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ARTICLE

Manufacturing Customers

The database as new means of production

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Abstract
The fundamental question we pose in this article is how should we understand marketing in the age of increasingly integrated and networked customer databases? This article argues that new forms of database marketing are best described as customer production processes that rely on the exploitation of the multitude of consumer life. We suggest that the recent increase in available consumer data, computational power and analytical skills leads to a reorganization of the gaze of marketers and increasingly reverses the Fordist articulation of production and consumption. More specifically, instead of flexibly adjusting production regimes to shifting consumption patterns, database marketers collapse the production–consumption dichotomy by *manufacturing customers as commodities*. Hence, theories about the role of surveillance and simulation technologies for strategies of economic value creation need to be updated in order to acknowledge the evolution of database marketing into a central site of flexible accumulation processes in information capitalism. The result of our undertaking is a model of customer databases that foregrounds the far-reaching effect of potent simulational capabilities intersecting with constantly increasing computational power to transform the database into the factory of the 21st century.

Key words
analytics • Deleuze • Foucault • marketing • post-Fordism • surveillance

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INTRODUCTION

> Consumer Focus. It is our mantra at Insight[1] and our information production capability, unlike any in the world, makes it happen. We build data that helps your business: standard and customized consumer insights, database analytics, and custom solutions. Insight enables client companies to continuously pinpoint the right consumer at the right time and in the right place. (Promotional statement from Insight's website)

At the beginning of the 21st century, data-driven marketing is ubiquitous and is shaping business practice in a growing number of industrial and consumer markets. The decreasing cost of information technology, data storage systems, and data analytical services permits seamless and systematic consumer surveillance as well as increasingly sophisticated production of consumer representations (Gandy, 1993; Lyon, 1994; Lyon, 2003a; Zwick and Dholakia, 2004a, 2004b). Databases represent a powerful response to the fast-changing tastes and fluid identities of the postmodern consumer elites (Featherstone, 1991). By capturing consumer activities ubiquitously and in minute detail, databases become repositories of complex consumer lives by turning behavior into abstract aggregates of individualized and individualizing data points. Once consumption has been dematerialized and been made available as coded, standardized and manipulable data, there are no more limits to the construction of difference, to classification, and to social sorting (Lyon, 2001). The electronic customer list has come to visualize consumption, or rather consumer life phenomena, at the microscopic level, leading to a reorganization of the gaze of marketers and the way marketing practice configures and controls spaces of operation, production, and economic valorization (Leyshon and Thrift, 1999; cf. Poon, 2007).

This is hardly news to analysts of the surveillance society who have identified electronic registers and databases as central agents in the expansion and refinement of strategies of control based on the observation of populations (e.g. Bogard, 1996; Lyon, 1994; Lyon, 2003a; Lyon and Zureik, 1996). And Foucault's (2003) declaration that an excess of biopower appears when it becomes technologically possible for man to manage life also links surveillance instruments to strategies of human control. From this vantage point it is therefore accurate to regard customer databases as operating, to paraphrase Poster (1990), like a market super-Panopticon.[2] Yet importantly, the panoptic power of the customer database does not manifest itself in the individualization of identities, although this process is intrinsic to the recoding of consumer behavior into discrete and virtual 'data doubles'

(Haggerty and Ericson, 2000). Rather, as Elmer (2004: 41) observed, thereby extending Poster's focus on the linguistic construction and multiplication of data subjects, the panopticism imposed on consumers by information machines is much more concerned with 'the collection of personal information to discriminate individuals into previously categorized consumer lifestyle groups or "profiles"'. Hence Elmer (2004) puts the spotlight of contemporary market surveillance strategies on the reproductive (or cybernetic) aspect of electronic panopticism. Because data subjects are 'always already discriminated and profiled' (Elmer, 2004: 41), the contemporary mode of data collection and analysis must be understood as a dynamic process where existing surveillance and profiling systems and personal information continuously inform each other with each new interaction between the system and consumers. This mutability of both the surveillance apparatus and the data subject requires a departure from Foucault's architectural and optical conception of disciplinary power focused on enclosures, molds and fixed castings (Deleuze, 1992). Elmer (2004) proposes instead to draw on Deleuze's notion of modulation to more successfully conceptualize how control and power operate in and through technological surveillance networks of contemporary information economies.

