

Imagine this situation

Scenario 1

21st October 2005. 5:00 pm: Andrew is informed by his new project manager that a valued client has requested that a critical course be designed, developed and deployed in ten days. There is no time, so he is asked to get the content through a teleconference with the client and release detailed production guidelines and mapped content in three days to Betty so that Charley can develop suitable instructional media for the course.

Fast forward.....

31st October 2005. 9:30 pm: Charley independently develops instructional media, based on a discussion with Andrew and does not wait for the actual content. 9 days later, Betty under time pressure combines the media with the agreed upon instructional template and releases the work to the client. The client is disappointed with the results.

It is only 3 months later with multiple iterations that the product is finally accepted by the client. *We are all familiar with this.*

Instead, imagine this...

Scenario 2

22nd October 2005. 10:30 am: Andrew explains the risks based on taking shortcuts and Betty and Charley concur. The project manager gathers the requirements and negotiates a more realistic timeframe with the client, explaining the processes and the risks of developing a course without a firm grounding on what the product should achieve. The client understands and asks for a three week release. The project manager checks with Andrew and Betty and other team members and concludes that one month is the shortest feasible time provided certain detailed graphics are made available from the client's CAD-CAM system in a week with a sign-off on completeness. The project manager discusses this and gets agreement from the client on a five-day turnaround time for the critical graphics. It has been very clearly communicated to the client that any slippage in response time at their end can result in a delay in delivery schedules.

This is a far more preferable scenario.

Process Orientation

The scenarios described above start with the same situation, and yet they have completely different outcomes. This difference clearly illustrates the value of a process that is both effective and efficient. The output of any system is closely linked to the quality of input. There are many varying factors that go into a process as inputs; as such, achieving consistent customer satisfaction requires robust processes that can

accommodate this variance and still provide a quality output. Ever-increasing expectations demand that these processes be dynamic and continually improve to reduce costs, improve capacity and reduce time.

How can one address the initial anxieties of a customer, with regard to their confidence in the ability of a partner or a vendor to do a quality job for them? This can often be done by demonstrating the use of robust and replicable processes that are uniquely suitable for the production of the learning program desired by the client. If such processes exist, they can create business differentiation in an era when quality, predictability and reliability are the key drivers of success.

Process Issues in e-Learning

Unlike manufacturing or for that matter, software development with a relatively longer history, e-Learning is still a nascent industry. It is still going through the process of discovering and consolidating best practices and eliminating non-efficient processes. The diversity of the environment in which it exists different domains and individuals with their differing personalities, attitudes and approaches to work makes the development of a streamlined process a challenge. However, defining these processes and instilling the discipline to have these processes followed is what enables us to achieve a consistency in output that is independent of dependant upon differences in personal style, emergency responses or ad hoc interventions.

Processes for courseware development are a specialized derivation of software production processes. In the latter case, the primary emphasis is on functional adequacy and usability; in the case of courseware development this is augmented with the requirements of engagement and learning. In addition, there are two reasons that processes designed only for the software production environment fail to be successful in an e-Learning

Specifications

In the e-Learning environment the parameters of product definition, client expectations and consumer satisfaction vary considerably even for similar programs. Design of appropriate programs plays a more central role. This makes it less amenable to well stated functional specifications or test cases as used in the manufacturing or software development life cycles. Customer requirements are usually fuzzy and cannot be identified in a serial fashion; they emerge, cyclically, as part of the development process itself in multiple cycles. Further the very nature of instructional, experiential and aesthetic expectations of clients from e-learning products is such that they are not amenable to clear definitions of like functional or structural specifications in the case of software development.

Skill Variance

E-Learning brings together professionals from various fields such as subject matter expertise, instructional design, visual design, animation, technology etc. Unlike the software development groups, this is an ad hoc, ever changing group, often with a large variance in their maturity and knowledge of development processes.

Relevance of ISO 9001:2000

ISO 9001:2000 signifies to the client that the organization follows processes which have an established certification that is commonly understood across the world. ISO 9001:2000 is a set of standards aimed at making various enterprises consistent, systematic, and efficient. These standards were developed with a view to help organizations continuously better their methods to meet customer expectations and enhance customer satisfaction. The streamlining of processes in compliance with ISO 9001:2000 results in substantially reduced errors that otherwise creep in when processes in an organization are arbitrary. At the same time, ISO 9001:2000 allows for the necessary degree of flexibility in customizing processes for different circumstances. Thus ISO 9001:2000 promotes “the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system, to enhance customer satisfaction by meeting customer requirements”.

The process approach emphasizes:

1. Understanding and meeting requirements.
2. The need to consider processes in terms of added value.
3. Obtaining results of process performance and effectiveness.
4. Continual improvement of processes based on objective measurement.

ISO 9001:2000 recommends a 'Plan-Do-Check-Act' (PDCA) approach

Plan: Establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organization's policies

Do: Implement these processes

Check: Monitor and measure processes and products against policies, objectives and requirements for the product and report the results

Act: Take actions to continually improve process performance

The Generic E-Learning Process

The process of building e-learning is not the same across the industry. However, there is a generally accepted method titled ADDIE Analysis, Design, Development, Implementation, and Evaluation.

Analysis: Understanding the needs of the client and end-user as thoroughly as possible and translating them into learning goals and objectives.

