

The Automaker that Changed the World. High Automation, Total Quality Management and Digitalization at FIAT Chrysler Automobiles (FCA). A Comment on “Working conditions within Italian FCA Group plants” by Matteo Gaddi

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Abstract

What we observe today are not the unintended social effects of the “Machine who changed the world.” Rather they are the outcomes produced by automakers and other leading industries, who have pursued a strategy intended to maximize profitability by thereby attempting to change “the Machine.” When Womack, Jones, and Roos wrote *The Machine that Changed the World* in 1990, Japanese automakers, and Toyota in particular, were applying the principles of lean production. However, the outcomes and power of lean principles were still unproven, and they had not been applied outside of the automobile industry, yet. Today, surveys on the working conditions within Italian FIAT Chrysler Automobiles (FCA) Groups plants illustrate that lean principles may be problematic.

Keywords: Work organization; automotive industry; Total Quality Management; high automation; digitalization.

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When James Womack, Daniel Jones, and Daniel Roos wrote *The Machine that Changed the World* in 1990, Japanese automakers, and Toyota in particular, were applying the principles of lean production. However, the outcomes and power of lean principles were still unproven, and they had not been applied outside of the automobile industry yet. Today, FIAT's outcomes in Italy have proved that lean principles may be problematic, as reported by Matteo Gaddi's recent essay (2020) which reports on the working conditions within Italian FIAT Chrysler automobiles (FCA) Groups plants. Interesting enough, recent scholarly work in other industries (for instance, logistics), which have widely applied the concepts of the lean management, illustrates similar results (Doerflinger et al., 2020; Benvegnú et al., 2018; Newsome et al., 2013).

Gaddi's essay is based on a large scale quantitative survey consisting of 7.833 questionnaires and 167 in-depth interviews to workers in sixteen FIAT Chrysler Automobiles (FCA) Groups plants in Italy. In many ways Gaddi's essay provides an appealing starting point to engaging in a conversation on how the adoption of lean principles along the lines of the lean production system under Total Quality Management first, and the introduction of new digital technologies under the label Industry 4.0 soon after, have produced the social outcomes that we read in the essay. Are those outcomes the unintended results of the machine that has changed the world or are they intended product of the automaker who made the machine working in a specific way? The answer to this question requires to analytically reflect on the historical phases which have accompanied the transition of the former FIAT (*Fabbrica Italiana Automobili Torino*) from the "high automated factory" (*fabbrica ad alta automazione*) in the 1980s to the "integrated factory" (*fabbrica integrata*) during the 1990s. This exercise enables to contextualize the changes in order to better understand its social effects.

As Taylorism, Total Quality Management and the emergence of the Industry 4.0 have never been neither socially nor technologically neutral in FIAT Chrysler Automobiles (FCA). The introduction of the high automation during the 1980s was the response of the former Italian automaker to the productivity increase. It was also the reaction to the management intent to reduce the influence of the trade unions by replacing workplace social democracy with increasing bureaucratic and technical management control at the shop-floor. As Giuseppe Bonazzi wrote clearly in one of his volumes dedicated to the Italian automaker called *Sociologia della Fiat* (2000) the management was probably still unaware that technology was not the successful answer to social unrest. They discovered it only much later. This coincided with the transition of FIAT from the "high automated factory" in the 1980s towards the "integrated factory" in the 1990s. As Bonazzi (2000) has remarkably observed the "integrated factory" has at its core the "Cellular Manufacturing" rather than the Total Quality Management manufacturing model typical of the Toyota's lean production system. What is the difference? The "Cellular Manufacturing" model is a softer expression of the Total Quality Management. In particular, it focuses on the organization of work rather than the *just-in-time* as the main driving principle indicating how work should be organized and controlled through the use of already pre-scheduled work rhythms and times. Thus, it is the work organization in "New Elementary Technological Unit" (UTE), where "human resource" represents the core organizational principle, that is the focus of the "integrated factory" in FIAT. In accordance, each UTE possessing the "human" knowledge management can use to solve any problem which may occur on the assembly line, whereby enabling the continuous improvement or *kaizen*. Moreover, by primarily focusing on the organization of work in UTE, the "integrated factory" aims at converting what Burawoy (1979) has named "workers consent to their own exploitation" into the workers' active and attentive participation to the operations of the production flow in *just-in-time*. Bonazzi (1993) has used the metaphor of the crystal pipe (*tubo di cristallo*) to beautifully illustrate how workers' active

