



How to Quantify the Value of Corporate L&D Programs

Rethinking ROI on Training Investments



Corporate learning and development programs are receiving increased attention as enterprises realign their people strategy with their growth strategy. Even so, it is astonishing to me that an estimated \$130 billion is spent on training and development globally. And, despite that expense, Deloitte reports that only 5% of enterprises believe they have mastered the content and technology capabilities needed to make online learning an accessible and compelling experience.

That brings me to the old adage that you can't master what you can't measure, which is the inspiration for this eBook. Quite simply, how can learning and business leaders evaluate employee development programs without a solid set of metrics? How do they know if teams have the capabilities to meet future organizational goals?

At Qstream, we work with clients across complex and often highly regulated industries and job functions who are committed to fostering a culture of development and growth for their workers. This culture goes beyond nice-to-have or mandated training and is based on the idea that learning programs should continually drive performance, engagement, and career development.

In order to do that, our belief — and that of our clients' — is that learning programs need to be structured and delivered in a way that results in meaningful behavior change and, therefore, has lasting results — with the metrics to prove it.

This eBook takes a closer look at the design, delivery, and measurement of corporate learning programs and, I hope, prompts business and learning leaders to rethink and re-engineer their approach to drive better organizational performance.

Happy reading!

A handwritten signature in black ink that reads 'Liza Solley'.

— Liza Solley
Director of Customer Success
Qstream



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SECTION 1

The Problem: Measuring the ROI of Corporate Learning Programs

Learning and development (L&D) programs are back in the spotlight, growing in strategic importance and receiving greater budget allocations. In the U.S., what was a \$55-billion line item just six years ago has ballooned to a nearly \$90-billion expenditure in 2017 and 2018¹ because:

1

There's a growing gap between the skills employees have today and the ones needed to be competitive in the global marketplace. This skills gap could jeopardize \$454 billion of economic output in 2028 – or more than \$2.5 trillion over the next decade.²

2

Most employees (65%) now expect training and career guidance from their employers.³ As a result, L&D is now viewed as a must-have investment rather than an extra benefit.

As L&D costs increase, 67% of chief learning officers (CLOs) report feeling under pressure to measure learning's impact. What they're measuring, however, is split: 50% said their programs either aren't evaluated or are judged on learner satisfaction and utilization metrics, while the other half reported being evaluated based on their programs' return on investment, employee job performance, and organizational impact.⁶

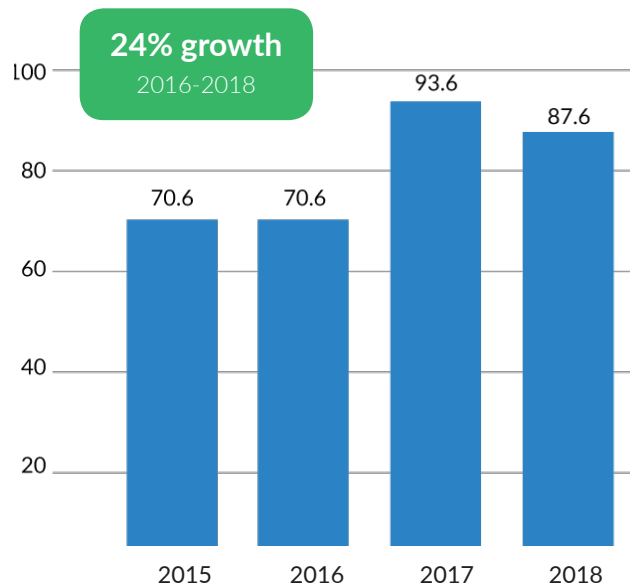
And while 93% of organizations plan to or currently measure employee response to training, only 36% measure training against specific results, such as sales, message alignment, or risk and compliance.⁵

The challenge of properly measuring the ROI of training programs has confounded the L&D industry for decades. Our goal is to help CLOs and L&D practitioners more confidently measure their programs' effectiveness and connect learning outcomes to their organizations' bottom lines.

In this eBook, we will:

- **Explain** inherent barriers to proving ROI of learning programs.
- **Encourage** L&D professionals to reconsider learning metrics and ROI measures.
- **Demonstrate** how best-practice microlearning improves employee proficiency and impacts performance.
- **Describe** how to build an effective learning business case for the C-suite audience.

