The Master Measurement Model of Employee Performance

TheIncentiveResearchFoundation

The Incentive Research Foundation gratefully acknowledges
the contributions of the members of
SITE (Society of Incentive Travel Executives) as well as
the Founding Contributors of SITE Foundation (now known as The Incentive
Research Foundation) whose generosity made this project a reality.

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FOREWORD

This is a much-needed guide for measuring performance in the workplace. If you're a creative executive or manager, and you're constantly seeking ways to improve productivity and quality in the workplace, this guide will help you.

With today's emphasis on energizing employees toward greater performance — especially in the service sector — the job of gauging and improving output has become paramount. And while many have deemed "performance" an immeasurable intangible, this guide shows how *every job and every task can be measured,* improved and rewarded.

The American Productivity & Quality Center (APQC) received a grant from the SITE Foundation (now known as The Incentive Research Foundation) to prepare the 10 measurement models in this guide. The models display a step-by-step process for selecting criteria to measure all kinds of workers, converting these measurements into concrete numbers and dollar values that can be used to create incentive program budgets.

Once these budgets have been established, the exact nature of the program and the awards to be offered can be determined. While it is not our objective here to guide the reader in award selection, we do draw your attention to the APQC study "People, Places & Performance,' which indicates that incentive travel awards produce the most tangible results.

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INTRODUCTION

Corporate America's quest for greater productivity, quality and morale is heightening. And while "employee involvement" has become the catchword in many forward-thinking organizations—with their quality circles and labor-management committees—many companies are pushing their commitment to employees a step further. They're turning to incentive programs in the workplace.

These aren't the traditional programs that target only dealers and sales forces, but programs that take aim at the very soul of the company: its employees—factory workers and field workers. With increased productivity and quality as their goals, savvy managers have begun looking to incentives to boost efficiency, morale and creativity.

This corporate enlightenment comes with its problematic baggage. For its salespeople, companies can measure the number of units sold, dollars made, and percent-of-goal. The same with its dealers. But how does one measure the progress of field service representatives? By the number of customers in a day? Number of complaints? Complexity of the job? And how can a hospital gauge its nurses' performance? By their tardiness, enthusiasm, number of patients? What measurements convey the improvement of performance of production line workers? The amount of suggestions, training hours, items processed?

In each case, the answer is simple. Measurements are everywhere, but first they have to be identified. With some ingenuity, managers can devise incentive campaign goals and measurements for almost any job and level. As with salespeople, every occupation sells "products" and serves "customers." True, these may not be immediately apparent to the naked eye, but this guide shows how a little insight can help detect them, and how objectives and measurements can be sculpted around them. And most important, this guide shows how to translate measurement results into the funding of an incentive program.

The American Productivity & Quality Center received a grant from the SITE Foundation (now known as the Incentive Research Foundation) to prepare the 10 measurement models in this guide, which is designed for today's creative managers. The models display hundreds of ideas for selecting criteria to measure employees and workers, converting these measurements into concrete numbers and finally, translating them into progress (or regress) and incentive dollars.

A Measure of Caution

Before excavating their calculators and tape measures, managers should first understand that the world of measurement abounds not only in numbers and percentages, but in perplexing dilemmas.

One manager might decide to log the number of units produced, but what happens when "units" are open to debate? For example, what are a teacher's products? Students, books, test grades? What does a nurse purvey? A critical service, certainly, but how does one quantify it—by the number of patients, hours on duty, number of emergencies? When measuring service-oriented functions, it is best to develop a family of potential measures to gauge the quality— not just the quantity—of the service.

In Measurement Model #3 for teachers, for instance, early measurement considerations aim at teachers' involvement in the community, their students' test scores on national exams, and the number of new materials they furnish per school term. In similar cases, only carefully thought-out measurements will be able to track quality-oriented tasks.

Another problem may surface: too many products and/or services to measure. For customer service representatives, for instance, one could track any of a dozen factors: number of contacts per rep, customer waiting time, avenge "cycle time" (time from initial contact through solution), percentage of errors passed on to order fillers, etc. When this happens, planners need to prioritize all measurements, weighting them by degree of importance.

There are problems on the customer side too, since "customers" often connote all kinds of groups. In the teaching model, we decided that parents—not children—were the customers. Only when the children grow up and take a more active role in their education do they become customers. There also can be "internal" customers, as in the case of field service representatives (Model #1). In addition to

responding to their customers in the field, reps have to answer to their own bosses, who are concerned about costs per call and customers' equipment.

These are all critical judgments, but resourceful managers won't be making them alone. They can form worker focus groups, "nominal group techniques,' interviews and questionnaires to help establish objectives and ways for measuring them.

The nominal group technique deserves special mention. This is a popular tool used by many corporations. Organizations gather together a small, "nominal" portion of the group targeted for the incentive, and bring in an outside facilitator. The group works together to supply prospective measurements and objectives for an incentive program. The meeting is a structured affair usually lasting several hours, with bosses and supervisors absent. In the end, the group's final family of five or six measures is submitted to management for its consideration.

A Few Terms

After conducting numerous corporate brainstorming sessions and interviews, managers likely will discover that most product/service objectives fall into two major categories: productivity and quality.

Put simply, productivity is the relationship between what is put into a piece of work (input) and what is yielded (output).

Productivity naturally increases when more output derives from the same input, or when the same output comes from decreased input. Productivity measurements (calls per day, number of completed projects, cycle time, for example) will yield concrete numbers.

Some corporate cultures speak of efficiency instead of productivity, but the terms are interchangeable. Utilization, another concept, refers to the amount of input that is actually used compared to the amount allocated for that use. This especially applies to vehicles, floor space, computer capacity and other fixed assets.

Quality refers to excellence, and its variegated meaning is reflected by a spectrum of potential measurements. In our 10 models, we suggest measures for timeliness, creativity, innovation, customer satisfaction, absenteeism, staff turnover, market share, new product/service introduction, safety, recognition (from the outside world), record completeness and downtime. Unlike productivity measurements, numerical measurements here often have to be "created" via ratios, test scores, customer evaluations, internal audits, etc.

Measuring Up

After hammering out a number of productivity and quality objectives, management will encounter the next question: How can these things be measured? Or, put another way: What measures or indicators should improve if we do better work for this objective?

If the goal is to "reduce the rate of errors:' one can easily measure the number of errors against total units handled. If an engineer's goal is to complete as many projects as possible, then designs per engineer (weighted by difficulty) will offer an indication of progress.

It is not a good idea to devise dozens of measures for each occupation. A "family" of three to measures will do, especially since most occupations are too complex to capture all facets in just one or two dimensions. On the other hand, people really can't focus on more than five or six measurements without having their priorities muddled.

Once workers have proposed a number of basic

■ Table 1

Example of a Performance Feedback Report

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Measure A	12.11	12.52	103.4	.50	51.7
Measure B	83.40	79.70	95.6	.25	23.9
Measure C	1,817	1,902	104.7	.25	26.2
Total Weighted Result				1.00	101.8

measuring ideas, managers or facilitators can ask them to vote for their favorite ideas, rating them from best to worst. This final, prioritized list can be submitted to division or department managers, who can review it and perhaps alter the priorities. The final set of measures should possess "balance." That is, some measure should address productivity and some should tackle quality. Some should take aim at inside operations while others target customer issues.

When considering the final measures, managers should weight them differently, since different factors play varying roles affecting productivity arid quality. We strongly suggest "weighting" each measure of the family with percentage weights from 10 percent to 50 percent (adding up to 100 percent, of course). Also, managers may have to make some adjustments along the way mainly to deal with "mix effects" and "price effects."

Mix effects. An analyst may write "reports," but it would be misleading to use "reports per person" as a measure, since some reports are simple and others more time-consuming. It would be like rating 10-meter divers for their number of dives, rather than the complexity and quality of each plunge. It would be best, then, to devise point systems, allotting more points for difficult reports and fewer points for easy reports. One benefit of point systems, especially during an incentive program, is that management can change point weights at any time to stress different products or accent different areas of performance.

Price effects. Still another common adjustment is for price effects or inflation. A dollar measure such as "$ Sales per Salesperson" can rise two ways: from an increase in sales price per unit, or from an increase in the number of units sold. But only the latter effect belongs in a productivity measure. So, to ensure consistency, all sales figures across all time periods need to be translated into base-period dollars. If a program employs measures without this adjustment (a common mistake) it won't provide an accurate reading on the cause of the upswing.

