



How Will China's Industrial Modernization Plan Affect Workers?

By Boy Luethje



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Today's discussions about the future of manufacturing are awash with visions of revolutionary change. Digital technologies are expected to create a “fourth industrial revolution”—a world of seamlessly interconnected “smart factories” driven by artificial intelligence, cloud computing, and big data applications.

In line with this thinking, China has developed a master plan to transform its vast manufacturing base from low-cost export production to highly automated advanced manufacturing aimed primarily at the domestic market. The plan was drafted by the Ministry of Industry and Information Technology (MIIT) and was outlined in 2015 in a comprehensive government document titled “Made in China 2025.”

Made in China 2025 gives a strong role to China's new multinationals in areas such as solar systems, wind turbines, LED, household appliances, and, most prominently, telecommunications and advanced internet services. The plan thus reflects the increased importance of large non-state-owned enterprises as drivers of innovation and marks a substantial change in economic power relations in China.

Serious questions remain, however, for China's large, low-wage labor force, particularly related to labor markets, the transformation of work, and industrial relations. Reforms are needed in areas such as vocational training, human-resource management, wage and incentive systems, appraisal of skills, and workplace safety and privacy. Yet the Ministry of Labor and Social Security, the Ministry of Education, the All China Federation of Trade Unions, and other mass organizations have been mostly absent from the drafting and implementation of the program.

Some relevant labor laws have been extended in recent years and offer improved protections for workers related to mass lay-offs, workplace safety, and employment of temporary workers. Current discussions are dominated, however, by demands to discontinue key provisions of the 2008 Labor Contract Law in order to facilitate the massive job reductions underway in state-owned heavy industries and coal mining.

Meanwhile, neither the Chinese government nor research institutions have provided any valid assessment of the potential labor-market effects of Made in China 2025. The relevant statistics are scattered among various government agencies, making it difficult to assess the labor-market, social-security, training, and other implications of the program. Ongoing research on current automation projects and policies clearly indicates that massive job cuts lie ahead. The effect will vary by industry and region:

- In predominantly state-owned manufacturing, such as the automotive industry, the job impacts of digitalization appear to be relatively minor. Many factories are already characterized by high levels of automation, and digital technologies can be introduced gradually.

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- Among private Chinese and multinational manufacturers with large, low-wage labor forces, the effects of transformation from labor-intensive to automated manufacturing are potentially much greater. In some model “Internet factories” of home-appliance makers, more than 50 percent of the manufacturing workforce has already been cut.
- Job reductions are potentially highest among labor-intensive small and medium enterprises. Here, relatively simple automation equipment can replace large numbers of semi- and low-skilled workers. A recent study in the city of Dongguan in central Guangdong Province found job reductions of 67 to 85 percent in such companies, affecting even workers with the best skills and strongest bargaining positions.

The situation in Guangdong Province illustrates the negative effects of top-down industrial policies. Ambitious to become China’s leading region in factory automation, the provincial government has promoted Made in China 2025 with the slogan “Robot-Replaces-Man.” City governments have picked up the message and make

the replacement of workers a top criterion in their plans to subsidize the procurement of robots. The issue of job cuts and retraining is mostly ignored because many of the workers who lose their jobs are migrants from other regions.

The Dongguan city government reported that in 2015, the first year of its “Robot-Replaces-Man” program, 1,262 participating companies cut 71,000 jobs. With a working population of more than five million, the local labor market may absorb these job losses for the time being. In the long term, however, serious problems may occur.

Overall, digital technologies have significant potential to change the structure of manufacturing, improve cooperation within production networks, and relocate production closer to end markets. For China, digital manufacturing could ease pressures that have led to large-scale urbanization and related problems of labor migration.

Instead of the present top-down approach, industrial policies “from below” could integrate technological upgrading with strategies to develop a skilled workforce and rebalance labor markets. Industrial cities in the Pearl River Delta, for example, could support industrial upgrading by making subsidies for automation equipment conditional upon improvements in

job conditions and training of workers. Long-term development of a skilled industrial workforce could be supported by granting permanent residence (called *hukou*) to migrant workers who graduate from vocational training programs. Last but not least, the provincial and local trade unions could enforce standards of decent work and accelerate the implementation of collective bargaining in privately owned enterprises.

Such approaches exist. Yet the innovative potential of digital manufacturing to improve conditions for China’s huge workforce remains unexplored due to pressure for short-term profits and the absence of institutional reform. There will most likely be job losses, but the key challenge is to find the right mix of automation and a higher-skilled labor force for long-term growth.

Boy Luethje recently co-authored a chapter with Florian Butollo, “‘Made in China 2025’: Intelligent manufacturing and work,” in a book titled *The new digital workplace: How new technologies revolutionise work*, edited by Abigail Marks, Kendra Briken, Shiona Chillias, and Martin Krzywdzinski and published in 2017 by Palgrave-Macmillan.



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