Total training expenditures in the United States from 2015 to 2018 (in billion U.S. dollars)*



Source: Training Magazine

L&D in Numbers

Employees



65% expect training

43% characterized training as ineffective

Adaptation & Cost



93% of organizations measure employee response to training

\$87.6 billion

Total U.S. training costs in 2018

\$60 billion

Annual cost of U.S. skills gap

L&D Professionals



67% feel pressured to measure learning's impact

50% measure training impact on performance

36% measure training against a specific skill

Sources: Training Magazine, Deloitte, Axonify⁴, Chief Learning Officer Business Intelligence Board, LEO Learning

SECTION 2

Why Proving ROI in Corporate Learning is Challenging

Measuring the ROI of learning programs was challenging long before U.S. training expenditures soared to nearly \$90 billion annually. It can be difficult to draw a direct line between L&D programs and typical ROI measures, like increased revenue or cost savings. It is possible, but the results of successful learning programs are often yielded over time, making benefits more subtle and difficult to observe.

Over the years, several evaluation methods have been developed to solve the ROI conundrum. Three of the most popular are:

- Kirkpatrick's Four Levels of Evaluation
- The Phillips ROI Methodology
- Bersin's Learning Impact Measurement Framework

Kirkpatrick's Four Levels of Evaluation

Many CLOs rely on Kirkpatrick's Four Levels of Evaluation, developed by Donald Kirkpatrick in 1959, to measure ROI.⁷

While the Kirkpatrick model undoubtedly helps companies establish, monitor, and tweak L&D programs, it fails to show the financial connection many C-level executives expect when measuring a department's ROI.



Source: Kirkpatrick Partners⁸

Phillips ROI Methodology

The Phillips ROI Methodology was developed in the 1980s by Dr. Jack Phillips as an addition to the Kirkpatrick model.⁹ While Phillips includes the same four levels as Kirkpatrick, he adds two levels that more specifically address ROI.

The first, using the Kirkpatrick triangle below as reference, is Level 0, or Input.

The second addition is Level 5, or Financial ROI, which takes the learning's impact and converts it into dollars.¹⁰ This number is then compared to the cost of the program, which is how organizations can determine ROI.



Still, three major issues arise:

- 1 This methodology requires a lot of math — revenue vs. gross profit, for example
- 2 Calculating the ROI of an entire L&D program can be overwhelming and comes with too many assumptions.
- 3 Phillips suggests calculating ROI for 5-10% of their overall program, which may not be fully representative of your programs.¹¹

A more manageable approach would be to break cumbersome learning programs into microlearning challenges, and measure 100% of them. One example as a way to do this is by using a microlearning platform like Qstream, which measures proficiency improvements and engagement as leading indicators of performance.

Bersin's Learning Impact Measurement Framework

Josh Bersin, a world-renowned learning analyst, created the Learning Impact Measurement Framework in 2007 after years of industry research and interviews.¹² Like others, Bersin and his team recognized the disconnect between Kirkpatrick's Four Levels of Evaluation and determining ROI.

Similar to the Phillips ROI Methodology, Bersin recommends measuring one part of ROI at the beginning of an initiative. This allows an organization to calculate the program's business contributions while designing and executing the program. By interviewing key stakeholders about their goals, L&D leaders know which areas to address and how to tangibly prove impact.

Where Bersin and Phillips differ, however, is linking the ROI of learning to the cost of the program. Because of this, the Learning Impact Measurement Framework doesn't think of ROI in a financial sense. It instead focuses on nine areas of measurement: adoption, utility, efficiency, alignment, attainment, satisfaction, learning, individual performance, and organizational performance.

These metrics, Bersin argues, are where companies can discover the true ROI of corporate learning initiatives.



Learning Impact Measurement Framework

Adoption

How well did you reach your audience? What obstacles are preventing adoption?

Utility

How useful was the program? Would learners recommend it to peers?

Efficiency

Was the program built in a cost-effective manner? How much did it cost per learner? Were actionable benchmarks hit?

Alignment

Were business priorities defined? Did managers agree with the program's objectives?

Attainment

Did you meet your objectives?

Satisfaction

What did learners think about the content, delivery, and overall experience of the program? How do these feelings compare to existing programs?

