Bob Williamson, Contributing Editor The U.S. is not the only nation worrying about outsourcing and manufacturing job losses. Japan, Brazil, China and India are, too. In the cases of China and India outsourcing from other parts of the world has put pressure on them to depart from low-volume, marginal quality to high-volume, high-quality output. In most cases the manufacturing job loss here and elswhere was caused by higher and higher levels of automation and productivity-increasing techniques (*which began in the U.S. in the late '50s*). Industrial automation puts the pressures for continuing competitiveness squarely on the shoulders of our industrial maintainers, be they mechanics, electricians or technicians. Herein is the BIG problem.

Formal *maintenance* skills and knowledge training will be the weakest link in industrial competitiveness for the next two decades, or more-far worse than shortages of production workers.Consequently, we must move NOW at local, state and national levels, as well as at the individual company level, to accelerate formal equipment- and jobspecific maintenance skills training processes.

Maintenance training grew out of apprenticeship training programs from the early 1900s though much of the 1970s and trade schools that sprang up in the early- to mid- 1900s.World War II gave birth to methods known as "Training Within Industry "(TWI), which were followed by several decades of vocational-technical programs in high schools and community colleges/tech schools and Industrial Arts programs that put significant emphasis on hands-on work.

These days, apprenticeship programs have almost disappeared and there are very few vo-tech programs targeting trade and industrial jobs. Because of this-and because so many companies cut back on their training departments and capabilities over the past-too many maintenance workers today have not been formally trained to do the work we ask them to do day in and day out. (*In small- to mid-sized companies, we estimate this number to exceed 85%.*)

Exacerbating this already sorry state of affairs is the other maintenance skills bullet zooming toward many industrialized nations as the "Baby Boom" generation begins reaching retirement age. The U.S Department of Labor has been predicting shortages in the maintenance and repair occupation arena due to aging "Boomers" for years.

State and Federal initiatives for re-training outof- work adults and youth (*especially with 4.6% national unemployment*) will NOT meet the needs of our capital-intensive infrastructure, nor our advanced manufacturing competitiveness. So far in 2006, the status of America's formal maintenance and reliability training looks abysmal. Lack of formal training plus the looming skills shortage will put many of our top 11 equipment-intensive business and industrial sectors (well beyond manufacturing) representing over 38% of our GNP (over $8 trillion in 2004) at risk. Economies of 14 states with the highest "gross state product"from manufacturing also are at risk.

We need to pull out all the stops and aggressively pursue formal maintenance skills and knowledge development in our plants, facilities and schools.NOW. Government leaders must be made aware how jobs in their districts are at risk because of the maintenance skills shortages and a gross lack of a skills training infrastructure. NOW.

NOW (*more than ever*) is the time to lobby Congress for "skilled trades training tax credits" and "competitive skills development tax credits" for performance-improving training and development in our equipment-intensive businesses. **MT**

(*Look for more information on our continuing "Status of Maintenance & Reliability Training in America Survey" in future issues of MAINTENANCE TECHNOLOGY*)