This re-theorization of disciplinary forms of control as being modular represents more than a semantic shift because modulation stresses simulation, movement and flexibility rather than surveillance, enclosure and documentation. To be sure, simulation does rely on surveillance but only as long as the documentation, expression and spatial organization of collective life mapped within the electronic Panopticon provide the foundation for circular, recursive, and self-reproducing strategies of power aimed at forecasting future positions 'in an increasingly dispersed and automated infoscape' (Elmer, 2004: 44; see also Bogard, 1996).

Elmer's (2004) thorough theorization of electronic surveillance and database technologies contrasts fruitfully with the influential Foucauldian analyses (what Elmer calls the 'dataveillance' camp) associated with the work of Poster (1990), Gandy (1993) and (to a lesser degree) Clarke (1988) because it recognizes the need for database marketers to actively solicit consumers for information, hence conceptualizing the building, mining, updating and distributing of the customer database as a systematic modulation of the consumer population. To reiterate, what a Deleuzian analysis is not contesting is the panoptic character of surveillance technologies but rather the singular focus of the dataveillance approach on the disciplining qualities of these technologies. Hence, Elmer's analysis alerts us to the information machine's simulational gaze focused on the reflexive generation and

projection onto consumers of a digital code through the continuous configuration and reconfiguration of relationships and associations between always changing data points (see also Bogard, 1996). Therefore we can say that in addition to consumer discipline, surveillance technologies perform a complex set of cultural, social and economic functions characteristic of the post-Fordist mode of production, such as the spatial and temporal organization of markets, the provision of various forms of knowledge, and the flexible connection of consumption and production.

By recognizing the feedback loop between data collection and analysis and the solicitation of consumers with more inquiries or with 'more of the same' products, Elmer's theory of information as modulation is superior to the dataveillance approach in explaining how panoptic profiling machines operate to control and homogenize everyday consumption behavior in advanced capitalist societies. However, despite accentuating the crucial interaction between consumers (*qua* response to solicitation) and technologies of surveillance (*qua* continuous soliciting and modular simulation), Elmer's theoretical position, in common with the dataveillance work, maintains the conceptual separation between the sphere of consumption and production. As his detailed case studies underscore, Elmer links the solicitation, storage and retrieval of personal consumer information to the planning and implementation of standard marketing tactics, mainly targeted advertising and event marketing, through which companies hope to improve consumer responses to their product offerings. Yet, what he, Bogard, and the Foucauldians overlook in their analyses of profiling technologies and customer databases is that with the increased automation of data collection, analysis and organization, surveillance-based simulation no longer represents merely a means to discipline or control consumption but to *manufacture* customers. In other words, the modular simulation of the consumer population becomes the site for direct economic value creation while the ambition to control consumers, still important to modern marketers, is increasingly giving way to the possibility of manufacturing customers as valuable information commodities. A prerequisite for this new mode of production is that all the behaviors exhibited by consumers, controlled or not, are posited as input into the production process.[3]

Theorizing profiling technologies such as the customer database in terms of production requires us to re-evaluate where these technologies derive their unique power from. First, while the dominant focus in the current literature on surveillance and simulation technologies has been on spatial politics of consumption 'that attempts to locate and map the circulation of information, data, power and control' (Elmer, 2004: 46), a

'production of customers' perspective proposes that the importance of the database for the exploitation of markets and the creation of economic value is derived less from its panoptic capacity (e.g. Zwick and Dholakia, 2004a) and more from its ability to produce modular (flexible and reflexive) consumer simulations in little or, better still, real time. Recent gains in speed and the flexibility of production processes, premised on the unfolding of increasingly powerful data-mining techniques, is central to our argument of how the customer database leads to a reversal of Fordist organizations of production and consumption. Indeed, even comprehensive theorizations of the informatization of production (e.g. Castells, 1996; Hardt and Negri, 2000: 280–303) fall short of grasping the extent to which communicative action has informationalized production in late capitalism because these accounts exclude the informatization of consumers.

