

RALF TENBERG (Technical University of Darmstadt)

Bizarre digitization: Handymen in the future of the 3D printer

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Editorial

Woody Allen allegedly once jokingly complained, "Not only is there no God, but try to find a plumber on a Sunday." He wanted to comment less on his faith or the depths of his existence and that of his fellow human beings, but rather about the many mundane things that affect him and us all on a daily basis and thus continually prevent us from worrying about "the essentials". It is no coincidence that he used plumbers for this aphorism about the foreseeable future, because for decades it has been difficult in the USA to acquire a specialist "in a timely manner", e.g. to intervene in urgent emergencies of the domestic water supply and its disposal. In this regard, in Germany so far we live in a perfect plumber world, because - in contrast to the US - there is a profession of craftsmen, which also includes gas-water mechanics.

The difference is the profession: It guarantees not only high reliability and quality of work, but a social anchorage with social status among members, a widespread distribution network inside and outside cities as well as stable structures and organizations behind the education and training of these experts. Not only are we the envy of the Americans and other states without apprenticeships, but also because these occupational groups have stably reproduced themselves while the associated social and individual costs have been very limited. A seemingly multi-win concept with a "perpetual" guarantee of dry houses, functioning toilets and warmth. Unfortunately, this is not the case, as is currently more and more in evidence.

The outrage or disappointment expressed in Woody Allen's quote would still seem to people nowadays in Germany to still be very exaggerated, because it is quite a difference between finding yourself left alone in a world without a Creator and to have problems with a toilet blockage. However, if what is currently becoming increasingly acute - the extreme lack of handymen - cannot be averted soon, it will become apparent that it will not be so unusual if the car is repaired in 4 weeks, or that the installer says that he might be able to "drop in" next month (but with no guarantee), or when it's dripping through the roof and the only available roofer is working on a major contract in Dubai, and if at -12 degrees in winter the heating fails and nobody can find someone who can reactivate the burner and reset its computer.

Especially with the last example, I now want to pass on to the causes of the increasing lack of handymen, because if you ask in the population, hardly anyone imagines a handyman working on a computer. On the contrary, in our society handymen are identified with consistent attributes: low school leaving qualifications, poor social class background, moderate language skills, deficient social skills, low abstraction abilities, predestined for physically demanding, rough activities of a routine character, only working according to instructions and under directions, dirty and of low general education. This is hardly surprising, because even within the training occupations, the image of handyman trades is relatively low. On the other hand, we have a society transfixed by the "academization frenzy", which increasingly focuses on higher education entrance qualifications and thus continues to drive the devaluation trend of training over study. The fact that there are now demanding occupations, especially in technology, has not escaped the notice of our society here, but the question legitimately arises of why - if you have "what it takes" to do a

demanding job – then go and study it, and then we are again at the starting point of these considerations.

Trades thus find themselves in a double bind between devaluation and emigration. The permeability of our education system and the continuing downward adjustment of the tertiary system by universities, colleges of study, dual study programs, as well as the demographic challenge to students at universities and the consequent softening of access conditions and the increase of supportive measures will undermine the potential trainee working towards a trade either before training, or at the latest after training and apprenticeship and be directed towards higher education.

Another problem arises from the trades themselves, i.e. from the trade enterprises and their related agencies. Anesthetized by the ongoing boom in orders and the associated profits and job security, the work of youth development is neglected, even in the face of increasing inhibitions to growth. More and more often it is stated that one can "accept more if one had the people," etc. Pampered by the past decades of candidate surplus, in demanding occupations such as car mechanics, the rhetoric of large-scale enterprises is adopted, by stating that one would be "happy" to hire more trainees, but the young are less and less "ready for training". Specifically, one has needlessly complicated a job with high attractiveness and good coverage of the development potential of many young people without a high school diploma without any reason, because the more difficult profession of an auto-electrician was simply integrated here. Instead of standing up to the industry independently, the trade has tried to copy it and thus created problems that also contribute to the current shortage of skilled workers.

Since it will not be possible in the medium term to produce craftsmen using 3D printers, it is advisable to take this problem seriously, since otherwise the service conditions described in Germany could soon be a reality. In particular, companies, chambers and associations are required to offer beneficial effects, but so too are vocational schools and finally the state, which would have some opportunities to influence this using structural funds and incentive systems for businesses, but also by intervening in the current job cuts. Without consistent reactions, other forms of regulator will take effect. More and more scarcity of service renders it expensive and competitive, and will make it even worse or more unreliable. Self-proclaimed skilled workers (Creators!) will be found providing services (such as smartphone quick fixers) while the technical craft will continue to specialize in production and leave the service to "others". With the recent advances in automation and robotization, craftsmanship could soon be over, as industrial conditions gradually become established there.

I do not know if there is a negative counterpart to the "win-win situation", but from a societal and economic perspective such a (currently clearly emerging) development could be assessed as such. With the decline in the trades sector, not only would precarious service conditions arise in Germany, which would make life more unpleasant and also slow down growth, but opportunities will be wasted for all those young people to gain a good job who are not fit for the tertiary system in terms of education or talent. But beyond that, a clear step away from our dual training system will be made and, after all, what comes out of a trade and will go with it, especially as digitalization in industry waters down the more demanding tasks with manual ones. If you want

to know what such a production society actually looks like, you only have to go to the USA, from where, by the way, the quote from Woody Allen at the beginning comes from.

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