Family of Measures

In all our measurement models, we use a set "family of measures" to gauge progress (see Table 1). There are, of course, more sophisticated and complicated ways to structure a report, but all analyses should include these vital elements:

- Numbers from a previous time period *(Base Data)*.
- New numbers from the current period of the same length *(New Data)*.
- The percentage change *(New/Base)*.
- The pre-assigned *Weights*.
- The relative importance of that change *(Weighted Result)*.

Both the *Base* and *New Data* can be expressed as numbers of units, dollars, hours, points, percentages, etc. The measures can span any period of time -- hours, months, years.

The *New/Base* Data (new data divided by base data) yields a percentage that shows the increase or decrease for the particular objective. In Table 1, Measure A improved by 3.4 percent (103.4), while Measure B declined 4.4 percent (95.6). One hundred percent is considered "par."

Weighted Results are derived by multiplying *Weight* times the *New/Base.* In essence, the weighted results are weighted averages -- mathematical calculations that give insight into the progress of each objective. Adding them together produces the total weighted result, 101.8, which reveals that for these measures, the group's overall productivity and quality rose 1.8 percent.

In each of our 10 measurement models, we will see how managers also can employ Base Data and New Data figures to approximate a potential budget for an incentive program and awards.

Field Service Representatives

The supervisor who sets out to measure field service representatives will end up considering a vast variety of potential functions. Some reps conduct scheduled routine maintenance and/or customer equipment training at field locations. Others are "on call" to re-pair unplanned breakdowns. Some do both.

The arrangements vary too, since some work with a fixed set of customers on pre-sold contracts, while others sell their services on every visit — to an ever-changing customer base.

For this model, we'll assume that field service reps:

- have a fixed set of customers,
- repair unplanned breakdowns only, and
- operate under a master maintenance contract.

The Customers

The field service rep's ultimate customer is the equipment user at the client's location. Naturally, this person craves speedy and less frequent repairs.

The immediate customer is the office manager and/or maintenance manager at that location. The manager's priority is to hold down the prices of future service contracts, which can be boosted considerably by poor maintenance habits at the location.

The field service representative also answers to an internal customer—his own boss—who's very concerned that customers' equipment stay fixed and that costs per call remain low.

Service Rep Objectives

After conducting focus groups and interviews with field reps and customers, managers will likely uncover a mix of aims similar to the following:

■ **Productivity**
- Make as many calls a day as possible.
- Hold down costs by taking good care of tools and practicing efficient routing.
- Hold down customer costs by 1) prolonging part life, and 2) demonstrating ways to use the equipment more effectively.

■ **Quality**
- Fix it so it stays fixed.
- Arrive as soon as possible after being called.
- Perform quick, effective troubleshooting.
- Contribute, from experience, to the service firm's diagnostic body of knowledge.
- Be courteous.
- Make appropriate, accurate and prompt doc-umentation of each visit.

Potential Measures

Once workers and managers review their initial lists of objectives, they may suggest measurements like these:

- Calls (weighted by degree of difficulty) per service rep.
- Total service cost per weighted call (including transport, tools and documentation processing).
- Average age of the part being replaced (this indicates the maintenance level of the whole system).
- Average time between visits to each customer.
- Median response time between calls and ar-rivals.
- Number of contributions to the company's troubleshooting manual (weighted by each item's potential dollar savings, time savings, etc.).
- Customer satisfaction survey scores.
- Average lapsed time between job completion and paperwork completion

- Percent of equipment downtime versus client's desired uptime.
- Percent idle time and percent overtime versus an eight-hour day (these figures reveal efficient or inefficient scheduling
- Number of on-the-job accidents (weighted by severity)

Proposed Family of Measures

After focus groups elect their final sets of measures (like the example below), top executives should be allowed to review them, make adjustments and ultimately assign percentage weights.

- Weighted calls per representative 25%
- Total service cost per weighed call 25%*
- ($'s divided by the total number of calls)
- Time between visits to each.................. 20% customer (weeks)
- Customer satisfaction survey scores..... 20% (% scores on surveys)
- Time between job completion and ...... 10% paperwork completion (days)

A decrease means improvements for this measure

Tracking Performance

The Performance Feedback Report (Table 2) shows how the target group has performed on the selected measures.

In the example in Table 2, the numbers in the *Base Data* and *New Data* columns are purely hypothetical, but, of course, in the real world there would be actual data. For each measure, the time frames during which Base and New Data were collected are exactly the same.

The feedback report's critical indicator is the *Total Weighted Result,* in this case 102.5. This means that, for this family of measures, productivity and quality rose 2.5 percent during the particular time period.

The Total Weighted Result is derived by adding all of the *Weighted Results* together. Weighted Results were produced by multiplying the pre-assigned percentage weights (for instance 25% for Weighted calls per rep) by the improvement (or decrease) registered in the *New/Base* column (105.9 in this case). Dividing New Data (15.17) by the Base Data (14.32) establishes this percentage change over the two periods.

Benefit Report

The Benefit Report (Table 3) moves a critical step beyond the Feedback Report. If management wants to create an incentive program budget, a Benefit Report like this will help corral important figures.

■ Table 2

Performance Feedback Report, Group of Field Service Reps

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Weighted calls per rep	14.32	15.17	105.9	.25	26.5
* Service cost per weighted call	$83.21	$85.27	97.6	.25	24.4
Time between visits	3.70	4.01	108.4	.20	21.7
Customer satisfaction	86.3	88.10	102.1	.20	20.4
* Lag between job completion and Paperwork	3.98	4.19	95.0	.10	9.5
Total Weighted Result				1.0	102.5

An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

■ Table 4
Benefit Report, Group of Field Service Reps

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
Weighted calls per rep	14.32	15.17	.85	$50K/1	$42.5K
*Service cost per weighted Call	$83.21	$85.27	(2.06)	$15K/1	($30.9K)
Time between visits	3.70	4.01	.31	$30K/1	$9.3K
Customer satisfaction	86.3	88.1	1.8	$5K/1	$9.0K
*Lag between job completion and paperwork	3.98	4.19	(.21)	$4K/1	($8.4K)
Total Benefit					$21.5K

An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted r from – not added to – the 100% base.

Table 3's *$ Per Unit of Improvement* means this: For each unit of improvement for a particular measure, this is how many thousands of dollars gain would be registered. For example, a rise in average number of field service calls from 14.32 to 15.32 (a unit of 1.00) would be worth $50,000, or $50,000/1; similarly, a drop in cost per call from $83.21 to $82.21 ($1.00) would be worth $15,000. The figures in this example have been invented, but in the real world, a manager would need to commission studies from marketing, financial and sales departments to determine approximate dollar values.

The Benefit study shows that this group improved performance by $21,500 ($21.5K) for the time period. The figure is simply the sum of the *Actual Benefits* registered for each measure; each Benefit is computed by multiplying the actual *Improvement* (.85 for weighted calls per rep, for example) by dollars per unit ($50,000), or $42,500.

Since incentive budgets usually comprise anywhere from 10% to 20% of an incentive campaign's overall financial gain or savings ($21,500 here), one can figure that the budget will rest somewhere between $2,150 and $4,300.

Engineers

There are professional societies for all kinds of engineers: electrical, mechanical, civil, industrial, aeronautical, etc. But while the classifications help isolate their environments and subjects, they do little to help identify the nature of engineering work, which is what we need to sculpt a family of performance measures.

In this model, then, we'll classify engineering as: 1) the basic operational process itself, or 2) a staff role with the job of assisting line managers on an assignment-by-assignment basis.

The best examples of the first classification reside in automobile, aerospace, and electrical product manufacturing, where thousands of engineers each develop specific-part designs. Since they're continually re-designing the same item— for example, car bumpers—the measures of cost, time and performance remain fairly predictable.

In contrast, staff engineers receive a variety of well-defined assignments that entail a great deal of flexibility and discretion. Their output consists of completed projects (like reports) or products, or finished portions of projects.

For this example, we'll develop measures for examples of both types of engineers: the Design Engineer and the Project Engineer.

The Customers

The design engineer's immediate customer is the next design engineer in the product-development sequence. The sequence itself spans from the formation of crude plans to the inking of precise drawings and specifications. Altogether, there may be 10 different engineers contributing directly to the design of a new car bumper, for example.

