

# The ‘General Intellect’ in the *Grundrisse* and Beyond

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## Abstract

In recent publications Paolo Virno and Carlo Vercellone have called attention to Marx’s category of the general intellect in the *Grundrisse*, and to the unprecedented role its diffusion plays in contemporary capitalism. According to Virno, the flourishing of the general intellect, which Marx thought could only take place within communism, characterises post-Fordist capitalism. Vercellone adds that Marx’s account of the real subsumption of living labour under capital is obsolete in contemporary cognitive capitalism. Both authors regard Marx’s value theory as historically obsolete. I argue that these views rest on a confusion of value and wealth, a neglect of Marx’s account of the role of ‘free gifts’ to capital, an underestimation of the role of the general intellect in the period prior to the rise of post-Fordism/cognitive capitalism, and an underestimation of the restrictions on the diffusion of the general intellect in contemporary capitalism.

## Keywords

capital fetishism, cognitive capitalism, general intellect, post-Fordism, value theory

The development of fixed capital shows the degree to which society’s general science, KNOWLEDGE, has become an *immediate productive force*, and hence the degree to which the conditions of the social life process itself have been brought under the control of the GENERAL INTELLECT and remoulded according to it.<sup>1</sup>

Many Italian Marxists have long insisted on the importance of the section in the *Grundrisse* generally known as the ‘Fragment on Machines’, and in particular the concept of the ‘general intellect’ introduced in the above passage.<sup>2</sup> This paper examines recently translated essays on the general intellect by Paolo

1. Marx 1987, p. 92; block words originally in English.

2. Dyer-Witheford 1999, Chapters 4 and 9; Turchetto 2008; Toscano 2007. In the *Marx Engels Collected Works* the editors assign a different title to this section: ‘[Fixed Capital and the Development of the Productive Forces of Society]’.

Virno and Carlo Vercellone, both of whom attempt to assess the contemporary theoretical and practical import of the *Grundrisse*.<sup>3</sup>

### Virno and Vercellone on the ‘general intellect’ in history and theory

In the ‘Fragment on Machines’, Marx outlines a historical reconstruction of the main stages of capitalist work relations in Europe, beginning with a period characterised by what he elsewhere terms the *formal subsumption* of workers under capital. In this era wage labourers were hired as capital by capital, to produce a product owned by capital, while overseen by capital’s representatives. Surplus value was extracted from living labour through an enforced extension of the working day (absolute surplus value), although the labour process itself (most importantly, the use of tools) remained under workers’ direct control.

When the limits of the working day were reached, capital turned to the *real subsumption* of labour, and the extraction of relative surplus value through productivity advances that reduced the portion of the workday devoted to necessary labour, that is, to the production of ‘the quantity of products necessary for the maintenance of the living labour capacity’.<sup>4</sup> This initially was accomplished through a fragmentation of the labour process (‘detail labour’). Later, when scientific-technological knowledge – the fruit of the general intellect – advanced sufficiently, systems of machinery were introduced.<sup>5</sup> Living labour was then reduced to being a mere ‘accessory’ of these systems:

In machinery, objectified labour confronts living labour in the labour process itself as the power which dominates it, a power which, in terms of its form, as the appropriation of living labour, is capital. The incorporation of the labour process into the valorization process of capital as merely one of its moments is also posited materially by the transformation of the means of labour into machinery, and of living labour into a mere living accessory of this machinery, as the means of its action.<sup>6</sup>

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3. Space limitations preclude a comparison of these papers with earlier writings on the general intellect (for example, Negri 1991). An investigation of the relationship between these essays and social movements in Italy would also require a separate study (see Wright 2005).

4. Marx 1987, p. 87.

5. ‘[T]he development of machinery takes this course only when...all the sciences have been forced into the service of capital...At this point invention becomes a business, and the application of science to immediate production itself becomes a factor determining and soliciting science’ (Marx 1987, pp. 89–90).

6. Marx 1987, p. 83.

When Marx wrote the *Grundrisse* he expected industrial capitalism to be replaced by communism in the not-too-distant future. His argument in the 'Fragment on Machines' can be roughly summarised as follows:

1. Capital necessarily tends to seek productivity advances.
2. Productivity advances are based on the general intellect.
3. The more social agents enjoy free time for creative learning and experimentation, the more the general intellect will flourish.<sup>7</sup>
4. Productivity-advances in capitalism lessen necessary labour time. In principle, at least, this allows all social agents the free time required for the general intellect to flourish.
5. Capital, however, reduces necessary labour time only in order to increase surplus labour time. The drive to increase surplus labour time *prevents* most workers from engaging in creative learning and experimentation.<sup>8</sup> Capital, in other words, simultaneously establishes the material preconditions for the general intellect to flourish and undercuts the possibility of its actual flourishing.<sup>9</sup>
6. As long as the reign of capital continues, this contradiction will worsen over time, leading to ever-increasing social irrationality.
7. Increasing social irrationality will motivate struggles for an alternative social order instituting free time for creative learning and experimentation for all. The name of this alternative is 'communism'.<sup>10</sup>

As we know all too well, Marx's historical projection did not come to pass.

According to Virno and Vercellone, it was not a mistake for Marx to think that the further development of the general intellect was profoundly hampered by the capitalism of his day. In their view, however, Marx profoundly underestimated the capacity for the general intellect to develop in capitalism,

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7. '[I]t is neither the immediate labour performed by man himself, nor the time for which he works, but the appropriation of his own general productive power, his comprehension of Nature and domination of it by virtue of his being a social entity – in a word, the development of the social individual – that appears as the cornerstone of production and wealth' (Marx 1987, p. 91).

