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15.963 Management Accounting and Control
Spring 2007

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15.963 Managerial Accounting and Control

Spring 2007

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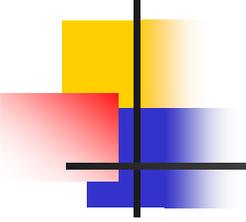
MIT Sloan School of Management



Wilkerson



- Why is Wilkerson examining its costs now (what is the catalyst)?
 - Its competitive environment:
 - Declining overall profitability, price pressures on one product line,
 - but apparent price inelasticity of demand for other product lines.
- How many overhead cost pools does Wilkerson currently have?
 - One. Allocation base is direct labor dollars. Rate is 300%.
- Why do pumps have low profitability? They use more labor and machine hours, so this seems appropriate?



Wilkerson

- Under what circumstances is refining the costing system likely to be beneficial?
 - Multiple products, including commodity and specialized products,
 - with large differences in volume and resource consumption.
 - Price pressures and declining margins.
 - Mature product market with limited opportunities for innovation.
 - Low entry barriers in product market.
 - High overhead costs.
- Wilkerson meets most of these criteria.

Wilkerson



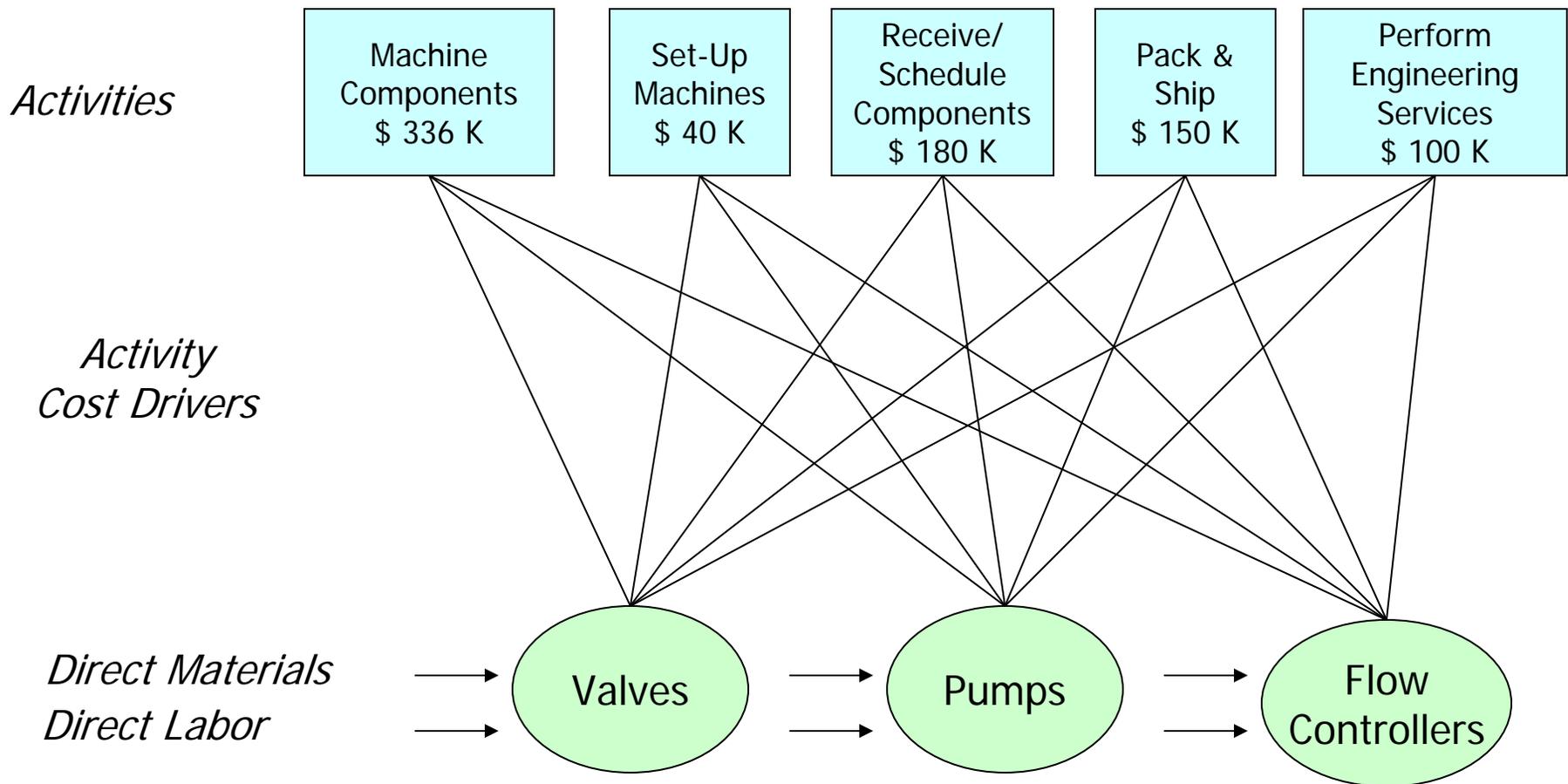
- Activity-based costing (ABC) is one tool for refining a costing system.
 - Overhead is allocated to *activities* that drive overhead costs.
 - Overhead costs are separated by cost hierarchy, and then assigned to activity cost pools.
- Overhead cost hierarchy is:
 - Unit-level costs, that vary with production volume, e.g., energy costs, machine depreciation, machine repair;
 - Batch-level costs, that vary with batches or production runs (not with the number of units in the batch), e.g., machine setup costs, materials handling and quality inspection.
 - Product-level costs, that do not vary with the number of units or batches, e.g., design, R&D, engineering support.
 - Facility-sustaining costs, that are not traceable to a particular product line.