Design: The structuring and packaging of content in a way that maximizes relevance and ease of learning, includes the designing of products from the instructional (pedagogic), visual (aesthetic-experiential) and technical (structural-functional) points of view.

Development: Producing different components of an e-Learning program and integrating them into a final product in an iterative process involving rigorous quality control and continuous updation based on client feedback.

Implementation: Deploying the product to the client and finally to the end users; this involves decisions about the delivery platform and creation of the infrastructure necessary for effective utilization by the end-user.

Evaluation: Could be either a one-time or ongoing process that helps refine the product further, if necessary; in addition, it yields relevant insights that can be used by similar users for future products.

Beyond this broad framework, practices vary considerably across the e-Learning industry.

Building Process Maturity through ISO 9001:2000

Unlike CMM which is specifically suitable for software development and IT, or Six Sigma, which is more suitable in a manufacturing context, ISO 9001:2000 is a flexible approach for any kind of product or service. ISO neither freezes a process nor does it prescribe one. It allows an organization to define its own processes according to its unique product development life cycle, while ensuring that these processes conform to good process standards. A key impact of ISO is the conversion of haphazard, individual-driven processes into a standard process that aligns the teams to provide customer satisfaction. This makes the organization process-driven rather than driven by contingent solutions to contingent problems.

The certification of Adayana's production processes has enabled it to leverage its business capacity effectively and process higher volumes of input with greater efficiency and quality control. ISO 9001-2000 has enabled us to manage the paradox of standardization of practices with retention of the flexibility to discover better practices;

therefore being able to integrate them through a continuous improvement process. This yields multiple benefits:

Input-Output Control

The developer needs to convert all activities that contribute to the end product into processes by defining the input/output conditions. An organization defines acceptable input and acceptable output conditions and the roles and responsibilities of various individuals in their definition vis-à-vis the development life cycle. These are then rigidly enforced through the use of input/output checklists applicable at each stage and through multi-stage review and approval of input/output.

Measurement

ISO mandates that all processes be regulated through defined metrics that help monitor the efficacy of the processes. From time-to-time periodic improvements are made to the process through a root cause analysis of these metrics. This involves defining organization level metrics to ascertain the health of processes vis-à-vis business objectives e.g. project profitability, effort deviation, schedule deviation, defect density, defect removal efficiency, requirements volatility etc., besides a wide range of domain or process specific metrics.

Tracking

ISO mandates the tracking of decisions taken during the product development life cycle by recording all decisions and all input-output information. This ensures that any deviation from desirable metrics, positive as well as negative, can be tracked back to its origin for rectification or preventive action on objective parameters rather than based on subjective reactions to a situation. Tracking is done through version control of documents and objects and maintenance of revision histories; recording of all decisions like meeting minutes, review comments etc.; tracking feedback and the closure of feedback through tools etc.

Predictability

When processes are standardized, wide and unpredictable variations in outcome are easily controlled and outcomes can be predicted more accurately. Predictability is also enhanced through measurement and tracking of key input-output metrics mandated by ISO.

Effective Planning

Predictability facilitates planning by providing the ability to clearly define the types of outcomes that are expected. It also minimizes contingency factors that usually upset planning in organizations. Metrics give an effective handle which decision-making authorities can use as leverage.

Scalability

When control points are clearly defined, much of the uncertainty is eliminated and the organization can scale-up very easily by focusing on those key control points where breakdowns usually occur. Definition of control points also helps determine what can be outsourced to leverage additional capacity.

Continuous Process Improvement

E-learning is an evolving industry with very few established 'best practices'. In such a situation, processes cannot remain static and frozen but need to be continuously improved. It is one of the key management requirements under ISO. Continuous process improvement is done through periodic analysis of product, process and domain metrics and performing a root cause analysis (enabled through tracking) of trends that are a cause for concern.

Dealing with Complexity and Change

E-learning is characterized by both complexity of detail arising out of layers of information and activities, and dynamic complexity arising out of inter-connected cause-effect sequences. Sound processes simplify this complexity into a set of manageable control variables. Detail complexity can be managed through well-defined roles and responsibilities with respect to decision-making and action in various areas. Dynamic complexity is addressed by defining the path that any change must take.

Challenges in Implementing ISO 9001:2000 for e-Learning

Implementing any standardization measure meets with many challenges. There is a natural resistance by individuals caused by anxiety and inertia. The organization needs to train its people on the use of these processes and procedures, and continually reinforce the need for a disciplined adherence to these, and it needs to pursue a long-term engagement with employees with the aim of achieving compliance. This requires foresight as well as patience. Special care must be taken to build on existing processes and then take them in a desired direction.

ISO requires extensive documentation and record-keeping of input-output decisions in all the processes. It is imperative that this process overhead should not add significantly to development costs. This requires the use of more efficient ways of keeping track of information, such as the use of special purpose tools.

About Adayana

Adayana (www.adayana.com) is a performance-solutions company focused on providing learning programs to increase human performance within the agriculture and food, defense, automotive, financial services and knowledge processing industries. Adayana

specializes in distance and e-learning solutions as well as blended training, assessment and content development. Adayana is a global leader in the use of technology and processes to develop distance-ready learning solutions in large volume and with great efficiency. We can be reached at info@adayana.com.

Adayana's development process is ISO 9001:2000 certified.