8. 'Since all *free time* is time for free development, the capitalist usurps the *free time* created by workers for society, i.e. civilisation' (Marx 1987, p. 22).

9. '[C]apital itself is a contradiction-in-process' (Marx 1987, p. 91).

10. Marx succinctly defines the goal of communism as follows: 'Free development of individualities, and hence not the reduction of necessary labour time in order to posit surplus labour, but in general the reduction of the necessary labour of society to a minimum, to which then corresponds the artistic, scientific, etc., development of individuals, made possible by the time thus set free and the means produced for all of them' (Marx 1987, p. 91).

as well as capitalism's ability to incorporate the social energies of an expanded general intellect.

Virno and Vercellone both emphasise the underlying continuity between the technologies and forms of social organisation of Marx's period and twentieth-century 'Fordism', devoted to the mass production in assembly lines of standardised commodities within large-scale vertically-integrated firms.<sup>11</sup> Fordism also aimed at a ruthless separation of conception and execution, with the mass collective worker alienated from the specialised scientific-technical knowledge embedded in fixed capital. Virno and Vercellone also agree with Marx that 'the deepening of the logic of real subsumption can create conditions favourable to a collective reappropriation of knowledges insofar as "living labour" is able to reconvert a part of its surplus labour into free time'.<sup>12</sup> What he did not foresee, in their view, is that this 'collective reappropriation of knowledges' would take place in capitalism, not communism.

Vercellone describes how the productivity advances of industrial capitalism both encouraged a 'general struggle for the socialisation of access to knowledge' and provided the material preconditions for this struggle to succeed.<sup>13</sup> As a result of this success the capitalist welfare state – already committed to socialising a significant portion of the costs of reproducing labour power – began to fund mass education.<sup>14</sup> Wage labourers as a class now spent an unprecedented proportion of their lives in formal and informal education and training, becoming a 'depository of cognitive competencies that cannot be objectified in machinery', including 'the faculty of language, the disposition to learn, memory, the capacity to abstract and relate, and the inclinations towards self-reflexivity'.<sup>15</sup> At this point those engaged in living labour could no longer be said to be alienated from the general intellect. This state of affairs is termed 'mass intellectuality' by Virno, and 'diffuse intellectuality' by Vercellone.

Both authors assert that the rise of mass intellectuality was the central causal factor underlying the 'crisis of Fordism'. Vercellone reminds us that in every historical conjuncture capital must decide whether or not to take on the risks associated with the direct management of labour. In these decisions 'the principal factor is undoubtedly the extent of domination of technology and of the knowledge on which the functions of direction and of capitalist control

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11. There are very good reasons to be wary of the category 'Fordism' (Brenner and Glick 1991). For the purposes of this paper, however, I shall follow Virno and Vercellone in assuming that there are theoretical contexts in which a suitably qualified version of the category may legitimately be used.

12. Vercellone 2007, p. 28.

13. Vercellone 2007, p. 26.

14. Vercellone 2007, p. 25.

15. Virno 2007, p. 6.

of the labour process rely'.<sup>16</sup> The slowness with which capital penetrated the sphere of production between the beginning of the sixteenth century and the end of the eighteenth can be explained, he asserts, by the fact that this period was 'marked by the hegemony of the knowledge of the craftsman', which forced capital to 'wrestle with the insubordination of workers in production'.<sup>17</sup> Capital came to dominate the labour process only after an extensive period in which 'the development of science applied to production proceed[ed] at an equal rate with the expropriation of the knowledges of workers'.<sup>18</sup> At the end of this process of development and expropriation 'the compulsion to wage-labour [was] no longer merely of a monetary nature, but also of a technological nature, rendered endogenous by technical progress'.<sup>19</sup> This state of affairs, however, did not last; the subsequent diffusion of intellectuality initiated a 'tendential fall of capital's control of the division of labour'.<sup>20</sup> At this point, 'The traditional opposition between dead labour/living labour, proper to industrial capitalism, gives way to a new form of antagonism, that between the dead knowledge of capital and the "living knowledge" of labour'.<sup>21</sup> The crisis of Fordism then commenced when living labour refused to be treated as a mere appendage: '[I]t is the refusal of the scientific organisation of labour that largely explains the falling rate of profit and the social exhaustion of the Taylorist gains in productivity through which the Fordist crisis has been manifested since the end of the 1960s'.<sup>22</sup> Capital, however, did not respond to this crisis by scurrying off the stage of world history. It instead mutated into a form that could mobilise and incorporate diffuse intellectuality. For Virno, this explains the rise of 'post-Fordist' networks of production, with their short product runs of diverse product lines. Such flexibility requires a technically sophisticated and intellectually engaged work force, freed from 'the repetitious and segmented labour of the assembly-line'. Post-Fordism also aims at continuous innovation in design, production and marketing, all of which can be furthered by tapping into the creative insights of a broad spectrum of living labour, including

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16. Vercellone 2007, p. 21.

17. Vercellone 2007, p. 15.

18. Vercellone 2007, p. 20.

19. Vercellone 2007, p. 24.

20. Vercellone 2007, p. 18. 'Mass education and the development of a diffuse intellectuality make the educational system a central site for the crisis of the Fordist wage relation' (Vercellone 2007, p. 27).

