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BY RHIAN SILVESTRO

MANAGERIAL DECISIONS ARE based on assumptions about the relationships between different aspects of performance. Investments in employees, for example, are often predicated on the assumption that well-rewarded and engaged employees deliver higher levels of service, resulting in customer loyalty that enhances financial performance. Some of the core assumptions about what drives financial performance have become so widely accepted that they are often viewed as facts. However, managers are frequently unable to justify the assumptions underlying their competitive strategies with data from their own organizations. The danger is that unless the core assumptions are sound and relevant to your own circumstances, you run the risk of developing wrongheaded strategies that will lead you astray.

Over the past 30 years, researchers have developed a considerable body of literature and tools to help managers understand the drivers of performance in their businesses. For example, academics and consultants such as Robert S. Kaplan and David P. Norton, the developers of "the balanced scorecard," have encouraged managers to hypothesize causal links and to develop strategy maps to identify the key drivers of financial performance in their organizations.[1] The problem is that developing strategy maps on the basis of managerial hypotheses means the maps are constrained by managers' prior views of what drives performance. Managers often make assumptions about the relationship between, for example, customer loyalty and profitability, even when the presumed links haven't been fully tested.[2] Indeed, one study found that only 21% of managers who said they implemented strategy maps had *actually* tested the links within their own organizations, and many of those who had tested the links found

? THE LEADING QUESTION
How can executives create strategies based on performance linkages within their business?

FINDINGS
▶ Many business decisions are based on assumptions about linkages between various aspects of performance.

▶ Many managers don't actually test the performance linkages within their own organizations.

▶ Rather than relying on assumptions, managers should use more rigorous tools to analyze performance.

their early assumptions were flawed.[3] Failure to test such hypotheses means that critical assumptions go unchallenged, leading to misguided strategies.

Research related to the "service profit chain," a well-known body of research focused on the drivers of performance in service industries, forms the foundation of our research. Developed by Harvard Business School professors James L. Heskett, W. Earl Sasser Jr., and Leonard A. Schlesinger, the service profit chain proposes a mirror effect between employee satisfaction and loyalty on the one hand, and customer satisfaction and loyalty on the other, which in turn drives financial performance.[4] The service profit chain model identifies a specific series of performance linkages: four employee measures (internal service quality,[5] service capability, employee satisfaction, and employee loyalty) drive productivity and output quality, which increase service value; service value drives customer satisfaction, which is linked to customer loyalty, which in turn drives

financial performance. Empirical studies[6] that have tested the links in the service profit chain have been inconclusive. Most of the studies do not explore all the links in the model, and the methods and organizational settings chosen for the research make the findings difficult to compare with one another. Nevertheless, it is common for managers to readily buy into the service profit chain model[7] and to regard the mirror effect between employee and customer satisfaction as received wisdom.

Although intuitively appealing, strategy maps and models such as the service profit chain have a common pitfall: They encourage managers to embrace general assumptions about the drivers of financial performance that may not stand up to close scrutiny in their own organizations. In research with colleagues to test the service profit chain model at two well-known British retail organizations (one a superstore retail chain and the other a home improvement chain),[8] we found that managers who had instinctively subscribed to the model failed to find empirical evidence to support it. In fact, the data we collected challenged some of the theoretical links and suggested new performance relationships that were just as important to understand as the links represented by the framework.

Looking Beyond the Service Profit Chain

I set out to revisit the original data sets from the two retail organizations to see whether there was evidence of other performance links in the two organizations that might inform their service strategies. (See "About the Research.") The two British companies were organizationally similar in that both had strong brand identities and were geared to selling a wide variety of products to the mass market through large numbers of stores. In both organizations, the decisions about store layout and merchandise mix were made centrally, and staff cost was a relatively small percentage of total cost.

