



**Solve the training and qualification challenges facing your control room. Innovations in training solution design that change the game for your business.**

## **What you will hear our customers say...**

*Success is defined differently now – the old way doesn't get us far enough, fast enough.*

*What makes this solution approach successful is the relationships created and the team approach.*

*L4SG's knowledge in our business and expertise in training was a differentiator.*

*We didn't have bandwidth in our team to develop and deliver all the training. It's too costly and something had to change.*

*It takes less time to qualify an operator to work on the desk.*

### **About Level Four Solutions Group**

Level Four Solutions Group, Inc. was founded in 2007 and we have grown organically and slowly by creating and maintaining healthy business relationships with our clients- centered on custom performance improvement solutions. Our customers with which we have repeat business, include the following:

- Salt River Project
- Puget Sound Energy
- Idaho Power Company
- Alstom Grid
- Florida Power & Light
- Central Hudson Gas & Electric
- Dominion Gas Transmission

Changing the approach to training services and developing a learning culture takes time, but the results are impressive.

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### **The Challenge**

It's no industry secret that in operation control rooms (Distribution, Transmission and Generation) it takes a uniquely qualified individual to be proficient at the complex work of a System Operator. Control rooms around the country are faced with some big challenges as the final remaining baby boomers with 30+ years of experience retire. The traditional model of on-the-job training (OJT) takes too long, delivers inconsistent results, and impacts productivity. Performance suffers, frustration increases, and overtime costs can increase. While work backlogs in the control room, the field crews feel the impacts of this slowdown as well.

Most control rooms use a rotating day/night 12-hour shift, and in some cases, introduce a training rotation on day shift for 8 hours to keep the knowledge and skills of System Operators up to date. Retirements create knowledge and labor vacancies that are difficult and costly to recover from. In many control rooms OJT training takes too long, and the number of experienced operators is decreasing. Overtime costs are at all-time highs to cover the desk, and free up instructors and learners. Meanwhile, experienced System Operators are reluctant to pick up extra shifts. Combined with this is the increased amount of technology and complexity of the tools used within the control room. It is time-consuming and complex to qualify new operators. Here are some typical systems operators must know:

- Energy Management System (EMS)
- Outage Management System (OMS)
- Distribution Management System (DMS)
- Mobile Workforce Management
- Online Logging
- Clearance Tracking
- Global Positioning System (GPS)
- Customer Information System (CIS)
- Work Management System (WMS)

Systems like these go through lifecycle changes that include vendor enhancements, customizations, integrations, upgrades and wholesale change outs. Knowledge, performance and business processes all are impacted and user training and adoption is an ongoing challenge. The technology infusion isn't just in the control room, Smart Grid investments are raising the technology and learning bar out in the other divisions, too. Engineering, design, construction, and maintenance groups all feel the pressure of keeping employees up to date on new systems.

In some control rooms there is not a dedicated training resource. In other control rooms there are one or two resources assigned to training, usually an experienced Operator who has a host of other duties, including working the desk. Training materials and standard operating procedures are almost always out of date or don't exist at all. The OJT instructors don't have the time/skill to create or update the training materials.

### **Our Solution Design**

It's time to re-think the traditional processes of an OJT-only training delivery. A combination of online, instructor led, and OJT solutions offers substantial benefits for learners as well as the business. A change like this moves your control room to a solution that works for today's learners. Many control room supervisors or managers look to corporate human resources training professionals for assistance. In many cases, they find out that these in-house resources don't understand the business of the control room, and the learning curve is steep and long. Partnering with a vendor who has domain knowledge and expertise in your business is a good idea; sometimes these vendors can be hard to find.

### **Resources**

In our experience, the ideal solution should be made up of a collaboration between control room experts, corporate training resources, and a vendor with operations expertise who can facilitate results. This collaboration accomplishes many things for your business. Your control room experts get better at training and creating training materials. Your corporate training department learns more about your business. We bring best practices and domain knowledge to the team which reduces development time and increases through-put. The bulk of development can be done by the vendor so your internal team can continue with their day to day work.



**Gaining Theoretical and Utility Knowledge**

Most of the time, utilities try to create and manage theoretical and utility domain knowledge for new learners internally. In today's world, community colleges, lineman and electrician trade schools, and online sources all have programs that can assist utilities in these areas. Sometimes the training has to be built from scratch, unique to the business of the utility. New employees must also learn about the company, the organization and the work processes. Most of the items above can't be instructed on the job using the traditional OJT model. Some learning materials can be purchased or outsourced to external institutions that have this training available.

**Flip the Learning**

When it comes to the utility specific technology and work processes in the control room, OJT alone comes up short here as well. Instead of OJT, developing content on the technology and providing learning before OJT can be a game changer. Developing the content into e-learning, job aids, standard operating procedures or instructor-led training in a classroom provides a well-rounded, blended learning model. The goal is to flip the training to teach employees about the technology using a blended approach, then put them on the desk with an OJT instructor to learn the job and job processes. This greatly decreases the time required to learn, and actually puts the employee in a position to work while learning from an OJT instructor. The next legacy of operators will come from what we can affectionately refer to as the "gamer generation". These employees cut their teeth on Xbox, PlayStation, Macintosh and Windows 7 or 8.x. They enjoy learning on their own and are typically fast on the uptake. They want fast answers when they have questions and need interaction.

**The Results**

Partnership between your control room expert, corporate training, and a vendor with operations expertise who can facilitate results is a trifecta for best in class solution. Everyone is involved and invested in making the learning relevant and delivering results. All parties involved benefit with a collaborative approach. Things get done faster and the business saves time. Critical knowledge is captured, created, and is more easily maintained and updated so it is always available for learners.

The cost to develop is initially higher, but is off-set by an improved learner experience, a reduction in overtime, increased desk productivity during OJT, and decreased time to qualification. Essentially it is an investment in your future. Online content remains available for refresher training and performance support. Content can be easily re-purposed for other divisions. For example, content created on intelligent electrical devices (i.e. IntelliRupter Pulsecloser) is relevant to operators, trouble shooters, line design and construction as well as others within the company. This is the training that puts the smart in "Smart Grid".

**Using e-learning and Online Tutorials:**

It takes more time to develop online training and performance support. But the benefits are immense, here are a few of the benefits:

- Learning can be self-paced
- Less paper and printing, no classroom, no instructor, and no travel
- Online training is always available and measurable
- Overtime is reduced

**Unexpected Results:**

As new learners begin their OJT, they come to the desk with knowledge and the ability to perform more, sooner. Veteran operators aren't as frustrated, production isn't hurt as badly, and learning occurs faster. The business starts to take ownership of the training and a learning culture emerges. Both veteran and new operators gain in knowledge, skills and abilities.

**Learn and Work with a Leader**

Focused almost exclusively in control rooms and supporting organizations, L4SG has become a premiere provider of solutions that make sense and solve the business problems that impact operations. Our domain knowledge, and passion for partnering and collaboration are unique in the industry.

- Distribution Operations Consulting
- Standard Operating Procedures
- E-learning content development
- Content Development Staff Augmentation
- Custom Training & Performance Support Solution

<http://www.L4SG.com>