

Lean, Six Sigma Quality Transformation Toolkit (LSSQTT)*
LSSQTT Tool #28 Courseware Content
“Global Technological Learning Organization Culture:
Human Resource Development Infrastructure”

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**Human Resource Development
Infrastructure, Growing Future Talent**

Human resource development infrastructure enables a production system to be competitive globally. Human resource development infrastructure defines roles, organizational structure and focus, and key principles of leadership, as well as how to grow knowledge and talent for the future, with involvement of all people to accomplish collective goals. Bottom line, people are essential to the effective implementation of any production system, since structure and processes, specifically how we cooperate and collaborate in mutual work efforts, is foundational to applying standard procedures in other functions and elements.

Methods inherent in people development infrastructure and systems combine to form a technical and human interface, thereby enabling and empowering involvement of people as productive workers at all levels. Energies and creativity of workers are channeled and supported by processes and systems, infrastructurally, for productive acts. We lead, and drive, the organization toward the achievement of goals through implementation of production functions, using human resource development infrastructure. Management, especially at the supervisory and team level, plays a key role in this context, systemically.

Growing future talent and knowledge. One of the key questions for the future is the issue of how to grow talent and leadership within our organizations. How do we design teaching and learning functions within our organizations--culturally--and communities to best facilitate individual growth for people? How can this be done within the context of maintaining our current responsibilities and commitments, and in a cost effective manner? If there could be an articulated educational system, certainly at all levels, and targeting all persons, what would it look like, and how would it help us grow talent--and leaders--for the future? First, it is vitally important to

remember that employees must continue learning, assuming we really are serious about continuous improvement, as individuals, organizationally and culturally. The point is, significantly, *we are all students, at every level, and we all must participate in the teaching and learning process.* We all must be part of the solution--the opportunity for improvement is tremendous!!

Second, few would argue that one of the key drivers in the total mix of change--and competitive forces--is technology. Generally, if we wish to "re-invent education" for the future we all must study and learn more about our technological culture, history and evolution, impacts and implications, the change process, technology assessment, technology transfer and so on. We all must better understand how to solve technical problems, the design process, quality functions, our processes, among others relating to our customers upstream and downstream. Technology means much more than simply computers, yet it certainly includes the computer with its broad implication for communication, documentation, presentation, computation, data acquisition, process control, among others. We must not make the mistake of thinking that technology equals the computer--it is much, much, bigger than any one technological device.

Third, we must reflect on how we learned what we value most--and what we really know--and where and how we learned it. For most of us, sadly perhaps, we probably did not come to know what we know and value the most in formal schooling situations. Rather, we learned it through experience, at work and play, and elsewhere. But, significantly, and as related to our broader discussion, *we have often learned through technical projects and problems to be solved or undertaken through our work.* The old adage, "you never know it as well as when you have to teach it", would seem to relate--along with applications of theory and information studied--through real world experiences--to equal knowledge. The way we teach and learn--to communicate, work together, solve

problems, document findings and solutions for future reference, all are likely part of the missing link--and solution--for the future.

As should be obvious, workers at all levels must be much more knowledgeable in the future. Knowledge workers, as we have come to call them, are virtually all workers in the future. There simply will not be many jobs in the future which will not require knowledge and educational preparation in some form. Much of this will be focused training and some will be broad education--in either case knowledge is required. Another important issue is the reality that in many cases we simply will not be able to hire the talent we need. Even when they may be available, we may not be able to afford talent required. Part of what must be done is to design educational systems to provide leaders and workers for the future. This is the basis of the toolkit--designed to grow talent and provide knowledge workers for the future--teams focused on technical problems.

Training system purposes. Training systems are presented from three perspectives. First training purposes are addressed, second principles of learning, and finally types of training are presented. Each area will be underscored as part of an overall systematic approach to building a dynamic teaching and learning environment, oriented toward change for competitiveness. Consistent with the rest of the toolkit, relationships of training to others in the organization are discussed as appropriate.

It is appropriate to distinguish between education and training. Education is commonly more broadly based, having application to multiple issues and areas of concern. Training, by contrast, is much more focused and detailed with the intention of specific and targeted objectives, commonly associated with business and industrial needs. Education and training have much in common, to be addressed together. Both are concerned with upgrading people for various reasons, with content and process issues related to teaching and learning. Both require organization and involvement of information from teacher to learner, although methods, timing, and other elements may differ substantially. Both are aimed at change and reorientation according to the technology, preparing for a future driven by the technology.

Training has three major purposes. These are defined as developing job-related knowledge and skills, transmitting information, and, changing attitudes. Developing job-related knowledge and skills may be done in technological organizations to either upgrade or improve an employee in existing areas of their job, or to prepare them for future work experiences and needs. Areas for training might

include both technical work/job skills, or perhaps the broader areas of interpersonal relations, supervision, organization, planning activities, plant changes, and so on.

Other training purposes may be to provide general information to employees, used in public relations, information about company products and services, organizational policies and procedures, training for indoctrinating new employees, and so on. This has to do with creating and maintaining a positive image organizationally. A final purpose is attempting to change attitudes. This may include rather specific attitudes such as those relating to quality, productivity and safety. It may be that a new program on quality is going to be launched in the near future. If leadership in the organization wishes for persons to be fully supportive, they may hold informational type seminars to help get all individual's attitudes adjusted. Attitudinal training also has to do with motivation, increasing sensitivity, developing favorable attitudes, and so on.

Fundamental principles of learning. Regardless of what is being trained for, there are certain areas of learning which, if understood, can help the trainer (or leader) be more effective on the job. Learning areas which will be addressed include motivation and readiness, environmental factors, organized information, and technical proficiency/capability.

Motivation and readiness recognizes that people cannot be forced to learn. The expression, "you can take the horse to the water, but you cannot make the horse drink", is applicable here. People simply must be ready to learn, if learning is to have lasting value. Related to this is the issue of incentives. Although incentives appear to provide motivation for learning and training activities, possibly the best motivation comes from intrinsic motivators rather than extrinsic motivators. Intrinsic means the person is motivated for personal reasons from within rather than in the case of extrinsic motivators such as monetary rewards and promotions. Most agree that ideally, the best learning situation occurs when intrinsic self motivation is providing the push for learning. Reality dictates that extrinsic motivators are a significant part of the training circumstance, and rewards must be recognized and often built into the overall training system. Rewards/extrinsic motivators may include promotions, pay raises, bonuses, time off, professional recognition, among others.

Motivation and readiness for learning/training is also worthy of note for at least one other reason. When people are ready to learn, they should not be put off. If people have progressed through their current ranks, learned on the job, and in other ways, all that is

available, it may be that they are ready to learn something new. This is significant for people (leaders) with responsibilities for training since they must learn to recognize when it is time for the additional training, enabling proper learning. Competent training professionals will recognize that too much study/learning in a given time span for some people may lead to "sensory overload", causing frustration and unique problems/concerns. People need sufficient opportunities to keep growing, keeping the brain alive, without being pushed into a pace of training which is clearly detrimental to their overall productivity.

Environmental factors provide another part of what is necessary to enable learning and training. What this means is accounting for issues such as time elements, personal comfort, and, having sufficient equipment, all related to the overall training system. Time elements are environmental factors which are worthy of note for several reasons. If insufficient time is provided for involvement in training, it often increases the likelihood that the effectiveness of training will be diminished. If too much training is compressed into an insufficient time space, training quality is again likely to be reduced. If, on the other hand, too much time passes between training sessions, the human brain may begin to lose interest, and again the quality of training may be diminished.

