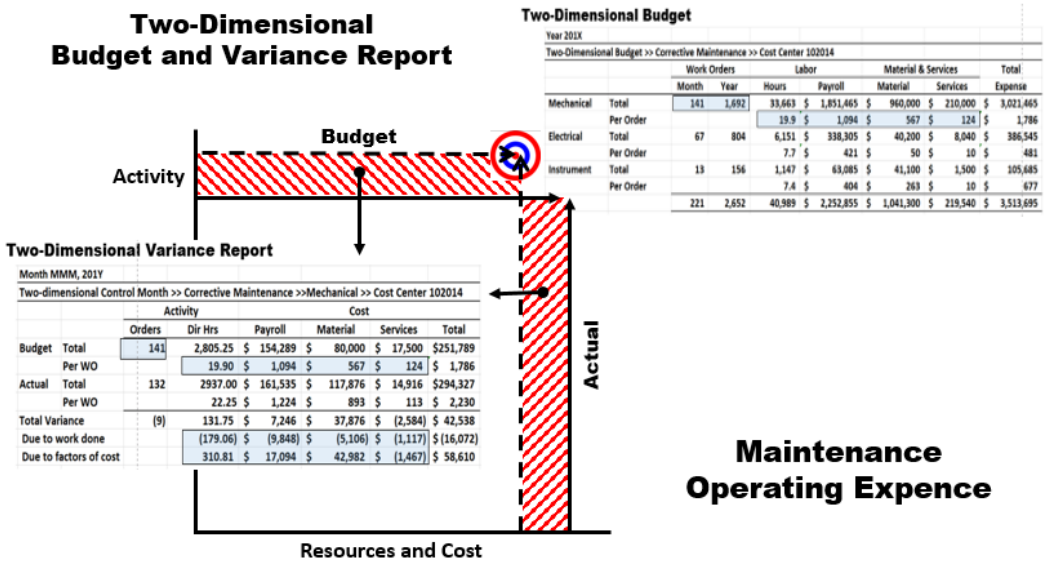
The Secret is to Budget and Control Maintenance Opex Dimensionally



Richard G. Lamb, PE, CPA
Tel: 832-710-0755
Email: rchrd.lamb@gmail.com
Website (educational): https://analytics4strategy.com/

Books:

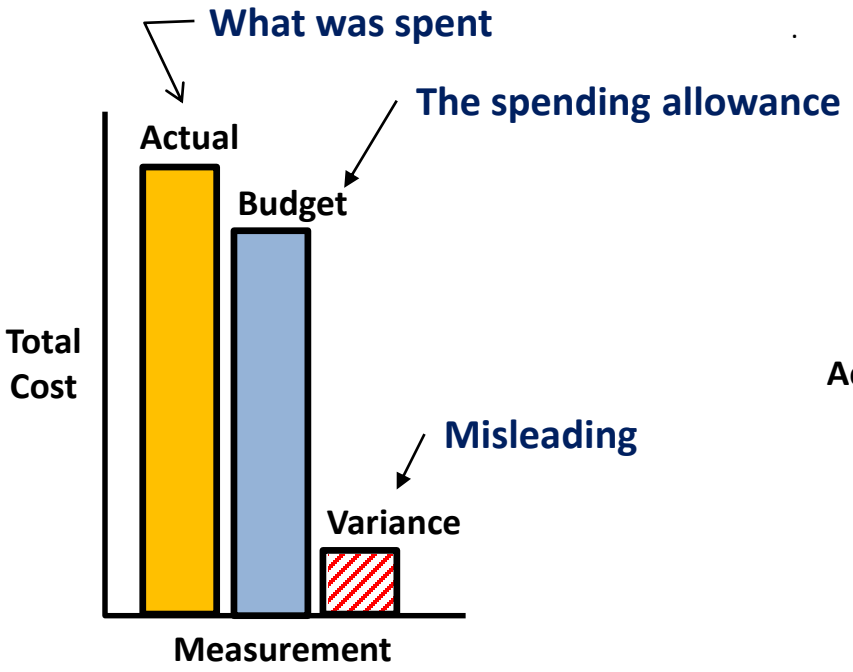
Availability Engineering and Management for Manufacturing Plant Performance