Second, while influential commentators, whether Foucauldian or Deleuzian, continue to insist that the ultimate objective of the deployment of modern surveillance technologies in marketing has been the disciplining and controlling of behavioral variations (i.e. detection of 'consumer deviance' is followed by marketing intervention), conceptualizing the database as a technology of production foregrounds the expanded *strategic* possibilities of market panopticism in post-Fordism. Instead of focusing on the homogenization of consumption, we suggest that the economic strength of panoptic surveillance rests with its ability to detect, valorize and monetize consumer heterogeneity in two ways: (1) through the continuous production of novel sets of consumers, and (2) through the generation of research and development ideas for the client company.[4] The database's capacity to spot creative, non-conforming, and unexpected forms of consumer life has not been lost to marketing executives who understand very well that future market opportunities often evolve out of the social and cultural innovations generated in *un*controlled and *un*disciplined spaces of consumer culture (Arvidsson, 2005; Frank, 1999; Holt, 2004). Indeed, given the need of a growth-dependent, contemporary capitalism to reproduce new consumer needs at an ever-increasing pace, too much consumer homogeneity would constitute a serious challenge for contemporary strategies of accumulation (Zwick et al., 2008).

Hence, theorizations of the role of surveillance and simulation technologies for economic value creation strategies need to be updated to acknowledge the evolution of database marketing and customer intelligence services into central sites of flexible accumulation processes in information capitalism. To do this, we employ a research strategy that combines material garnered from conversations with professionals working in database

marketing and theories generally discussed under the headings of information capitalism, post-industrial capitalism, and post-Fordism (Castells, 1996; Gorz, 2004; Hardt and Negri, 2004; Liagouras, 2005; Neilson and Rossiter, 2005). The majority of conversations occurred as part of a two-year-long ethnographic study inside a database marketing company called Insight, where one of the authors at times spent several workdays per week as a participant observer.[5] However, a number of exchanges with database marketers outside the field site were also recorded and used in this study, including professionals working in market analytics departments of large financial institutions, insurance companies and retailing. We use quotes from these conversations judiciously, however, and merely for the purpose of providing illustrations from the 'field of practice', to use Bourdieu's (1990) well-known term, for some of the central theoretical points we are developing.

The result of our undertaking is a model of customer databases as machines of commodity production that challenges dominant conceptualizations of panoptic technologies that reduce marketing surveillance, simulation and profiling processes to a technology of discipline and control (by informing production, marketing and promotion strategies such as direct mailing, advertising and point-of-purchase promotions). In the final analysis we propose to think about customer databases and database-driven marketing in a way that brings to the foreground the far-reaching effect of potent simulational capabilities intersecting with always increasing computational power to transform the database into the factory of the 21st century.

THE MODE OF FLEXIBLE PRODUCTION

Marketing's use of panoptic market research techniques for maintaining control over increasingly mobile and seemingly capricious consumer subjects has a history that goes back to at least the 1950s (see e.g. Arvidsson, 2004; Miller and Rose, 1997). Nevertheless, the sheer amount of data produced by contemporary electronic consumer surveillance, the computer power available to analyze information and the speed with which epistemic regimes of difference can be manufactured are historically new and qualitatively radically different from any previous forms of market research (cf. Castells, 2001). For the first time in history, according to Arvidsson (2004: 457), it is now possible to capture, store, and retrieve the 'physical, social and cultural mobility of social life, the moving about between environments and activities that has become a key characteristic of post-modern life'. In other words, the ability to monitor and describe virtually all of consumers' consumption and non-consumption activities

ensures that fewer and fewer elements of everyday life escape the electronic super-Panopticon, thus increasingly turning all of life into raw material (as encoded, decoded and recoded information) for the production of consumer representations.

It is important to recall that databases are made up of symbols in data fields. They embody a specific mode of representing the world, what Bolter (2001) calls 'numeric inscription'. As Poster (1995) puts it: 'one does not eat them, handle them, or kick them, at least one hopes not. Databases are configurations of language; the theoretical stance that engages them must take at least this ontological fact into account.' Poster, of course, has in mind a post-structuralist analysis when he points to the database as a repository for linguistic power. Yet theories approaching information and communication technologies via an analysis of the informatization of production also benefit from this insight because it speaks directly to some of the fundamental features of a post-Fordist economic system: the nature of the technological base, the nature of commodities and time–space compression (Harvey, 1989; Kumar, 1995; Liagouras, 2005).