Similar to time environmental factors, personal comfort can enhance or detract from overall training quality. Temperature, lighting, space provided, types of chairs/tables, noise levels, distance from the visuals, and so on, all can be significant factors in the learning process. Cleanliness and organization of the training environment play a significant role in the overall successful training system. Equipment used in training must be sufficient if successful outcomes are to be observed. If inadequate numbers of, or outdated equipment are the case, it will likely reduce the overall quality of training.

Organized information acknowledges that it is important for the trainer and staff members to provide organized information for use by participants. This may be in any of the forms of training manuals, worksheets, textbooks, handouts, technical briefs, procedural listings, overhead transparencies, among others. Information, or content, for the training session(s) must be organized in a logical manner to enable learning to occur.

Technical proficiency/capability applies to both the trainer and the trainee, regarding facilitating learning. If the trainer is not well-versed in the area being addressed, it is quite likely that learning will not be facilitated. Likewise, use of a good teaching method is important. Neither teaching method nor

technical capabilities will be sufficient individually, to enable learning. Combinations of technical prowess and training skills are necessary to enable top-quality learning and/or training.

Types of training. Several types of training programs are currently used in industry. Among those being addressed are orientation, on-the-job, off-the-job, and, non-traditional.

Orientation training is generally directed at new or transitional employees. Often considered for only new employees and identified as indoctrination, the orientation program may include employees who are changing positions within the organization. More commonly, however, new employees must be oriented or indoctrinated toward company policies and procedures, products and services, roles and responsibilities, nature of their job, and so on. These programs are generally designed to assist the new employee in beginning to feel "a part of the organization", and to create a favorable attitude about their work and role in the organization.

On-the-job training is perhaps the most effective and among the more used forms of training. This can be either formally or informally conducted with quality of the training often being directly related to efforts involved in organizing and preparing people, resource needs and so on. Formal on the job techniques will include apprentice training, supervisory training, worker-to-worker and so on. This is conducted on the job, usually at the work site. Considerations may include the following:

- Rather cost effective since travel and tuition are virtually avoided.
- Generally quite effective since trainer and trainee are both motivated, with a concern for enhancing quality and productivity in their own work area.
- On-the job training can be arranged at virtually any time, assuming production work schedules are OK.
- On the job training cannot be left to chance.

The program should be systematic, well organized, and properly planned. If it is left to chance it may not only be ineffective but it may be a negative drain on the organization. If a person actually learns the incorrect method of accomplishing a task, by chance/accident, it could be unsafe or certainly counter-productive.

Off-the-job training consists of training provided away from the workplace. Seminars, workshops, simulations out of plant, courses offered at universities, training at other plants, and perhaps others, could all qualify. An example could be where workers may run the risk of damaging expensive

equipment which is necessary for production to occur. The emphasis is on the training for advancement or "to get people up to speed" rather than immediate gains in production. As with most training and education, productivity gains in the long term will be realized. Off-the-job also clearly applies to many forms of managerial and supervisory training. If an organization is interested in increasing the ability of supervisors in the area of quality, it may be that one of the best ways to do this is by sending the employee to the university, part-time, for the entire semester/quarter, or to a week long seminar or workshop on the topic. Consider:

- Time away is a factor. Not only will the organization need to cover tuition and lodging costs, but time away must be accounted for and covered by others.
- Particularly in the case of complex, specialized, technical training needs, off-the-job training may be appropriate. Chances of training being effective may be increased by removing the employee from their current work experience. Real change in technical or high level people may occur when they are removed for some period from the day-to-day work environment. The trainee can best focus on content being studied without normal distractions. Also, off-the-job training is often intensive, week-long affairs with perhaps 10-12 hours, daily, of planned content.
- This form of training is rather effective in the case of trying to prepare on-line people for natural advancement. Many managerial positions and individuals are applicable since individuals may be on track for specific organizational needs.
- Often the off-the-job approach is combined with on-the-job methods to accomplish apprentice-type programs. Apprentice programs generally require some amount of preparation, on-the-job, under the direction of a qualified/competent instructor, one-on-one. Often, the apprentice must be receiving classroom instruction related to mathematics, theory of operations, or other content-based information to complement the hands-on, on-the-job, one-on-one instruction. This apprentice combination method of training tends to be one of the best. Since the employer realizes some production from the apprentice in training, it represents some payback to the organization.

Non-traditional training is a "catch-all" training phrase intended to convey several rather unique methods which perhaps do not fit into the previously presented categories. Among these are rotational training, internships, technology transfer, and exchanges. Each of these will be briefly presented and discussed.

Rotational training suggests that people at various levels can be rotated through several different work experiences over time. This is done to better prepare the individual as well as to help diversify the work force for future deployment. This has frequently been an effective training method for new managers. New managers often rotate through various divisions and/or departments, spending on the order of up to six months in each of several different experiences, providing a rather well rounded individual. The rotational method can apply to all levels of workers as well. It is true that there will exist several different, but related, tasks/responsibilities, all contributing to enabling the completion of the product. Some may be interested in gaining knowledge about more than one of these, and others will desire learning about as many of these as can be arranged. It may be in the best interest of employees and the organization to facilitate this rotational experience for all people.

One additional non-traditional training method is referred to as technology transfer. What happens when the new piece of equipment arrives on the scene and no one in the plant knows how to run the equipment? With the advent of high technology and many organizations undertaking a face lift in an attempt to remain (or become) competitive, this will become reality at an ever-increasing pace in the future. This non-traditional training method is significant because it will be happening more and more in the future, and also because many organizations simply have not had a method for accomplishing this type of task in the past. What it may consist of will be some limited out-of-plant training for one or more individuals as well as some on-site consultancy provided by the vendor to help get the organization started. At some point the machine or process will arrive and someone must be responsible to get the show on the road if we are to be able to use the machine in a meaningful and cost effective manner. If the return on investment for the process is to be met (or exceeded), we must get the process and associated people "up to speed" very quickly without substantial problems. The person who does this will most likely be a process engineer or a technologist who will have some factory training but who will help supervise the set-up and initial start-up of the new machine. The process engineer or technologist will often be responsible to train others in the plant who will have direct responsibility with the machine over time. The technologist may write training manuals for the machine, or assist with the same. If this process is the first in the organization, the process engineer or applications technologist may then be responsible for transferring, through training, the technology throughout, perhaps through seminars,

workshops and so on.

Related to this and technology transfer, the vendor will often provide some training for the new process which presents unique challenges. Since the new process is probably an innovation and a relatively new development, technologists will also be required to be involved in the development of the process/product from the vantage point of providing effective training materials for purchasers of the product. The need here, in both the vendor case and the in-plant purchaser case is two-fold, requiring special training needs, unique to the applications technologist and/or process engineer. This training requires both the technical knowledge at a rather high level, plus the situation demands that the technologist be able to communicate through training, how to prepare, quickly, others to become productive with the recently transferred technology. As new technologies continue to be developed, and as technologies continue at an ever-increasing rate to proliferate (be transferred) around the world, more technologists will be asked to do training.

These circumstances may use a computer as integral to the system being trained about and on. This requires an innovative training and education approach for the future, computer assisted and driven. Rather than sending the person, or more than one, to a week of training half way around the world, the training materials need to be stand-alone, and built into the machine, device or system itself. When we uncrate the device or system, and get it up and running, with the first flip of the switch, we begin to learn. This can not only save money, but it is probably a superior approach. A "hot line" would be available to support persons when they get into the thick of it. But the thick is where learning actually occurs.