participation becomes an essential feature of the “integrated factory” as it helps to maintain the transparency, lightness, rapidity and linearity of the (*just-in-time*) pipe. However, some concerns still exist. Whether workers’ involvement remains still limited to those at the highest level of the hierarchy (i.e. team leaders within the UTE) (Cerruti, 1994), FIAT management remains rather hesitant to attribute to the trade unions, as the historical expression of workers’ voice in FIAT, the capacity to influence management decisional processes (Rieser, 1993). In spite of this, nevertheless, the “integrated factory” production regime puts the technology at the service of the organization of work, which is central when assessing the way in which the production flow in *just-in-time* should develop.

One of the main examples which probably illustrates the importance that the FIAT management has attributed to the organization of work during the 1990s is the respect for the trade union agreement of 5 August 1971. It represents one of the main labour’s victories against the exploitation by capital (Berta, 1998). In accordance, management and trade unions agreed on that there should be a maximum quantity of work that could be assigned to each worker on assembly lines in relation to the frequency and specific task performed as well as the ergonomic improvement necessary to reduce workers’ fatigue. In particular, we refer here to the principle of maximum individual saturation. This principle, which resisted decades of social and political turbulences, is now overturned by the new agreement introduced by the CCSL FCA-CNH — not signed by FIOM-CGIL — in support of the new WCM production regime which — as the empirical data in Gaddi’s essay reveal — accounts for the worsening of the working conditions in several FIAT Chrysler Automobiles (FCA) Groups plants. In accordance to the WCM production regime any (including labour) input that is not used should be considered a “Muda” such as a waste (i.e. everything that does not create “value” in the process). A waste is considered a loss, and therefore a cost (rephrased from Gaddi). Thus, if the “integrated factory” had shifted the focus from the technology and the *just-in-time* production flow (i.e. a “techno-centric” approach or “*tecnocentrico*”) towards the organization of work and the worker (i.e. anthropocentric approach or “*antropocentrico*”) (Bonazzi, 2000, p. 131) on the one hand, the WCM production regime seems to positioning the technology and the *just-in-time* production flow at the core of its focus, whereby providing the perfect realization of the lean management system as at the core of the Total Quality Management. This shift is substantial in two ways. Firstly, the organizational principle represented by the organization of work is subordinated to the technical principle of the *just-in-time* production flow. Secondly, and as a consequence of the former, the way in which work is organized under the WCM model moves away from the workers’ active participation principle as typical of the “integrated factory” model. This is simply because under WCM the hierarchical control under the use of new (digital) technology becomes the new management principle. This explains why technology gains importance through the introduction of new “computerization and digitization systems allowing for a faster reconfiguration of lines and machinery, thus reducing the time of resetting/reorganization intensifying rhythms and saturations” (Gaddi, 2020, p. 7). It also explains why we see here the return to what Burawoy (1979) described as “industrial games” where workers show dissatisfaction of their bad working conditions by resisting their own exploitation through developing informal practices which would allow them to cope with the deprivations they confront at work.

Thus, as we have illustrated what we observe in FIAT Chrysler Automobiles (FCA) today are not the unintended social effects of a machine who changed the world. Rather they are the outcomes produced by the automaker who has pursued a strategy intended to maximize profitability by thereby eventually changing the machine. The extent to which FIAT Chrysler Automobiles’s (FCA) strategy is sustainable in the short-medium term is not clear, seen that the

French owner of the Peugeot and Vauxhall brands is currently in talks with Fiat Chrysler Automobiles (FCA) over a merger which will have important implications for the future of the auto manufacturing industry in Italy and its workforce.

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