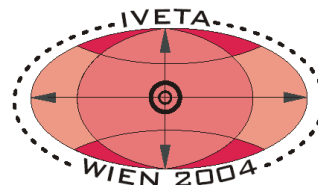


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Improving Worker Capacity – A New Model of Workforce Development for a Competitive Economic Environment

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ABSTRACT: With the traditional vocational education model, the bulk of the burden of the job-skill development falls on the employer. Once employed, the worker encounters a non-structured, rarely focused, on-the-job training experience. It is now possible to articulate the traditional model to include the employer in the learning process in a structured, documented and verifiable way. This model is efficient in resource utilization. The role of the educational and vocational institutions is to focus on what they do best and not on trying to recreate the work environment with expensive purchases of industry - related equipment. The model presented here frees the educational institution from that burden. The author will showcase on-going projects, some started over 5 years ago, which demonstrate how career centres, community colleges and universities can actively cooperate to create and manage enhanced workforce training programs and build a stable stream of revenue to improve and expand the workforce development model's operations.

1. The Effect of Global Competition on Worker Training – There is enormous pressure on employers in this globally competitive environment. No matter what country the employer is operating in, or on which stock exchange they are traded, the company is working toward either increasing revenues or lowering costs - not just in a soft economy. Short-term earnings and stability (or rising) of stock prices has taken precedence over long-term planning. No employer is immune to this. This drive to cut costs puts pressure on the small and mid-size vendors who support large corporations to engage in similar cost cutting or be replaced.

Under such pressure, employers will try the latest in management theories, such as lean manufacturing and Six Sigma, as well as new technology and new processes, all to improve the bottom line without considering how these changes alter the nature of work. Changes that should improve productivity and quality sometimes have the opposite effect; without training for the change, incumbent workers and new-hires both have to figure out for themselves their new roles in the organisation. Ultimately, the employer loses track of useful job definitions, which are vital to developing training both on-the-job applications and the classroom.

Employers rarely see training as an investment under such pressure. In boom times employers set aside a meager amount of the budget for traditional classroom training, either provided through specialty vendors or local educational institutions. Larger companies may spend more and may even have an in-house training department, but still the training dollar-to-worker ratio is not much better than that of small and mid-size companies. When an employer is

confronted with a stagnant or declining economy, and across-the-board budget cuts are imposed, human resource development efforts and staffing levels are usually cut disproportionately to other budget line items. When cost cutting doesn't seem to be enough to at least maintain the status quo until the economy rebounds, the employer often turns to rapidly decreasing labour costs as they are discovered in emerging economies. This "solution" can be short-term, however, since lower wage labour markets only temporarily appease investors; training costs and training barriers can often be higher than previously experienced. Depending on the technical nature of the work being moved and educational institution framework of the host country and its ability to prepare workers for employability, the employer may have to increase outlays for training to compensate for the gap.

One would think that as staffing levels are being cut and the remaining work redistributed to the remaining workers, employers would regard training as a top priority. Obviously they do not. One reason "training" is so expendable is that the employer cannot see the direct relationship between a dollar investment in classroom-oriented training to a proportionate increase in productivity. Often they cannot even detect its the correlation to the job. The more inaccurate the focus of training, the more suspicious the employer is of the value of training and the more likely the program will be cut. When employers see entry level graduates from local educational institutions show up at their door without distinguishable, relevant skills, the more likely the employer will likely doubt the institution's capability to deliver potential workers with a sound enough base upon which to build.

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One type of training survives any change – unstructured on-the-job training. It has been done this way for years. No matter where the job lands, someone will have to show someone else how to perform the work that needs to be done. This is the training that matters the most to the employer, since they see direct, immediate value from the results in the form of output. A line can be drawn more easily from a dollar spent on on-the-job training to an anticipated return on investment, even if only anecdotally. Yet educational institutions avoid involving this practice in the learning process – partly out of fear of the scope, partly because the tools to include this practice didn't previously exist and, for some, a belief that once the student leaves the school the educator's role is finished. Improvements in workforce development efforts must be made, and this is where they should start – turning the unstructured, haphazard and undocumented on-the-job training into a structured, formal and documented capstone of all workforce development efforts. Institutions that accept this and aggressively work toward making a

graduate's meaningful, sustained employment the school's measure of program success, are more likely to remain actively engaged with employers through any economic swing.