Many authors have pointed to the shift from an energy-intensive to an information-intensive operations and production system as a key element of the transition from Fordism to post-Fordism (see e.g. Allen and Scott Morton, 1994). The electronic and information revolutions of the last two decades not only affect how work gets done but what kind of work generates the bulk of surplus value. The emphasis is no longer on the development of technologies that have the ability to replicate and replace hard physical labor, but on machines that allow for the manipulation of symbols and for the production and representation of information (Joschner, 1994; Kumar, 1995). In short, post-industrial technologies do not replicate manual labor as much as they enable and automate knowledge work. Consequently, the dominant strategy of capitalist accumulation under post-Fordism is focused on expanding, proliferating and improving symbolic and communicative systems, rather than on the mass production of physical goods (Korzeniewicz, 1994; Liagouras, 2005: 21). Put differently, in the post-industrial/post-Fordist economy, the manufacturing of material components of commodities adds less value (and hence is less strategically important for the company) than the production of emotional, intellectual, communicative and aesthetic components (Lash and Urry, 1994). When surplus value generation is the outcome of such informationalized production processes – what Gorz (2004) conceptualized as immaterial labor in the context of the knowledge society (see also Hardt and Negri, 2000; Lazzarato, 1996; Virno, 2004) – economic value becomes a function of the

degree to which time and space can be compressed in the production cycle (Harvey, 1989).

Usually notions of time-space compression refer to the discussion about the acceleration of global capitalism (e.g. Gee et al., 1996). As Castells (1996: 92) puts it: '[T]he informational economy is global. . . . It is an economy with the capacity to work as a unit in real time on a planetary scale.' While the new realities brought about by the worldwide real-time interconnectivity of complex and spatially dispersed production systems has garnered most of the attention of theorists of information capitalism, there are other ways in which post-Fordist economies rely on time and space compression to produce valuable commodities. They are related to the shift from the production of capital-intensive, tangible commodities to the production of knowledge-intensive, 'intangible' value such as market information, business intelligence, patents, brands, and community (Arvidsson, 2006; Hardt and Negri, 2004; Lury, 2004). The focus here is on the accelerated interaction between consumption and production expressed in management concepts such as Toyotism, just-in-time and lean manufacturing (Thrift, 2005), and more recently in marketing practices that use the internet to establish more immediate relationships with consumers (see e.g. Moor, 2003; Tapscott and Williams, 2006; Zwick et al., 2008). The speed at which, for example, symbolic goods such as brands are fabricated, launched (often globally), positioned, repositioned and made obsolete is historically unprecedented and points to the relevance of theorizing the commodity form, the technological base and time-space compression for the production of intangible commodities in post-Fordism. It is against this backdrop of post-Fordist capitalism and its continuous search for increased efficiencies in connecting production and consumption and its pursuit of more flexible accumulation strategies that the database has moved into the center of surplus value creation today.

DETERRITORIALIZING/RETERRITORIALIZING CONSUMERS

Government and corporate digital networks render transparent our everyday lives as we, *qua* citizens and consumers, leave behind a huge number of minute traces of our activities (Lyon, 2001; Lyon, 2003b). According to Negroponte (1995), 'being digital' means first and foremost the transformation of physical matter into electronically generated bits and bytes. These digital traces of our existence become culturally and economically meaningful only when they are not only captured but organized, interpreted and acted upon. Databases, then, come to represent the dispersed and largely surreptitious repositories of our lives. They constitute,

according to Haggerty and Ericson (2000: 606), massive computer-assisted classification systems that operate 'by abstracting human bodies from their territorial settings and separating them into a series of discrete flows. These flows are then reassembled into distinct "data doubles" which can be scrutinized and targeted for intervention.' Thus, the database effects a concrete deterritorialization, in Deleuze and Guattari's sense (1987), of the economic, social, and cultural relations making up the consumer subject. Robert Seeger,[6] senior data analyst at Insight, explains how this process looks in practice:

> Once we get the specifics on a new job, we talk to the client to get all the information that they have stored somewhere in their existing databases. They have tons of transactional and sometimes even personalized information [e.g. demographical, geographical, and life style data] that they collected at some point themselves. With most clients we have a standing relationship so they know what we need for the job, so it's no problem. We take their data, clean it up a little, usually, and then add it to our own database. Depending on the client we may be able to develop customer lists of more than a hundred thousand individuals each consisting of 300 or more data points.