Learning

Were the desired lessons learned? Do these lessons correlate to business problems and goals?

Individual Performance

Did participants live up to expectations? Were objectives shared up front?

Organizational Performance

How will this training affect the organization as a whole?

A New Way of Thinking for the C-Suite

The Learning Impact Measurement Framework reinforces what learning leaders have long understood: L&D doesn't necessarily produce "revenue" the way CEOs and CFOs traditionally think of it, unless the program is enabling sales teams. The answer to the ROI conundrum, then, is to get C-level executives to think differently in terms of ROI by associating learning initiatives directly with any business objectives.

Rather than focus only on financial measurements, L&D leaders must challenge C-level executives to look away from traditional metrics when assessing ROI. Instead, remind them that the most critical asset to any organization is its people.



Ask them:

Do you think our people have the knowledge and skills to achieve our goals?

Are they engaging in current learning?

What leading indicators can predict productivity and performance?

By implementing an L&D program that focuses on employee capabilities, is easy to use, engaging, and continuously supports individual professional development, employee performance will naturally improve — as will their contribution to business goals and outcomes.

***That's the true ROI of L&D.
But how to do this at scale?***

SECTION 3

Change What You Measure

While the traditional way of measuring ROI doesn't always hold true in the L&D industry, it doesn't mean the methodologies discussed in the previous section are broken. Nor does it imply that the nearly \$90 billion spent annually on L&D programs is a sunken cost. It's more the case that achieving ROI on L&D programs is inefficient, lagging, and takes time to show results.

Correlation is Key

Bersin says that, “[Training] is a support function like IT or HR. Training doesn’t generate any revenue or any profit – it supports other lines of business that generate revenue and profit.”¹³

Adds Karen Hebert-Maccaro, PhD, Chief Learning Experience Officer at O’Reilly Media: “Learning is a human process, not a financial one. You can’t use typical metrics to prove ROI, given that the return is likely to be highly distributed over time and space and hard to observe. The answer, in part, is to start using correlational metrics to tell a story about how learning engagement relates to performance.”¹⁴

In the sales world, an example of correlation is the more deals a salesperson closes, the more likely they are to meet quota. Or in the academic world, the more you study for a test, the more likely you’ll score well.

By focusing on correlation metrics rather than financial analysis, CLOs are able to reinforce that the true goal of L&D is to improve employee performance, productivity, and proficiency – or, as Qstream refers to them, the 3 Ps. Performance and productivity are more obvious measures from CRMs or balance sheets. Qstream proclaims the third P – proficiency – as the missing link and a leading indicator of whether teams have the capabilities needed to meet goals.

All employees “do” things. They make calls, deliver presentations, or visit customers – all actions that create results. So if it’s a level playing field and all your employees are doing the same thing, why aren’t they producing the same results?

The reason is how things are done impacts the quality of those results. Some employees are simply more proficient than others in certain areas.

Measuring proficiency does more than help you make sense of those results. It informs frontline managers where they can focus individual coaching efforts and guides senior management in shaping an adaptive learning program that continually focuses on areas with the most need. When proficiency metrics are correlated with business or operational goals, management benefits from having indicators of knowledge or skills gaps that can be addressed in real time – instead of waiting until it’s too late.

The 3 P’s: Aligning Performance, Productivity, and Proficiency for Lasting Success



Performance

Most organizations identify potential training areas based on an employee’s performance. This data indicates how well an employee does their job and can be found in CRMs, balance sheets, or customer service reports.



Productivity

This type of data allows managers to monitor what an employee does on a daily basis, how many tasks they complete, how quickly they work, and whether they’re correctly following company guidelines and processes.



Proficiency

Proficiency combines performance and productivity metrics to paint a fuller picture of what employees know and whether they’re able to consistently apply that knowledge within their everyday tasks and interactions.

Additionally, proficiency metrics can help spot upskilling and reskilling opportunities, which 65% of today's employees expect.³ The ROI potential of upskilling employees can help a business be more agile with a more adaptable workforce, which is key in competitive and rapidly changing markets. Plus, reskilling employees to meet new business needs could save untold costs by slowing voluntary and involuntary employee churn and minimizing recruitment and onboarding expenses.