21. Vercellone 2007, p. 33.

22. Vercellone 2007, p. 27.

knowledge developed outside capitalist firms.<sup>23</sup> In brief, ‘the sharing of the general intellect becomes the effective foundation of every kind of praxis’:<sup>24</sup>

In post-Fordism, conceptual constellations and logical schemata that cannot be reduced to fixed capital play a decisive role, since they are inseparable from the interaction of a plurality of living subjects. The ‘general intellect’ comprises formal and informal knowledge, imagination, ethical inclinations, mentalities and ‘language games’.<sup>25</sup>

Marx believed that the tendency for the general intellect to control the conditions of the process of social life could only be fully realised in communism. Virno, in contrast, goes so far as to say that ‘in post-Fordism, the tendency described by Marx is actually fully realised’.<sup>26</sup>

Unlike Virno, Vercellone rejects the category ‘post-Fordism’, arguing that it understates the extent to which the contemporary knowledge economy institutes a break from the industrial epoch. He prefers to speak of ‘cognitive capitalism’.<sup>27</sup> However he agrees with Virno on the essential point. In his view too, capitalism today is based on ‘the reappropriation of the cognitive dimensions of work by living labour, with respect to all material and immaterial activity’.<sup>28</sup>

From this perspective, the *Grundrisse* retains immense theoretical and practical importance insofar as Marx correctly foresaw the absolute centrality of the diffusion of the general intellect. Insofar, however, as he failed to anticipate the extent to which this diffusion would occur in capitalism, other key aspects of Marx’s account in the *Grundrisse* (and elsewhere) have been rendered obsolete. Both Virno and Vercellone take Marx’s value theory as a prime example of this point.

For Vercellone, the theory of value presupposes that ‘immediate labour’ can be adequately measured by a certain sort of time, ‘the time of the clock and the chronometer’, with this time then providing the proper measure of social wealth. These assumptions are plausible, he thinks, in a historical period in which ‘labour becomes ever more abstract, not only under the form of exchange-value, but also in its content, emptied of any intellectual and creative

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23. ‘[W]hat is learned, experienced and consumed in the time of non-labour is then utilised in the production of commodities, becoming a part of the use-value of labour-power and computed as profitable resource’ (Virno 2007, p. 5).

24. Virno 2007, p. 8.

25. Virno 2007, p. 5.

26. Virno 2007, p. 4.

27. Vercellone 2007, p. 14.

28. Vercellone 2007, p. 16.

quality'.<sup>29</sup> The era extending from the early industrial revolution through Fordism meets this criterion, due to the real subsumption of living labour under capital (more specifically, under the fixed capital of machinery systems). In the *Grundrisse*, however, Marx himself admitted that, as the general intellect develops, the claim that direct labour is the dominant force of production will become increasingly implausible: 'Marx defends what can hardly be called a "Marxist" thesis. He claims that, precisely due to its autonomy from production, abstract knowledge (primarily but not only scientific knowledge) is in the process of becoming nothing less than the main force of production and will soon relegate the repetitious and segmented labour of the assembly-line to a residual position.'<sup>30</sup> Marx, once again, expected that the general intellect could develop to this point only within communism. He did not foresee capitalism's transformation into a system in which the 'principal productive force' was the general intellect in the form of mass intellectuality. He did not foresee, in other words, a form of capitalism in which we can no longer take 'the time of the clock and the chronometer as means for quantifying the economic value of labour':<sup>31</sup> '[T]he so-called law of value (that the value of a commodity is determined by the labour-time embodied in it) is regarded by Marx as the armature of modern social relations, yet it is both eroded and refuted by capitalist development.'<sup>32</sup> There must now be a 'passage from a theory of time-value of labour to a theory of knowledge-value where the principal fixed capital is man "in whose brain exists the accumulated knowledge of society"'.<sup>33</sup>

Vercellone and Virno do not believe that their denial of the applicability of Marx's value theory to contemporary capitalism puts them outside a Marxian framework. Both continue to accept Marx's theses that the crisis tendencies of capitalism can only be temporally displaced, and that only communism can permanently overcome them. Post-Fordism/cognitive capitalism has enabled capital to maintain its hegemony, but only at the cost of exacerbating the very 'tendential fall of the capital's control of the division of labour' that brought about the crisis of Fordism in the first place. Capital is now forced to rely increasingly on the mechanisms of formal subsumption to maintain its social dominance, including the intensification of employment insecurity,<sup>34</sup> massively increased household debt, and the imposition of ever-more artificial

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29. Vercellone 2007, p. 24.

30. Virno 2007, p. 3.

31. Vercellone 2007, p. 30.

32. Virno 2007, p. 4.

33. Vercellone 2007, p. 31.

34. Vercellone 2007, p. 31; Virno 2007, p. 5.

scarcity,<sup>35</sup> all of which increase ‘the relation of monetary dependence of the wage-labourer inside the process of circulation’.<sup>36</sup> The more obvious capital’s reliance on formal subsumption becomes, however, the more obvious is capital’s repression of the historical possibilities opened up by the general intellect – and the more capital itself chokes off the source of its own dynamism.<sup>37</sup> The continuous betrayal of the emancipatory promises of post-Fordism/cognitive capitalism ensures that Marx’s call for communism in the *Grundrisse* retains its full force today: ‘We could define communism as the real movement by means of which the society of knowledge would liberate itself effectively from the capitalist logic that subsumes it, freeing the potential of emancipation inscribed in an economy founded on the free circulation of knowledge and the democracy of the general intellect.’<sup>38</sup> Virno concurs: ‘the general intellect can affirm itself as an autonomous public sphere only if its bond to the production of commodities and wage-labour is rescinded’.<sup>39</sup> Of the many aspects of Virno and Vercellone’s accounts that should be affirmed, this one ranks first and foremost.

There are other views of theirs, however, that can be questioned, beginning with their rejection of value theory.