Another key component is related to the explosion of activity in the field of multi media. It must be recognized that the more senses engaged in the act of teaching and learning, generally the better the chances for learning to occur, or at least the more likely it will be that we will keep people awake. Assuming that an increasing amount of our teaching and learning will be done on our own and at our own pace, the likelihood is that we will want to use mediated slides and videos, with voiceovers, as a part of the computer interactive approach discussed elsewhere in the tool. People should be able to check out the laptop computer and take home everything they may need to study a tool on whatever topic will be discussed or used in the next team meeting. This should also be in conjunction with books and manuals--all eventually on the computer--to be checked out of the learning center.

Training needs assessment. At some point in the training function it is necessary to determine the actual needs which are to be addressed through training. The needs assessment is concerned with three fundamental issues. These are (1) what are the actual needs? (2) what method should be used to address the need? and, (3) how should the training be evaluated? The basic function of training is to address the difference between where the technological work force is in their work capabilities, and where the organization wishes the workforce to be. If the organization set a goal relating to enabling each worker to be able to use a computer, and yet if the workforce by and large cannot do this currently, then the need for training becomes quite apparent. The need, again, is the difference between where we are and where we wish to be.

Training needs are typically identified from a variety of sources:

- Management or worker requests.
- Merit/promotion evaluations.
- Reports of costs, safety, defects, etc.
- Training personnel observations.
- Delays, rejects, customer inputs, weaknesses.
- Workforce survey requesting needs, issues.
- Perceptions from people inside and outside the organization indicating we are not competitive.

Despite where the information about the need for training comes from, there must be a systematic attempt to obtain this type of information within, and perhaps outside of, the organization. Providing training programs which are not soundly based on need is potentially less than cost effective for the organization.

Training method discussion. When selecting the method for delivering the training, the trainer must be careful to address several points, being sure that an effective training program results.

Do not razzle-dazzle the trainees, trying to impress the trainee with fancy hardware or flashy slides. The only reason for using any method or device is to enhance the training. While good quality media is to be used and should be respected, the content of the presentation should be of prime importance. Yet an instructor with a pleasant personality, smooth delivery, and carefully selected media for delivery can make all the difference in the world. Learning can and should be fun--however entertainment valued media is likely not required to actually learn important information for the future.

Proper preparation is of prime importance. The method must be properly prepared. Have all last

minute details been attended to? Are all materials ready? Have you used the method before, or some modified version, from which you are currently preparing? Have appropriate adjustments been made to account for differences in the audience, nature of the content?

Proper match-up between method, content, the teacher and learner, and perhaps other variables should occur. The method must also be selected to be appropriate to the level, experience and needs of the trainee. If a method is used which assumes that students know too much, the training will likely be "over their heads", and less than totally productive. We must acknowledge the importance of having a technically qualified and competent instructor for the circumstances as well. Equally as important, if the training system undershoots the capabilities of the trainees, this can be just as devastating. It is simply too expensive to not have done homework which will lead to the proper match-up.

One of the most important points relating to method is how applications of content are used in the training. If the content is only presented in a dry and non-meaningful manner, it may be less than desirable. As content is being presented, if trainees can be instructed in how to apply the theories and content being studied--real applications, this is where real learning takes place.

Some situations may require a more interactive style of teaching and learning. Some persons may learn best if they "get their hands held", due to a lack of confidence, needing assistance, simply not having the background, and other factors. This can be a somewhat frustrating circumstance to the trainer, particularly if the trainer was unaware of the level of competence of trainees prior to beginning. This underscores the need for the trainer to do a thorough needs assessment prior to designing the training system.

Method must also take into account general concerns which will affect overall quality of training. These include time factors, break intervals, lighting, seating, ventilation, relevance of content, among others. The expression, "the brain can only learn what the rear posterior can endure", would seem to have some bearing here. We must make certain that the room or space to be used is appropriate in all regards, including having functional equipment for all involved.

Changes in the wind. Fundamental changes are in the wind for training and education. The way we teach and learn is vitally important to the overall future of the organization. Each time we talk to someone, share information, or help solve a problem,

we are essentially training and teaching. Questions about who should be the teachers, when should we learn, how we should teach, and so on are key questions, and the keys to the future.

The notion that we will have 18 people in a room for 24 hours of training in the future is simply a mistaken part of the equation. The way we learn what we value as knowledge will help us better understand how to organize ourselves for enhanced teaching and learning opportunities. If we study how we learned what we value as knowledge, we will observe that we probably learned what we know on the job, having to complete a task or assignment--or solve a technical problem. When we are solving problems--novel circumstances--possibly innovative situations--this is when we are learning.

Being able to capture the problem solving scenario helps systematize essential teaching and learning information and issues. This is precisely the approach being taken with the toolkit. Tools are organized to enable basic knowledge to be made available, and higher level advanced and leadership knowledge's to be built on this foundation. Team is pivotal to the concept.

One of the key assumptions is that we learn best from those around us--those we associate with on a regular basis. This is quite similar in logic to the way we learn traditionally from parents and significant others. The idea is that as we conduct our regular affairs, if we have built our systems correctly, and if we have structured our teams to accommodate this vital need--learning for personal improvement--we will see learning and teaching occurring quite naturally over time.

Electronic systems evolution. One of the key changes is the evolution of electronic systems for teaching and learning. This system uses email and web based materials for teaching and learning of individuals and groups in ways consistent with all else discussed and addressed in the toolkit. Consider when all tools are placed on the web and accessible via electronic digitized methods, they can be used at virtually anywhere, and any time. Individuals and teams can either interact as a group, or under the direction of an instructor, via email. Assignments can be done similar to the ways currently used, but submitted paperless, without conventional time constraints. Advantages relate to being able to link the system with SOP's online, and use of other documentation for training examples and demonstrations. Discipline is key to use of the system, since people can ignore emails and other electronic communication systems, being either an advantage or disadvantage. The electronic approach will only work

where fairly mature infrastructure and systems are in place, and used in disciplined ways. The unmotivated team, or worker, will likely not be successful with electronic systems since the system actually becomes a measure of empowerment. If an individual wishes to be "taught" rather than taking responsibility for their own teaching and learning, they will likely experience difficulties with electronic systems. The role of the traditional teacher has been changed to one of facilitator and coach, rather than the teacher "imparting" knowledge, the teacher enables empowered and motivated self learners.

Knowledge Navigators--Toolkit Systems

Who should lead? The answer to this question is less clear than the reality that we do need leaders, and the system must encourage their natural development by design. Leaders will tend to be natural facilitators and mentors who also communicate well and can handle human relations issues. These are leaders of teams, facilitators of knowledge in the future. What also know that information and issues which must be studied and learned in the future will not diminish, and we must get on with designing the system. Leaders we are developing, the knowledge navigators of the future, will require unusual blends of talent, particularly focused on teaching and learning. Knowledge navigators must understand many tools, and be able to know when and how to assist others in moving into this knowledge.

But the system must also be organized to assist us all in having access to the knowledge and to not have to wait to learn until a traditional seminar is put together. The toolkit system is designed so that each tool can be used independently and on its own--driven by the user--and not necessarily requiring others immediately to move forward. Assuming a "learning center" is designed and put in place, where other information related to each tool is housed, persons can follow up to discover and study more--on their own.

This assumes we will rework our reward systems to accommodate the need to teach and learn. If we teach or learn in the system we should be rewarded, and this must be held in high regard throughout the system. Perhaps the single most important function in the future is teaching and learning, and we must rework the system to reflect this. Appropriate rewards and evaluative measures must be installed--system wide. This is consistent with the reality that most of the talented teachers needed are in the system today. We do not need to bring in more teachers, just use the people better who are with us.