Of course, multiple factors impact an employee's success. But proficiency is the best indicator to determine whether an employee is capable of performing optimally. Unfortunately, the metrics needed to monitor proficiency gains typically aren't readily available. That's why — much like changing what you measure to prove ROI — L&D professionals need to find the most efficient way to measure employee proficiency and engagement.

So how do you measure proficiency? Which tools do you use? Which metrics will you monitor to ensure and prove ROI? We'll take you through the journey using a few examples from Qstream's best-practice microlearning platform. But first you need to identify the skills you want to teach or the behaviors you wish to change.

“With Qstream, we had the answer to how people were performing, and the data to back it up.”

— John Kettles,
Instructional Design Manager, Intuitive Surgical

Microlearning's Value in the ROI Equation

The most effective way to obtain the data needed for measuring strategic L&D initiatives is through a best-practice microlearning platform like Qstream. Microlearning is a method of continuous training that breaks down complex or detailed learning content into small, digestible scenarios that are repeated over time. This type of learning — rather than “one-and-done” or “crash-course” methods like intensive classroom onboarding programs — has been scientifically proven to improve knowledge retention, build proficiency, and change behavior. Microlearning promises a number of advantages, including:

- Learning within the daily flow of work via any device
- Reinforcement of key business or behavioral-change goals through repetition
- Game-like mechanics that play into a human's natural competitiveness and promote engagement
- A comprehensive data set that highlights knowledge and skills gaps where employees need coaching

There are many benefits of microlearning, but having a comprehensive performance and engagement data set is especially critical for learning leaders. Not only does this data identify knowledge, skill, and behavior gaps to guide managers on where to focus individual coaching conversations, but when rolled up at team, group, or business unit levels and overlaid with business metrics, it also presents C-level executives with a clear correlation between the learning topics that most impact business results. This provides a valuable ROI measure on the effectiveness of the program that previously was not doable with productivity or activity metrics alone.



SECTION 4

Change How You Measure

Pinpointing which competencies need the most attention in training programs can prove difficult. Depending on your current methods, you might not have the hard data that identifies where you should start. In fact, only 21% of learning leaders said they use data to deliver personalized training.⁶

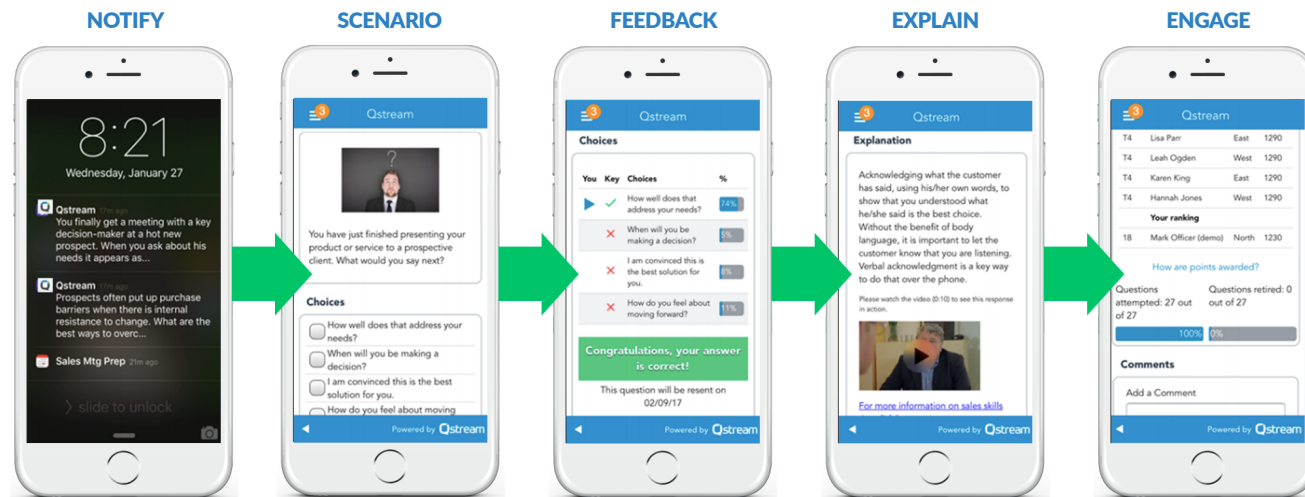
Start with Data & Goals

Researching and collecting this data relates to the philosophies presented in the Phillips ROI Methodology and Bersin's Learning Impact Measurement Framework. You can consult customer support surveys, ask leaders where they've observed gaps, and look at recent employee reviews and performance scores.