Our earlier research into the superstore chain had shown many of the performance links to be well aligned with the service profit chain model, with a series of positive correlations linking productivity and output quality with service value, customer satisfaction, customer loyalty, and ultimately profit.[9] However, the employee measures (specifically, the links between

internal service quality, service capability, satisfaction, and loyalty) were not linked to output quality or productivity, and they were therefore disconnected from the rest of the service profit chain. This raised serious doubts as to how applicable the "satisfaction mirror effect" was to this organizational setting.

Even more surprisingly, I found a negative correlation between employee satisfaction and both productivity and profit. Moreover, I found further negative correlations between employee satisfaction and sales growth, and between employee loyalty and both profit and productivity. While the service profit chain posits that the most productive, profitable, and highest-growth stores are the ones where employees are likely to be most satisfied and loyal, in the superstore chain this was not the case; in fact, the most productive, profitable, and highest-growth stores were those where employees were *least satisfied and least loyal*.

Further analysis of the original data from the home improvement retailer led to several new insights. The service profit chain assumes positive links between productivity and the employee measures. However, in this organization the data revealed *negative correlations* between labor productivity (as measured by sales per staff member) and employee satisfaction, and between store productivity (as measured by sales per square feet) and employee loyalty (as measured by staff turnover). Furthermore, there was no evidence of a direct link between customer loyalty and either profit or revenue growth. So the service profit chain did not appear to explain the performance relationships in that organization either.

Performance Topology Mapping As a Tool

Those findings suggest that, rather than accepting general hypotheses about performance linkages that may not apply to their organizations, managers should use a more rigorous analytic approach. "Topology mapping" is a well-established approach for depicting complex networks and is commonly used to represent the relationships in settings such as transportation and communications networks.[10] This approach can be adapted to represent networks of performance linkages in order to help managers visualize and explore the sometimes complex relationships between the various aspects of business

performance. It requires managers to identify the key performance indicators (KPIs) relevant to their business, measure the correlations between the various KPIs, and then build maps of the positive and negative correlations. (See "The Seven Steps of Performance Topology Mapping.")[11]

An important feature of performance topology mapping is that the maps can be changed or "morphed" into a variety of configurations while still retaining the same linkages. By manipulating and re-configuring the topology map, managers can see the performance linkages from a new perspective. This is a qualitative, experimental process; there is no single solution. The aim is to cut through the complexity, simplify the performance topology map for ease of interpretation, and stimulate managerial discussions about the real drivers of business performance. This may provide a better starting point for strategy development than one based on hypothetical linkages.

On the next page, I present performance topology maps of the two retail chains discussed earlier. (See "Mapping Performance Correlations at a Superstore Retail Chain" and "Mapping Performance Correlations at a Home Improvement Retail Chain," p. 32.) A cursory glance shows that the performance topology maps are quite different from the service profit chain, revealing several new and interesting performance links in both companies.

The performance topology map of the superstore chain reveals several negative correlations. When the managers of the superstore retail chain were informed that the research had revealed that the more high-growth, productive, and profitable stores were those in which employees were least satisfied and loyal, they were concerned but not surprised. They were able to trace this to store size. Their larger stores (more than 30,000 square feet) required more investment, offered the widest product range, and were the most profitable — and they were located in more competitive labor markets. Large stores were also stressful places to work, so employee satisfaction and loyalty were lower in these stores than in the smaller, more rural stores. Smaller stores (typically 20,000 square feet) had narrower product ranges and were less profitable, but they were more pleasant places of work and had higher employee retention rates.

So the managers were able to explain these counterintuitive findings, which were at odds with the

THE SEVEN STEPS OF PERFORMANCE TOPOLOGY MAPPING

1. Identify the most important key performance indicators (KPIs) for your business.

2. Measure the correlations between all the pairs of KPIs, and identify the statistically significant positive and negative correlations.

3. Build a topological map (similar to the diagrams shown in this article) where the KPIs are the nodes and correlations are represented by connectors. Use different colors to distinguish between positive and negative correlations.

4. Use bold connectors to highlight particularly strong correlations. This may reveal a pathway of linked measures.

5. Identify the nodes that have multiple connectors. These may be key drivers that can be leveraged to improve performance.