Teaching = Knowledge. The previous point also brings to light another vitally important reality. We simply will not know anything as well as when we prepare to teach it. If we wish to help challenge our people to learn--we must ask ourselves internal to teach. The higher the level the better we should lead, learn and teach, along with the "boss".

The knowledge navigation issue is a challenge to build a system for teaching and learning. This is not only for teaching and learning at the very lowest levels, but equally so at upper levels. This also redefines the rules on what is commonly called leadership. One of the kingpin leaders becomes the supervisor--as they lead and facilitate teams--and accommodate teaching and learning--and actually do teaching themselves. Increasingly, in the future, the number one person in a facility or organization will want to be evident and obviously involved in teaching and learning right along with others. Consider opportunities for teaching and learning as we build budgets, set strategy, and lead change in the future. We know we must give people the tools we expect them to use and understand. We can not simply hand them off, without other things being in place and occurring. The total system must be addressed, including:

- Evaluation of people, annual reviews--how much teaching and learning did I do this year--and how?
- What contributions did I make to creating new systems or tools for teaching and learning--did I create any new approaches or add content?
- Have we involved customers/suppliers in teaching and learning—remember--they are driving the ship.
- What evidence is there of actual empowerment--at all levels--through the teaching and learning system? If I am truly interested in empowering others, then I will be sure to take the time to teach them, systematically--not just in knee jerk ways.
- If I am truly interested in being empowered, I will be interested in learning ongoing. Improving must take into account our need to learn--ongoing.

There is more to it—but this is a pretty good start on understanding how to connect it all together system-wide.

The learning center--knowledge navigation. We must make a commitment, as part of the infrastructure and system, to create a learning center. This should also be titled a teaching and learning center, as well as a team center--the center of where we navigate the knowledge. Learning centers should be:

- Facilities for traditional training functions--with all of the bells and whistles--comfortable lighting, overhead projection, proper seating arrangement, networked computer facilities, and so on.
- Housing all of the latest written manuals and books, as well as other non-written materials on appropriate subjects--all connected to where we perceive ourselves going in the future.
- As individuals complete various applications and activities, we must track it. When it is time for annual reviews, we know that selected individuals have taken it upon themselves to move forward--to invest in their future--and ours as an organization.
- Team meeting rooms and facilities--with appropriate tables and chairs, projection equipment, dustless grease boards, flip charts, and so on, key to the entire system--having a place for teams to solve technical problems.
- Organized physically near production--we do not want to isolate knowledge from where it is needed and used--use a portable room near the work area.
- People need to be able to check out a laptop computer for a take home period. The computer must be configured properly to hook up to local internet carrier services, enabling electronic interaction on the web.

Again, as more definition is given to a specific system in the organization, the knowledge navigation center will take on more form--and a personality of its own.

Basic Training Session Example

Although many training programs will involve multiple sessions (or units), it is true that the basic training session structure must be understood in order that effective training can occur in the technological environment. A basic training session example is included to help explain and overview a workable approach and format for training about technology.

The format used for training will vary from circumstance to circumstance. But several elements are identifiable and useful generically, designed to be applicable to numerous circumstances, as defined in the following paragraphs.

Title. What is the lesson titled? It may also include the entire training program title.

Sequence. Is this lesson number one, two or three in the program series?

Completion time. How long does it take to complete this lesson and series?

Objective(s). What is the major objective of this part of the program? It is possible that there would be

more than one objective for the lesson, but it is generally true that one objective will help centralize the focus of both the trainer and the trainees. An example objective might be "to introduce statistical quality control". Remember that this is only for one session--the entire series would likely have multiple objectives.

Materials/environmental concerns. What are the specific texts, handouts, overheads, and so on which will be used for the session? How will the room be set up? Should we have any special items for the session, including calculators, paper and pencil, special equipment, and so on?

Introduction/motivation. How does this session relate to others and the major goals of the program? Why is the training needed?

Presentation/method. What are the actual steps the trainer must go through to accomplish the session? The order should be listed according to how it will occur (first film, second demonstration, third discussion, and so on).

Application. How will participants actually apply the knowledge? Will they work with a machine, write a report, conduct research in the technical library, or what, to apply information?

Summary. What should the wrap-up portion of the session consist of? Recognizing it is the culmination of the session, it should be of a climactic nature if at all possible, providing a memorable ending. The summary should reflect all that was covered in the immediate session and be relevant to prior and following sessions.

Test/evaluation. How will trainees be evaluated? How will the trainer know if the objective has been accomplished? This may be done via a session quiz, several session series test, or a broader examination over the entire training package. A demonstration type evaluation where applications of information studied are used to complete exercises.

Assignment. What are the trainees expected to do prior to the next session? This may also relate to a major project which is being worked on by teams, achieving major objectives for the longer range training.

After training has been conducted, it is often considered necessary to determine the overall effectiveness of the training program. Evaluation here is defined as an attempt to determine long term value of training. Value should be determined in real cost terms, but obviously this is not always possible or at least not readily apparent. Several methods can be employed to determine the effectiveness of the training program, and ultimately, the value. It should be recognized that generally a combination of

evaluation methods will be used, rather than one or another.

Among evaluation methods reviewed here are observation; paper and pencil exam; cost reductions; productivity, safety and quality improvements; reduced customer complaints; experimental studies; and, worker satisfaction. Others may be useful under specific circumstances, but these are a good start.

Perhaps the simplest and quickest evaluation method is through direct observation. If people have been trained to run a machine, and subsequently they are observed to be running the machine, it could be said that the training has been effective. This form of evaluation is quick, easy and probably does not require substantial planning or organization ahead of its attempted use. However, it is also true that this form of evaluation can be influenced by many extraneous factors. If a supervisor or manager likes or dislikes employees, this could influence the judgment regarding a training program. Subjective biases in many forms will tend to enter in to the observed evaluation method. While not costly, due to possibility of biased influences, the method should be limited to applications which are of a non-critical nature.

Particularly in the case of training involving factual content, it may be advantageous to organize a paper and pencil exam consisting of some combination of true-false, multiple choice, matching, fill-in the blank, or other types of questions. Although useful in terms of giving answers to specific questions, this type of exam generally requires a fair amount of time to plan and organize. Additional training time for employees must be provided to take the exam. Users must realize that responses gained from workers through this exam can be affected by various factors not necessarily under the control of the exam giver or taker. People could be anxious about doing poorly, fatigued when the exam is administered, difficulty communicating their competencies, and so on.

Competitively, the bottom line on training effectiveness and evaluation is cost reduction. Despite the area being trained about, in order to justify the training, it must be cost effective. If training can be tied to a cost accounting function, it may be relatively easy to determine the impact of the training over time. If inventory and procurement is suspected of spending more than is necessary to supply materials and supplies, the current costs must be determined through accounting. Following training in inventory and procurement management, the costs would be measured again. Before-training costs are compared to after-training costs to determine effectiveness of training for future planning.

Due to the relative ease of documenting

productivity, quality and safety, these areas are possibly more readily evaluated from a training perspective. Presumably accurate documentation and records are available on levels of productivity; quality rejects, reworks, and scrap rates; and, accident types and their frequency and severity. Assuming this information is available, following training, different data will become apparent if the training was needed and sufficient to address the need. If data is not available regarding productivity, quality and safety, the technological organization is probably losing money in these areas, and training is probably called for. Documentation must be started for comparison to occur at some point in the future. This evaluation may be most appropriate in cases where long term training commitments can be made.