A pattern will likely emerge indicating where additional learning and development is needed. This process also sets a benchmark. Here's where your employees are starting the program. Where do you want them at the end? Set learning goals aligned with business objectives, leadership expectations, and industry standards.

Once you've done your research, set your goals, and determined which tool you'll use, it's time to get started. Using Qstream as an example, below is what the participant experience looks like.

The Qstream Learner Experience



Prelaunch — Excite stakeholders, have them download the app, and explain the program's benefits.

Launch — It's time to get started. Participants are alerted that a new challenge is waiting.

Challenge — Learners are ready to answer their first question. Engage participants and stimulate cognitive thinking with scenario-based question-answer sets within their mobile app, desktop, or CRM.

Respond — Once participants submit their answer(s), they receive immediate feedback, are able to benchmark against peer responses, see points earned, and when they'll see this question again.

Explanation — Participants receive short text, image, or video explanations to reinforce correct or incorrect answers. External links can be provided for deeper learning, which sends learners to content in a learning management system or other library.

Engage — Participants earn points as they answer questions and can always see where they stand amongst peers on the leaderboard. This, combined with socialized comments and questions among peers, adds fun and drives engagement through competition.

Feedback — During challenges and upon completion, sustain employee and manager momentum with updates on proficiency improvements, leaderboard results, and engagement stats to sustain momentum.

Prioritize Engagement

Ease of use, mobility, game mechanics, and real-time feedback are all essential to keep learners engaged throughout the program. High engagement rates are essential on several levels, points out Qstream Vice President of Client Services Bridget Jay.

“High participant engagement is one of the hallmarks of successful learning,” Jay says. “After all, busy professionals aren’t going to invest valuable time in a learning experience that isn’t enjoyable, efficient, and effective at creating meaningful proficiency improvement that lasts over the long term.”



Average Qstream participation rate over the past decade¹⁶

Customer benefit from high engagement:

illy caffè	100%
Philips Healthcare	99%
TDS Telecom	97%
Euler Hermes	96%
SDL	95%

In addition to providing proof that the initiative is valued by participants, high engagement also signals that employees find the learning program important. Engagement is an important metric CLOs can point to when explaining the ROI of their programs to C-level executives. For example:

- If the highest performers are also the most engaged learners, this shows business value.
- If learners engage in the program, they see value in the training content and enjoy the learning experience.
- If low performers aren’t engaged at first but show improved proficiency throughout the program, there’s proof they can upskill with support.
- If new employees aren’t engaged with your learning program, this could be an early warning sign of an employee’s commitment level.

“Our reps find the scenario-based challenges delivered through their mobile devices very convenient, which is why engagement levels are so high. In addition, sales managers like Qstream because it instantly and consistently identifies knowledge gaps that help to make their coaching more efficient and effective.”

- Kunter Kutluay,
CEO, TAM Faktoring



Mine and Make Use of the Data

While employee participation leads to increased proficiency, it also delivers one of the most important aspects of training: data.

For instance, thousands upon thousands of data points are gathered from each Qstream challenge. Each time a learner responds to a question, adds a comment, or doesn't participate, a valuable and rich data set is built. This data illustrates real-time knowledge and skills gaps that need to be coached — and, for managers, is presented in a dashboard or heatmap format to inform them who, what, and when to coach.

By being aware of these knowledge or skills gaps in real time, managers can make an immediate impact on employee performance — instead of waiting until the end of the quarter or year. Additionally, when this data is rolled up at team, business-line, or group levels, learning leaders can continuously pinpoint issues that need addressing or keep employees engaged through upskilling efforts.

Who, What, & When to Coach

Using the heat map to the right, let's dive into what other lessons CLOs and managers can derive from Qstream data.

Who to Coach

Individually, a quick glance shows that Rose Peake needs help in all skills; she only has a 22% proficiency rating across all four areas. It could be Rose is new and still has to go through sales onboarding, or there is a serious underperformance issue. Either way, managers now know she needs support.