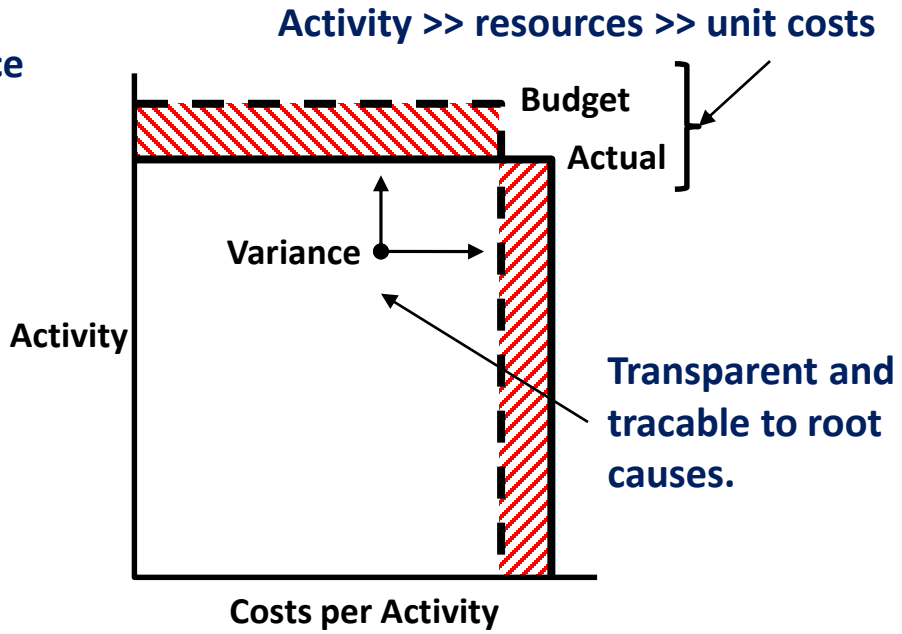
Maintenance Reinvented and Business Success: Everything is about business

Would you agree? The business mission of maintenance budgeting and variance control is to . . . .

- Distinguish, establish and confirm the conduct of all direct and indirect work at all levels of the maintenance operation as necessary to:
  - Sustain the readiness of production assets to deliver the year's and month's production plan.
  - Stay abreast of infrastructural deterioration.
- Establish and control the cost of the budgeted workload upon optimized engaged and consumed resources—cost effectiveness.
- As the budget period unfolds:
  - Take timely, surgical actions through the root causes of variances.
  - Maintain history, for recovery, of all short-term decisions to step off budget with readiness and deterioration work.
  - Evolve the ability to budget and control the maintenance operation and take short- and longer-term action upon what is learned.

Here is where we are, why we can't stay and where we must go if our maintenance operations are to deliver on their business mission





<u>One-dimensional</u>: What spending is allowed and how much was spent.

<u>Two dimensional</u>: What work must be done, what work was done and how cost effectively was it done

We are not being held back by our data; once we have decided fulfill the mission of maintenance budget and control

Minimum "As-Is" requirement:

- History of all approved work per date first arose.
- CMMS, as the norm, has made history available.