2. The Traditional Model of Workforce Development Versus a New Model – The model for vocational education and training traditionally focuses on preparing the individual for employability. The emphasis is on generalized industry skill training based on historical information with an attempt to predict necessary work skills for emerging jobs and emerging economies. However, even with the most “advanced” of the vocational, trade, and crafts programs, this model has proven itself relatively ineffective in the current rapid world of change. Developing and maintaining a high degree of “fidelity” (closeness of fit to reality) to the targeted job classification's requirements is difficult to begin with. It becomes progressively more difficult as the move to a global economy continues to accelerate. The lesser the degree of fidelity, the less effective the program, and the more employers discount the value of the learning experience in their attempts to compete.

With the traditional model, the bulk of the burden of the job-skill development falls on the employer. Once employed, the worker encounters a non-structured, rarely focused, on-the-job training experience. The employer selects one of their subject matter experts (SME) to “show the new employee around.” An often overlooked point, the SME is usually considered one of the best employees because they have performed the tasks so many times they no longer have to think about what they are doing. Though highly regarded by management, the SME has difficulty remembering the nuances of the tasks when explaining the process to the new employee without structure, since the SME has buried this level of detail in memory long ago. New employees have difficulty assembling, understanding and translating the disjointed bits of recollection the SME presents into a coherent process to be replicated. This turns out to be a “make or break” opportunity for the new employee; the trainees that can “fill in the blanks” usually get the job, not necessarily the individual with the closest, most relevant skill base.

The more time the SME spends with the new employee in this unstructured, undocumented experience, the longer the employer is paying two people to be non-productive. Adding employees can, and does, lower short-term productivity for an organisation. As employers become frustrated with this exercise, which can be indefinite in some cases, they turn to more radical methods of cutting costs, such as layoffs, outsourcing or movement of facilities and operations to lower wage markets. While this may seem to temporarily address the

labour costs issue, these means usually result in lower organisational capacity and the underlying challenge still remains wherever the job is located.

It is now possible to articulate the traditional model to include the employer in the learning process in a structured, documented and verifiable way. By analyzing the targeted job classification for the employer and structuring the human resource development process with more precision, the work-based portion of the workforce training becomes a natural capstone to the traditional vocational training process. With better information to customize curriculum, the learner will encounter educational institutions and training providers during the journey to employment who maximize their contribution to the worker's development. A more accurate core skill development program prior to employment, followed by an accelerated and precise structured on-the-job training experience, will cut the employer's internal costs of training and quicken the employer's realization of a "return on investment" when hiring employees. Lower labour development costs coupled with higher "worker capacity" can provide enough incentive for employers to maintain employment and sufficiently high wage levels to add to economic development efforts. Stable, improving economies lead to more stable societies.

This model is efficient in resource utilization. The role of the educational and vocational institutions is to focus on what they do best instead of trying to recreate the work environment with expensive purchases of industry related equipment. The industry/employer specific training, on employer-owned equipment, frees the institutions from that burden. Instead, the institution sets up the human resource development model for the employer, trains the employer designated SME lead trainer, collects and certifies the training information, and incorporates this into the workforce training model. Improvements in worker capacity, for incumbent as well as new-hire employees will engage the employer as a vital partner in this collaborative model. Instead of dwelling on low-probability skill prediction for future jobs, the institutions focus on a closely defined, interactive relationship with client employers, using first hand information to provide a rapid response to labour market changes.

3. Workforce Capacity Defined – Every job classification can be dissected into tasks – meaningful units of work that make up the job classification's areas of responsibility. Each task has a beginning point, an ending point and a series of "best practice" steps which, if performed correctly and in proper order, result in the performance of a meaningful unit of work. During the job/task analysis this procedure, along with the prerequisite knowledge, skills and abilities,

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reference document, tools and equipment, etc., are identified and utilized in the preparation of the human resource development tools. These tools, produced only after the subject matter experts have reviewed and approved the data set, are then used to facilitate each trainee achieving full mastery of the job classification.

“Worker Capacity,” simply put, is the percentage of tasks mastered by the employee. “Mastery” means being able to perform the task as designed, meeting all criteria and standards; if the trainee does not achieve mastery the first time, training continues until he/she does master the task as defined and it is documented by peer SMEs and management. In other words, the trainee either can or cannot perform the task. If the trainee fails to master the task after several attempts, the job/task analysis data is reviewed to determine if any skill or ability deficiencies exist which might cause the trainee to malperform. The standard is stringent because anything less means a cost to the employer in terms of labour underutilization, scrap or rework, worker injury or poor customer service.