What to Coach

Rose struggled in all four areas, so she needs the most individual coaching. But overall, the team showed low proficiency on questions and scenarios involving competitive responsiveness. This indicates a key topic where more coaching, or possibly even re-training, is needed.

When to Coach

This program took about six weeks, with participants receiving questions three times a week. The ongoing answers to the 18 questions in the Qstream challenge helped managers understand in real time how team members were doing, allowing them to take immediate action as soon as Qstream triggered a coaching recommendation.

	Rose Peake	Julia Kerr	Mary Jones	Jim Hend
Competitive Responsiveness	Red	Red	Red	Red
Competitive Differentiation	Red	Green	Red	Red
Messaging Proficiency	Red	Red	Green	Green
Product Proficiency	Red	Green	Green	Green
Average	22%	67%	78%	78%

By coaching within the daily flow of work, the employee benefits from putting new-found knowledge into practice that very same day, which helps shape the behaviors needed to form long-term habits.

In this scenario, a manager could have a more meaningful one-on-one conversation with Rose about how to improve her sales proficiency. Similarly, during the next team call, the manager could bring up competitive responsiveness as a refresher session or trigger an action to the team to refresh their competitor knowledge.

Alternatively, the manager might want to use the data to gain support from sales enablement and training departments to run a more detailed Qstream program that specifically focuses on competitor responsiveness.

As an example, look at this heat map from a Qstream case study, in which various departments participated in a series of initiatives covering a number of areas.

As you can see in the top-right corner, this training discovered an organization-wide weakness in dealing with customer data. The findings prompted discussion, spurred action, and drew in other managers to create a culture focused on fostering continuous improvement.

If, during the planning process, this was highlighted as a potential area of weakness, this new data proved the hypothesis correct. If it wasn't a concern, the program discovered an inefficiency that had previously been overlooked.

Not recognizing a weakness is part of human nature: A CLO who may be responsible for the professional development of thousands – if not tens of thousands – of employees needs to have a streamlined way to identify learning needs at group or business-line levels. Likewise, even the most connected teams and departments might fail to recognize a shortcoming.

Qstream helps CLOs and learning or business managers shape data-driven discussions on the areas where they believe deficiencies exist and test their hypotheses, rather than simply listening to the loudest voice in the room or using subjective input. Hard data improves operational efficiency by presenting information that otherwise couldn't be collected, like proficiency against must-have competencies and learner engagement.



	Finance & Admin	Sales & Marketing	Client Services	Product & Development	Average by Question
Customer Data	0%	14%	53%	27%	31%
Confidentiality Assumptions	75%	53%	57%	65%	78%
Data Access	75%	54%	57%	73%	36%
Data Security	50%	74%	84%	92%	60%
Contracting Customers	50%	71%	93%	86%	82%
Data Breach	50%	73%	100%	86%	85%
Opinions	100%	87%	100%	94%	94%
Average by Department	59%	62%	75%	77%	71%



SECTION 5

How to Present Your ROI Story to the C-Suite

Data is the backbone of managing a strategic L&D program – it points you in the right direction when uncertainty exists; shows you the who, what, and when to coach; and is the best way to prove the ROI of L&D.

But when showcasing your L&D initiatives to the C-suite and potentially building a case for expanding your program, you need to present more than course-completion rates, one-off assessment results, and qualitative observations. To win the hearts, minds, and funding support of the C-suite, you need to tell a strong corporate learning story, why it matters, and the direct impact on business outcomes.

This may include how you determined your goals, who contributed, your execution plan, and how you define success. These factors are the four pillars of a successful executive level ROI discussion for L&D. Let's look at each briefly.

The 4 Pillars of Successfully Presenting an L&D Program's Value

1

Start With the Big Picture: Share Your Program Plan/Roadmap

Put your L&D program in the context of your company's business objectives and explain how your training can impact the organization. Walk through the business goals your L&D program supports, share the hypothesis you tested, and answer the following questions:

- *What was the use case?*
- *What behavior did you intend to change?*
- *On which metric did you rely?*
- *Where does this metric stand at the program's launch and where does it stand today?*
- *What else have you tried?*
- *What has happened if/when you don't achieve desired results?*

2

Showcase the Team: Define Your Dedicated Internal Resources

Both the Phillips ROI Methodology and Bersin's Learning Impact Measurement Framework encourage discussions with company-wide stakeholders to help inform your hypothesis. Highlight those who helped along the way — such as an executive sponsor, program managers, and content contributors — and showcase how you gathered insights throughout the program to inform your thinking and refine the result. Having the right players on board who are invested in helping to guide and shape the program validates its success.