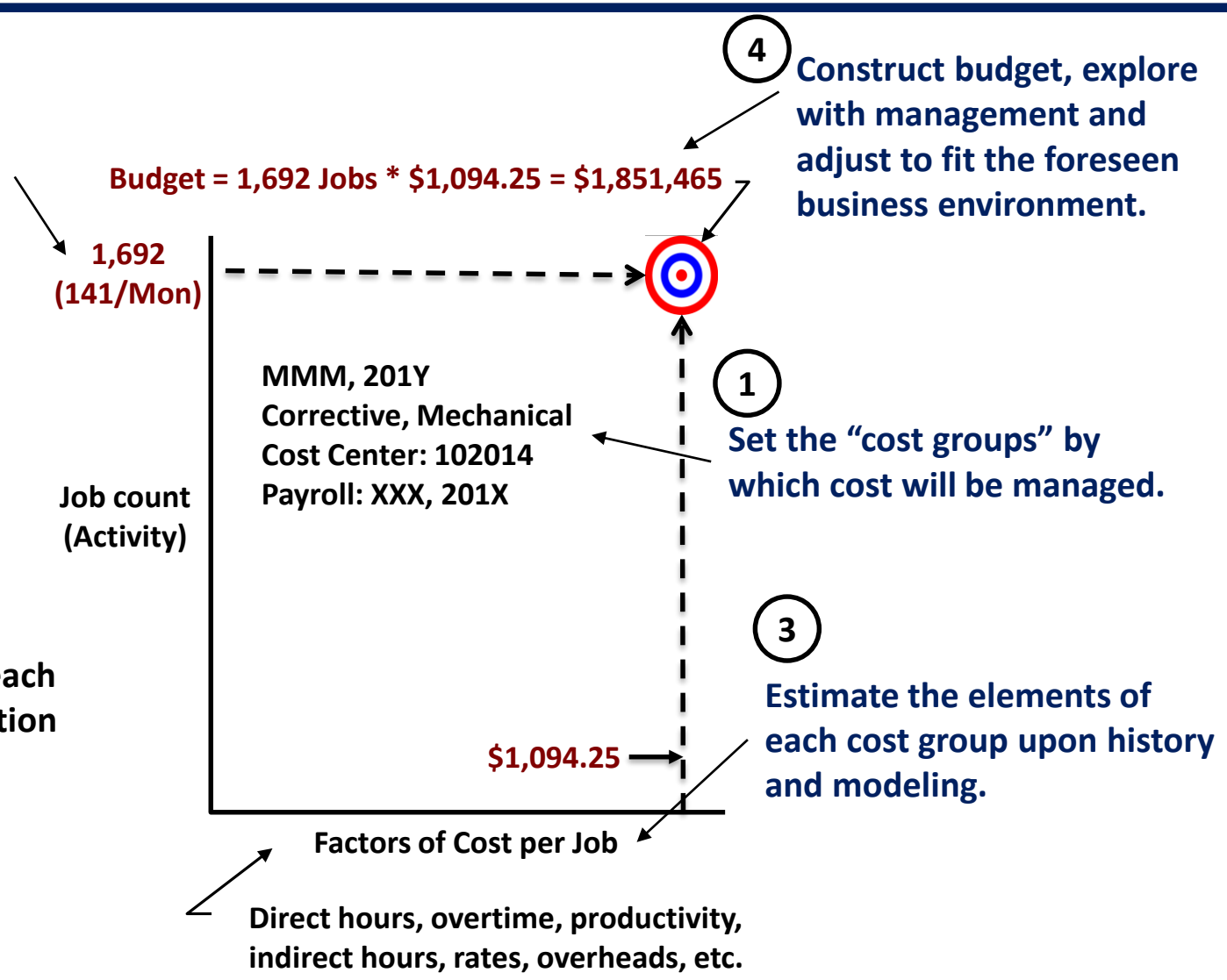
Necessary "To-Be" requirement:

- Craft hours "accurately" allocated to workorders; rather than biggest several orders of the day.
- Observation suggests is the exception; not the norm.

Bridging strategy:

- Build first budget with planner expertise and applied statistic analytics to estimate hours by craft type by work order type.
- Begin "To-be" no later than the start of the budgeted year—activates ability to control variance.

There are cost accounting "rules of gravity" for budgeting business operations that must be observed—four steps and along two dimensions



Note: Exact methods at each step will reflect the situation at each cost group.

Budgeting must be a process of exploring and making decisions with management around activity, resources and unit costs

Spending planned upon operation-based decision-making, supported by background facts and analyses.

Two-Dimensional Budget

Year 201X

Two-Dimensional Budget >> Corrective Maintenance >> Cost Center 102014

		Work Orders		Labor		Material & Services		Total
		Month	Year	Hours	Payroll	Material	Services	Expense
Mechanical	Total	141	1,692	33,663	$ 1,851,465	$ 960,000	$ 210,000	$ 3,021,465
	Per Order			19.9	$ 1,094	$ 567	$ 124	$ 1,786
Electrical	Total	67	804	6,151	$ 338,305	$ 40,200	$ 8,040	$ 386,545
	Per Order			7.7	$ 421	$ 50	$ 10	$ 481
Instrument	Total	13	156	1,147	$ 63,085	$ 41,100	$ 1,500	$ 105,685
	Per Order			7.4	$ 404	$ 263	$ 10	$ 677
		221	2,652	40,989	$ 2,252,855	$ 1,041,300	$ 219,540	$ 3,513,695