For example, if the job classification is made up of 80 tasks, and the employee has mastered only 40 tasks, the employee is said to have a 50% capacity. This is similar to other physical assets of a company. If a company bought a new machine that is supposed to produce 100 parts per hour, and only is producing 50 parts an hour (running at 50% capacity), every executive in the organization would be studying the deficiency to determine how such a low rate (affecting the rate of return on investment) is possible and how to remedy the deficiency.

If a worker is hired at the prevailing wage, and the *unstructured* on-the-job training has slowly brought the employee to an undocumented 50% capacity level, and if this could be reported to the CEO, the same response would be seen. Because unstructured OJT tends to be the norm for job classifications in an organisation, employers often unknowingly have a rampant case of underdeveloped, underutilized worker capacity. The employer could not call on some workers to perform tasks they have never learned, but the employer probably would not recognize which tasks still need to be trained until the employee is assigned to the task and they reveal their status.

In an unstructured model, the employer may not be able to look at a report and determine the degree of worker capacity, but their instinct tells them when something seems wrong. That is why we see radical reactions by CEOs such as downsizing and outsourcing, and an unhealthy preoccupation with labour cost and not worker value.

Labour cost is an unpredictable measure and should be avoided in all corners of the

world, not just the more developed labour markets. Focusing on labour costs leads employers to believe they can solve their problems by moving to a lower-wage labour market – until an even lower wage labour market appears. A good example of this is the movement of U.S. manufacturing to the Caribbean, followed by the movement of that manufacturing to Mexico when NAFTA was signed, and those jobs moving on to China as it emerged. The upheaval caused by departing employers is a social and economic danger to any country along the trail.

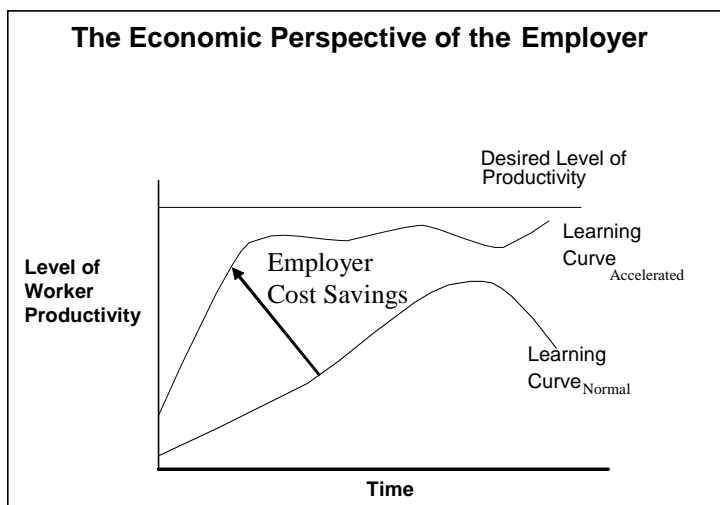
Concentrating on worker capacity focuses efforts on driving incumbent and new workers to full mastery of every job they hold in their careers with the organisation. The more tasks the worker can perform for the company to mastery, the higher the value of that employee to the company. Higher value can mean a better, verifiable, return on human investment for the employer. More value may persuade employers to think more carefully before making radical decisions regarding the makeup and location of their workforce.

4. Worker Capacity's Relationship to Productivity – There are two major areas where productivity can be improved as a direct result of targeting worker capacity. The first is in the acceleration of new-hire work-based training. Most often, a new person will be put with an experienced person: Experienced Bob, is supposed to show Jane, the new person, “around.” For most companies - small, midsize and larger - that is the extent of the on-the-job training.

Bob is usually drawing a higher wage, has more experience and has long ago committed to memory the details of how work is done without thinking about the necessary details. Bob is a good worker but may be a bad trainer. Bob may hoard his expertise, offering Jane only a little of what he knows for fear of losing his job. Or, as frequently, the company does not allow Bob the quality time to teach Jane what she needs to learn to become quickly productive.