6. "Morph" the topology map into configurations that provide a fresh perspective on the drivers of performance. The aim is to make the map easy to interpret.

7. Confront and explain any unexpected or uncomfortable findings. Are there unexpected correlations — or any links missing that you expected to find? Ask yourself: What are the implications of the correlations you see for corporate strategy and for the design and delivery of your products, services, and processes?

service profit chain model. The company's strategy and its training programs had been guided by the assumption that satisfied, loyal employees would have a positive effect on financial returns, which in their organization turned out to be false. At the same time, many employees had noticed that the large, profitable stores were less pleasant places of work; there was a mismatch between management rhetoric and the business realities that employees recognized. Such mismatches can create cynicism among employees that undermines their confidence in senior management and impedes process improvement.

Despite the operational similarities, the performance topology maps of the two retail chains are different. The map of the home improvement retail chain shows strong performance relationships between the employee and customer measures. Indeed, the bold connectors linking the employee and customer measures reveal a pathway of very strong correlations, which confirms the satisfaction mirror effect. However, the performance topology map also shows negative correlations between productivity and employee satisfaction, employee loyalty (measured by staff turnover),[12] customer satisfaction, and service value. But there is a strong positive correlation between productivity and store profitability.

Like the managers of the superstore chain, the managers of the home improvement chain found explanations for these findings. They noted that although store managers arguably had an impact on the working environment of employees, and hence
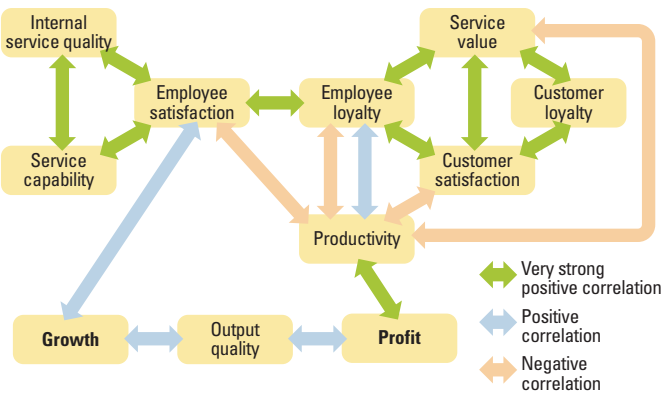
MAPPING PERFORMANCE CORRELATIONS AT A SUPERSTORE RETAIL CHAIN

This performance topology map shows that customer loyalty and productivity are strongly linked to profit (see green links), and also indicates that employee and customer loyalty are linked. However, employee satisfaction and employee loyalty are negatively related to store productivity and financial performance.
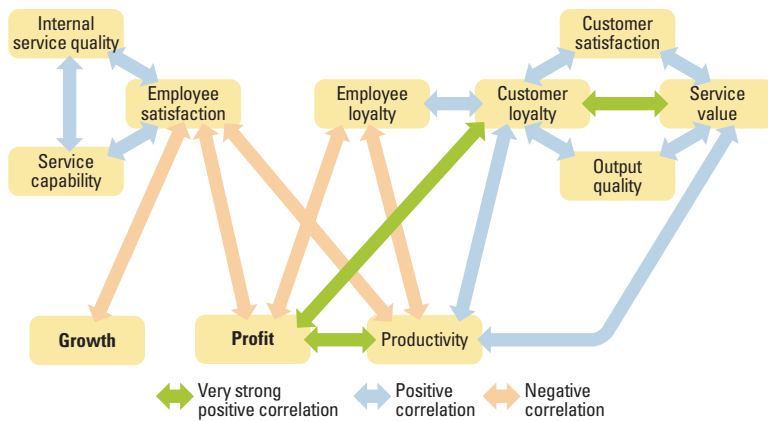
MAPPING PERFORMANCE CORRELATIONS AT A HOME IMPROVEMENT RETAIL CHAIN