### The ‘general intellect’ and the theory of value

For Virno and Vercellone, the value of a commodity, in Marx’s sense of the term, is determined by the homogeneous units of simple direct labour time ‘embodied’ in it. In their view, the machinery of Marx’s day brought about a real subsumption of living labour that ‘emptied [living labour] of any intellectual and creative quality’, making it legitimate to measure the value of commodities in terms of simple homogenous units of abstract labour time. Today, however, the principal productive force is the general intellect in the form of diffuse intellectuality. As a result they believe that we can no longer take ‘the time of the clock and the chronometer as means for quantifying the economic value

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35. The primary mechanism for generating artificial scarcity is the extension of intellectual property rights: ‘The result of this is the current paradox of poverty within abundance in an economy in which the power and diffusion of knowledges contrasts with a logic of accumulation... [T]he new relations of ownership obstruct the progress of knowledge through the creation of an artificial scarcity of resources’ (Vercellone 2007, p. 34).

36. Vercellone 2007, p. 31.

37. Referring to the extension of intellectual property rights Vercellone writes, ‘[T]he logic of capital accumulation... block[s] the sources themselves of the process of the diffusion and the accumulation of knowledge’ (Vercellone 2007, pp. 34–5).

38. Vercellone 2007, p. 35.

39. Virno 2007, p. 8.



of labour',<sup>40</sup> given the 'lacerating contradiction between a productive process that now directly and exclusively relies on science and a unit of measure of wealth that still coincides with the quantity of labour embodied in products'.<sup>41</sup>

If value theory were nothing more than the claim that the simple labour embodied in a commodity is the proper 'measure of wealth', it would indeed not have the least explanatory power today. But it then would not have been valid at any previous point in history either. Wealth creation in capitalism has *always* crucially depended upon 'free gifts' that capital claimed as its own.<sup>42</sup> Gifts of nature, such as soil fertility developed over millions of years, or water and wind power, are examples.<sup>43</sup> The cultural achievements of pre-capitalist societies, the development of cognitive and physical capacities outside the workplace, the unpaid care-labour of women, the scientific-technological knowledge developed in the early modern period, and the products of publicly funded research labs during the heyday of Fordism provide other illustrations. The causal role of these sorts of factors in the production of wealth has always been incalculably large, and so there has *never* been a period of capitalism in which embodied labour served as the proper measure of wealth. Marx knew this full well, and yet devoted his life to the development of value theory nonetheless. He could do this consistently because the purpose of this theory is not to measure wealth.

Marx's value theory is a complex and controversial topic. Unfortunately, the following brief summary must suffice here. The starting point is the conceptualisation of the capitalist mode of production as a system of *dissociated sociality* in which 'the absolute mutual dependence of individuals, who are indifferent to one another, constitutes their social connection'.<sup>44</sup> More specifically, capitalism is a system of generalised commodity production in which production is undertaken privately, and must subsequently be socially validated through the successful exchange of commodities for money.<sup>45</sup> Commodities whose production has been socially validated acquire a social property, 'value' ('exchangeability in definite proportions'), distinct from their various natural properties. In generalised commodity production, exchange of commodities for money is the form of social validation, and so money

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40. Vercellone 2007, p. 30.

41. Virno 2007, p. 4.

42. Marx 1986, pp. 522, 527, 531; see also Camfield 2007, p. 46.

43. 'In agriculture, the soil itself, in its chemical, etc., activity, is already a machine which makes immediate labour more productive, and it yields a surplus earlier, because it is *the first* productive activity carried on with a machine, namely a *natural one*' (Marx 1986, p. 508).

44. Marx 1986, p. 94.

45. 'On the basis of exchange value, labour is *posited* as general labour only through *exchange*' (Marx 1986, p. 108).

provides the only socially objective measure of value. The labour that produces commodities with the special property of value may be termed *abstract labour*. This term is appropriate because in this context abstraction is made from the concrete and heterogeneous properties of different acts of labouring, and because this dimension of labouring is causally responsible for the production of an abstract property of commodities, measured by the abstract units of an abstract thing (money). Marx then explains that generalised commodity production is a *capitalist* system, dominated by investments that aim at appropriating a greater sum of money (M') than the initial sum (M) invested. Living labour can now be conceptualised in a more concrete and complex fashion as the activity of wage labourers, hired by capital to produce surplus value, the difference between M' and M.

Comprehending capitalism requires understanding how a social order of dissociated sociality can nonetheless be reproduced over time (and the contradictions that arise in the course of this reproduction). Marx's answer is that this social reproduction is accomplished though the mediation of things: the sociality of privately undertaken labour is established by the circulation of commodities and money; more concretely, the sociality of privately undertaken wage labour is validated when surplus value is produced and appropriated. The monetary value system is *not* a mechanism for measuring the contribution of simple units of labour to the production of wealth. It is first and foremost a mechanism for reproducing the social relations of capitalism, most importantly, the capital/wage-labour relation: 'The exchange of living labour for objectified labour, i.e. the positing of social labour in the form of the antithesis of capital and wage labour, is the ultimate development of the *value relationship* and of production based on value.'<sup>46</sup> There is a fundamental distinction between (re)producing *value relations* (social relations in the bizarre and historically specific form of relations among things) and producing *wealth* (use-values considered in abstraction from historically specific social forms).