Jane may be a good worker, but a difficult learner. Once Jane is shown the correct procedure with all questions answered, Jane can replicate the performance. But Bob thinks Jane doesn't want to learn because she asks too many questions. There are many scenarios that apply here; parts of all of them may be present in any reality. An unstructured on-the-job training program facilitates all of these possibilities.

It is in the company's interests to accelerate the on-the-job training. When Bob, who is at full pay and can work to near full productivity, is training Jane, hired at a reasonable wage and has no measurable productivity because she is new, two people draw wages with little or no productivity. The longer this training is drawn out, the more it costs the company and the less it



produces. Spread this over several new-hires in training and the cost to the employer is staggering. This is why most new, expanding small companies reach a point where adding new employees to take on more work turns into dangerously declining output. The more job relevant, structured and

verifiable the on-the-job training, the faster Bob can train Jane to master every task of the job classification. The faster Jane reaches job mastery, the sooner Bob gets back to producing with his new productive partner.

The second major area where increasing worker capacity impacts productivity is in closing the skill gaps of incumbent workers. Without structure, and without documentation, it is easy to lose track of which worker received training on what, and if that expertise is current. For years, workers could be drawing significant wages without mastering even 40 to 50% of the job tasks. Workers in the job classification who have actually mastered the entire job are getting paid as much as the lower capacity workers. It is an obvious threat to worker output, safety and productivity as well as employee morale. Performing a self-assessment of the incumbent workers to determine which tasks of the job classification they could perform to mastery if asked (corroborated by management), is a critical first step toward maximizing incumbent worker performance. A customized on-the-job training plan – focusing only on the tasks needed to master the job – can be produced. Incumbent workers can be brought into the worker

development program. Consequently, every worker embarks on a path toward full job mastery under one simple, understandable system.

The incumbent worker application is important for another reason. During the job/task analysis, and inventory of knowledge, skills and abilities necessary to perform the tasks required of the job were taken. With this information, it is possible to take an inventory of incumbent worker skill bases by taking the inventory of which tasks they have previously mastered. The assumption can be made that if they can perform the task to mastery, and if the job/task analysis data was accurately collected, those skills vital to performing the task must be present in the incumbent worker's skill base or they would have failed to master application of those skills in the performance of the task. Recognizing that skill base is important to incumbent workers who could not attend technical school but could literally train technical school graduates who did. It simply memorialises the incumbent worker accomplishment of reaching the same destination as vocational school graduates, but by another path.

Recent studies have revealed startling numbers about this incumbent skill-gap. One company in Pennsylvania (nameless for obvious reasons) was in a difficult operating situation. Productivity was declining, profits were narrowing and the parent company was demanding changes. After a detailed job/task analysis of the overall production position, a self-assessment was performed to gage the 134 employee's capacity gap. The average gap was discovered to be around 40%, even though these employees had been employed there for 3-20 years. Upon further analysis it was learned that the company made no effort to train workers in the other areas of the job classification, making workers stay at one station of the production line for years instead. This affected morale, which affected work quality and quantity. Their losses were large and ongoing for years. New-hires came and went after seeing the minimal training opportunities. This company did not realize the extent of the problem until they made an effort to define and structure the job, then measure each worker to the same standard of mastery. When documented, the company acted and is continuing to rectify the deficiency.

Amazingly, most companies do struggle on their own to force the unstructured on-the-job learning to work. Incumbent self-assessments at these companies typically start in the 65 - 75% capacity levels. This is still a significant drain on the companies resources, but more controllable than the previous illustration. It seems the higher the initial incumbent capacity levels the less turnover the organisation has with regard to new-hires. This is most likely due to the new-hire's perceptions of learning opportunities.

5. Improving Worker Capacity – Economic Impact to Stakeholders: Incumbent Workers, New-Hires, the Employer, the Educational Institution, and the Government

Including the employer in an aggressive workforce development model has benefits for all stakeholders. First, the employer benefits from a structured, documented process which yields workers trained to “expert practices.” By using subject matter experts to detail the best practice, the subsequent training is designed to train more experts. The process is cost-effective, efficient, and creates demonstrable value every time an employee masters a new task. The employer’s internal costs of training are cut simply by accelerating the learning experience to allow the initial expert and the new expert to return to productive work. Increased worker capacity means a higher return on investment from the employee. Higher productivity means quality has improved; worker safety is increased and worker morale has most likely improved. Creating a structured, documented program of best practices is even enough to ready the company for International Standards Organisation (“ISO”) certification and product export.