This performance topology map reveals a pathway of performance relationships linking the employee and customer measures (see green links) and confirming a satisfaction mirror effect between them. However, the negative correlations between productivity and some of the employee and customer measures call into question the link between the satisfaction mirror and financial performance. Furthermore, there were both positive and negative correlations between employee loyalty and productivity, with a positive link between labor stability and labor productivity, but a negative correlation between staff turnover and sales per square feet.

higher staffing costs. The absence of a direct link between customer loyalty and financial performance was particularly surprising (and again goes against the service profit chain model). However, this made sense in light of the fact that the company received significant rebates from product suppliers; these rebates had a major impact on overall profitability. As a result, the most profitable stores weren't necessarily the ones that nurtured customer loyalty.

Despite the negative correlations with productivity, the performance topology map does show some evidence of links between the satisfaction mirror effect and financial performance. The performance topology map shows a positive correlation between employee loyalty (measured by labor stability) and productivity (sales per staff member), which is in turn linked with profit. Furthermore, there is a positive correlation between employee satisfaction and revenue growth.

These findings have strategic implications. For the home improvement retailer, investing in employees (for example, spending more on training or improving working conditions) may create customer satisfaction and loyalty. However, in the short term at least, such investments may not generate increases in store profits; investments in employee training might yield disappointing financial results. Nevertheless, in the longer term, employee training and other investments in employees may improve labor stability, which is positively linked to labor productivity and may therefore impact long-term profits; also, improving employee satisfaction may result in improved revenue growth.

Explaining Performance Relationships

The value of performance mapping stems as much from the process of developing the maps as from the maps themselves. Developing and testing performance topology maps is a creative activity that enables managers to engage in debate about performance drivers, which may lead to new narratives that explain performance relationships. Unexpected performance relationships can lead to important insights. The superstore chain offers a telling example. Many of the store managers had tacitly known that the company's large stores were good places for customers to shop but not so pleasant places for employees to work.

their satisfaction and loyalty, they did not have such a direct effect on store profits. To a large extent, store productivity was tied to centralized decisions about purchasing, product mix, and margins rather than to decisions by local stores. Furthermore, staff costs represented only 7%-13% of store operating costs, so staff satisfaction and turnover didn't affect store profitability as much as it would in organizations with

However, this view was at odds with what senior management was saying (as stated in the CEO's letter to shareholders) and the contents of employee training materials (which talked about the satisfaction mirror effect). The dangers of mismatches between management rhetoric and business reality are well documented in management literature.[13]

Performance topology mapping can help managers take a fresh look at performance relationships in their organizations without being blinded by assumptions or business models that don't apply to their own business reality. Topology maps can reveal drivers of performance and pathways that may be unique to the way a business is set up. This allows managers to exploit their enhanced understanding of the performance complexities to improve performance. By reconfiguring the topology maps as changes occur in the business environment, managers can gain new insights into performance relationships so that they can develop better, smarter strategies.

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5. "Internal service quality" is defined here as the quality of the working environment. The idea is that a good working environment, where employees are given the tools and training to deliver service capability, will generate high levels of employee satisfaction and loyalty.

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10. See, for example, M. Yu, I. Atmosukarto, W.K. Leow, Z. Huang, and R. Xu, "3D Model Retrieval With Morphing-Based Geometric and Topological Feature Maps," Proceedings of 2003 IEEE Computer Society Conference on Computer Vision and Pattern Recognition 2 (2003): 656-661.

11. For a full exposition of the tool, see Silvestro, "Performance Topology Mapping."

12. The relationship between productivity and employee loyalty was complex at the home improvement retail chain. There was evidence of a positive correlation between employee loyalty (measured by labor stability) and labor productivity (sales per staff member), but a negative correlation between employee loyalty (measured by staff turnover) and store productivity (sales per square feet); hence, employee loyalty and productivity are linked both positively and negatively in the performance topology map.

13. See, for example, K. Legge, "Human Resource Management: Rhetorics and Realities" (Chippenham, U.K.: Macmillan Business, 1995).

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