In theoretical terms, deterritorialization describes capitalism's schizophrenic tendency to dissolve everything that is fixed – social and spatial associations, identities, borders, cultural meanings – until 'there is nothing left but a little price tag, the index of exchangeability' (Lyotard, 1977: 20). Thus the object of abstraction and deterritorialization no longer exists in and of itself in a positive, enclosed space but only as a synoptic assemblage (Haggerty and Ericson, 2000) of many 'machines', in a quite literal sense, consuming and producing digital information flows, which then generate further information flows and constitute ever new 'machinic assemblages'. Put simply, the consumer has been converted into a digital assemblage and as an assemblage she or he exists and acquires meaning (in the sense of exchange value, or what Pridmore (2008) and Deighton (2005) refer to as consumer brands) only in connection with other assemblages. As a consequence, deterritorialization becomes deeply functional because database marketers never really ask what a particular data flow means, nor do they look for anything to interpret in the data. What they want to know is what they can do with the data flow and how it can function when plugged into other flows of production to bring about economic value. Consider Robert's description of Insight's value proposition to its clients. The company does not promise

a hermeneutics of the digital text to excavate deep-seated truths about consumers. Rather, Insight delivers customers 'that work':

> Most of our work now deals with identifying customers for whatever it is companies want to promote and sell. This is really where we see our value added to the client and so we push that capability on to them. Basically, we tell them, 'Look, we don't care what you're trying to sell, you know, how good or bad or whatever it may be, we will find you customers with the highest probability of success.'

Implied in Robert's promise to find 'high-probability customers' is the ability of the database to create purely functional hierarchies that set desirable data subjects apart from undesirable ones for a specific product or marketing message. In other words, meaning emerges from the data subject only from the manner in which it functions when it is put in relation to other elements of the assemblage (i.e. consumers, commodities, brands, etc.). Herein lies the challenge but also the opportunity for the database marketer because the production of meaning, or more accurately the creation of customer knowledge with exchange value, depends on continuously deterritorializing consumers and generating reflexive information flows for the purpose of momentarily arresting these flows to establish new relationships between data assemblages.

Thus, in counteraction to this deterritorialization process and the decoding of a vast range of different actions with very dissimilar significations into data flows without a fixed code, database marketers are required to recode this material into a clear index of exchangeability – the exchange value of each assemblage becomes the only recognizable quality for marketers. This reduction of flows to a single price tag representing clear and understandable relations of production and surplus value is what Deleuze and Guattari (1977) refer to as reterritorialization. It describes the moment when all the different behaviors, wants, needs and expressions of desire that have been freed from fixed codes of expression and put into the 'universal' language of the database are being recoded to recapture all these expressions in the service of capitalist accumulation.

Importantly, Haggerty and Ericson's (2000) notion of the surveillant assemblage produces a model of the database as a curiously static collection and assemblage device that ignores the circular, or as Elmer (2004) calls it, cybernetic dimension of the technology, specifically 'the manner in which the signifieds and the process of signification are continuously reconstituted by each other' (Elmer, 2004: 48). The more dynamic perspective offered by

Elmer's Deleuzian approach that focuses on the feedback loop between deterritorialization and reterritorialization, decoding and recoding, provides a much more accurate representation of the dimensions of value creation underlying the production regime of the customer database. Put differently, the recurring generation of surplus value through the production of customer assemblages is not based primarily on the accuracy of data storage and categorization but on the continuous obsolescence of previous data flows as well as the constant refinement of the recoding technique. Milo Kendra, who holds a doctorate in statistics and founded Insight more than 10 years ago, explains:

> Our job is not to tell our clients 'this is how your market looks like' and 'this is who your customers are'. We tell them 'this is what your market looks like *right now* but soon it will be different again because everything changes because your competitors react and do their own marketing, then your marketing strategy changes, and then consumers react to the new product selection out there, and everyone does new advertising as a result, and so on'. We *know* consumers change all the time because we see the data coming in. In addition, *we* change here at Insight because we always work on our analytics and try to improve the accuracy of our forecasts and profiles. . . . So we never promise a stable world but we promise the most accurate view of the world as it is right now.