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The employee benefits from an enhanced, verifiable skill base. Increased individual worker capacity yields higher self-esteem. As an employee’s value is enhanced, a sense of job security is increased. The opportunity to learn new jobs in other parts of the organisation in the same manner makes life-long learning possible.

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Today, resumes are used by both honest and dishonest individuals competing for the same jobs. Therefore, employers regard resumes with increasing suspicion as diploma mills and unsubstantiated claims misrepresent the qualifications of job-seekers. A more highly trained employee, documented by the employer, gives the worker more options during labour market shifts when looking for work.

Educational institutions benefit from a closer relationship with its local employers. More accurate job information in “real-time” means adjustments to curricula are easily facilitated resulting in core skill training problems closely aligned with industry and company-specific needs. This new service to employers can result in significant revenue increases for the educational institution involved in the workforce development model. As value of the product is more evident to the employer (recognizing the cost savings, the increase to productivity, and the other benefits to the company), the employer will contract with the institution for continued support and will be more willing to financially contribute to the project. Using the employer’s

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equipment and trainers to be part of the workforce development process frees the institution from continually trying to purchase the latest in equipment in a futile attempt to keep up with industry.

When employees are working, and companies are retaining and hiring workers, **the government benefits** from the obvious tax base stability by contributions from both the company and its employees. When employees have the discretionary income to buy goods and services, the rest of the economy is working. Having a highly skilled labour market is attractive to new business development. Having a workforce development system to generate custom-trained, high-capacity workers is attractive to relocating employers.

The benefits of a finely-tuned workforce development model can be wide-reaching and significant.

6. Integrating Traditional Workforce Development With Structured On-

the-Job Training and Other Employer Systems – Case Studies – Career centres, community colleges and universities can actively cooperate to create and manage enhanced workforce training programs and build a stable revenue stream to improve and expand the workforce development model's operations. Providing results that are tangible to all stakeholders ensures the longevity of the model. Focusing on the outcome of full job mastery, then creating the structured OJT and classroom (and other formatted) core skill training, creates a recognizable system. Sequenced logically to take a worker to that level aggressively and with certainty, the basis of a strong, mutually beneficial relationship between workers, employers and the institutions that support workforce development is developed.

Case 1: The Ohio State University - Marion Alber Enterprise Center partnered with Triumph Thermal Systems, Inc. (formerly Parker Hannifin UAP) of Forest, Ohio to prevent the loss of worker expertise and disruptions to operations, as proficient employees retired from service.

The Challenge - When the Alber Enterprise Center met with Ken Jackson, Human Resources Director of Triumph Thermal Systems in 1999, the company was facing a troubling challenge - 40% of its manufacturing workforce was scheduled to retire within two years. Not only were its best employees leaving, but "bumping rights" allowed existing workers to move into vacant positions...and other workers to move into newly vacated positions. The company desperately needed a solution that: 1) captured the worker expertise and wisdom before it left

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the building; 2) used that information to create “expert” training materials and associated HRD tools; 3) quickly implemented the structured on-the-job training program; 4) complied with their ISO certification program. They needed all of this yesterday.

The Solution - The Alber Center partnered with one of its business partners, Proactive Technologies, Inc. (“PTI”), to quickly job/task analyze the job classifications, in order of the scheduled retirement dates, for best practices, work performance standards, prerequisite skills and abilities, and other criteria. After the data was reviewed for accuracy by the incumbent experts and management, PTI immediately developed the tools for the human resource development process including job descriptions, structured on-the-job training manuals, training checklists for both new-hires and incumbent workers, procedural manuals and other tools to manage the process. Training progress was tracked and reported monthly to Triumph management along with the change in “worker, department and company capacity.” Triumph management could then make management adjustments based on movement of personnel to maintain performance levels. To enhance the process, onsite core skill training was delivered to support the structured on-the-job training, including welder training, safety training, lifting devices, blood-borne pathogens, and other manufacturing related coursework.



The Results - This approach is exactly what our company needed,” said Ken Jackson. “We kept critical expertise from leaving with our retirees, some of who came back as trainers to train younger workers to their level of expertise. The Alber Center and its team were vital to making this happen.” Nineteen people have already received certificates of job mastery for the job classification for which they were trained; around another 20 employees have mastered more than 90 % of their job tasks. Eighteen of twenty-one manufacturing jobs have workforce development programs established. Triumph Thermal Systems continues to implement and expand this approach to train new workers, cross-train incumbent workers, for process improvement discussions and facilities redesign.