As we shall see in the following section, I believe Virno and Vercellone understate the role of the general intellect in the era extending from the first industrial revolution to Fordism, while overstating its flourishing in contemporary capitalism. But they are surely correct to stress how mass intellectuality has become increasingly important as a productive force. Does this development push Marx's theory of value on to the trash heap of outdated theories? Not if the main form of social organisation continues to be the dissociated sociality of generalised commodity production. Not if social reproduction continues to be mediated by the circulation of things, that is,

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46. Marx 1987, p. 90.

the sale of commodities for money. And not if social reproduction continues to centre on the reproduction of the capital/wage-labour relation. All these things continue to define global capitalism today.<sup>47</sup> As long as value relations are in place, the accomplishments of diffuse intellectuality will tend to be either appropriated by capital as another sort of ‘free gift’ (as occurs, for example, when corporations make use of ‘open source’ computing code), or else pushed to the margins of social life. Marx’s value theory will retain descriptive accuracy and explanatory power as long as this remains the case. To comprehend the production of wealth we must indeed take into account mass intellectuality, and grant it increasing importance vis-à-vis simple labour. But this has little to do with Marx’s theory of value, at least not with the most satisfactory all-things-considered interpretation of that theory.<sup>48</sup>

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47. This is not to deny that unpaid care-labour, and various forms of self-employed work in the formal and informal economy, play a central role in contemporary society. Forging coalitions between these social agents and wage labourers is one of the foremost political tasks of our era. But the dominant structural tendencies of the social world continue to be associated with the capital/wage-labour relation on the level of the world market (see Smith 2005; Harman 2002).

48. It would be wrong to conclude this section without acknowledging that there are passages in the ‘Fragment on Machines’ that support Virno and Vercellone’s position, for example: ‘As soon as labour in its immediate form has ceased to be the great source of wealth, labour time ceases and must cease to be its measure... As a result, production based on exchange value collapses, and the immediate material production process itself is stripped of its form of indigence and antagonism’ (Marx 1987, p. 91). I am afraid we must say that the first sentence reflects a failure to keep the crucial distinction between ‘value’ and ‘wealth’ clearly in mind. (Few indeed are the authors who never uttered statements at odds with the most satisfying all-things-considered interpretation of their positions!) This is much preferable, in my view, to an interpretation asserting that value and wealth are conflated in Marx’s theory. That alternative does not only go against many explicit texts in the *Grundrisse* and elsewhere. It has the unavoidable implication that Marx’s theory of value was never applicable to *any* epoch of capitalism from early agrarian capitalism onwards (see note 43 above), since in every epoch the production of wealth has depended on more than the embodied labour of wage labourers. Further, the main underlying point of the above passage is not at odds with the interpretation of value theory defended here. A crucial element of the legitimating ideology of capitalism is the claim that individual contributions to producing and distributing wealth can be distinguished, measured, and rewarded through monetary compensation. As the general intellect plays an increasingly profound causal role in production and distribution, the falsity and internal incoherence of this claim become ever-more pronounced. But it is important to recognise that this development does not refute a theory of value that was developed precisely in order to describe and explain a social order based on a false and internally incoherent ideology. Nor does the fact that the falsity and internal incoherence of the claim becomes more pronounced automatically bring about the overcoming of indigence and antagonism in the immediate production process. Marx quickly abandoned rhetoric suggesting otherwise.

## The general intellect in capitalism's historical development

Before attempting to assess Virno and Vercellone's reconstruction of capitalism's historical development I would like to introduce two other crucial notions from the *Grundrisse* (and other texts Marx devoted to the critique of political economy): *form determination* and *fetishism*. These notions will play a central role in the assessment that follows.

Marx's theory of value investigates the reproduction of social relations through relations among things. *Form determination* refers to the manner in which the options, subjective preferences, and external behaviour of human agents are shaped by these things as a result of the social form they possess in generalised commodity production. Due to these social forms, money and capital are not so much *instruments* of social life as *embodiments* of sociality standing over and against individual human subjects: 'In bourgeois society, e.g., the worker stands there purely subjectively, without object; but the thing which *confronts* him has now become the *true community*, which he tries to make a meal of and which makes a meal of him.'<sup>49</sup> From the standpoint of form determination there is a sense in which 'capital' is ontologically prior to – and shapes – the intentions and activities of individual agents, however much human agency is responsible for its emergence and maintenance. The options, subjective preferences, and behaviour of those who own and control capital are form-determined by the *valorisation imperative*, that is, the ruthlessly imposed imperative that units of capital must produce surplus value. The options, subjective preferences, and behaviour of those who sell their living labour for a wage are formed-determined by this same imperative, albeit in a more antagonistic fashion. Their labour process, for example, is shaped by the fact that it is a *valorisation process*, and not merely a process in which living labour actualises its capacities with the aid of objectifications of past labour. From this perspective it would be both false and naive to consider capital as a mere instrument of social power used by humans for human ends. There is a sense in which it is a 'transcendental power', subjecting humans to *its* ends, and appropriating the social powers of production as *its* powers.<sup>50</sup>

On the other hand, however, things do not have transcendental powers in themselves. They only appear to do so due to the peculiar 'social character of production' of generalised commodity production, as Marx explains in a passage that holds for capital no less than for money:

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49. Marx 1986, p. 420. Or, in one of the *Grundrisse's* most striking formulations: '[Each individual] carries his social power, as also his connection with society, in his pocket' (Marx 1986, p. 94).

50. 'All social powers of production are productive forces of capital and consequently capital itself appears as their subject' (Marx 1986, p. 505).

