number and we ask to create a copy we can create a copy. And we're going to name the sheet cost allocation with radiology.

OK. So we have that. Now we need to be able to drop this information in. So kind of the first step to this is, all of this information here needs to be moved up, OK? And I left they left a blank spot for this. So if we just copy this and we drop this you can see it changes. It changes our total now. All right.

So now we have additional patient service revenue, OK? Think about what would that have done to these other units, OK? Well, their proportion is lower now, right? OK? Now it's 10.5 over 52 million. In the example before, it was 10.5 over 48 million something. And now it's 63. So effectively, radiology is helping to pay for some of these support unit cost. And that's how businesses-- they have these economies of scale that they know that they have the support unit cost, or fixed cost, if you will. And if they're able to add additional layers of business, then those other units are helped by that. And it's because another unit is sharing in those support unit cost.

So it's in the best interest of the orthopedic department and the pediatric department, and these other ones, to accept these other departments in because, in theory, their overhead should be helped by that maneuver.

So what we have to do here now is-- we're not done with this problem, although are our formulas still work, OK? So these formulas that we have here are correct. You see, they still tie-- like this formula here, it's B-37 divided by B-42 times R-11. So that works. It's adjusted the calculation here. But there is something else we have to do. We have to take this information from the radiology department and create another column, right?

So we have-- now they're one of these income producing units, as well. Because you can see our numbers don't match up. Now we're at 12 million 262. We still have support unit costs that need to be allocated. And these are going to be allocated to the radiology department. So let's add a couple of columns here.

I only have one want more to this. OK. And we'll call this-- this is our radiology department. And we know that our patient service revenue is 4 million 325. And we're making the assumption here that our assumed additional direct

costs are going to be 5,800,000. This is just an assumption and it's given with the problem.

But now we have to calculate our radiology indirect cost. And we do that the same way that we did for these other units. So it's equal to-- for patients, for facilities, it's equal to patient service revenue divided by the total in that column. And that's multiplied times the financial services. OK.

We know that's right now because that's just tied out to our total. Due You see this one million 950 just tied out, OK? We're going to do the same thing with facilities. So the square footage divided by the total square footage, times facilities. And that was tied as well.

And we're going to do housekeeping. Housekeeping, it's got that one, as well. And we're going to do now salaries. We're going to multiply that times the administration, OK? And the last one is salaries again, as our cost driver. And we're going to multiply that times the personnel. And when we do that, we get debt.

So now we've effectively moved these, we tied out our support units and radiology is now sharing an additional \$2,187,000 in support unit cost that prior to this were being paid by these initial income producing units. Orthopedics, pediatrics, outpatient, and other income departments were paying these 2 million 187 prior to them launching this new department. So effectively, they're sharing these costs now.

Now we can create a bottom line here for them. And we find that they're losing money. But in essence, if we look at-- let's take a look at the orthopedic department. And with radiology sharing those expenses, their bottom line now is 3 million 133. Prior to this, their bottom line was 2 million 843. So they were really helped in this. My guess is that the other income departments are going to be helped, as well.

Now they're not losing money any longer. They have a positive bottom line of 290 when they were \$955,000 underwater before. Overall profit was 3 million 616. And now overall profit is 5,804,000.

So there is a-- or excuse me, that is not correct. We need to change this formula to incorporate L. And Yeah. OK. That makes more sense. Actually profits went down because of the big loss in radiology. So profits actually went down with the launching of this radiology department. Not uncommon. A brand new department comes in and they and they're losing money. They're primarily losing money because their direct costs are so high here. OK? There was this cost associated with bringing that in.

So overall, the organization is losing money with this launch. Like I said, not uncommon when you launch a new unit, there's the potential for them to lose money. But clearly, these other income producing units are doing better and they're doing better because of these shared resources by radiology.

And I want you guys, for that to be pretty clear, because this is typical of how businesses operate and how

businesses handle this cost allocation methodology. So it's an important concept. And this is probably the easiest way to look at it, too, is to set this up with two different tabs and to be able to look at each of them before and after they moved. So it's an important concept of a business because there are these economies of scale. The idea here is, this radiology department will become profitable within a short period of time and they'll continue to share in these support unit costs. And the overall organization will be further ahead with that.

This is kind of a plug number. So we plugged this just to make this example and to force that to a negative. Wouldn't necessarily have to be. Some businesses come in and they are able to turn a profit. But in general, you start a new unit and it's going to take a while for them to get up and running. So I think this is a pretty realistic problem.

So that concludes this tutorial. So there's a problem similar to this that's due. And then we also have a case study that is due in this section two. And we'll use some of the same techniques for that. So for now, that's it with this tutorial, and I will see you on the next one.