Case 2: At Dana Glacier Vandervell Bearings of McConnelsville, Ohio, an ISO/QS certified manufacturer of cleviste materials for the automotive industry, employees are required to know how to operate every facet of the continuous casting process. The scope of the job made it difficult for management to ensure that everyone consistently received the right training regardless of which shift and/or trainer.

The Challenge - Dana asked The Ohio State University Alber Enterprise Center to create a structured workforce training program covering every aspect of the machinery. Most of the technical expertise rested in the minds of the “expert” operators, not the out-dated technical documentation. Not traditionally covered by educational institutions, the Alber Center had to create the workforce development program from scratch.

The Solution - The Alber Center selected Proactive Technologies, Inc., to study the cleviste line operator position from top to bottom. During the analysis, it was apparent the job classification was far more broad and complex than management anticipated. Once the data was reviewed by incumbent management and cleviste line operators, not only were the best practices for each of the cleviste line workstations documented, so were the core skills and abilities, the safety considerations, the reference documents and associated data to generate a comprehensive HRD approach. Incumbent workers were assessed to job mastery of the listed tasks, establishing individualized, customized training models. New employees embarked on a rigorous structured training program that accelerated the process, cut the employer’s internal costs of training, and ensured a consistency of training from shift to shift. The company continues to receive monthly training progress reports charting the closing of the capacity gap in reaching full job mastery. The Alber Center, in addition, provided on-site courses to support the shoring-up of foundation skills upon which to build job mastery.



The Results - “By working so closely with the Alber Center, we know that the program we developed matches the job. Operators learn the right way to perform tasks the first time. More important, employees take pride in working towards, and achieving, full job mastery,” said Jerry Donahue, Plant Manager at Dana-McConnelsville. “The system and PROTECH software used in this project has helped us comply with our ISO and QS programs, providing the

documents to support us in any audit.” Dana-McConnelsville continues to implement its clevite line operator workforce development program, and are now working on a similar program for furnace repair.

Recently, a sister Dana plant in Caldwell, Ohio asked the Alber Center to develop HRD programs for all of its manufacturing positions there as well. “Our staff is excited about this approach. This will meet our manufacturing needs so well that we feel that our organisation will benefit in areas far beyond training,” claimed Allen Wojcik, Human Resources Manager at Dana-Caldwell.

7. Maintaining a Workforce Development System – The biggest challenge in attempting the type of workforce development system discussed is overcoming the propensity of institutions to defend the status quo and repackage itself rather than reinvent. Change can be troubling to some, a threat to others. Bringing the institutions of education, government, labour and employment, together to redefine their relationship requires each to step back for a moment and weigh the relative success and failures of each in their efforts to train workers to a recognizable value.

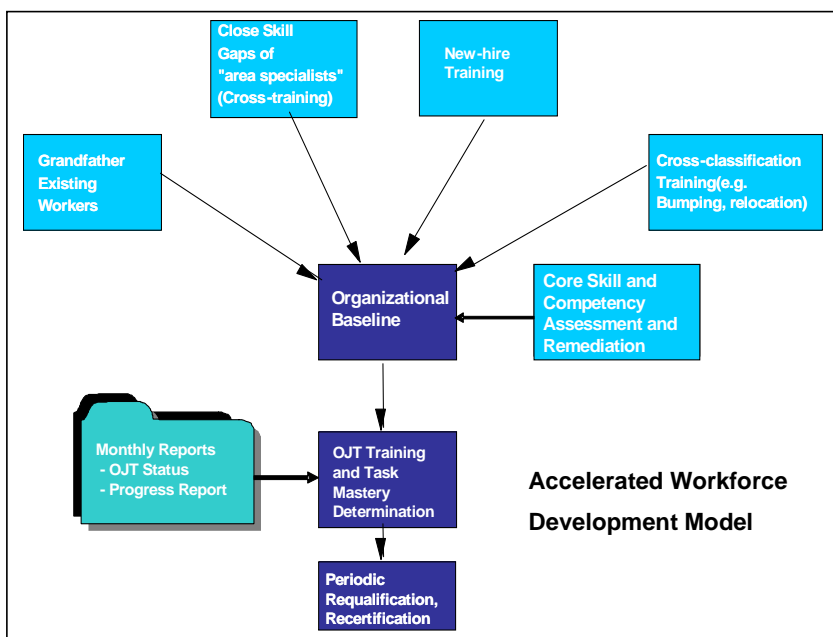
Anecdotal evidence of ineffective partnerships is subtle, but distinguishable nonetheless. For example, if companies are reluctant to partner with local “workforce development” institutions, one might ask why. If employers do not recognize completion of a certificate or degree program as a significant contribution to a prospective employee’s resume, then there might be a disconnect.