Customers later in the process include the manufacturing ranks, who carry out the finished design. They're interested in "producibility," the ability to make the product without great difficulty or need for redesign. The ultimate customer, of course, is the person who buys the completed product.

Many ad hoc projects employ a collection of project engineers so that, in a sense, the team project manager is their customer. The project manager, in turn, must deliver a completed product to whoever commissioned the project, which is often a top executive at the company.

Design Engineer Objectives

Early focus groups and interviews with engineers and their various customers could produce a mix of objectives like this;

■ **Productivity**
- Design as many parts possible.
- Use design equipment efficiently (computer-aided design terminals, for example).
- Re-use "standard" design modules—old plans and designs, for instance—rather than start from scratch.
- Hold down the total design cost.

■ **Quality**
- Make the designs immediately usable by engineers who are next in the design process.
- Design parts that are producible.
- Reduce the design "cycle time" (the time from the start of a task to its completion).
- Avoid unnecessary reworking of drawings.
- Design parts that meet the end user's technical and cost requirements.
- Maintain an appropriate technical training level.
- Provide design breakthroughs (improved techniques, for example) of use to other engineers.

Project Engineer Objectives

■ **Productivity**
- Complete as many projects/portions as possible.
- Maintain high utilization of people and/or tools assigned.
- Meet (or beat) the budget for the projects or project sections.

■ **Quality**
- Deliver projects on time.
- Obtain high scores from customer evaluations of the completed project or product.
- Avoid rework of project steps.
- Keep current in the relevant field of study.
- Receive increasingly important assignments.

Potential Measures, Design Engineer

After reviewing their initial ideas for objectives, workers and managers might ponder the following ways to measure them:
- Designs per designer (weighted by relative difficulty, using such measures as "standard hours" or the judgment of a senior design engineer in the company).
- Utilization percent of assigned design equipment.
- Percent of design incorporating previous solutions, designs or plans.
- Total design cost per weighted design (including tools, space costs, documentation).

- Usability rating by engineers next in the design process -- that is, whether the newly designed piece fits or has to be further modified.
- Producibility rating by manufacturing managers.
- Ultimate customer survey rating of relevant part's performance.
- Average design cycle time vs. previous time period's average cycle time.
- Percent of drawings reworked.
- Number of design breakthroughs or technique modifications.

Potential Measures, Project Engineer

- "Milestone points" per engineer for various projects (since engineers usually work on various projects at once, milestone points are given for percentage completion on each project by a certain time); these are weighted by multiplying the percentages by the project's size (usually its cost).
- Percent over or below budget.
- Percent utilization of assigned people and/or tools.
- Percent on-time delivery of products and/or project components.
- Customer satisfaction survey of the product or completed project.
- Percent of project steps reworked or done over.
- Dollar value of assigned projects vs. previous period's work load.

■ **Table 4**

Performance Feedback Report, Group of Project Engineers

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Milestone points per engineer	1,814	1,902	104.9	.20	21.0
Budget vs. actual cost	103.4	102.8	99.4	.30	29.8
% on time	89.1	92.3	103.6	.20	20.7
Customer satisfaction survey	92.5	91.5	98.9	.30	29.7
Total Weighted Result				1.00	101.2

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted r from – not added to – the 100% base.

Table 5
Benefit Report, Group of Project Engineers

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
Milestone points per engineer	1,814	1,902	88	$4K/10	$35.2K
Budget vs. actual cost	103.4	102.8	(.6)	$20K/1	($12.0K)
% on time	89.1	92.3	3.2	$7K/1	$22.4K
Customer satisfaction survey	92.5	91.5	(1.0)	$10K/1	($10.0K)
Total Benefit					$35.6K

Proposed Families of Measures

Focus groups elect the final set of measures, and executives, after reviewing them, assign percentage weights:

Design Engineer
• Weighted design per engineer 25%
• Productivity rating from
   Manufacturing 30%
• Average design cycle time 25%*
• Utilization of design equipment.................10%
• Ultimate customer survey rating................10%

Project Engineer
• Milestone points per engineer 20%
• Budget versus actual cost...........................30%
   (budget/cost)
• Percent on-time delivery of projects..........20%
• Customer satisfaction survey..............30%
   (% scores on surveys)

A % decrease means improvement for this measure.

Tracking Performance

In Table 4, as in all of our models, the actual numbers for **Base Data** and **New Data** are hypothetical. Their measuring periods can be any length of time, as long as the periods from which management gathers its New and Base figures are the same time frames. Dividing the New Data by the Base Data *(New/Base)* yields a percentage improvement (or decline) for each measure. For example, "milestone points" is up 4.9 percent, to 104.9 (1,902 divided by 1,814).

The next step is to multiply each measure's increase or decreased by the pre-assigned **Weights;** this produces the **Weighted Result** for each measure. Adding all of the Weighted Results shows that overall productivity and quality – based on the selected measures – rose by 1.2 percent, to 101.2.

Benefit Report

Table 5 shows how to translate these gains into the funding of an incentive campaign. The figures under **$ per Unit of Improvement** are hypothetical (but within reason), and marketing, financial and other departments would have to conduct detailed studies to provide these kinds of dollar values. Essentially, this column suggests that for each unit of improvement, the company's Benefit is X amount of dollars (for example, for every 10 milestone points there's a gain or savings of $4,000, or $4K/10). Multiplying the dollar value by the actual **Improvement** (88 milestone points better in the new period) produces the **Actual Benefit,** which in the case of milestone points, is a healthy $35,200 (8.8 X $4,000).

Since experts indicate that an incentive budget should constitute anywhere from 10% to 20% of a campaign's total dollar gain or improvement, management can approximate the incentive budget from the **Total Benefit** (anywhere from 10% to 20% of *$35,600).*

Teachers

Teachers come in all shapes, sizes and de-meanors. They supply an equally vast spectrum of educational services, varying by: the type of school (public or private, rural or urban, single- or multi-language), level of instruction (grade school, junior high, high school, college, college prep or vocational) and subject matter (multiple subjects or specialization, teaching-or research-oriented).

The Customers

All teachers serve at least three important customers: their students, the community and their colleagues.

Whether they know it or not, students are in effect purchasing their teacher's services. In the primary grades, students are represented by agents, namely their parents and parent associations. In later years, students begin exerting control over their educational lives.

The community, represented by the local board of education and/or board of trustees, determines the curricula and thrust of most school education. These decisions are subject to the forces of prevailing laws and regulatory practices, plus regional (rural or urban) and cultural (single-or multiple-language) influences. Local businesses also are customers, since they hire students graduating from high school and college.

A teacher also provides services to other teachers—at the same school and sometimes beyond the campus. Team teaching, working in teacher associations, daily coaching arid advising — these are all services offered to colleagues. In places of higher learning, a teacher's research is exported to peers at other institutions.

Teacher Objectives

Focus groups of educators and administration officials will yield a classroom-full of potential objective and measures, such as:

■ **Productivity**
- An acceptable student/teacher ratio.
- A satisfactory level of materials and supplies per student.
- Less administrative duties, more teaching time.

■ **Quality**
- Minimize students who repeat the class.
- Minimize students who drop out.
- Enhance teaching materials each year.
- Help improve student scores on national and state exams.
- Prepare students to get good jobs and succeed in the community.
- Help students feel confident about their abilities after leaving class.
- Perform useful activities in the community.
- Complete professional development (summer school, teacher's association meetings, research).
- Generate high "demand" for the class.
- Ensure appropriate utilization of equipment such as computers.
- Maintain high student attendance rates.
- Maintain high personal attendance rate.
- Help fellow teachers via committees, associations and personal coaching.
- Complete documentation (student records, lesson plans) accurately, and help improve the documentation flow.

Potential Measures

After reviewing their initial ideas, teachers and school officials should whittle down some methods to measure them. Some ideas might be:

- Students per teacher.
- Material and supply costs per student.
- Administrators per teacher.
- Percent of students entering the class who complete it the first time.
- Percent of new teaching materials introduced each term, a so-called "freshness ratio."