Customer complaints can be a powerful, long term evaluative indicator. Often the way training needs become apparent is through customer complaints and general feedback. If this is the case, training should occur, and over time complaints should diminish and positive feedback should become the rule of the day. Conversely, if customer complaints change toward other (negative) indicators, then perhaps other training is called for.

As training methods become more sophisticated it may be warranted to "tighten up" the evaluation method to determine if training was effective. Although the purpose of the current section is not to give a detailed discussion related to experimental studies, the topic will be introduced here. Experimental studies consist of comparing one set of something to another set which is similar. The sets or groups are generally "controlled" to keep them alike in all ways except for some variable which is being tested, as in the case of training being done with 20 workers compared to 20 other workers who are similar, except they were not trained. Following training, differences in behavior of some sort are observed and tested for. Statistical analysis may be used to determine significant differences between groups.

Another important method which can be used to help evaluate training is worker satisfaction. Similar to observations, this method is very much open to bias and extraneous effects, possibly beyond the control of individuals concerned. Like observations, this method may actually prove to be one of the more valued methods. This is because workers like to be invested in by the organization. Workers know that there are training costs incurred by the organization. This knowledge has the effect of giving a subtle but powerful message to the effect that "I am worth investing in". If, by contrast, workers are never

provided training, it is quite likely that morale and other attitudinal issues will plague the organization. It may be that the act of training, regardless of "what" is being trained for, is the most important element about training. Regarding evaluation of the training program, however, the attitude and satisfaction of people can be changed, although difficult if not impossible to document.

Team Structure, Worker Involvement, Leadership Systems

Teams are the foundational linkage between workers at the point of production, and various other management levels and functions. Supervisors link team to management in direct report communications, but given how empowerment is prevalent today, and based on the likelihood that a worker may develop around and within a Kaizen improvement workshop project, it is increasingly likely that workers from point of production will interface with various levels of management in non-trivial ways in the normal course of events.

Workers at the team point of production must function at higher levels of intelligence, handling technical information, making day to day decisions about quality and productivity, flow of product, when, where and how to do various elements of production and so on. The reality is that workers today are doing increasing amounts of the technical management which was at one time done by supervisors and other managers. The team knowledge base today has risen to a point where organizations must consider how to grow the technical talent as leaders and managers regardless of title.

The team grows talent by mentoring one another, cross functioning, drafting and affirming standard procedures, focusing on Kaizen improvement workshops, formal and informal training, and in other ways. Virtually everything that is done in the workplace can provide an opportunity to grow either individuals or the team if planned and carried out in a way which will "pass the information off as knowledge".

One key way to grow leaders in the team environment is to engage workers in the strategic planning process. Strategic planning is a systematic approach to ensuring commitment to the long term objectives of the organization at all levels. Multiple objectives are agreed to, including personal goals at the individual level. Objectives are set across the organization, division, center, and team, taking existing agreements and commitments into consideration. Additional personal objectives can (and probably should) be added at each level, and they must

be supported by workers and management. Objectives must be documented in a written strategic plan which serves as the overall blueprint for the work area.

Objectives at the work area level must be congruent with the broader organization level plan. Objectives must be logical and specific, formulated as an "objective to be achieved", doable and accomplishable by workers at the team level, point of production. They must also be measurable or demonstrable by outcome as an achievement which can be documented. Periodic review sessions are held to ascertain the status of the accomplishment of the objectives throughout the year.

Individual objectives should be written as a personal development plan to be pursued in objectives format, and these should not only be congruent with the team and work area objectives, but they should be part of the broader plan. If objectives are not met, as part of the plan, the consequences must be discussed openly. Objectives can be modified during the year if underlying circumstances change, or if deviations from objectives occur during the year, corrective actions should be used to explain changes in behavior.

Managers as leaders should be "groomed" from within, particularly based on the team environment. Systems within the human resources development infrastructure must identify, account for and facilitate the appropriate growth for this to occur. Potential is assessed annually at all management levels in conjunction with discussion about appraisal of achievement of objectives at work area level under the tutelage of a mentor or supervisor. When potential is identified, an individual development plan is drawn up based on the assessment of potential and criteria around which the individual and mentor are targeting (what may be the goal for the individual?). Performance of a specific technical and/or management function, a worker must demonstrate the potential related to existing tasks at the work area level.

Managers as leaders must ensure that the training and coaching they receive is used in the workplace and is future oriented for the organization. Leadership, management training and development is based on the individual needs and goals agreed to between managers and team members. Examples of ways to accomplish the training for future leaders as managers is the accomplishment (leading and managing) of increasingly challenging and robust projects; developmental rotations which reinforce and prepare all for change. Mentoring must occur consistently and over the long term by current leaders to develop a next generation of same, and to improve all in the process. This can strengthen a managers' sense of responsibility and help all put training into

practice, even while underscoring different approaches to leadership and management.

Team Structure. The way we do teams will be one key determinant in how improvement is done, and how leaders are grown. How the organization approaches problems, via teams, is not just a cultural area of interest, it is likely the single greatest challenge and opportunity to be met in the future. Clearly, the ability of an organization to be competitive, and to remain an entity into the long term future rests pretty clearly on the question of how we do teams in relation to problem solving day to day, and then improvements over the longer term.

Hierarchically, teams are the point of production link where value is directly added for production, systemically. But the shifts occurring portend that much management, if structured and empowered properly, based on newly designed organizations, must occur at this point of production level as well. Much of what was “middle management” 15-20 years ago has shifted, of necessity, to be a team orientation and function today. This means the former supervisor is now the team leader, and the team is really a production and technical management team.

All of this is operating in an environment of quality management system, as well as production system, with most key quality and other technical functions occurring at the point of production. Lean and six sigma tools, driven heavily by TPM type changes for oversight of all equipment and housekeeping, is a fundamental premise. All of this portends a much better educated, and highly intelligent worker on the team today, one who is more proactive and oriented to working on their own with little and/or different supervision and management oversight. Much of the details on how this is done, day-to-day are inherent in sub-sections of the remainder of this tool (and throughout the toolkit).

Policy issues. People in the organization of the future must have the opportunity to impact the development and deployment of policy in the local and broader organization as one key indicator of true empowerment. This will be done in the future through team infrastructure. Policy engagement through teams will not only promote involvement of workers in achieving organizational objectives, but it will improve the actual deliverables at every level and in every sense of the word. Worker pursuit of policy issues provides clarity of expectations and promotes accountability for all, up and down the organizational hierarchy. Having the stake in policy development and deployment, by workers at all levels, helps assure the type commitment, through true empowerment, required to remain in business.

One excellent example of policy is related to attendance. Routine discussion between supervisor or team leader and worker following an absence due to ill health, or in the case of anticipated ill health. The nature of the discussion depends on the severity of the illness and related circumstances ranging from an organizational obligation to of welfare of workers through discussions on working time lost and impact of associated costs. While personal illness is a prime case, stress due to bills, family circumstances, addictions, external relationships, and other issues all contribute to attendance.

Workers are encouraged to report work as well as non-work circumstances that could lead to stressful, potentially counter productive, situations in the work place, leading to attendance-related issues. Other policy issues surfacing around attendance are associated with persons who simply do not show up to work, and who do not have health or stress related circumstances associated. The policy that governs the non-health aspects of attendance may open the door to disciplinary actions and other issues where having worker involvement at the team level may prove to be highly advantageous. Interestingly, much of the policy related circumstance may be associated with “union shop” type issues of the past, suggesting changes in this arena for the future. Perhaps teams done well will reduce the need for unions in the future, and lead to a more satisfied and cost effective worker-management relationship.