To establish this model, all institutions still have their role, but those roles are redefined and sharpened. The educational institutions have the resources, how they are applied and in what relationship to worker training is reevaluated. The employers are no longer passive in the workforce development process. They become active partners in a system that will immediately impact them and will continue as they remain engaged.

Having a *system* clarifies all partner roles and expectations. When measuring and tracking progress in worker training is documented, a determination of whether the worker can have a significant level of impact on the employer’s organisation through traditional measures (e.g. worker output, quality of work, safe operation) is easier to perform. Knowing the documentation exists testifying that the worker can perform the tasks of the job, managers can

spend more time managing than settling petty disputes over job definition or unsubstantiated worker malperformance.

The cost of setting up a system such as this is surprisingly low, as is its maintenance. For the most part, the capital investments for the components of the infrastructure have already been sunk by the respective partners long ago. The effort, in large part, consists of taking inventory of the resources available from K-12 to the employment, then reassigning them in an order more conducive of full job mastery as outlined above. Maintenance of the system,



periodic adjustments to the job data and the process, is far less expensive than the broad shifts in workforce development focus we have seen over the past few decades.

8. Conclusion – It is a certainty that if one wants to hit their mark, they have to be sure what they are aiming at. Outdated industry skill standards or catchall classroom training strategies on their own are continuing to lose their perceived effectiveness to employers. Starting with a baseline of what the expert worker does and how he or she does it, then building a program to quickly develop mastery workers (putting all applicable workforce development resources in their proper and logical order) directs all strategies toward the target. All stakeholders have much to gain - especially the employer.

For a long time, workforce development's focus was on classroom learning. Then, with the Internet boom, virtual classroom training was proliferated with marginal success. Older workers who are more computer averse, and even younger workers who are more computer aligned, find it difficult to learn from a two-dimensional medium. Many lack the self-discipline and span of attention to complete programs. If the relevance to the job is perceived as marginally, learners find it even more difficult to stay interested in the subject matter. The one constant, regardless if all other forms of learning strategies are removed, is the one-on-one informal on-the-job training. By structuring that, and including it in the workforce development model as the focus of all other efforts, new efficiencies can be reached that will have significant ripple effects through economies and societies.

This new economic order, still defining itself, does not suffer fools. Ask displaced workers in the United States and Canada, in Europe and other developed and developing countries, if they had much time to prepare for their job - loss. One country's gain today may be its loss tomorrow as cheaper and cheaper labour markets emerge. The aggressive workforce development model described above focuses on increasing worker value. It makes adjustments to changing labour market conditions more timely and certain. Making these adjustments, when the workforce development partners are all engaged and supportive, can be less costly in terms of direct and opportunity costs.

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10. About the Author - Mr. Prigelmeier is founder and CEO of Proactive Technologies, Inc., established in 1986, as well as the creator of the PROTECH system of managed human resource development, support software system and related job/task analysis methodology. Prigelmeier has written nine manuals regarding the subject and numerous papers on workforce development utilizing the approach. He contributed to *Implementing On-The-Job Learning – Thirteen Case Studies from the Real World* (Ronald L. Jacobs, ASTD, 2002). He continues to attend trade seminars and conferences internationally discussing the topic of maximizing human resource potential, and has been spotlighted in several technical and trade articles.

His industry experience prior to starting Proactive Technologies, Inc. includes over a decade with Fortune 500 companies. His background includes human resource development, training, quality engineering, quality assurance - operator certification, and product configuration management. Proactive Technologies continues to partner with educational institutions and government agencies in creating aggressive workforce development systems.

Mr. Prigelmeier received an A.S. in Electronic Engineering, a B.A. in Political Science/Economics from the University of Colorado, and a Masters of Business Administration – International Business from Regis University.