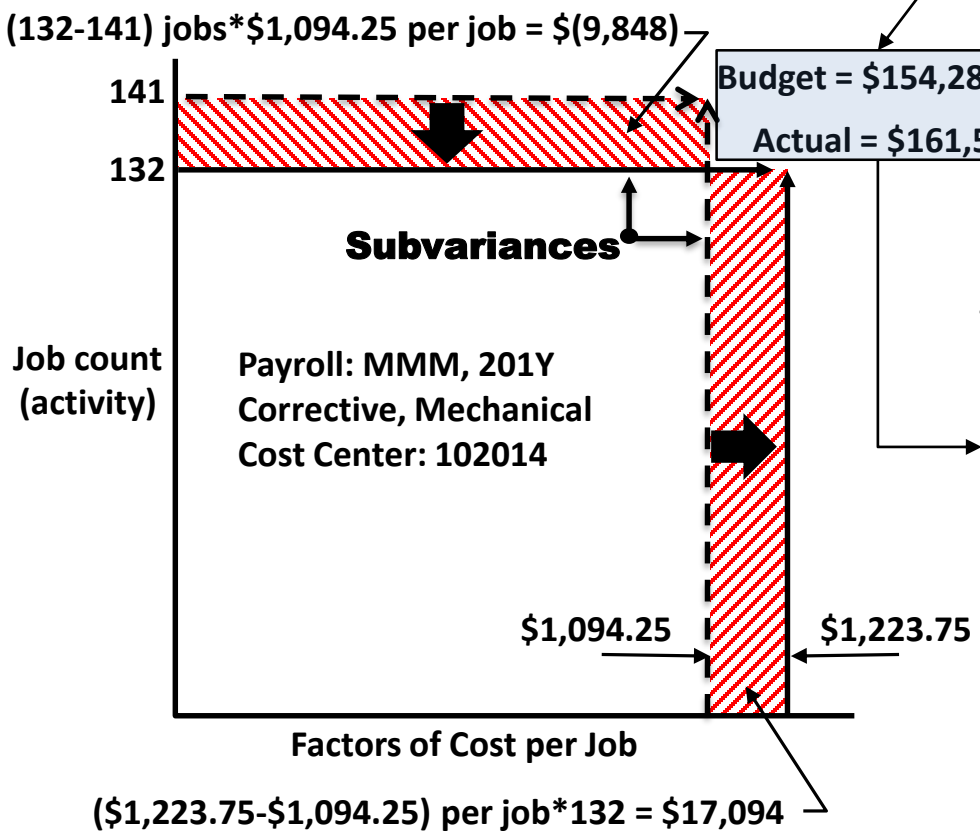
One-Dimensional Budget

	Payroll	Material	Services	Total
Mechanical	$ 1,851,465	$ 960,000	$ 210,000	$ 3,021,465
Electrical	$ 338,305	$ 40,200	$ 8,040	$ 386,545
Instrument	$ 63,085	$ 41,100	$ 1,500	$ 105,685
	$ 2,252,855	$ 1,041,300	$ 219,540	$ 3,513,695

Spending allowance allocated to cost groups and actual spending will be history to next year's spending allowance.

Spending allowance—based on previous year, percent of replacement value and negotiated.

The necessity of two-dimensional variance control is apparent in the otherwise likely hurtful misinformation of one-dimensional control



One-dimensional variance is normally meaningless; actions taken my be harmful.

Budget = $154,289

Actual = $161,535

Two-dimensional subvariances tell the true, actionable story—from which we learn.

Variances due to:	
Work done	$(9,848)
Factors of cost	17,094
Total variance	$7,246

True Story:

- Less work was completed than known as needed to sustain asset readiness and stay abreast of deterioration.
- Labor cost to do the work was greater than what is known to be necessary to do the work.

The obvious breakthrough is the operation's ability to immediately find the stories that matter and take surgical actions at the origins

Two-Dimensional Variance Report

Month MMM, 201Y							
Two-dimensional Control Month >> Corrective Maintenance >>Mechanical >> Cost Center 102014							
		Activity		Cost			
		Orders	Dir Hrs	Payroll	Material	Services	Total
Budget	Total	141	2,805.25	$ 154,289	$ 80,000	$ 17,500	$251,789
	Per WO		19.90	$ 1,094	$ 567	$ 124	$ 1,786
Actual	Total	132	2937.00	$ 161,535	$ 117,876	$ 14,916	$294,327
	Per WO		22.25	$ 1,224	$ 893	$ 113	$ 2,230
Total Variance		(9)	131.75	$ 7,246	$ 37,876	$ (2,584)	$ 42,538
Due to work done			(179.06)	$ (9,848)	$ (5,106)	$ (1,117)	$ (16,072)
Due to factors of cost			310.81	$ 17,094	$ 42,982	$ (1,467)	$ 58,610

"Start-point" to evaluate the month and drill down to explore causes.

One-Dimensional Variance Report

	Cost			
	Payroll	Material	Services	Total
Budget	$ 154,289	$ 80,000	$ 17,500	$251,789
Actual	$ 161,535	$ 117,876	$ 14,916	$294,327
Variance	$ 7,246	$ 37,876	$ (2,584)	$ 42,538
Actual per WO	$ 1,224	$ 893	$ 113	$ 2,230

Is not "start-point" insight—good and bad things can be happening, but we would not know it.

Finally, we can summarize the contrast between two- and one-dimensional structures as it was verbalized by a senior executive. "Each month we have big questions about maintenance, but know we can't have an answer. And if we do get an answer, we know it is not a good one. Now we can get good answers."