- Average and variance of student scores on national tests (on a three-year moving average basis).
- Student job placement success rate.
- Instances of community service (aiding a relief drive, coaching a soccer team).
- Results of student-evaluation questionnaires or surveys.
- Instances of professional development and/ or research.
- Ratio of applicants per class to usual number of applicants (reflects class demand).
- Utilization rate of computers.
- Student attendance rates
- Teacher attendance rates
- Results of colleague' evaluations, questionnaires or surveys
- On-time percent of documentation

Proposed Family of Measures

Once people agree on a final set of measures, top officials—deans or members of the board of education—should review it and assign percentage weights. Two examples:

■*For a multiple-subject teacher in a public grade school*

Students per teacher 25%
Student scores on national tests..............30%

Freshness ratio 15%
Combined student/co-worker survey 15%
   Results
Professional development index 15%
   (weighted points for attending
   seminars, summer school, etc.)

■*For a specialist teacher in a private university*

Students per teacher..................................15%
Job placement of students.........................25%
   (% of students who applied for jobs
   and got them)
Freshness ratio (% of materials that 20%
   are new
Applicants versus expected applicants 10%
   (applicants / expected applicants)
Quality of research index (points or 10%
   grades from peers, based on 100)

Tracking Performance

The Performance Feedback Report (Table 6) shows that these hypothetical educators have made the grade on the selected measures. Their combined performance climbed by 1.8 percent, to 101.8.

The figures in the *Base Data* and *New Data* columns are invented; the time periods can vary for each measure but time frames must be consistent between Base and New Data gathering periods.

The *Total Weighted Result* is the sum of all *Weighted Results.* The Weighted Result was de-

■ Table 6
Performance Feedback Report, Group of University Teachers

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Students per teacher	25.8	26.8	103.0	.15	15.6
Job placement	63.1	68.7	108.9	.25	27.2
Freshness ratio	20.3	17.9	88.2	.20	17.6
Applicants vs. expected applicants	1.37	1.27	92.7	.10	9.3
Quality research index	87.2	93.3	107.0	.30	32.1
Total Weighted Results				1.00	101.8

■ Table 7
Benefit Report, Group of University Teachers

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Actual Benefit
Students per teacher	25.8	26.8	1.0	$15K/1	$15.0K
Job placement	63.1	68.7	5.6	$7K/1	$39.2K
Freshness ratio	20.3	17.9	(2.4)	$20K/1	($48.0K)
Applicants vs. expected applicants	1.37	1.27	(.10)	$5K/.10	($5.0K)
Quality research index	87.2	93.3	6.1	$8K/1	$48.8K
Total Benefit					$50.0K

rived by assigning priority weights for each measure and then multiplying that by the particular measure's improvement or decrease (.25 X 108.9 = 27.2 in the job placement case). New Data divided by Base Data *(New/Base)* produced the improvement or decline.

Benefit Report

The Benefit Report (Table 7) reveals that for this body of measures and particular time period, a $50,000 *Total Benefit* surfaced at the institution. Incentive experts claim that to fund incentive awards, 10% to 20% of the Benefit should do the job, in this case, $5,000 to $10,000.

The *$ per Unit of Improvement* column is probably the toughest grouping of figures to attain—and comprehend. The numbers mean that for each unit of improvement for a particular measure, this is how many thousands of dollars' gain would be registered. For example, a rise in the quality research index of 1.0 (from 87.2 to 88.2) would yield $8,000 in benefits to the institution, thus $8K/1 Since the *Improvement* was actually 6.1 over the two periods measured, the *Actual Benefit* is $8,000 X 6.1,or $48,800. Figures in the unit column here are invented, but in the real world, management would need to commission studies from marketing and financial departments to approximate some dollar values.

Customer Service Representatives

In this model, we'll assume that customer service representatives are contacted (by phone, mail and/or in person) by a customer who's either ordering a product or service, or lodging a complaint or problem. As they move into action, customer service reps will typically perform a sequence of tasks that include:

- a greeting.
- discussion about the product or service(such as order, delivery, price and quality).
- check against the company's data base (for availability and order history).
- an agreement on the next steps.
- entering contact information into the company's system for initiating original or corrective action.
- Following up at a later time to ensure customer satisfaction

The Customers

The primary customer is the person ordering the product or service.

There's also an internal customer -- the order filler, complaint handler, troubleshooter -- who continues or completes actions stipulated by both the customer service rep and the external customer. Another internal customer is the productivity coordinator or quality administrator. This person collects statistics that will enhance company knowledge about the nature of the external customer and the quality of the fulfillment process.

■ **Table 8**

Performance Feedback Report, Group of Customer Service Reps

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Weighted contacts per rep	20.21	20.83	103.1	.25	25.8
*Waiting time	4.83	4.74	101.9	.15	15.3
*Cycle time	2.18	2.25	96.8	.15	14.5
*Error rate	.058	.052	110.3	.15	16.5
Customer satisfaction	87.1	85.7	98.4	.30	29.5
Total Weighted Result				1.00	101.6

An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base. Conversely, a decrease indicates improvement, and the percentage change is added to the 100% base.

Customer Service Objectives

Focus groups and interviews with customer service reps should yield ideas for on-the-job objectives. Some examples:

■ **Productivity**
- Handle as many contacts as possible.
- Pass information on as clearly and promptly as possible.
- Direct the customer to an alternative solution or substitute if the first choice is unavailable.

■ **Quality**
- Ensure that the external customer is happy not only with the outcome, but with perceived courtesy and promptness.
- Direct the customer to an alternative solution or substitute more suited to that customer's needs.
- Minimize customer waiting time and redials.
- Stay current on factual and procedural changes.
- Suggest improvements (in technique, for example) to co-workers.

Potential Measures

After reviewing their own initial ideas, groups of customer service reps can create options for measuring them. These might include:

- Contacts per service representative (weighted to reflect contacts of varying difficulty—handling complaints, describing a product, for instance).
- Average customer waiting time—the time from the start of the customer's call until contact with the representative and problem resolution.
- Number of contributions to the troubleshooting manual.
- External and internal customer satisfaction scores (via surveys).
- Percentage of errors on information passed on to order fillers.
- Frequency of accepted substitute products by customers.
- Number of suggested procedural changes accepted by managers.

Proposed Family of Measures

Once the family of measures is finalized, managers or quality coordinators can set percentage weights:

Weighted contacts per representative.......25%
*Waiting time (in seconds).......................15%
*Cycle time (in minutes) 15%
*Error rate on order documents 15%
External customer satisfaction 30%
    (% scores on surveys)

* A decrease means improvement for this measure

Tracking Performance

In Tables 8 and 9, numbers in the *Base Data* and *New Data* columns are hypothetical. The statistics could have been gathered from any time frame (weeks, months, years), but it's important to remember that when gathering Base and New Data, the frames must be consistent.

In Table 8, the first computation occurs by dividing the New Data by the Base Data *(New/Base),* which produces a percentage improvement (or decline) in the measure. For example, one can determine that weighted contacts per rep edged up 3.1 percent, to 103.1, by dividing 20.83 by 20.21.

The next step is to multiply each measure's increase or decrease by the pre-assigned *Weight;* this produces the *Weighted Result* for each measure. Adding all of these Weighted Results shows that overall productivity and quality—based on these selected measures—rose by 1.6 percent, to 101.6.

Benefit Report

Table 9's Benefit Report helps translate the gains into the funding of an incentive campaign.

The figures under **$ per Unit of Improvement** are hypothetical (but within reason), and only from concentrated studies can marketing, financial and other departments furnish these kinds of dollar values. This column shows that for each unit of improvement, the company's Benefit is X amount of dollars.

For example, if weighted contacts per rep rises from 20.21 to 21.21 (a rise of 1.00), then the benefit to the firm is $20,000, hence $20K/1. Since the actual **Improvement** was .62, it is multiplied by $20,000, which yields an **Actual Benefit** of $12,400 for the measure.

Adding all individual benefits produces the **Total Benefit** which, in this case, is $16,500 for this family of measures.

Since experts indicate that an incentive budget should constitute anywhere from 10% to 20% of the campaign's total dollar gain or improvement, a manager can approximate an incentive budget from the total benefit ($16,500), which would range from $1,650 to $3,300.