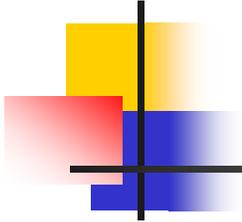
Wilkerson



- What are the costly activities for Wilkerson?
 - Machining, setup, receiving, shipping, engineering support.
- Unit-level costs are
 - machining
- Batch-level costs are
 - setup, receiving and shipping
- Product-level costs are
 - engineering
- What are the cost drivers in each pool?
 - Machine hours for machining; # of production runs for setup and receiving; # of shipments for shipping; engineering hours for engineering support.

Activity-Based Cost System





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Exhibit K-1, Calculation of Product Costs. From the teaching note for:

HBS CASE

Wilkerson Co.

by Robert S. Kaplan

Source: Harvard Business School

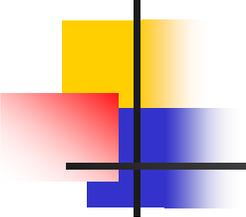
4 pages. Publication date: Mar 07, 2001. Prod. #: 101092

Wilkerson



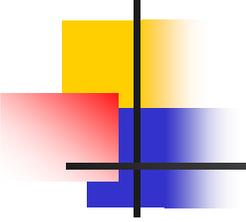
Why were pumps the least profitable product according to the previous costing system?

- They are the highest volume product, and bore a disproportionate amount of the overhead burden because
 - a single allocation base was used for all overhead, and
 - the base was a unit-level cost driver.
- Why are flow controllers the least profitable now?
 - They are low volume products,
 - made in small batches (large number of production runs and shipments), and
 - requiring a lot of engineering support.
 - i.e., they are customized, low volume products consuming most of the resources.



Wilkerson

- Why is the demand for flow controllers price inelastic?
 - Because flow controllers are underpriced!
 - Raising prices, while still staying below cost, will not affect demand.
- If you pass a lot of cars driving in the opposite direction in the wrong lane,
 - you are most likely in the wrong lane.
- In a competitive product market, not losing market share in flow controllers following large price increases, and faced with declining prices for pumps, should have signaled costing errors to Wilkerson.
- Misunderstanding the cost and profit estimates here could lead to a death spiral.



Wilkerson

- In a competitive product market, if you are presented with unexpectedly high (low) profit (cost) estimates, some skepticism is useful (i.e., place a burden of proof on the presenter).
 - If some products are over-costed then others have to be under-costed.
 - The latter will seem abnormally profitable.
 - Look for an economic rationale for abnormal profits – what market frictions allow the abnormal profits?
 - In the absence of an economic rationale, miscosting is the likely diagnosis.