Kendra's comment points to the fact that the signified (the consumer subject) and the process of signification (targeted marketing interventions) always act on each other, thereby ensuring the ongoing variation of data flows. In addition, data mining techniques constantly change because the mathematical algorithm used to analyze (or here, recode) customer behavior, wants, needs and desires is always under construction, and even small changes in the code can make a significant difference in how consumer representations are assembled. This combination of always changing data flows and permanent upgrading of data analytical capabilities form the basic building blocks for the flexible production of heterogeneous sets of customers, where each recoded data assemblage can further be reduced to a single index of exchangeability.

THE SCORE: PRODUCING CONSUMER DIVIDUALS

Foucault's familiar dictum that the creation of knowledge is rendered significant via the creation of cultural objects and that both products are

functions of linguistic power is instructive here. It reminds us that new systems of representation, be they writing, statistics, or digital information flows, articulate newly ordered spaces of knowledge in which the object of representation (e.g. the consumer) becomes observable, measurable, quantifiable, and in short, known (Foucault, 1972; Hacking, 1982). Of course, the production of consumers as data assemblages from the digital material stored in the information machine does not present an end in itself. Rather, the process of recoding is motivated by the need of marketers to possess knowledge that permits *strategic* action. At stake in this process of 'suturing or cathecting of pieces of information in disjunctive time and scattered spaces' (Poster, 2007: 138) is the identification, localization and (e)valuation of targets for specific marketing interventions. Gary Becker, data marketing specialist at a large bank, describes target production as his main activity:

> What do we do all day [laughs]? Good question. Well, I guess, much of what we do here, . . . we help our product managers identify customers so they can go out and sell them something they don't know yet they need [laughs].
>
> *Can you explain?*
>
> Well, often it starts when . . . , ok let's say, a product manager would come in with this new product he wants to get out there. Could be a new type of personal savings account or whatever. Anyway, so they have their product and now they need customers for it, right? So we ask them a few questions like who they think would want this and why, which gives us some idea what variables to include in our model. Then we run the model and generate a list of high-probability targets for them to go after.

Recoding in the context of database marketing, then, refers to the ongoing production of relationships and associations, characterized by a high level of abstraction but ultimately grounded in a functional, spatial politics, one that, as Elmer (2004: 46) points out, 'attempts to locate and map the circulation of information, data, power, and control'.

If modernity produced a notion of identity as the composite of body and consciousness, identity in digital networks no longer relies on such a concept of the self. It is now in conjunction with the linguistic conventions of information machines that identities are assembled (Poster, 1990, 1995). Moreover, in the case of consumers, the configuration of these identities is no longer in the hands of the inscribed themselves but those of the

technocrats who control the digital mediation that allows marketers to treat consumers at the level of populations (see Poon, 2007).[7] Therefore, the recoding of dispersed and disparate flows of data into contextual, multiple, digital assemblages precedes any articulation of identity from within the inner recesses of consciousness (Poster, 2007). Exteriorizing identity, separating it from the interiority of consciousness and moving it into the realm of information machines is precisely what makes the database so valuable and, indeed, productive. Marketers find in the database a tool to manufacture consumer simulations with specified desires always already 'built in' via specific algorithms and statistical models at work.