The need for exchange and the transformation of the product into pure exchange value progresses in the same measure as the division of labour, i.e. with the social character of production. But with the growth of the latter grows the power of *money*, i.e. the exchange relation establishes itself as a power external to and independent of the producers... In proportion as the producers become dependent upon exchange, exchange appears to become independent of them... Money does not create this opposition and this contradiction; on the contrary, their development creates the apparently transcendental power of money.<sup>51</sup>

This brings us to the heart of Marx's theory of *fetishism*. Due to the 'dissociated sociality' defining generalised commodity production, that is, living labour's enforced separation from both the conditions of its realisation (the means of production and subsistence) and its product, the collective powers of social individuals necessarily appear as the powers of capital. But capital's powers rest entirely on the appropriation of the creative powers of collective social labour (and the powers of nature and scientific-technological knowledge mobilised by collective social labour):

[I]n exchange for his labour capacity as a given magnitude, he [the worker] surrenders its *creative power*... the creative power of his labour establishes itself as the power of capital, and confronts him as an *alien power*... the productivity of his labour, his labour altogether, in so far as it is not a *capacity* but movement, *real labour*, becomes an *alien power* relative to the worker. Capital, on the contrary, valorizes itself through the *appropriation of alien labour*.<sup>52</sup>

Capital, in brief, is nothing but 'the potentialities resting in living labour's own womb which come to exist as realities outside it as a result of the production process – but as *realities alien* to it.'<sup>53</sup>

The living labour whose creative powers Marx affirms in the theory of fetishism is not the transhistorical subject of traditional humanism. A transhistorical notion of living labour is a mere thought abstraction, and it would be a profound category mistake to assign creative powers to an abstraction of thought. The living labour discussed in the *Grundrisse* is living labour in the historically specific form of the use of a commodity that becomes a form of capital after it has been purchased by capital. The powers it develops have been developed *within* this social form and *because of* this social form.<sup>54</sup> This all-important instance of form-determination, however, does not

51. Marx 1986, p. 84.

52. Marx 1986, p. 233.

53. Marx 1986, p. 383.

54. 'Universally developed individuals... are not products of nature but of history. The degree and the universality of development of the capacities in which *this kind* of individuality becomes

undermine the ontological claim at the heart of the theory of capital fetishism. If social relations and material social practices were structurally transformed, that is, if dissociated sociality were replaced with a different sort of sociality, the apparently transcendental powers claimed by money and capital would be instantly revealed as the ontological lies they are. The ultimate goal of Marx's theory of value is to help us recognise these lies now, in order to bring the day of reckoning closer.

The general intellect as Virno defines it ('the faculty of language, the disposition to learn, memory, the capacity to abstract and relate, and the inclinations towards self-reflexivity')<sup>55</sup> has been an expression of collective social labour throughout the history of capitalism. It is not something that first emerged in the twentieth century. Marx's theory of fetishism teaches that *any and all* variants of capitalism rest on a 'depository of cognitive competencies that cannot be objectified', that is, on the general intellect with 'operational materiality' insofar as it 'organises the production process and the "life-world"'. The general intellect undoubtedly takes different shapes in early capitalism, in nineteenth-century England, in Fordism, and in contemporary post-Fordism/cognitive capitalism. But it has *always* been central to the collective powers of social labour that appear in capital in an alien form.

I believe Virno and Vercellone understate the degree to which the general intellect was 'diffused' in the period extending from the initial industrial revolution through Fordism. This is due, I believe, to their one-sided emphasis on the form-determination of (fixed) capital, at the cost of overlooking the extent to which the powers of capital fixed in machinery were a fetishised form of the powers of collective social labour. Virno and Vercellone describe the industrial revolution of Marx's day as a period in which the general intellect took the form of expert scientific-technical knowledge embodied in fixed capital. Echoing the *Grundrisse*, they stress the alienation of wage labourers from machinery (and thus from the general intellect, the scientific-technological knowledge, embodied in it), an alienation that then continued in Fordism. When Marx wrote the *Grundrisse*, however, he had not yet examined the details of technological innovation. By the time he composed *Capital* the picture had become more complicated.

In *Capital* Marx describes various stages in the evolution of machinery in the industrial revolution, from the initial introduction of a machine, through

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possible, presupposes precisely production on the basis of exchange value, which, along with the universality of the estrangement of individuals from themselves and from others, now also produces the universality and generality of all their relations and abilities' (Marx 1986, p. 99; see also pp. 234–5).

55. Virno 2007, p. 6.

the discovery of the strengths and weaknesses of its initial design, to a redesign that builds on these strengths and avoids at least some of the weaknesses. In the present context the important point to note is Marx's emphasis on the creative interplay in this process between scientists, engineers and inventors, on the one hand, and other categories of workers, on the other. The tacit and explicit knowledge of the production process possessed by wage labourers as a result of their collective practical experience played a crucial (if almost universally overlooked) role:

The problem of how to execute each particular process, and to bind the different partial processes together into a whole, is solved by the aid of machines, chemistry, etc. But of course, in this case too, the theoretical conception must be perfected by accumulated experience on a large scale.<sup>56</sup>

Again,

It is only after a considerable development of the science of mechanics, *and an accumulation of practical experience*, that the form of a machine becomes settled entirely in accordance with mechanical principles, and emancipated from the traditional form of the tool from which it has emerged.<sup>57</sup>

In capitalism no particular machine or system of machinery is irreplaceable; 'every degree of the development of the social productive forces, of intercourse, of knowledge, etc., appears to [capital] as a barrier which it strives to overcome'.<sup>58</sup> Generalising Marx's account, we must recognise that subsequent technological changes will also be due to a creative interplay between scientific-technical labourers in the narrow sense and experienced workers with significant informal and tacit knowledge of the labour process.

Virno and Vercellone are correct to stress the tendency to reduce workers to mere appendages of machine systems in the period from Marx's day through Fordism, and the resulting tendency for individual workers to be alienated from the scientific-technical knowledge embodied in them. These tendencies are objective material realities, experienced as such by individual workers. But the account in *Capital* also implies that the workforce as a whole simultaneously developed new capacities and new forms of knowledge in the course of its practical experience. An exclusive focus on 'deskilling' in this

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56. Marx 1976, p. 502.