■ Table 9
Benefit Report, Group of Customer Service Reps

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Actual Benefit
Weighted contacts per rep	20.21	20.83	.62	$20K/1	$12.4K
*Waiting time	4.83	4.74	.09	$40K/1	$3.6K
*Cycle time	2.18	2.25	(.07)	$5K/.10	($3.5K)
Error rate errors/traffic	.058	.052	.006	$3K/.001	$18.0K
External customer satisfaction	87.1	85.7	(1.4)	$10K/1	($14.0K
Total Benefit					$16.5K

An increase in these numbers represents a decline in performance for this measure, thus the percentage is subtracted from – not added to – the 100% base. Conversely, a decrease indicates improvement, and the percentage change is added to the 100% base.

Production Line Workers

W hy not measure production line workers by the number of products that come off their particular production line?

One reason is because not all products coming off that line pass through every phase of the production process. If a plant produces painted and unpainted widgets, for instance, many workers can be gauged by the number of widgets made, but painters would have to be judged only by the number of widgets painted.

Also, in most production processes, workers perform a variety of tasks; for example, a welder might fuse together a number of variously shaped pieces—some tougher than others—in a given day. If some pieces are indeed easier to master than others, supervisors would have to devise a weighting system to supply justice to the final count.

Most production systems also give credit for "good" products, while "bad" ones (that is, items that have to be reworked) count for zero points. Some processes might be better served with point gradings, rather than a good-versus-bad measure.

Finally, most well-run businesses require production workers to do more than tighten the bolts. Responsibilities often expand into the realms of safety, housekeeping, light maintenance, documentation, process innovation and even teamwork management. That is why a number-of-units count alone will not suffice.

The Customers

Production line workers' primary customer is the person or company that buys their finished product.

Internal customers include the next "downstream" workers who receive and further process the workers' output. Production line employees also answer to their direct supervisors, plus quality-control and scheduling people. One could even consider all fellow workers as customers, since safety and housekeeping procedures impact everyone.

Production Line Worker Objectives

Focus groups of production line workers could yield the following suggestions for on-the-job objectives:

- Process as many production units as possible.
- Catch incoming errors and pass no quality flaws past each station.
- Cooperate enthusiastically with start-up or product change processes.
- Do required documentation promptly and accurately.
- Operate within housekeeping, safety and waste standards.
- Make suggestions to improve process flow, work procedures, and quality of work life.
- Do assigned machine maintenance, as needed, to avoid unplanned downtime.
- Avoid unnecessary lateness and absenteeism.
- Complete appropriate training and cross training.

Potential Measures

After reviewing their initial ideas, groups of workers can pare down options for measuring them. These might include:

- Output per worker hour ~weighted by the task's relative difficulty).

■ Table 10

Performance Feedback Report, Group of Production Line Workers

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Weighted output/worker hour	1,218	1,263	103.7	.30	31.1
*Rejection rate	3.1	2.8	109.7	.30	32.9
*Section cycle time	47.2	49.3	95.6	.20	19.1
Safety/housekeeping, late/absent index	85.3	83.2	97.5	.20	19.5
Total Weighted Result				1.00	102.6

An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

- Average cycle time (measured from the moment of the item's entrance until completion of the process) in the production line.
- Product reject rate (percentage of bad products) at the worker's station.
- Average documentation delay (time between target time for documentation and the time of the actual logging of data).
- Number of safety/housekeeping problems, weighted by seriousness.
- Number of suggestions made by workers.
- Percent of unplanned machine downtime.
- Percent of days late and absent.
- Total (voluntary and mandatory) training hours completed.

Proposed Family of Measures

Once the family of measures is finalized, quality-control people can help set percentage weights:

- Weighted output per worker hour .... 30% (in units)
- * Reject rate (% of total output) 30%
- Section cycle time (in minutes)............... 20%
- Index of safety, housekeeping and .... 20% late/absent performance (three percentage scores, averaged)

A decrease means improvement for this measure.

■ Table 11

Benefit Report, Group of Production Line Workers

Measure	Base Data	New Data	Improve- ment	$ per Unit of Improvement	Actual Benefit
Weighted output/worker hour	1,218	1,263	45	$10K/1	$45.0K
*Rejection Rate	3.1	2.8	.3	$12K/.1	$36.0K
*Section cycle time	47.2	49.3	(2.1)	$7K/1	($14.7K)
Safety/housekeeping/late/ absent index	85.3	83.2	(2.1)	$5K/1	($10.5K)
Total Benefit					**$55.8K**

An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Tracking Performance

The Performance Feedback Report (Table 10) shows that workers' performance climbed 2.6 percent (to 102.6) on the selected measures. This *Total Weighted Result* is the sum of all *Weighted Results.* The Weighted Result is produced by assigning priority *Weights* for each measure (25% for rejection rate, for example), and then multiplying that by the particular measure's improvement or decrease (109.7 for rejection rate). *New Data* divided by *Base Data (New/Base)* yields each measure's progress or decline.

Benefit Report

The Benefit Report (Table 11) reveals that for this body of measures and particular time period, workers produced a $55,800 *Total Benefit* at the factory. Incentive experts note that if a company wants to fund its incentive awards, 10% to 20% of the benefit should do the job, in this case, $5,580 to $11,160.

Numbers in the *$ per Unit of Improvement* column denote that for each unit of improvement for a particular measure, this is how many thousands of dollars' gain would be registered. For example, a rise in weighted output per worker hour from 1,218 to 1,228 (10 units) would produce a $10,000 benefit. Since the *Improvement* was actually 45 units in the two periods measured, the *Actual Benefits* amount is $45,000, or 45 X $1K. Figures in the $ *per Unit of Improvement* column here are invented, but in the real world, management would commission studies from marketing and financial departments to approximate some dollar values.

Nurses

While there are several types of nurses, this model will concentrate on the largest category: the clinical nurse on a hospital floor. The clinical nurse has responsibility for basic patient care within the parameters of defined hours, a defined area, and a defined treatment outline provided by a doctor.

The chief service provided by a clinical nurse is assurance that prescribed treatment has been given to each patient accurately and on time. Solving emergency situations also falls within this realm.

The Customers

The clinical nurse's primary customer is the doctor, who acts as an agent for the patient. Since the doctor prescribes the treatment, he or she is the best judge of whether treatment has been dispensed and documented correctly. In some cases, the doctor will be directly influenced by the patient's opinions, and here the patient becomes a direct customer.

There are also hospital accrediting agencies (the Joint Commission on the Accreditation of Hospitals, for example) that take the form of customers, since their standards must be satisfied.

Also, a nurse's co-workers are customers; inability to work in coordination with them can create unnecessary rework and generate errors in the system.

Nurse Objectives

After conducting focus groups and interviews with nurses and hospital administrators, management will probably end up with a mix of aims similar to this:

• Dispense timely, proper treatment.

■ Table 12
Performance Feedback Report, Group of Nurses

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Patients per nurse	18.7	19.3	103.2	.25	25.8
* Incident reports	38	40	94.7	.25	23.7
Accreditation audit	87.0	91.5	105.2	.25	26.3
Documentation index	72	70	97.2	.15	14.6
Training/education	14.7	16.2	110.2	.10	<u>11.0</u>
Total Weighted Result					101.4

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Benefit Report, Group of Nurses

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
Patients per nurse	18.7	19.3	0.6	$3K/1	$1.80K
* Incident reports	38	40	(2)	$5K/1	($10.0K)
Accreditation audit	87.0	91.5	4.5	$8K/1	$36.0K)
Documentation index	72	70	(2)	$3K/1	($6.0K)
Training/education	14.7	16.2	1.5	$2K/1	$3.0K
Total Benefit					$24.8K

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

- Avoid any deviations in treatment ("incidents") via careful scheduling and application.
- Maintain and complete all documentation.
- Maintain and improve personal performance and ability through training and education programs.
- Demonstrate courtesy and enthusiasm to customers and co-workers.
- Make suggestions to improve the system.
- Operate safely and within housekeeping and waste standards.
- Avoid unnecessary lateness and absenteeism.

Potential Measures

Once group participants review their initial lists of objectives, they might suggest measurements for them like these:

- Patients per nurse, weighted by severity of cases.
- "Incident" reports per time period, weighted by severity.
- Accreditation group's audit results concerning nurses.
- Timeliness and accuracy of charts and documentation.
- Training and education "experiences" per nurse (seminars, for example).
- Internal audits on housekeeping, safety and waste.
- Suggestions per nurse.
- Absenteeism and lateness data.