Hence the reterritorialization of consumption within the simulational, abstract space of the database does not aim at producing a complete consumer list on which thousands of ostensibly authentic identities become visible as digitalized and presumably 'true' representations of the consumer's inner consciousness and outer body. Rather, seen from a modernist perspective on identity, the process of consumer recoding in databases yields extremely selective, partial, or as Poster (1999) puts it, underdetermined identities, which are – in the tradition of lean manufacturing and just-in-time delivery – stripped of anything that might distract from addressing the specific functional needs of marketers. This is the crux of the score, or what Lyotard calls the 'index of exchangeability' (Lyotard, 1977: 20), which demarcates the final result of a complex data mining, simulation and decoding process. Sunil Gupta, analytics expert at Insight, describes the role of the 'score' from the perspective of the economics of customer production:

> For our clients it's of course important to know who is likely to respond to *their* message and buy *their* products. For them, talking to someone who won't buy their products, no matter what, is a big waste. So they come to us to tell them which is which by ranking thousands of individuals according to a model we prepare for the client. Each individual gets a score and then we provide the client with deciles[8] to make it easier for them to compare the different segments of the market for their specific product. Our database is huge so we believe we can really parcel out the true scores for each member of the population we look at and the client has a lot of confidence in the targets and non-targets we provide them with.

The score – which its manufacturers essentialize as 'true' despite being socially and technologically constructed through the amorphous operations

of statistical practices, algorithms and calculations – denotes and rank-orders consumers according to the mathematically generated relative intensity of their desires for a specific commodity at a specific time and in a specific place, from ice cream, to toothpaste, to mutual funds, to lifestyle magazines. In other words, the score reterritorializes and maps the real-time machinations of an increasingly complex data economy by recoding consumer habits, routines, idiosyncrasies and trajectories into relationships and associations that signal each consumer's potential economic value within the specified field of consumption.

The score, then, responds perfectly to the imperatives of modern marketing because it creates instant comparability and calculability of the economic value of a consumer,[9] allowing for the identification of those that have more value and those that have less. Simulating the economic value of consumers through scoring is a dynamic process that ultimately wants to operate in real time. With the emergence of computerized informational networks that increasingly automate data collection, diagnosis and production, the speed at which scores are assembled has increased steadily to a point where the relationship between the signification and the signified is never stable. Banks, for example, owners of arguably the most sophisticated decoding machines and concerned about all sorts of risk associated with the business of lending and investing money, make use of a wide range of different analytical and simulation techniques to determine the probability of a credit-seeking customer defaulting on his or her loan. To build their simulation models, banks can rely on millions of customer records from a disparate set of archives of information located across many sites, collected with diverse processes, and stored via numerous techniques of input. Yet, in the hands of a bank's front-line employees, the process of reterritorializing becomes an automated, real-time recoding exercise aimed at generating a single number called the individual risk score. This is how Gary Becker explains the dynamic decoding and recoding process at his bank:

> We take historical data to build this risk model and what it is is a mathematical formula that spits out a number. It could be, you know, a combination of models. Our fraud protection process uses four different techniques, but the ultimate output of that is a number. . . . We had up to a million records to build this model. But when we put it in the hands of our front-line employees who interact directly with customers that may ask them for some credit, for example, they apply it in real time. They can see immediately what the risk level is of *that* customer and suggest

> an appropriate product. And as new records come in from the customer, or any customer we have, we take the mathematical formula, run that new data record daily or monthly or weekly, however frequently we apply it, and update the risk score immediately.

In other words, the bank employee has access to, indeed produces, an instant signification of the customer across the table in terms highly specific to risk. Importantly, as soon as a new digital record of this customer is collected, entered and analyzed, his or her risk score is updated immediately, producing a cybernetic relationship between signification and the signified, which requires constant reproduction. The functionality of the result of the recoding process is striking. The individual risk score simulates risk only, which is a key piece of information for the bank to determine the profit potential of each customer for a specific product. The model itself could be considered very comprehensive, pooling a vast range of historical and personal (sometimes very personal) data about each applying customer. Yet, in the final analysis, the task of the model is to generate Lyotard's (1977: 20) index of exchangeability. For the model to work efficiently it ought not to say anything else about the individual seeking a loan, nor should it because any other piece of information could distract the employee from matching the signification generated by the system with an 'appropriate' response from the institutional repertoire of available responses.