57. Marx 1976, p. 505; emphasis added.

58. Marx 1986, p. 465.

period oversimplifies Marx's position.<sup>59</sup> Such an exclusive focus understates the extent to which the general intellect was already 'diffused' at the time of the industrial revolution, that is, not monopolised by a small group of scientific-technological experts.

Interestingly, Vercellone himself admits that the Fordist project of strictly separating conception and execution in the workplace was always an utter fantasy:

It is important to remember that the irreducible dimension of workers' knowledge was also apparent in the big Fordist factories in the fundamental difference between prescribed tasks and the reality of workers' labour. Without this difference ... the Fordist assembly line would never have been able to function.<sup>60</sup>

A mere two pages later, however, he writes that in Fordism '[p]roductivity can be now represented as a variable whose determinants no longer take into any consideration the knowledge of the workers', thereby reducing the tacit and explicit knowledge of wage workers to invisibility once again.<sup>61</sup>

To summarise, Virno and Vercellone's application of the category of the general intellect in the historical period extending from the first industrial revolution to Fordism emphasises the form-determination of (fixed) capital in a one-sided fashion, at the cost of oversimplifying the complex ontological state of affairs described by Marx's theory of capital fetishism. The powers of capital, taking on material shape in the vast machine systems of the industrial revolution and Fordism, did appear as transcendental powers. But they remained nothing but a fetishised form of the powers of collective social labour, and the powers of nature and knowledge mobilised by that labour. And this mobilised knowledge was by no means limited to that of scientists, engineers and inventors. The general intellect throughout the period in question included the tacit and explicit knowledge of the workforce, even if prevailing ideology and material practices prevented this from being recognised.

Virno and Vercellone's analysis of post-Fordism/cognitive capitalism exhibits the inverse one-sidedness: they underestimate the continuing form-determination of capital in order to emphasise the creative powers of social labour underlying the theory of capital fetishism.

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59. Scare quotes are required because 'deskilling' is sometimes used to describe a *generalisation* of previously above-average skills sought by capital in order to reduce the relatively high levels of remuneration and control workers possessing a quasi-monopoly of necessary skills have sometimes been able to win.

60. Vercellone 2007, p. 17.

61. Vercellone 2007, p. 19.



It is certainly true that the powers of social labour are increasingly exercised today in ways that do not appear to be determined by the capital form. A very striking example is found in the following list of internet applications developed through knowledge work outside the capital/wage-labour relation: 'Ideas like free Web-based e-mail, hosting services for personal Web pages, instant messenger software, social networking sites, and well-designed search engines emerged more from individuals or small groups of people wanting to solve their own problems or try something neat than from firms realising there were profits to be gleaned.'<sup>62</sup> Encryption software, peer-to-peer file-sharing software, sound and image editors, and many other examples can be added to this list; 'Indeed, it is difficult to find software *not* initiated by amateurs'.<sup>63</sup> Do these and other contemporary expressions of 'diffuse intellectuality' justify Virno's assertion that in post-Fordism 'the sharing of the general intellect becomes the effective foundation of every kind of praxis'?<sup>64</sup> Do they justify Vercellone's claim that the real subsumption of living labour under capital has been eroded in cognitive capitalism? I believe the answer to these questions must be no.

As noted above, capital has *always* relied on 'free gifts' produced outside the capital form. Prior to the rise of post-Fordism/cognitive capitalism, the capital accumulation process depended upon these 'free gifts' to a literally incalculable degree. Nonetheless, the social forms of capital prevented the general intellect from being 'actually fully realised'.<sup>65</sup> Today we must add the new products of mass intellectuality (such as software code written by 'amateurs') to the list of free gifts. In itself, however, this no more dissolves the power of the capital form to shape social life than other sorts of free gifts have dissolved that power. In specific, it does not dissolve the power of the capital form to prevent the general intellect from being 'actually fully realised' along the lines Marx foresaw in his anticipation of communism in the *Grundrisse*.

Examples of the way in which 'the sharing of the general intellect' is systematically restricted by the capital form in post-Fordism/cognitive capitalism are so numerous that one hardly knows where to begin.<sup>66</sup> There continues to be significant underinvestment in knowledge directed to meeting human wants and needs outside the commodity form, however significant such

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62. Zittrain 2008, p. 85.

63. Zittrain 2008, p. 89.

64. Virno 2007, p. 8.

65. Virno 2007, p. 4.

66. For a more detailed discussion of these themes, see Smith 2000, Chapters 3 and 5.

knowledge might be in meeting human wants and needs.<sup>67</sup> The extension of intellectual property rights not only prevents knowledge products from being distributed as free public goods;<sup>68</sup> it also puts roadblocks in the way of the development of new scientific-technological knowledge, as Vercellone rightly notes.<sup>69</sup> Productivity advances continue to be correlated with unemployment, while a vastly disproportionate share of the gains resulting from these advances are appropriated by investors and top managerial strata. Both factors blunt the incentive for workers to share insights that might lead to advances in productivity. The ceaseless external pressure of the valorisation imperative ensures that core firms within networks of enterprises will endeavour to displace risks on to their suppliers and distributors, appropriate the most lucrative portions of the 'value chain' for themselves, and implement 'divide and conquer' strategies against geographically-dispersed workforces. These factors systematically discourage the free flow of information within networks, which is equivalent to discouraging the diffusion of the general intellect. *Pace* Virno, we are far indeed from the unrestricted diffusion of the general intellect that was a defining feature of the communism Marx imagined in the *Grundrisse*.

And, *pace* Vercellone, the assertion that the real subsumption of living labour under capital has been overcome in contemporary capitalism cannot be accepted either. Yes, the living labour of 'amateur' software writers is not subjected to real subsumption in capitalist workplaces. There are also pockets of activity freed from real subsumption within the sphere of wage labour.<sup>70</sup> But we must be wary of generalising from a handful of exceptional cases. Contemporary capitalism, no less than the capitalism of Marx's day, systematically denies the vast majority of workers the time, training, and material support for effectively

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67. And there continues to be massive overinvestment in innovations contributing to the wellbeing of a very few. It is worth noting that the greatest private sector investment in information technologies, the greatest concentration of capital investment in knowledge workers, and the highest rate of product innovation, are found in the financial sector of the global economy. The characteristic 'knowledge products' of our day are hypercomplex (to the point of unintelligibility) financial assets. This form of product innovation allowed a relative few to obscenely benefit from speculation, while imposing grievous risks and then grievous harms on billions.

68. As Vercellone points out, even mainstream economics grants that free distribution is rational when the marginal costs of production approach zero (Vercellone 2007, p. 34).

69. Potential innovators may decline to enter fields where other units of capital own extensive IPRs, or where they judge they would have to engage in long and costly 'end runs' around them. Also, smaller firms that do not have the resources to engage in lengthy legal battles will tend to withdraw from promising innovation paths (see *The Economist* 2002).

70. Google, for instance, encourages engineers to spend one day a week on a project of their own choosing (retaining, needless to say, the right to exploit anything they come up with). See Zittrain 2008, p. 84.

participating in innovation to anything remotely approaching the extent to which they are capable, while subjecting them to new and extreme forms of standardisation and monitoring.<sup>71</sup> Consider, for example, workers in the call centres of the Global South, where questions must be answered with prewritten scripts on a computer screen while being monitored and timed.<sup>72</sup> Or consider the ‘knowledge workers’ at American Express, processing credit requests while using (or, rather, being used by) expert information-technology systems:

The expert system authorises or denies credit, comes up with the prices or rates of interest to be charged, and makes allowances for the client’s ‘special circumstances’ ... Deprived of most elements of research, calculation, and judgment, the activities of the deal structurer/computer operator can best be described as ‘operations’, comparable to the activities of machine tool operators working at computer-controlled machines.<sup>73</sup>

For these workers, and for the hundreds of millions throughout the globe engaged in wage labour in similar circumstances, contemporary information-technology systems impose the real subsumption of living labour under capital no less than the machinery systems of Marx’s day imposed real subsumption on the factory workers of the nineteenth century. In the former, no less than the latter, ‘objectified labour physically confronts living labour as the power which dominates it and actively subsumes it under itself – not merely by appropriating living labour, but in the actual production process itself’.<sup>74</sup> Vercellone mistakes the latent potential of information technologies to contribute to the transcendence of real subsumption for that transcendence itself. The gulf between the two remains immeasurably large.

## Conclusion

Virno and Vercellone rightly call attention to Marx’s category of the general intellect, and to the unprecedented role its diffusion plays today. From this perspective the *Grundrisse* remains a work of tremendous contemporary relevance, both theoretically and practically. They, however, also believe

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71. Huws 2003; Huws (ed.) 2007; Huws (ed.) 2008.

72. Neither Virno nor Vercellone discuss the geographically-based technical division of labour in which creative knowledge-work is generally monopolised in the ‘core’ regions, while standardised operations are outsourced to the ‘periphery’ (see Smith 2005). Virno even proclaims ‘the end of the division of labour’ (Virno 2007, p. 8).

73. Head 2003, pp. 72–3.

74. Marx 1987, p. 83.

that the historical development of the general intellect has made other crucial themes of the *Grundrisse* and other works by Marx outdated. Marx's value theory, they argue, is not applicable to contemporary society. Marx severely underestimated the flexibility of capitalism, which, according to Virno, has evolved to the point where in post-Fordism the tendency described by Marx regarding the flourishing of the general intellect in communism 'is actually fully realised'.<sup>75</sup> Vercellone adds that the development of the general intellect has made Marx's account of the real subsumption of living labour under capital obsolete.

I have argued that Marx's value theory is not made irrelevant by the fact that capital treats the knowledge produced by the general intellect as a free gift, nor does this follow from the fact that this knowledge is increasingly important in the production of wealth. Further, the development of the general intellect continues to be profoundly restricted by the capital form. And the real subsumption of living labour under capital is materially imposed on most workers in global capitalism today by information technologies, no less than it was imposed by the machinery systems of the industrial revolution and Fordism.

On a last point, however, Virno and Vercellone are correct. Capitalism remains crisis-prone, and the most profound form of crisis is the 'No!' of living labour.<sup>76</sup> By highlighting the parasitical nature of capital vis-à-vis the general intellect, Virno and Vercellone further the recognition Marx spoke of in the *Grundrisse*:

The recognition of the product as its [living labour's (TS)] own, and its awareness that its separation from the conditions of its realisation is improper and imposed by force, is an enormous consciousness, and is itself the product of the mode of production based on capital, and just as much the KNEEL TO ITS DOOM as the consciousness of the slave that he cannot be the *property of another*, his consciousness of being a person, reduced slavery to an artificial lingering existence, and made it impossible for it to continue to provide the basis of production.<sup>77</sup>

In this manner Virno and Vercellone's work contributes to struggles for a non-capitalist social order based on democratic self-organisation. In comparison to this contribution any shortcomings are entirely secondary matters.

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75. Virno 2007, p. 4.

76. I also believe, however, that their accounts of capitalist crisis downplay the role of inter-capital relations in generating systematic tendencies to overaccumulation and financial crises.

77. Marx 1986, pp. 390–1.

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