Proposed Family of Measures

After focus groups select their final sets of measures, hospital administrators should be allowed to review them, make adjustments and ultimately assign percentage weights:

- Patients per nurse 25%
- Incident reports 25%*
- Accreditation audit .... 25% (score, based on 100%)
- Documentation index ....15% (score, based on 100%)
- Training/education ....10% (number of hours per month)

* A decrease means improvement for this measure.

Tracking Performance

The Performance Feedback Report (Table 12) shows that during the measurement period, this group of nurses improved productivity and quality by 1.4 percent (101.4) for the family of five measures.

The figures in the **Base Data** and **New Data** columns are purely hypothetical; time periods can vary for each measure but time frames must be consistent between Base and New Data gathering periods.

The **Total Weighted Result** is the sum of all **Weighted Results.** Each Weighted Result was produced by assigning priority **Weights** for each measure and then multiplying them by the particular

measure's improvement or decrease. For example, 103.2 *X* .25 = *25.8* for patients per nurse. New Data divided by Base Data *(New/Base)* produces the amount of improvement or decline for each measure.

Benefit Report

The Benefit Report (Table 13) shows that for this body of measures and particular time period, the hospital showed a $24,800 **Total Benefit** Incentive experts claim that to fund incentive awards, 10% to 20% of the Benefit ($2,480 to $4,960) should do the job.

Numbers in the $ *per **Unit of Improvement*** column indicate that for each unit of improvement for a particular measure, this is how many thousands of dollars' gain would be registered. For example, a rise in the accreditation audit from a score of 87.0 to 88.0 (1.0), would yield an $8,000 benefit to the hospital, or $8K/l. Since the actual **Improvement** was 4.5, that translated into a $36,000 **Actual Benefit** ($8,000 X 4.5). Figures in the $ per Unit of Improvement column here are invented, but in the real world, a manager would need to commission studies from marketing and financial departments to approximate some dollar values.

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Measurement Model #7

Accountants

Accountants perform five distinct services: financial reporting and records, cost accounting, cash management (including payables and receivables), auditing and tax management.

For performance measurement, we'll pare these down to two types of products: routine reports and special reports. Obviously, not every kind of analysis occurs in conventional "reports,' but certainly each piece of work generates some type of tangible, countable record.

Accountants at lower levels of an organization crank out primarily routine reports while their counterparts at the top—like the chief financial officer—author mostly special analyses. There are plenty of accountants in between, whose workload is a mixture of routine and special reports.

The Customers

In all cases company executives are the major customers. Different kinds of accountants, however, serve different kinds of "clients."

Cost accountants provide reports to lower operating management. Cash management accountants deal with lending banks, key material suppliers and outside customers. Financial reporting specialists work with shareholders and investment bankers. Tax specialists furnish reports to government agencies.

Accountant Objectives

Focus groups and interviews with accountants and company officials can create ideas for goals and objectives. Some likely ones:

- Deliver accurate information.
- Complete assigned reports on time.
- Reduce the cycle time of routine reports (the time from receipt of information to issuance of the report).
- Reduce costs of routine reports (indicated by the number of reports completed by the targeted group of accountants).
- Improve both the response time and the quality of special reports.
- Speed up receivables collections.
- Slow down payables payment.
- Improve the thoroughness and relevancy of audits performed by internal audit groups.

- Bring documentation of reports closer to company standards.
- Improve the detection of upstream data errors, that is, poor information from the field.
- Reduce the cost of outside audits (by limiting the need for extra auditing).
- Improve the control of non-operating inventory (like office supplies).

Potential Measures

After reviewing their own initial ideas, the participants can suggest options for measuring them. These might include:

- Errors found after reports are issued.
- Errors found before reports are issued.
- Percent on-time, routine reports.
- Average cycle time (number of days elapsed from start to finish) to complete key routine reports.
- Routine reports (weighted by difficulty) per accountant (from an internal survey).
- Index rating the response time and quality of special reports.
- Percent computer terminal utilization (this measure shows if the company has the necessary number of computer terminals).
- Receivables turnover (segregated by the type of business customer).
- Outside audit "write-ups" or "zaps:' the number of mistakes in procedure (weighted by importance of the procedure).
- Evaluation of both the documentation and timely issuance of reports (performed by supervisors).
- Errors detected in upstream data.
- Total audit cost (internal + external) per year, deflated.

- Non-operating inventory turnover (office supplies).

Proposed Family of Measures

Once the family of measures is finalized, senior management can set percentage weights:

- Post-issue error rate 25%
  (errors issued in the report)
- Cycle time for routine reports (in days).......25%*
- Special reports index (time and quality) .....30% measured by a user or executive survey, based on 100%).
- Documentation index (based on 100%) 10%*
- Total audit cost per year 10%*

A decrease means improvement for this measure.

Tracking Performance

For this particular family of measures, the Performance Feedback Report (Table 14) shows that the new period saw a 1.8-percent improvement (101.8).

The numbers in the *Base Data* and *New Data* columns are purely hypothetical; each measure's time period can vary, but time frames must be exactly the same for a measure's Base and New Data gathering periods.

The *Total Weighted Result* is the sum of all

■ Table 14

Performance Feedback Report, Group of Accountants

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
* Post-issue errors	7.32	7.54	97.0	.25	24.3
* Routine report cycle	9.73	9.31	104.3	.25	26.1
Special report	83.1	85.9	103.4	.30	31.0
Documentation	79.7	76.3	95.7	.10	9.6
* Audit cost	237	219	107.6	.10	10.8
Total Weighted Result					101.8

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

▪ Table 15
Benefit Report, Group of Accountants

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
* Post-issue errors	7.32	7.54	(.22)	$100K/1	($22.0K)
Routine report cycle	9.73	9.31	.42	$100K/1	$42.0K
Special report	83.1	85.9	2.8	$10K/1	$28.0K
Documentation	79.7	76.3	(3.4)	$3K/1	($10.2K)
* Audit cost	237	219	18	$1K/1	$18.0K
Total Benefit					$55.8K

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Weighted Results. The Weighted Results are derived first by assigning priority **Weights** for each measure and then multiplying them by the particular measure's improvement or decrease. For post-issue errors, for example, the weight is *.25,* the Percentage change is 97.0, and the Weighted Result is .25 X 97.0 = 24.3. New Data divided by Base Data *(New/Base)* produces the improvement or decline for each measure.

Benefit Report

The Benefit Report (Table 15) shows that for this body of measures and particular time period, the company produced a $55,800 ***Total benefit.***

Numbers in the $ *per Unit of Improvement* column indicate that for each unit of improvement for a particular measure, this is how many thousands of dollars' gain would be registered. For example, a rise in the "special report" index of one unit -- from 83.1 to 84.1 (1.00) -- would produce a $10,000 benefit to the company, hence $10K/1. Since in this case the ***Improvement*** was 2.8, that number is multiplied by $10,000 to produce the ***Actual Benefit*** of $28,000. Figures in the $ per Unit of Improvement column here are invented, but for real applications, management would have to commission studies from marketing and financial departments to approximate some dollar values.

Incentive experts claim that to fund incentive awards, 10% to 20% of the Total Benefit (in this case, anywhere from $5,580 to $11,160) amount is appropriate.

Hotel Employees

Hotel operations are wide-ranging, with employees toiling in a broad range of departments, including: housekeeping, maintenance, food service, accounting, baggage handling, personnel, sales and the front desk.

For this purpose, we'll focus on workers in two departments:
- Front desk clerks.
- Restaurant kitchen employees.

Front desk clerks are responsible for guest check-in and check-out, which takes in both the physical transaction and ensuing documentation. In many set-ups, clerks also give miscellaneous information to guests and visitors, handle the switchboard, take reservations during off hours, and maintain some light bookkeeping.

Restaurant kitchen employees prepare food orders, do the dishwashing, receive and store food and supplies, and maintain cleanliness and safety in their work areas. Some employees may also be involved in developing new recipes and/or responding to special non-menu requests. Although some properties may have a separate catering and banquet kitchen, usually the basic restaurant kitchen handles these demands.

The Customers

For the front desk clerk's primary functions, the main customer is the hotel guest. During switchboard and reservation duty, the customers are potential guests or associates of guests. There are some internal customers, like the hotel controller, who receives accounting and bookkeeping information from the front desk.

Kitchen employees cook up all sorts of fare for their primary customers—restaurant diners. But their truly direct customers are the waiters and waitresses as well as the restaurant manager. These are the people who will observe—and be affected by—quality problems more frequently than the diner.

