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## **The Rise of Network Universities: Higher Education in the Knowledge Economy**

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**Abstract:** Linkages and feedback mechanisms with other institutions increasingly characterize universities. These connections along with other aspects of restructuring lead to what we term, the Network University. The Network University is a network itself, yet it is also within a societal network as a node. By using a class analysis of the university we examine how the rise of network universities is an attempt to achieve two interrelated roles: 1) the university as a site of social reproduction and 2) the university as a site of capitalist knowledge production.

In the “Fragment on Machines” toward the end of the *Grundrisse*, Marx argues that capitalist production moves away from dependency on direct labor and tends toward reliance on the “general state of science and on the progress of technology” [Marx 1973: 705]. “The general productive forces of the social brain” become absorbed, shaped, and generally subsumed to fit the needs of capital and indeed become constitutive of it [Marx 1973: 694].

In the late twentieth century, writing on the knowledge economy, Peter Drucker argues that “the main producers of wealth have become information and knowledge” rather than “land, labour and (money) capital” [Drucker 1993]. What Drucker does not understand is that knowledge and information are produced and constantly distilled, reconfigured and reapplied by labor—knowledge is labor. In the *Grundrisse* Marx catches a glimpse of what he feels to be a logical trajectory for the expansion of capitalism – knowledge as a primary component of labor’s ‘value’. If capitalism is to effectively harness the forces of science and technology, then more is required from labor than material production. The need for communication and social interaction is implicit within the application of knowledge, science and technology. Thus, as capitalist production subsumes scientific knowledge and its production process itself, the social character of capitalist production becomes apparent due to the inherently social character of knowledge production.

If capitalism is to effectively appropriate scientific knowledge for production, then its control of higher education is vital. Universities not only play a role in creating disciplined intellectual labor but also serve as important sites of knowledge production. Although these functions of higher education were existent throughout the 20<sup>th</sup> century, their relative importance to economic production has increased dramatically on a global scale [World Bank 2002]. For example the biotechnology industry “was developed entirely within academia” [Kenney 1986: 5]. Due to capitalism’s new reliance on science and technology, universities are driven to become profit-making institutions. The past 30 years witnessed a remarkable evolution in the structure of higher education throughout the globe. During the 1970s, financial austerity threatened universities with decreased investment and aid to students [Caffentzis 1976]. Policymakers responded by altering the state’s role in higher education, most notably through legislative changes made during the

1980s. Neoliberal policies supplanted the Keynesian philosophy of state-sponsored education and forced public universities to seek private sources of funding.

Austerity and neoliberal restructuring, coupled with the infusion of new information technologies, have changed the structure of the university and the character of its interaction with other institutions—corporations, the military, the state, civil society, and other universities. Although it is incorrect to view universities pre-1970s or 80s as entities apart from society, and thus capitalist relationships [Barrow 1990], there were certain differences in the social life of universities then compared to the rest of society. Now there is little difference with the transformation of universities into overt profit-making entities, a process Robert Ovetz calls “entrepreneurialization” [Ovetz 1996].

One could compare the takeover of US universities by business from religious authorities in the late 1800s as similar to Marx’s concept of *formal subsumption*, where previous forms of production are simply taken over ‘as is’ by capital [Marx 1976: 645]. Alternately, the recent entrepreneurialization of universities in response to student resistance and revolt can be seen as the latest process of the *real subsumption* of universities by capital where the production process is changed to better control and discipline the university for the needs of capital [Marx 1976: 645, 944].

Universities increasingly assume the form of an internally hierarchical network as well as a node within what Castells has termed the “network society” [Castells 2000]. Today’s university cannot be described as a discrete site of production within the global knowledge economy (not that it ever could, but now it loses all pretensions), but as existing within interactive networks across the social body, both extensive and intensive, horizontal and vertical. These linkages exist as part of a strategy to re-establish and deepen control over the university (and society in general) by making knowledge production and reproduction of labor subject to market discipline.

Linkages throughout the social body provide “feedback loops” intended to modify the networked university’s role as a site of knowledge production and intellectual labor reproduction. Once government funding has diminished as a share of overall revenue, many universities turn to commercializing knowledge and technology through patenting, technology transfer, licensing agreements, spin-off companies, etc. These new revenue streams then shift and reinforce the university’s focus towards generating profit.