3

Demonstrate Flawless Execution

Illustrate how you put the program in action from conception to completion, including the development of necessary content, receipt of approval, communication, and findings reports. Share any guidance received, lessons learned, and strategic pivots made throughout the program. Give your company's leaders confidence the L&D program was a well-oiled machine.

4

Merchandise Your Success

Explain which metrics were chosen to determine success and why, as well as how they link the learning objectives to business goals. Discuss key takeaways and what these results mean for future training initiatives, or how they could inform future business strategies.

The right data strengthens your business case and, since you've opted to measure proficiency and engagement metrics instead of traditional financial analytics, you're able to show the missing link between productivity and performance. This creates a higher connection between training's impact on business goals, which strengthens the business case of L&D and, ultimately, informs subsequent training programs and shapes the company's future.



Educating the C-Suite on New Learning Measures

Throughout this eBook, we've explored the decades-long challenge of evaluating ROI in the L&D space. The answer to quantifying ROI is to change what and how you measure. The ROI of L&D cannot simply be found on the balance sheet or in end-of-the-year reports. Instead, it can be discovered by measuring the 3 Ps that show the program's impact on changing employee behaviors and reaching business goals: proficiency, productivity, and performance.

By convincing C-level executives to focus on proficiency improvements and their impact on goals instead of only financial analysis, CLOs can better show executive management how their initiatives improve employee knowledge and impact the company's bottom line.

Only 61% of talent developers attend meetings with executives to help them identify which skills are the most important to train.¹⁵ While that number indicates the majority of L&D professionals have a seat at the table, it doesn't seem high enough if companies are truly dedicated to improving and upskilling their employees — which, in turn, directly affects company-wide business goals and outcomes.

Measuring the correlation between proficiency, productivity, and performance helps L&D professionals tell their program's story by drawing straight lines from engagement to proficiency to fulfilling mission-critical organizational goals. Showing this value gives CLOs a chance to claim a seat at the table and have a role in setting goals, planning road maps, and executing objectives to help move the company forward.



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Our Story

Qstream is a mobile microlearning platform that combines performance analytics, coaching optimization, and knowledge reinforcement in one powerfully simple enterprise solution. Science-based and data-driven, Qstream is used daily by leaders in the life sciences, technology, and financial services fields to make people better at what they do.

By letting employees respond to Q&A-based challenges in just minutes a day, Qstream delivers insights that help managers improve the quality of customer conversations, identify coaching opportunities, and strengthen the capabilities that matter most. Whether onboarding new hires, reinforcing product messages, or developing sales skills, Qstream is the only solution proven to durably change the customer-facing behavior of your employees.

Qstream works with organizations in complex, highly regulated or knowledge-intensive fields to take a fresh approach to learning and development that has proven impact on business or organizational outcomes.

If you are responsible for managing, enabling or training large teams of employees, then you've come to the right place.



Does it sound like we have something in common? To learn more, visit [Qstream.com](https://qstream.com), follow @Qstream on Twitter, or like us at facebook.com/Qstream.

The Science Behind Qstream

Qstream uses an interval-reinforcement methodology that is scientifically proven to increase knowledge retention by up to 170% and durably change behaviors with measurable impact on outcomes. Co-founder Dr. B. Price Kerfoot is a recognized microlearning pioneer and has run more than 22 rigorous, peer-reviewed clinical trials on Qstream's technology, proving it works over and over. Here's how:

The Forgetting Curve

Assuming new knowledge can be learned, easily retained, and quickly recalled is simply false. Forgetting is a natural, physiological occurrence and must be factored into the L&D training process. This forgetting phenomenon was documented as early as 1885 when German psychologist Hermann Ebbinghaus published his findings about learning.

The forgetting curve describes the dramatic drop off in knowledge retention over time. Studies show that in as little as 30 days, 79% of knowledge is forgotten — it's how the human brain works.

The Spacing Effect

Interval reinforcement is a proven way to combat the forgetting curve. The spacing effect explains how you can significantly increase knowledge retention by presenting information and reinforcing it over spaced intervals of time.

There is a proven neurophysiological basis for the spacing effect. Reinforcement through the application of knowledge over time enhances memory and the survival of new neurons. It increases the efficiency of the uptake of information and encodes the it so that the information is preferentially retained.

The Testing Effect

Testing is not just a dipstick that measures knowledge. Testing, or retrieval practice, is an active learning process that can dramatically improve knowledge retention when combined with immediate feedback. This process is known as the testing effect.

Studies comparing the testing effect to passive learning without testing (reading, watching a video) and conceptual mapping (drawing diagrams to relate concepts) show testing is the most effective approach.

Dr. B Price Kerfoot



An Associate Professor of Surgery at Harvard Medical School and a staff urologist at the VA Boston Healthcare System, Dr. Kerfoot's research over the last decade

has focused on utilizing rigorous clinical trial methodologies to assess the efficacy of online educational methods. In addition, he has worked to incorporate cognitive psychology research findings into online education to increase long-term retention of learning.

Through this educational research, Dr. Kerfoot developed a new form of online learning termed "Spaced Education." In more than 22 large randomized trials, spaced education has been shown to improve knowledge acquisition, boost knowledge retention, durably change clinician behavior, and improve patients' health measures. Harvard University submitted a patent on the spaced education methodology and launched Qstream to host this methodology outside of its firewalls.

About Intuitive Surgical

Intuitive Surgical, Inc. is the global technology leader in minimally invasive robotic-assisted surgery. The company's daVinci® Surgical System offers surgeons superior 3D HD visualization, enhanced dexterity, greater precision and control, as well as ergonomic comfort for the optimal performance of minimally invasive surgery. Headquartered in Sunnyvale, Calif., Intuitive Surgical has more than 2,360 employees worldwide.



INTUITIVE™

The Challenge

Intuitive Surgical sales reps must thoroughly and accurately sell daVinci's myriad life-saving capabilities to surgeons. As a result, the company's management places a high priority on making sure their knowledge is up to date with changing regulations and market conditions.

But verifying a rep's understanding of a complex product set is difficult. Intuitive's training teams tried emails, webinars, and re-training to help reps retain key product knowledge during the months between the initial training. No matter the approach, reps' knowledge would decline upon retest.

The Solution

In April 2012, Intuitive Surgical commissioned a program to benchmark three approaches to driving knowledge retention. Following training, the company divided participants into three groups.

"Light-touch" participants received traditional follow-up support to the training.

"Uber-touch" participants received follow-up support directly from a subject-matter expert.

Participants responded to thrice weekly "challenge" questions delivered to their mobile device or laptop.



“Qstream kept pace over time with folks working directly with our subject-matter experts...”

— John Kettles,
Instructional Design Manager, Intuitive Surgical

The Results

The sales reps took to the Qstream solution with vigor, inspiring competition between themselves to top the leaderboard. Qstream participants spent an average of 3 minutes and 30 seconds a day answering questions.

The light-touch group scored an average of 76% on a re-test, but the Qstream and the Uber-touch groups scored virtually identically: 83% for Qstream users compared to 84% for Uber-touch group.

“Qstream kept pace over time with folks working directly with our subject-matter experts,” said John Kettles, Instructional Design Manager at Intuitive Surgical. “We got the same results without having to dedicate as much time, energy, resources, and money.”



Validity Group, Australia

Level 27, 101 Collins Street
Melbourne VIC 3000, Australia
www.validitygroup.com

MindQuest Consulting & Coaching



MQCC Malaysia PLT (LLP0028778-LGN)

Suite B-16-3, Tower B
Wisma Pantai
No.5, Jalan 4/83A
Off Jalan Pantai Baru
59200 KL, Malaysia

✉ mqcc@mindquestcc.com

📞 +60 12 625 1533
🌐 www.mindquestcc.com

Qstream has partnered exclusively with
Validity Group [Asia Pacific region]

MindQuest Consulting & Coaching
[Malaysia Country Partner]