Hotel Employee Objectives

Separate meetings with the respective groups of employees will produce numerous ideas for objectives and goals. Some possibilities:

Front Desk Clerks

■ **Productivity**
- Complete as many check-in/out transactions as possible.
- Make good, quick use of front-desk computer terminals.
- Do as much preparation work (pre-matching arrivals and rooms) before hotel "rush hours."
- Hold down the total guest processing cost (a comprehensive goal including the three goals above).
- Complete as many assigned secondary transactions (phone answering, accounting entries, etc.) as possible.

■ **Quality**
- Avoid errors while processing guests.
- Achieve high guest satisfaction with check-in/out procedures.
- Reduce the guest waiting time (from in-line to at-desk),
- Reduce the guest-processing cycle time (at-desk to finish).
- Complete all required documentation promptly.
- Master all possible job tasks.
- Learn local geography, local activities/events, etc.

Restaurant Kitchen Employees

■ **Productivity**
- Serve as many diners ("covers") as possible.
- Make efficient use of kitchen equipment.
- Reduce "scraps" via proper processing and creative menu design.
- Reduce overtime labor.
- Schedule pre-preparation to help reduce the crush of peak meal-time hours.
- Hold down total preparation cost per menu item.
- Optimize food and supplies inventory.

■ **Quality**
- Reduce the order cycle time (the time from receipt of the order until it's ready for pick-up by the waiter).
- Avoid errors of all types (including wrong items, wrong sauces, etc.).
- Suggest menu ideas.
- Pass sanitation standards and audits.
- Achieve high diner satisfaction with the food itself.
- Keep accurate inventory records.
- Master a wide variety of tasks.

Potential Measures

Focus groups can suggest ways to measure the objectives. Some ideas that might emerge:

Front Desk Clerks
- Transactions per employee (number of check-ins, number of information queries, etc.).
- Utilization rate of equipment (this gauges computer capacities).
- Guest processing cycle time (time at the desk).
- Guest waiting time (time from in-line to at-desk).
- Total front desk cost per guest (a broad measure created by dividing front desk costs by number of guests).
- Number of different tasks mastered (book-keeping, concierge services, for example).
- Errors per transaction (wrong credit card numbers on forms, guests slated in rooms already occupied, etc.).
- Customer satisfaction survey results.
- Average time-of-day when all documentation is completed for the shift.

Restaurant Kitchen Employees
- Food covers per kitchen employee.
- Total preparation cost per food cover (including inventory cost).
- Energy cost per kitchen hour.
- Out-of-stocks per food cover.
- Order cycle time.
- Sanitation ratings.
- Absenteeism rates.
- Menu suggestions given.
- Customer satisfaction survey results.
- Average number of tasks or duties per employee.
- Rejections per cover (items sent back to kitchen).

■ **Table 16**

Performance Feedback Report, Group of Front Desk Clerks

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Transactions per employee	42.3	43.7	103.3	.15	15.5
* Processing cycle time	175	170	103.4	.25	25.9
* Cost per guest	4.93	5.11	96.2	.20	19.2
Customer satisfaction	87.1	85.3	98.0	.30	29.4
* Errors per transaction	.083	.075	109.6	.10	11.0
Total Weighted Result					101.0

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Table 17
Benefit Report, Group of Front Desk Clerks

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
Transactions per employee	42.3	43.7	1.4	$1K/1	$1.4K
* Processing cycle time	17.5	170	5	$1K/1	$5K
* Cost per guest	4.93	5.11	(.18)	$2K/.10	($3.6K)
Customer satisfaction	87.1	85.3	(1.8)	$3K/1	($5.4K)
* Errors per transaction	.083	.075	.008	$5K/.01	$4K
Total Benefit					$1.4K

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Proposed Families of Measures

Ultimately, target groups will narrow down their measures, while the property's general manager, banquet manager and other top officials can help establish weights for the final selections. For example:

Front Desk Clerks
- Transactions per employee 15%
- Processing cycle time (in seconds) 25%*
- Front desk cost per guest (dollars) 20%*
- Customer satisfaction survey 30%
  (average scores based on 100%)
- Errors per transaction 10%*

* A decrease indicates improvement for this measure.

Tracking Performance

Table 16 shows that front desk clerks' perfor-mance for this family of measures increased by 1.0 percent (101.0) in the new period.

As in all our models, the actual numbers for ***Base Data*** and ***New Data*** are hypothetical. Their measuring periods can be any length of time, as long as the periods in which New and Base figures are gathered involve the same time frames.

Dividing the New Data by the Base Data (***New/Base***) yields a percentage improvement (or decline) for each measure, For instance, transaction per employee increased from 42.3 to 43.7, producing an increase of 3.3% (to 1013).

The next step is to multiply each measure's increase or decrease by the pre-assigned ***Weights;*** this produces the ***Weighted Result*** for each measure.

Benefit Report

Table 17 will help management translate the gains into the funding of an incentive campaign.

The figures under the $ ***per Unit of Improvement*** column are hypothetical (but within reason), and likely marketing, financial, sales and other departments would have to conduct detailed studies to provide these kinds of dollar values. This column suggests that for each unit of improvement, the company's Benefit is X amount of dollars (for example, for every additional employee transaction, there's a gain or savings of $1,000, or $1K/1.) Multiplying the dollar value by the actual ***Improvement*** (1.4 more employee transactions in the new period) produces the ***Actual Benefit,*** which in the case of transactions, is $1,400. Since experts indicate that an incentive budget should constitute anywhere from 10% to 20% of a campaign's total dollar gain or Benefit, management can approximate its incentive budget from the ***Total Benefit*** (anywhere from 10% to 20% of $1,400).

Lawyers

T he lawyers' lot in life is to provide advice, education and research to clients while helping them interpret governmental laws and regulations. In addition to general-practice law firms, many firms specialize in one area of legal practice, for instance: patent, labor, maritime, criminal and tax law. Meanwhile, legal departments within companies provide the same services to their own personnel, while also inter-facing with outside lawyers from independent legal firms.

Most of the non-routine legal work is performed by large law firms, and lawyers in these organizations are the focus of this chapter. These lawyers provide a steady flow of research and advice, some of it produced by individuals and others developed in groups that might include associates, partners and/or para-legal researchers.

The Customers

Law firms' major customers are direct-client companies and individuals. When a business organization signs on as a client, the direct customer will be either an in-house lawyer or a middle manager who commissions the work, receives the product, then relays questions and comments to his or her senior executives. Those executives are, in essence, the ultimate customers.

Also, if a firm receives business via referral from a smaller firm, the referring company can be considered a customer, since future referrals may hinge on the job's outcome.

Other ultimate customers include government agencies that enact or promulgate statutes and regulations, and the courts and administrative agencies that interpret them: In many cases it's important to at least minimally satisfy these agencies.

Lawyer Objectives

Meetings with small groups of the firm's lawyers and para-professionals will yield good ideas for objectives and goals. Some possibilities:

- Render competent and accurate advice.
- Reduce the cycle time (from start to finish) of routine work, for example, of research and documentation.
- Reduce the total cost of routine work.
- Increase the number of cases handled (per lawyer).
- Deliver assigned projects on time.
- Make optimal use of computer terminals and data bases.
- Increase the use of pre-created research and language modules—for example, for leases, deeds and wills.
- Reduce the time lag between finishing the job and its documentation.
- Speed up receivables collection.
- Increase the cross training of specialty lawyers.
- Enhance the image of the firm in legal associations and journals.
- Sell other legal services to clients and increase the number of client referrals.
- Reduce lawyer turnover (voluntary).
- Manage the backlog (number of cases agreed to but not started yet) effectively.
- Have the most appropriate contact person at every relevant government agency.

Potential Measures

The focus groups can also suggest ways to measure their objectives. Among potential ideas:
- Client satisfaction survey results.
- Average cycle time of important projects.

- Cost per routine project.
- Average revenue per lawyer.
- Percent on-time projects.
- Percent utilization of computer terminals (a measure of computer availability).
- Percent of re-used language in selected services or products (for example, in wills).
- Average lag time between job completion and its documentation.
- Number of days of outstanding receivables.
- Average "Board Certifications" per lawyer.
- Publication and presentation instances.
- Marketing "hits" (cold calls) per lawyer.
- Lawyer turnover rate.
- Average backlog of work, measured daily.
- Quality of agency contacts.