To illustrate these so-called “feedback loops”, Gibbons et al [1994: 86-88] argue that the term “technology transfer” is inadequate and prefer “technology interchange”. Whereas “transfer” implies a linear, one-way process of moving knowledge from the university to the private sector, “interchange” captures the “interactive” and “long-term” elements of corporate-university relationships where needs of individual firms are communicated to university researchers who modify their research to fit these needs [87]. Dedicated units with names such as ‘office of technology transfer’ “support and nourish relationships with industry” that are “viewed as...a single pattern of interactions with corporations” [88]. As “technology interchange moves from the periphery to the center of the university value system” the “organizational structures and resource allocation” of the university changes to reflect this shift and to “facilitate the involvement of faculty members in activities associated with the commercialization of results of their research” [88].

These developments do not solely affect the research of a university but also teaching as well. Relatively more entrepreneurial fields such as molecular biology or engineering become flush not only from private revenue streams but from state funding that is redirected towards them from “unprofitable” areas that languish in a relative state of deprivation such as social work or liberal arts [Ovetz 1996]. Areas less useful or resistant to capital starve for funding and are either eliminated or downsized. Entrepreneurialization is not just a strategy for generating private profit by “enclosing” once-public knowledge produced by universities, but for re-establishing control over labor reproduction as well.

Recent policy changes for Australian universities exemplify this possible relationship between government appropriations and department funding. In an article written for the OECD journal *Higher Education Management and Policy*, John Kleeman distinguishes three university forms – research oriented, teaching and research oriented, and strictly teaching institutions [Kleeman 2003]. Under the new guidelines, the Australian government disperses funds to universities based on national policy objectives and existent links with the private sector. In other words, the Australian government encourages existing commercialization networks with financial rewards while punishing unprofitable universities with austerity.

This method applies to the departmental level as well. Kleeman points out that the government can rate individual departments and faculty members according to their number of current research projects, their links with business, their ties to various areas of the university through interdepartmental organizations, etc. Although Kleeman posits the “research university” above other university forms, he does not ignore the importance of teaching. Faculty members engaged in both research and teaching possess the most up-to-date knowledge in their field and, by conveying such knowledge to students, integrate the undergraduate curriculum with commercial research. A feedback loop emerges. Faculty members instruct students according to market needs, but students also participate directly in knowledge production. [World Bank 2002: 36-37]

This is only one mechanism that shapes network universities, clearly fields that do not lend themselves to being entrepreneurial may still have utility for capital. Mark Yudof, Chancellor of the University of Texas System, theorizes a new social pact between universities, the private sector and the state [Yudof 2002; Pruett 2003]. He describes “this framework in terms of monetary flows” that “[mask] the underlying social relationships between the three sources of power (i.e. the state government, the private interests of capital and students)” at work both shaping and constituting universities in a continual process [Pruett 2003: 1]. Contrary to claims that the state is “withering away” or in “demise”, the relationships between the state and other social institutions merely changes. Clearly the role of the state as a source of funding has diminished, but in some ways its ability to determine the shape of higher education has increased. Referring to the changing role of the state in regards to higher education Mok et al [2003] astutely point out that:

What is actually transformed is that the state is moving from primarily carrying out most of the work of education itself, towards determining where the work will be done and by whom.

Decentralization...can be understood as a mechanism for tightening central control of the periphery instead of allowing far greater decision-making for the lower levels of governments.

[Mok et al 2003: 74]

The state-centered, bureaucratic model of higher education has given way to a hybrid public-private higher education system subject to market forces, but also coordinated by the state. For instance, the state created the juridical changes allowing for the privatization and ownership of knowledge production by universities—a fundamental change that allows for the commercialization of research. Furthermore, the state has moved away from general higher education appropriations in favor of funding specific projects designed to generate private revenue via technology transfer [Caffentzis 1976; Ovetz 1996].

In the realm of (re)production of labor the state sets standards and goals for admittance, enrollment and performance of universities under the rubric of accountability. Similar to current US monitoring efforts of Middle Eastern studies designed to root out criticism of US policy and therefore groom analysts and policymakers that serve the interests of US foreign policy, the movement to curb ‘multiculturalism’ and other critical studies roots out interests that do not serve the smooth functioning of capital, (ironically in the name of academic freedom). A RAND corporation document [2000], created for the Texas Higher Education Coordinating Board, concluded universities must harmonize education with labor market needs through “mechanisms

in place to monitor the state's employment needs and to respond to changing labor market demands" [31].

Higher education institutions also transform the environment around them. In conjunction with commercial interests, they can directly create the labor demands of a region or locality. The University of Oulu in Finland illustrates the impact universities can have on their surroundings. According to a World Bank report released in 2002,

Oulu has been transformed into a high-technology zone where winning companies (led by Nokia), science parks dedicated to applied research in electronics, medicine, and biotechnology, and the 13,000-student university function in symbiosis [36-37].

The University of Texas accomplished a similar feat in Austin by turning the city into a high-tech powerhouse. A 2001 report by the Greater Philadelphia First describes how the university adapted Austin to the new needs of the knowledge economy [Proscio 2001].

Higher education institutions also construct internal networks situated globally. By applying modern communications and computer technologies, universities can easily transcend past spatial limitations and collaborate on projects with faculty and researchers around the world. Distance education and online colleges reduce the costs of classroom infrastructure while simultaneously reaching a larger number of students. Organizations such as the World Trade Organization, International Monetary Fund, and the World Bank have fought to liberalize world markets in education, thus allowing higher education institutions (public and private) to open campuses overseas for restructuring [Schwellenbach 2003].

The concept of network organization raises serious questions concerning the relevance of traditional firm-based economics as well as higher education's function within economic policy. Focus in the network society is oriented towards the linkages between nodes, whereas traditional economics has focused on nodes themselves. Thus, network organization explicates capitalism's intrinsically social nature where capitalism structures "all of society into one great social factory so that all activities would contribute to the expanded reproduction of the system" [Cleaver 1979: 122].

Castells asserts that "networks, not firms, have become the actual operating unit" for the global economy [171]. Although this assertion is perhaps premature, neoliberalism, coupled with the Information Revolution, has substantially impacted the nature of economic institutions. In the case of universities, these institutions no longer exist as the vertically integrated "closed corporations" [Ridgeway 1968] that were appendages of the state. They are increasingly characterized by their reciprocal, horizontal connections with other institutions throughout society.

As with other disciplinary sites in modern society, "the walls of [the universities] break down" and as opposed to producing a distinct fixed subjectivity, the student or the academic, new "hybrid and modulating" subjectivities are formed in the networks of the society of control [Hardt and Negri 2000: 329, 331]. Professors are also entrepreneurs, students are overt, not simply covert, workers, whether waged or not. The knowledge economy now requires workers to become perpetual students (i.e. through "lifelong learning"), both in school and in the workplace, so as to ensure continued competency and discipline in a fast-changing network environment [World Bank 2002: 26-30]. Universities become overt corporations and corporations take on certain characteristics of academia—the entrepreneurial university lab and the factory as a laboratory [Kenney 1997; Gibbons et al 1994]. A corporate managerial style comes to dominate the administration of the university, which now judges programs on their ability to "make money." As Foucault says, referring to the panopticon as a diagram of power that is deployed in various disciplinary sites, "Is it surprising that prisons resemble factories, schools, barracks, hospitals, which all resemble prisons?" [Foucault 1977: 228]. Similarly the disciplining process of the market relation is applied across the social field.

Instead of viewing students as peripheral or as not producing capitalist value they are in fact an increasingly integral part of the circuit of capitalist production as capitalism relies more on intellectual labor. According to Leopoldina Fortunati “the real difference between production and reproduction is not that of value/non-value, but that while production both *is* and *appears* as the creation of value, reproduction *is* the creation of value but *appears otherwise*” (emphasis author’s) [Fortunati 1995: 8]. Unwaged schoolwork as a process of capitalist disciplining, training and socializing serves to keep “the value of labour-power low” [Cleaver 1979: 123]. Network universities attempt to restore control over students but strip away pretensions that students and their schoolwork are unproductive. Students fulfill an explicit and crucial role in the complex, global circuits of capitalism and as such, possess the power necessary for their transformation.

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