Wilkerson



- What actions are suggested by the ABC analysis?
 - reduce setup times;
 - work with customers to reduce the number of production runs by, for example, requiring a minimum order size;
 - redesign products to reduce the number of unique components
 - E.g., Hewlett-Packard and Tektronix.
 - Each component in a product currently requires a separate production run.

Kanthal



- The Kanthal case is different because
 - Product costing refinement initiatives were not triggered by a crisis (rather, by a management change).
 - It illustrates the application of ABC to the allocation of selling and administrative (SGA) expenses, rather than manufacturing expenses.
 - It illustrates the use of ABC in determining customer, rather than product, profitability.
- Why might ABC be of value in this case?
 - High overhead costs.
 - Extremely large number of products and customers, making cross-subsidization and other costing errors a virtual certainty.

Kanthal

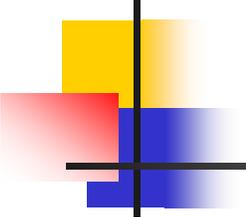


- The current system “distribute(s) resources equally across all products and customers.”
 - This suggests customer cross-subsidization.
 - Sophisticated customers will not tolerate this, e.g., Walmart.
 - Walmart makes advance product selections, buys in bulk and electronically links suppliers with inventory systems.
 - It makes this effort to extract cost savings from its suppliers, not to subsidize other customers of its suppliers.
- A hidden loss (hidden profit) customer is one with low (high) profit characteristics.
 - These characteristics are hidden when the customer base is treated as homogeneous.

Kanthal



- What are the characteristics of low (high) profit customers?
 - Small (large) order sizes.
 - Order non-stocked or custom (standard) products.
 - Order low (high) margin products.
 - Receive large (negligible) discounts.
 - Unpredictable (predictable) orders, in terms of both frequency and content.
 - Require extensive (negligible) pre-sales support (technical advice, selling effort).
 - Require extensive (negligible) post-sales support (field service, technical support).
 - Require working capital to be tied up in dedicated inventory (no dedicated inventory), long (short) accounts receivable collection period.



Kanthal

- What new features were added by the Kanthal 90 costing system?
 - Two new cost drivers were identified:
 - Order costs; and
 - manufacturing costs for non-stocked products.
- Is this degree of refinement sufficient?
 - More elaborate systems will be more costly in many ways – there is a cost benefit tradeoff that depends on the decision needs.
 - Even the Kanthal 90 system a year to develop and to collect the requisite data.

Kanthal



- In Exhibit 7, consider customers 33518 and 33537. What explains their difference in profitability?
 - Both are high volume customers, but
 - customer 33537 orders more frequently (higher order costs) and orders more non-stocked items.
- All high volume customers are not profitable.

Kanthal



- What should Kanthal do about unprofitable customers?
 - Apply a surcharge for non-stocked items (making sure this is legal according to Robinson-Patman Act).
 - Require a minimum order quantity, or offer volume discounts for large orders.
 - Introduce an order charge, independent of volume.
 - Trim the product line (20% of products account for 80% of sales).
 - Form a distributor to stock and handle items not stocked by Kanthal.
 - Share cost behavior information with customers, who might adjust their purchasing behavior accordingly.

Wilkerson



- What are some limitations of ABC systems?
 - They can require extensive data collection and record keeping to track activities;
 - measurement error will increase with the number of activity cost pools;
 - in the Wilkerson case, substantial SGA costs were not analyzed;
 - getting employees to accept the new system can be difficult.
 - It is easy to get carried away with the number of activity cost pools.
- Nevertheless, ABC has been widely used, e.g., at
 - American Airlines, Bank of America, American Express, Charles Schwab, Amtrak, US Postal Service, City of Indianapolis, etc.
- The use of ABC may be sporadic (e.g., in response to a crisis) rather than sustained, due to its cost.
 - This is still useful because it provides valuable insights into the production process and cost drivers.