Proposed Families of Measures

As a final step, target groups will pare down their measures, and senior partners will review them and establish weights. For example:

- Client satisfaction survey results ....30% based on 100%)
- Average billings per lawyer ....25% (in dollars)
- Percent on-time projects 20%
- Publications/presentations 15%
- Quality of agency contacts ....10% (based on a subjective rating index of 100)

Tracking Performance

Table 18 reveals that for this family of measures, the group of lawyers improved their performance by 1.4 percent (101.4) during the new measurement period.

As in all our models, the actual numbers for the *Base Data* and *New Data* columns are hypothetical. Dividing New Data by Base Data *(New/Base)* yields a percentage improvement (or decline) for each measure; for instance, client satisfaction scores rose from 87.3 to 90.2 (90.2 divided by 87.3), producing an increase 3.3% (103.3).

The next step is to multiply each measure's increase or decrease by its pre-assigned *Weight.* This produces the *Weighted Result* for each measure. For client satisfaction, the figure is produced by multiplying 103.3 by .30 (the weight). Adding all weighted results produces the overall improvement—or *Total Weighted Result—for* this family of measures, 101.4.

Benefit Report

Table 19 helps translate the results into the funding of an incentive program.

The numbers in the column *$ per Unit of Improvement* are hypothetical (but within reason), and the firm's marketing, financial and other departments would have to conduct studies to provide these kinds of dollar values. This column suggests that for each unit of improvement, the company's benefit is X amount of dollars (for example, for every one-percent rise in the per-

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■ Table 18

Performance Feedback Report, Group of Lawyers

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
Client satisfaction	87.3	90.2	103.3	.30	31.0
Revenue per lawyer	107.1	105.3	98.3	.25	24.6
Percent on-time	90.1	94.5	104.9	.20	21.0
Publish/present	35	32	91.4	.15	13.7
Contact index	72.7	80.5	110.7	.10	11.1
Total Weighted Result				1.0	101.4

Benefit Report, Group of Lawyers

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
Client satisfaction	87.3	90.2	2.9	$30K/1	$87K
Revenue per lawyer	107.1	105.3	(1.8)	$20K/1	($36K)
Percent on-time	90.1	94.5	4.4	$10K/1	$44K
Publish/present	35	32	(3)	$5K/1	($15K)
Contact index	72.7	80.5	7.8	$5K/1	$39K
Total Benefit					$119K

centage of on-time projects, officials have deter-mined that company would reap a $10,000 benefit, or $10K/l. Since the **Improvement** was 4.4, that translates into an **Actual Benefit** of $44,000. Totaling up all the Actual Benefits yields the **Total Benefit,** in this case $119,000.

Since experts maintain that an incentive budget should constitute anywhere from 10% to 20% of a campaign's total dollar gain or Benefit, the incentive budget can be derived from the Total Benefit here (anywhere from 10% to 20% of $119,000).

Measurement Model #10

Bank Tellers

Tellers spend most of their time conducting deposits and/or withdrawals of funds from the bank. But aside from handling the money, their tasks involve a good deal of customer contact as well as documentation and summarization of all transactions. The duration and importance of each transaction naturally de-pends on the types of customers and contact -- hat is, whether the transaction is face-to-face or remote (by phone or computer).

The Customers

Account owners and agents are a bank's direct customers, and these comprise retail customers,

commercial customers and other banks. Customer contact can either be direct – with money changing hands inside the bank or via drive-up windows -- or indirect, when tellers specialize in mail, phone and/or electronic transactions.

Tellers have another customer too: fellow em-ployees who receive, check and record their docu-mentations.

Teller Objectives

Meetings with groups of tellers and supervisors could produce the following set of objectives:

•Complete as many transactions as possible.

- Make efficient use of the automatic processing equipment assigned.
- Have adequate stocks of all forms.
- Have adequate information required for transactions.
- Minimize the total customer processing cost.
- Avoid processing errors.
- Achieve high customer satisfaction (speedy, courteous service, for instance) in face-to-face transactions.
- Reduce customers' waiting time in line.
- Reduce the cycle time (time from the start of a transaction to its completion) per transaction.
- Complete all required documentation on time.
- Cross-train for other bank jobs (for example, check counting).
- Direct customers with other banking business to the right people.
- Avoid wasting forms.
- Suggest procedural improvements.
- Achieve a minimum reconciliation "variance" each day (the difference between documentation and actual cash on hand).

Potential Measures

Focus groups should also suggest ways to measure their objectives. Some good ideas:

- Transactions per teller.
- Delays caused by running out of forms.
- Total processing cost per customer.

- Errors found per transaction (during the cross-checking process).
- Results from a customer satisfaction survey.
- Average customer waiting time (measured from the moment a customer enters the line until the transaction begins).
- Cycle time for standard transactions.
- On-time delivery of documentation.
- Average job certifications per employee (for other chores like running the safety deposit box or check sorting).
- Number of times customers were referred to the wrong person in the bank.
- Percent of reconciliation variances exceeding $10.
- Number of procedural suggestions initiated.

Proposed Family of Measures

Finally, target groups will eliminate a number of measures, settling on several key ones that the bank's operations manager can review and ultimately assign priority weights. For example:

- Percent reconciliations over $10 ....20%*
- Processing cost per customer 20%*
- Errors found per transaction 15%
- Customer satisfaction survey ....30% (based on 100%)
- Percent on-time documentation ....15% (based on completions within 1 hour of required time)

A decrease means improvement for this measure.

■ Table 20
Performance Feedback Report, Group of Bank Tellers

Measure	Base Data	New Data	New/ Base	Weight	Weighted Result
* Reconciliation	8.73	7.89	109.6	.20	21.9
* Cost per customer	.479	.460	104.0	.20	20.8
* Errors	.033	.038	84.9	.15	12.7
Customer satisfaction	87.1	89.2	103.1	.30	30.9
Documentation	73.7	72.2	98.0	.15	14.7
Total Weighted Result				1.0	101.1

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

■ Table 21
Benefit Report, Group of Bank Tellers

Measure	Base Data	New Data	Improve-ment	$ per Unit of Improvement	Weighted Result
* Reconciliation	8.73	7.89	.84	$3K/.1	$25.2K
* Cost per customer	.479	.460	.019	$5K/.01	$9.5K
* Errors	.033	.038	(.005)	$4K/.001	($20K)
Customer satisfaction	87.1	89.2	2.7	$5K/1	$13.5K
Documentation	73.7	72.2	(1.5)	$3K/1	(($4.5K))
Total Benefit					$23.7K

* An increase in these numbers represents a decline in performance for this measure, thus the percentage change is subtracted from – not added to – the 100% base.

Tracking Performance

In Table 20, it is evident that this group of tellers' performance for this family of measures improved -- by 1.0 percent (101), to be exact -- in the new measurement period.

As in all our models, the actual numbers in the *Base Data* and *New Data* columns are hypothetical. Dividing the New Data by the Base Data *(New/Base)* yields a percentage improvement (or decline) for each measure. For instance, customer satisfaction scores rose from 87.1 to 89.2 (89.2 divided by 87.l), producing an increase of 3.1% (103.1).

The next step is to multiply each measure's increase or decrease by its pre-assigned *Weight.* This produces the *Weighted Result* for each measure. Customer satisfaction, for instance, has risen 30.9% (103.1 X .30). Adding the Weighted Results yields the *Total Weighted Result* of 101.0.

Benefit Report

Table 21 helps translate the gains into the funding of an incentive program.

The numbers in the column *$ per Unit of Improvement* are hypothetical (but within reason), and marketing, financial and other departments would have to conduct studies to provide these kinds of dollar values. This column suggests that for each unit of improvement, the bank's benefit is X amount of dollars (for example, for every one-percent rise in the customer survey, the bank would reap a gain -- or savings -- of $5,000. By multiplying this dollar value by the actual *Improvement* (in this case 2.7), one can determine the firm's *Actual Benefit,* or $13,500. Totaling up all the Actual Benefits produces the *Total Benefit*

Since experts maintain that an incentive budget should constitute anywhere from 10% to 20% of a campaign's total dollar gain or Benefit, management can approximate an incentive budge from the Total Benefit here (anywhere from 10% to 20% of $23,700).

TheIncentiveResearchFoundation

Please direct inquiries to: