



# Measurement of Training Effectiveness for Digital Transformation





## The State of Digital Transformation

*Digital transformation means different things to different organizations – from product development to inventory control, from e-commerce to improved delivery, from traditional software design to cloud networking transformation – yesterday’s success stories as well as tomorrow’s opportunities are nearly endless.*

In fact, a Galvanize study on this very topic reports that more than **90% of organizations** are pursuing a **“digital first” business strategy**.

Also according to that research, **evolving technology is the #1 reason to upskill an organization**. More than half of decision makers report a gap in skill sets. And **90% understand the importance of formal technology training** – about two-thirds of respondents are adding or expanding training programs.

So what’s the top concern preventing some organizations from implementing training? : Budget constraints (ranked #1).

Even though digital transformation training is difficult for some organizations to measure and difficult to relate directly back to ROI, it can be done with the right approach. With more insight on that approach, the business case for a training budget becomes more powerful.



**Some say the effectiveness of digital transformation training is difficult to measure.**

**And they're right.**

There is no simple metric that draws a direct line from newly developed software engineering skill sets to something that's easy to quantify, such as an increase in sales or a build-up of product inventory. The link to return on investment is more intricate, more nuanced.

For starters, any formal program of intensive software training should be specifically crafted to the unique needs of any organization and feature many layers of custom-tailored curriculum. Likewise, to gauge its effectiveness, it takes the same kind of approach to measurement.

It takes an integrated approach. It takes a multidimensional approach.

**Galvanize is the leading provider of global workforce solutions for software engineering. Its training programs combine industry-specific methodologies with business-relevant curriculum to level up an organization's technical talent.**

**As business goals are defined, training effectiveness should be, too**

When it comes to training, some organizations may struggle with the big questions that include: What are the business challenges we have related to digital transformation? Are we training for a skill or a result? What training programs do we need to accomplish our specific enterprise-wide initiatives? Are we trying to boil the ocean?

Of course, anyone can upgrade a specific talent – I couldn't do A before, but now I can do A and B. However, **skills need to align with the goals of transformation; align with organizational objectives.** If an organization is missing that specific link, then the correlation between training and ROI will likewise be missing.

## It starts with Inception.

The *first* step with Galvanize, before training ever begins, is Inception – where trainers and clients work together and define the goals of the organization and then reverse engineer the program to accomplish those goals. Not only does that create a laser focus on a defined curriculum, but it also enables a measurement of progress at each stage before proceeding to the next step.

### Inception – working together, right from the start

- What are the primary goals of the training program?
- What should participants be able to do after training?
- What are other objectives that may be worthwhile but may get in the way of the primary goals?
- What are the risks – what could go wrong with the program?



## #1: Budget Constraints

The top barrier to training is reported as “budget constraints”. Multidimensional measurement illustrates the ROI of training and justifies much-needed budgets.

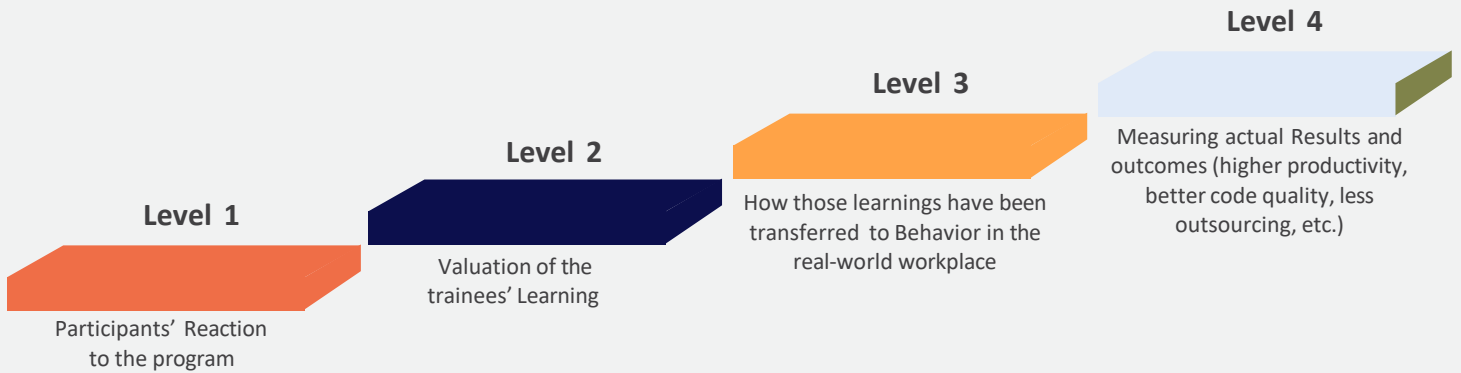
**Second, a customized, thorough curriculum is developed as well as a classroom pedagogy** – where students and trainers will work together, hands-on. Students with students, instructors with students, in pairs, teams, one-to-one, etc. The training is applied to actual client case studies and projects so that learning is directly applicable to the workplace immediately afterward. That way, the progress that’s being measured is tangible and related to real-world scenarios for the organization.

**Third, just as the training is customized at the forefront, so are the evaluation tools employed to measure its effectiveness.** These comprehensive tools are utilized in combination and include the Kirkpatrick Model of Evaluation – and – Accelerate: The Science of Lean Software and DevOps, both of which provide industry-leading benchmarks.

Metrics include the surveying of students during training and then testing them with coding challenges they must pass. Plus, after training, measurements are taken to determine the resulting utilization, productivity and staffing efficiencies in the workplace.

The Kirkpatrick model is utilized in its entirety. Whereas Accelerate becomes a sub-menu of metrics where certain components of it are applied to Kirkpatrick as relevant – creating an overall, customized measurement strategy that carries through the process. An actual example of final results is shown at the conclusion of this report.

Leveraging the Kirkpatrick Model of Evaluation During and after training, progress is measured using this 4-level, step-by-step evaluation that tracks ongoing success toward the predetermined goals developed during Inception.



## The four levels in more detail:

- Level 1**
- Reaction**  
The participant's reaction to the program is evaluated as the training proceeds. Is the program relevant... is it satisfying... are trainees engaged? Generally this will include surveying on a 1-5 scale across a variety of touchpoints. It reveals how the trainees like the experience. That evaluation will then enable adjustments that can be made to ensure the subject matter continues to be delivered in the very best way as training proceeds.
- Level 2**
- Learning**  
At this stage, quizzes and wrap-up tests also add to the mix, as well as testing done prior that defines a baseline for progress. What skills and what knowledge have been learned and how do they compare to the pre-test? To proceed to the next level of any given component, a multiple-choice test may require an 80% passing grade to assure no one is left behind.
- Level 3**
- Behavior**  
Here, after training is complete, the effective utilization of skills on the job are evaluated by using behavior measurements or by monitoring trainees as they work or by assessing supervisor reviews (or a combination of those). A specific project requiring the new skills may be assigned and then the performance on that project is tracked, for example.
- Level 4**
- Results**  
This stage correlates new skill sets to the bigger picture of organizational outcomes, such as revenue goals or efficiency ratings. If overall software productivity goes more smoothly than before, for example, that links to training effectiveness. In some cases, a control group may be used, comparing performance of those who did and did not receive training. A submenu of the following components of Accelerate are utilized as relevant and applied to Kirkpatrick.



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### Metrics from Accelerate: The Science of Lean Software and DevOps

This model analyzes effectiveness once the training is fully completed, where lean principles are applied to measure the impact of on-the-job behaviors – metrics typically applied to Kirkpatrick Level 3 and potentially Level 4.

*There's an old saying...*

## Do you want it done fast or done well?

With software development, what the Accelerate model demonstrates is that both speed and stability are correlated. The more efficient the development, the more stable.

Any of several key metrics are incorporated as relevant:

- **Lead Time** (the time from version control to production)
- **Deployment Frequency** (how often deploys happen in a given time)
- **Mean Time to Restore** (time taken to correct a production error)
- **Change Fail Percentage** (the failure rate of software modifications in production)

Additional metrics that can be applied within Accelerate:

- **Velocity** (tied to Volatility, measures stories completed over a number of sprints to establish a mile marker for the tempo of work.)
- **Volatility** (a calculation that uses the deviation from mean Velocity to determine the stability of the tempo of work, which enables predictability.)

### Lead Time

This factor measures speed of production. Software design is variable and often the techniques are brand new. But software delivery has much less variation and is more predictable. Lead time is a dependable measurement of the more predictable delivery stage – the time from commits to production – which is a solid metric for speed.

### Deployment Frequency

In lean manufacturing, reduced cycle times, better efficiency, cost reduction and more are tied to smaller 'batch sizes'. Software released more continuously with higher deployment frequency presents fewer code changes and fewer commits to test, which is analogous to smaller batch sizes (versus being released intermittently with more changes and testing).

### Mean Time to Restore

With today's more complex cloud orientation, measuring the time between software failures – the more time between failures, the better – is not a good indicator of success. Failure is a given. But how long does it take to restore? How many hours? What's the downtime? Mean time to restore is a core measurement of stability.

### Change Fail Percentage

This measurement is similar to the principle of 'percentage of production that is finished as well as accurate'. Change fail percentage determines the proportion of changes done in production that result in a rollback or a performance issue or a hotfix. It is a common-sense checkpoint for quality control – don't increase production when this metric is a concern.

### Velocity

Here, the evaluation relates to the number of user stories (or points) that a team or project can complete in one sprint. After each sprint the actual Velocity (number of points completed) is measured and over a number of sprints that results in a mean score and a mean deviation from that score, which relates to the tempo of work being completed. Although Velocity does not in itself measure efficiency, it establishes a mile marker to use in tandem with a Volatility calculation that follows.

### Volatility

Once the mean deviation of Velocity is determined, it is divided by the mean, which results in a Volatility percentage indicating the stability of the tempo of work – the consistency of producing value. The closer the Volatility gets to 0%, the better. That translates to the greater the predictability of the work, the greater the ability to plan and deliver.



Galvanize, a technical talent transformation company, builds training programs for Fortune 500 companies by answering to the challenges of the client, right from the start.

## What success story can Galvanize help you measure?

Galvanize training programs are custom-built for clients by a team of technical SMEs, instructional designers and adult education experts. And the courses are specifically tailored with the client's tech stack, CI/CD pipeline, proprietary tools or data sets incorporated into the case studies and real-world projects worked on in the classroom.

**12+ Fortune 500 clients**

**100+ customized engagements**

**3,500 employees trained**

### A sampling of Galvanize training programs – not an exhaustive list

*Front End Developer, Cloud Native Developer, Full Stack Software Engineer, Cloud Virtualization Engineer, Cloud Platform Engineer, DevOps, Test Engineer, Blockchain Engineer, Salesforce Engineer, Technical Product Manager, UX/UI Design, Cybersecurity* Also, we can customize any type of training for your organization

## SUMMARY:

Not only can the benefits of training be measured in great detail, but that can also be done in a way that is relevant to each client engagement – real-world challenges met and exceeded by real-world results. A customized, integrated, multidimensional approach to the training, and its measurement, tells the success story of digital transformation.

Galvanize training effectiveness measurements for a **Fortune 500 Insurance Company** client:

- Annualized 107% ROI exceeds training investment, generates value and achieves digital transformation goals (Kirkpatrick Level 4 evaluation with Accelerate metrics)
- Stories completed more effectively and 25% faster (Kirkpatrick Level 3 evaluation with Accelerate metrics)
- Quantitative and qualitative assessments by expert instructors revealed students assimilated skill sets while in the classroom (Kirkpatrick Level 2 evaluation)
- Higher than industry average Net Promoter Score recorded from surveyed participants (Kirkpatrick Level 1 evaluation)

The effectiveness measurement must start before the training even begins, where industry-leading evaluation tools are customized to the engagement. It must be utilized as a progress check while training is under way and as a real-world check when training is completed. With this approach to effective measurement, organizations will be able to quantify tangible results – utilization of new skills, productivity improvements in workflow, more informed staffing decisions and cost savings based on ROI (to name a few).