The policy development and deployment issue, and how we engage workers at every level is likely one of the best indicators of how successful we will be organizationally in the future. If we can be successful in actually turning over part of the power to workers in new team infrastructure related ways, we may be able to concurrently gain trust and respect in mutually rewarding ways. It is suggested that this type mutual respect and trust, with co-ownership of the organization, will be part of the measure of true empowerment, and duration of our organizations’ future globally. Attendance is but one of the key issues. Others include disciplinary actions in general, benefits to be accrued and awarded (health care, education, retirement, etc.) how work schedules are built and implemented, and virtually every other traditional management question. This may be the true paradigm shift of the future.

Worker management feedback systems. Specific feedback is needed from team members to team leaders and managers regarding how the management process is functioning, is important. Team members should have the option regarding whether to participate or not, and any feedback received must be treated as confidential. Team leadership should collect information, to be treated

confidentially, and for the sole purpose of developing the management process and improving cooperation and communication. If implemented correctly, a feedback system can generate useful feedback to improve management processes at every level, helping to manage team member expectations.

Routine assessments are carried out less formally to assure all are listening to one another and that agreements are honored. Regular, routine dates should be fixed for team member feedback and performance appraisals. It is important that all tabulated data be made available to everyone for review prior to the start of review sessions, and all must strive to create a basis of trust and ensure a calm atmosphere. When critical management or team member issues arise, it is best to ask other associates to be present from all sides to assure continuity, and that all policies are adhered to.

Management assessment by teams and managers uses team member feedback tools, and frequency of team feedback will vary based on the nature of the organization, maturity and nature of teams, and so on. The structured assessment procedure is divided into steps, which are linked as a process and designed to gather and evaluate feedback, document and communicate results, devise appropriate action to be taken and used to improve.

100% of all workers should be surveyed every 1-2 years with questions relating to the current working situation. This should be done based on a standardized procedure which assures that we review our objectives at every level, and ascertain progress toward same. After results are done we must identify actions to be taken at various evaluation levels (work center, team, management) and results may form a basis for discussions about operational targets for improvement and change.

The process must also include worker appraisal feedback opportunities where team leaders and other management team personnel are able to assist in development of workers at various levels. This can assist in assessing the current situation for improvement, and accelerate processes for change in positive ways. Part of the aim is to provide an open and trusting working relationship where management and team members can be made increasingly aware of one another's expectations. Particularly when tied to strategic planning processes, this can increase team member input into change processes by sensitizing all to realities which are occurring.

Appraisal and recognition. Systems used to assess feedback should recognize good performance or special contributions from team members where appropriate. Recognition should be specific and immediate with provisions for positive feedback and rotation into new work functions for further

development. Suitable recognitions could include various incentives or cash bonuses, time off, changes in work assignment or other positive benefits. While recognition can be in verbal or written form it generally is best to place this in documented form to avoid any miscommunications. When appraisal and recognition systems are properly working, we should be able to use the recognition granted to one team member to motivate others in positive ways. Examples of recognizable contributions from team members may include solid performance of a special task which was not part of their routine job description, and particularly when no salary increase was involved.

This type appraisal system can help "build" team, with all having a better sense of identity with the organization. Team members appreciate recognition and uplifting of appropriate positive contributions when it is deserved, within the policy and criteria as documented. The system is used to judge worker and management performance, skills and behavior in a standard procedure. Placed in a checklist type format, and using a likert scale to differentiate performance, ratings or rankings could include exceeding or meeting expectations, or needing improvement. Used appropriately, this can provide a basis for worker development and skill building, and certainly to recognize work area performance around ever improving performance expectations leading to rewards, promotions and so on. Checklists to assess performance are used by managers and team members, based on job descriptions, to assist in identifying deviations, locate their causes and agree on corrective actions.

Self assessment, objective data, planning. Much of the appraisal system, for improvement and planning, to groom and grow leaders as managers for the future, must also revolve around self assessments of my own work and behaviors. After all, true empowerment at any level, will be most recognizable as a function of doing what is needed, not when asked by others, but based on my own assessment of what needs to be done. Many of the systems and tools identified throughout this section should be considered for use as self assessing tools and systems alongside and with use of tools to appraise performance by teams and other (s) group (s) in the total human resource development infrastructure.

Part of what should be increasingly apparent is the need to have data and documentation in place to assist in raising the level of objectivity in assessments and evaluations. Determining what the measurables are, and then how to determine compliance to the same, is critical in terms of achieving objective assessments in all we do. The design and implementation of databases for collection and organization of necessary information is a possible

basis for improving assessments and particularly when used alongside other communication and documentation tools and systems.

Related to self assessment, and use of data to help objectify assessments, the generation and monitoring of action to be taken is an integral function of the appraisal process. Actions outlined for personal growth and improvement are key in the long term health and vitality of the organization. Knowledge transfer options should be used where possible and needed to help grow talent as leaders and rotations for and through potential new work areas to groom leaders as managers will be pivotal to open the eyes of all and move person's into new and potentially enhanced positions for the future.

Standardized communication and documentation. As a method to reduce communication issues, standardized communication documents should be used in work areas. These should use simple, understandable language and they should be designed to invite and engage discussion, certainly to involve workers. Workers and team members should be encouraged to raise their own topics relating to work, projects and the overall environment. The intention is to provide and encourage rapid, targeted communication of information with all. Communication and documentation systems should encourage workers to do critical thinking, thereby promoting continuous improvement. Critical thinking should involve raising questions of an assessment nature which, when answered can promote better understanding and cooperation. Used effectively, this can also develop a heightened awareness of problems and issues, leading to strengthening and developing the role of individual workers as leaders and managers.

Communication and documentation systems should be one of the keys to long term team development as a continuous process which takes place during day-to-day operations, at regular meetings, during group discussions, and so on. Team development encompasses all activities relating to the targeted development of the team based on specific criteria, and as such, must be evidenced in written communication methods. Team development, as communication and documentation is a process which must be intentionally and systematically pursued by all in a continuous assessment approach, and particularly based on communication and documentation.

Team development functions, inherent in communication and documentation, are a management tool focused on strategy, vision, agreement and prioritizing of targets, strategic and operative action areas, particularly at the project and function level. This will often surface as a structural issue in distribution of tasks, competences, communication,

interfaces of people on the team. But given the intimate relationships that must, of necessity, surface at team levels, moral actions such as conflict management, feedback, worker and customer surveys, team training, values related issues, day-to-day conduct, and so on, all noted in communications and documentation, must be part of the systemic focus.

Job descriptions. Every employee must have an up-to-date, written job description, usually written by the employee within the framework of the specified work area and team. New job descriptions are required in the event of fundamental changes to the work area and/or the organization. Job descriptions for new team members or new positions are written by the relevant manager or team leader and given to the new hire, and even there, the new hire may likely be involved. Job descriptions detail the position and responsibilities of the job in the organization and how this functions at the work area team level.

Some of the important details to be covered in job descriptions include: overall purpose and to who the position reports; lines of communication: qualifications/training required; description of key tasks involved and time to be dedicated; key lines of authority for decision-making; among others. The details shown in the job description form the basis for appraisal reviews and other advancement and growth issues, key to all involved. This would typically be a standardized format used for all, like any SOP documentation relationship, designed to provide clarity and focus for each person.

Expectations and responsibilities, focus and function, organizationally are clear, to engage all in value adding ways. There should be nothing left to the imagination, and no confusion should exist around well researched and written job descriptions. Members of the team and work area are key in defining job descriptions for their own areas, and a council with fair representation should assist in general communication of structure and organizational issues, not only for job descriptions, but in other ways related to teams and other hierarchical issues.

Process descriptions, performance standards. As organizations mature and evolve, distinctions must be made between core technical processes, support or service processes, management processes and perhaps others, all pivotal documentation as information to be used in growing and developing talent as well as doing work needing to be done. Process descriptions, of any sort, are key to defining customer and supplier relationships, and who does what and in what ways. The extent to which we do not specify the details of process functions will ultimately have direct impacts on our ability to become and remain certified as registered global entities, and indirectly impact our ability to

communicate with all to produce viable products and/or services.

A process, or performance standard description, is an integral part of the quality management system, for helping understand relationships, requirements, and necessary outcomes. Process descriptions as standardized performance information, document in written or electronic form, the various tasks and stages in all processes of the work area, and generally contain:

- The aim or purpose of the process, perhaps stated in policy type language.
- Detailed operational stages and possible sub-processes and/or systems.
- Specific responsibilities detailed overall as well as sub-processes and/or systems.
- Necessary resources as supplies and materials needed to do the process function (inputs required).
- Expected process result or deliverable (output desired).
- Necessary process data, including standards or measureables, needed or to be collected if relevant.
- Relational assignment of the support process to the core process, how communication occurs.
- Authorization by process management, team level and beyond as appropriate.

Descriptions should be brief and succinct, but sufficiently detailed to enable others to use and function with the information as “stand alone” tutorials. Work area location should be specified for specific tasks and relationships, as well as who controls the process information. Who can access and modify, how the information will be maintained as records, must all be thought through and decided for management and control, as well as empowerment to do the necessary work day-to-day. Done well, this type documentation can create clarity with regard to operations and functional contacts, certainly to be used as a basis for improving processes and interfaces. Management of inter-area rotations for development and growth, as well as cooperation and flexibility are key, as are support and orientation of new workers.

Worker orientation. Orientation for existing and new workers will be needed in at least the following topics and areas: Organizational and team work area policy, vision, mission and culture; quality policy and documentation; safety, environmental policy and regulations; product nature and range; production organizational and management structure; organization and function of a worker council (if there is one). This should be organized as a written manual document, and also provided as a presentation (power point) with representation from appropriate persons to assist all in becoming acclimated to the organization.

The written information and presentation style and format quality should be in standard form, consistent with all SOP’s in the organization, to “set the tone” for introducing the way all is done, getting all on the “same page”. Introducing the team and work area early in the orientation is key, and in fact eventually, the entire orientation may be at the team level from the start and in its entirety. Critical deliverables, regardless of who does the orientation, are that specific policy related information on safety and security, quality, job description roles and responsibilities, how they may advance through training, as well as other benefits, be properly covered and documented and recorded in signed off form.

On the job training. Training is done on the job whenever possible, as one way to not only develop people efficiently, but also to prepare trainers as internal leaders and specialists. On the job training has a direct bearing on the requirements in the workplace and enables workers to acquire and practice basic skills in a fairly cost effective manner. Use of “locally grown” tutorial documentation collected over time in routine work, but particularly based on projects completed, should be fully encouraged and supported.

The type and volume of training activities are best defined, planned and agreed on by supervisor/team leader and workers on teams. Responsibility for implementation of training is with supervisor/team leader representing management in concert with team, and this all is intentionally congruent with training matrix needs and talents, while concurrently being part of the broader plan for organizational needs in new product launches and other key changes being anticipated as capacity needs.

On the job training revolves around a rather basic, but important, 4-step approach where the workers identify the most skilled person (mentor) among themselves for a given task or work function, and engage them with the worker (s) to be trained as they:

- Observe based on most knowledgeable person, mentor.
- Perform major steps under the tutelage of the mentor.
- Perform key points, semi independently, with mentor.
- Work independently with advice of mentor as needed.

It will be critical that appropriate individuals designated to lead the effort use the current job description and process description/standard performance as a basis for preparing the training sequence, content and associated deliverables. Ensure training is implemented quickly and that all are reasonably flexible, assisting in delivering training as needed. As the trainee moves through each of the four

steps, engaging with various workers, all will need to acknowledge the need to continue to “get product out the door” while effectively preparing the trainee.

Suggestion systems. Suggestion systems are acknowledged as being a powerful management tool which, when used effectively are related to worker development as well as continuous improvement in the work area. This provides direct worker involvement in quality and efficiency improvement while simultaneously promoting worker problem solving engagement activity. Empowered workers have ideas, and teams should respond with a infrastructure and support system to put the idea into motion if warranted.

The suggestion system must provide a mechanism to encourage ideas to be developed and brought forward; assess and nurture the ideas; fund and support actual development of suggestions as problems to be solved and improvements to occur; to help implement the finished project; and ultimately to evaluate the usefulness of the idea once implemented over time. The system must include a feedback loop requiring suggestion acceptance/rejection, and/or status as part of the key communication, all to be done within a few days rather than a lengthy decision-making process, and in conjunction with the worker team council.

As the suggestion system is being done and actually used in practice, it will be key to acknowledge the extent to which we define and promote the responsibility of team management in improvement processes. Proper use and deployment will serve as a means to provide worker and team recognition, and full empowerment based on true worker creativity. Ultimate success should be measured by implemented suggestions and actual cost savings, waste reductions, throughput enhancements, or other quality improvements.

This speeds time to implement ideas, so all benefit from the rapid success of suggestions, and by involving workers in the process, motivation, satisfaction and readiness to change is increased. Also, the number and quality of suggestions for improvement increases and better use is made of workers’ skills through practical involvement in continuous improvement. We must organize and utilize a group structure composed of individual teams that work together to accomplish defined tasks and functions. Common group tasks within teams are semi-autonomous and self directed work and training responsibilities on a rotation.

New team member selection. Use documented standard procedures to train all team interviewers in assessment and selection process for considering new team members. Face-to-face discussions are recommended when assessing

potential new team members, either as new hires or transfers, although transfers may be more readily assimilated based on existing internal performance records, not requiring the same type review (perhaps some could be done online). The main considerations are that workers are selected systematically using defined criteria, particularly based on a well researched and written, detailed job description.

We must reduce politicking in the worker interview and selection process, while concurrently increasing objectivity in the process. Pivotal in this will be strong reliance on data and documentation to communicate what is needed and expected, beginning with the job description and moving through exhibits and demonstrations of what the candidate can do from experience, all in documented portfolio form. Similarly, the nature of the work being done, and anticipated for a new hire must be well documented to demonstrate and align a candidates’ potential and applicability to, with.

Team continuous improvement space, training systems. Work areas require space where they can be team. The space must be sufficient for growing individuals and teams into leaders as managers and change agents desired for the future. This ties to continuous improvement and transformation since Kaizen workshops and associated management shifts in responsibility and authority require space for teams which was previously used by levels and layers of management who may no longer be in the organization. Workers use the work area as a place to focus on issues which will add value back into projects, quality issues, process management and improvement, and in general ways which we are pursuing to aid the organization in remaining a viable force well into the future.

The space will house information and documentation systems relevant to our work, once kept by middle management or clerical persons. Data and documentation, standards, records’ requirements, certification literature, customer information for traceability, all must be housed in new and innovative ways. Technical information once kept in a strict engineering or specialists area and not available to workers at the point of production, must now be increasingly accessible. The bottom line is that much of what was once considered to be “off bounds” to workers must now be placed with them since the middle management person’s who used to account for and manage this information and related functions, are gone. Specialist backgrounds and contexts are taught. Like any other training activity, training in the shop floor training area must be planned using the training matrix and agreed between supervisor and employees. The supervisor is responsible for ensuring the

provision of adequate and timely training for employees.

Again pointing to change, if not paradigm shifts, is use of computers and information technologies. Teams will do much online and in electronic ways increasingly. SOP's may eventually be totally online, rather than physically posted in traditional ways, WIP information, quality defect rates, team projects, and so on, all critical management information, will definitely be increasingly online and less available physically in the workplace in traditional ways. Similarly, information to be learned will be increasingly related to team projects, much done on line, particularly as related to counterparts and suppliers in different geographic locations.

Point of contact production training areas are part of what teams need to properly prepare workers to carry out jobs, and do change for continuous improvement. This type training area is essential for takt-related value adding work functions. It will be particularly important to account for proper use of tools, equipment, processes, test devices and materials needed to do a task or function, either simulated or on the job. The pace of work in work area training must correspond to the pace that will be experienced within the actual process. The duration of the training will depend on the task and function to be learned, and the intensity will be driven particularly by need for talent in work area. It is important for workers to be fully familiarized with performance standards and quality criteria at a hands-on level.

Training done by and for teams and individuals will shift increasingly from place bound and information bound locations to be associated with online when needed and desired based on readiness of learners. Needs will be more quickly noted and responded to by individuals and cross functional work teams, and less by traditional large groups, all with the same traditional training needs. The training and development matrix showing who has been trained and in what areas, and who has lead and participated in what projects, will increasingly be associated with what skills the individual has and needs, and when they will plan to be rotated through these type work tasks toward becoming a leader and manager.

Team leadership. Team leadership is responsible for direct and indirect tasks like maintenance, quality, time studies and parts inventory as part of the team rotation system, routinely done by trained workers as leaders. This not only facilitates worker development and reduces overhead cost while improving accountability, responsibility and involvement of workers. This form of leadership also provides the direct opportunity to workers to make substantive improvements in hands on ways such as

ergonomics, quality and other lean and six sigma principles.

Team leadership has replaced the traditional supervision function, although in a much more mentored manner, and less about directing and "telling what and when to do it". The team leader further integrates the team with the point of production management daily decisions and functions, being the direct report who supports workers. Team leadership provides an opportunity to perform planning and follow-up activities, as well as project oversight.

Team leaders have regularly scheduled meetings for problem solving, continuous improvement and general information sharing, as well as to support general quality and productivity issues. Key information that impacts and supports safety, quality, delivery, cost and moral is discussed routinely. Improving morale and cooperation within the team, and general team building, growing the next generation of leaders is of prime concern. Leaders try to improve worker understanding of production requirements, and standard procedures in the work area. Routine and regular provision for worker involvement in continuous improvement activities, particularly Kaizen improvement workshops, is pivotal in team leader role. Continuous improvement in cooperative relationship between labor and management is a prime concern, increasing vertical and horizontal communication as much as possible, is another leadership function.

Team meetings, communication. Team boards are used at the work area with scoreboards and other visuals to display information of interest to the team. Each team has its own communication board set up in a readily accessible location, perhaps in a special team room. Team boards include targets and all control parameters needed by the team to achieve targets such as attendance, vacations, shift and rotation schedules, training matrix; data and documentation parameters for the work system or area, with deviations from targets highlighted. The team can design its board in any way it chooses, and they are responsible for maintaining their own boards. Actions taken to address issues or concerns, as well as celebratory acclaims are displayed as close to the team as possible. Workers should be involved in updating the boards and illustrating progress towards achievement of targets, that data and information is evaluated and actions are documented clearly. The board should be used to encourage group discussions, used to house data for discussions with the group, and to provide support with agreeing and implementing corrective actions.

The work area board can strengthen information sharing and communications within the group. This simple media is a management tool can be

used to communicate targets and results, as well as provide constant visual comparison between actual and target performance. Boards increase workers' awareness of targets while also increasing commitment to achieving targets. Boards can provide identification with work systems in general, and the organization specifically.

Rotation, cross functions, training matrix.

Rotation is the regular change of jobs by team members within or across a team or work area and associated systems. This is also sometimes referred to as cross functioning where all learn one another's work activities to enable the rotation. Rotation is used particularly when the work cycle is short and the value added ratio is high. This generally requires technical training along with methodological and social training to facilitate rotations, best done by a trained mentor. Rotation schedules are developed by the team during team meeting, agreed to and coordinated by the team leader, and then schedule is put on display at team board area.

Plan rotations according to content and methods of group tasks and based on the overall training matrix for the team. Rotation and cross functions between trained team members and untrained may be done to change workload, as well as to balance individual worker developmental growth needs. Rotation cycles must be agreed between all involved, but are to be encouraged as part of systems for advancement, as well as for appraisal pay increases, for all. As part of the matrix, we must assure that we only rotate workers with the required minimum level of training and or qualifications. Correlation of training matrix and team plan should also occur alongside quality or organizational problems, assuring that all are fully prepared for what they have been assigned to do. Some advantages to the matrix are it:

- Indicates which employees are able to perform which tasks and processes, and what needs exist.
- Defines the requirements and profile for the group, based on activities in the work area and system.
- Can help define training levels and specific requirement criteria collectively, and by individual.
- Helps team and the team leader assess the qualification level of team members.
- Establishes a plan and standardized training process for rotations, cross functions, formal training.
- Shows level of training of all on team, always visible and up-to-date, displayed at work area board.
- Facilitates selective, stepwise worker development, and flexible planning for future staffing issues.
- Reveals training shortfalls and demonstrates worker prospects and changes to be addressed in work areas.

Growing the team around a training matrix is one key for anticipating changes and balancing workload to meet all objectives (individual and team). Effective use of the matrix, as a plan for growth, increases flexibility of deployment of team members, while providing development and training within and across teams. One way to strengthen and stabilize the level of training, and to help avoid monotony and increase job satisfaction will increasingly be the development and deployment of the training matrix for rotation and cross training.

Safety, environmental, ergonomic, TPM.

Safety, like environmental, ergonomic and TPM are key operating principles and issues to be emphasized and trained about at all times. The main issues are ongoing visual safety awareness and environmental regulations and compliance to same; consideration of economy, ecology and recycling; ergonomic evaluation of work and housekeeping processes. This involves ongoing programs to communicate standards as appropriately defined and visualized, with continuous reporting by team members at point of production, for management.

Area-specific safety signs are standardized, and danger zones are clearly indicated on equipment, protective walls, notice boards, etc., and personal protective equipment is made available for area-specific requirements. Medical support for workers who have problems or needs related to fulfilling job requirements should be addressed, perhaps to include reassignment or claiming a legitimate disability. Similarly, we must ensure that all workers understand the signs, and are communicated with appropriately, translating into appropriate foreign languages if necessary.

Ergonomic needs and issues are analyzed using a work area specific standardized procedure and assessment criteria as are appropriate. Ergonomic analysis procedures are carried out when planning work systems for new products and systems, or where upgrades to systems are being implemented. Managers and teams take part in ergonomic analyses, providing information and suggesting changes and improvements. Evidence, documented from analyzing production systems, used for previous generation products and services, can be used to assist in future planning of work areas. Standardized procedures must be used to evaluate working processes as part of work area improvements and changes, ongoing.

Ergonomic and environmental analyses and planning for workplace improvement contributes to preventive thinking and planning, while simultaneously providing healthy and safe working conditions, perhaps counteracting long and short term worker absenteeism issues. This type analysis can also "organically" draw attention to areas in need of

improvement, and addresses ergonomic conditions first hand in consistent and speedy ways. Related to housekeeping and safety, all environmental requirements should be clearly known and understood, communicated at the communication boards visually, and discussed routinely in team meetings.