Clearly then, computerized information networks that continuously integrate dispersed sites of information solicitation with simulational feedback loops do not produce stable and enclosed repositories of meaning such as 'individuals', 'individuality' and 'identities', but dynamic and functional modulations of these, or what Deleuze (1992) calls 'dividuals'. For Deleuze, control (e.g. of risk, as in the case of the bank) happens inside digital networks and it is measured and administered not through the use of static media and fixed architectures but by codes. Codes are flexible systems of capture in ways that fixed enclosures are not (Bogard, 2007). They are easily reconfigured to re-evaluate value, reassess risk, and regulate access to space, information and resources. Consider Guattari's (in Deleuze, 1992: 7) example of a city where:

> one would be able to leave one's apartment, one's street, one's neighborhood, thanks to one's (dividual) electronic card that raises a given barrier; but the card could just as easily be rejected on a given day or between certain hours; what counts is not the

> barrier but the computer that tracks each person's position – licit or illicit – and effects a universal modulation.

This modulation effect of the database represents the gist of Deleuze's (1992) notion of the dividual, which encapsulates the process of soliciting dispersed consumer information and reorganizing it according to a specific code on a different plane of reality. Hence, dividuation is, according to Bogard (2007), fundamental to the logic of capitalist accumulation that breaks down life into measures of information. Unlike technologies of differentiation that aim at disciplining, dividuating technologies aim at modular control.

Market information as constituted by the database can hence be understood as over-layering the established social reality of individuals and their actions with another plane made up of measures of information mapping associations, intensities, flows and values toward which recoding and production efforts of the database are directed. This productive act, then, does not so much produce identities imposed on concrete bodies in the way disciplinary power effects such individuation as much as it produces modulation points on which marketers can anchor their efforts to structure flows of money and attention. Put succinctly, the database constructs a different plane of reality composed of abstracted, modular significations with distinct exchange values. Therefore, the modulating principle ultimately provides the kind of instrument necessary to exert control over the mobile consumer population of the 21st century. Indeed, control through modulation is at the heart of turning database marketing into a form of real-time (bio)production.

CUSTOMER PRODUCTION AND CAPITALIZATION

The relevance of the dividuation of consumers can be understood historically and economically as an attempt to overcome the limits of capitalist accumulation posed by the strategies of enclosure and their tendencies to produce uniformity and economies of scale. Information technologies produce a different logic of organization and value creation with network controls instituting mobile, intensified and flexible strategies of accumulation that exploit heterogeneity in tastes and desires and radically increased adaptability of the mode of production. Information has become the core substance driving value creation in contemporary capitalism and, inserted in seamless technological networks of surveillance, consumers are now becoming the key resource for the (re)production of information. As Sunil Gupta from Insight explains:

> Consumer behavior is always changing but when that happens that's not a problem but actually pretty good because we are the first ones to know about it, right? We even know it before they [the observed population] know it [laughs]. So we can go out and run our analyses on the new data that comes in from the market and if we see changes we make a nice report and sell them to our clients. So for us at least, we need that change. It's good for us. The more the better.

Hence, the forces of accumulation, previously concerned with controlling labor in time and space, are learning to exploit the capacities of electronic surveillance networks to follow 'free' consumers everywhere, turning the mobility of everyday life into input for the 'more diffuse and expanded systems of production that characterize post-Fordism' (Arvidsson, 2005: 237). In other words, within the logic of information capitalism the production of customers as commodities with exchange value requires in the first instance the flexible reproduction of *new* information (through novel behavior) from a more or less autonomous, spatially dispersed, and socio-culturally diverse mass of consumers. Indeed, as Virilio (1977) proposed some time ago, it is precisely dynamic and fast-changing information that holds the most value (see also Der Derian, 1996, 1999). Speed of information production, then, becomes an important added dimension in the valorization of customers as commodities because 'speed guarantees the secret and hence the value of all information' (Virilio, 1995: 53). Yet, while the accelerated decoding of permanently reconfigured social, market and affective relations are a prerequisite to valorization strategies of capital, the use and exchange value of information rests with its ability to be passed on after it has been recoded and elaborated on in order to add to or alter its content (Arvidsson, 2005; Lash, 2002). This is what Insight does: speeding up the process of decoding, recoding and communicating information to such an extent that the production of information, whether by consumers in the market or by the database marketers in front of their computers, constitutes the communication it claims to capture. Post-Fordism therefore foregrounds the productive role of the circulation of information, or as Arvidsson (2005: 240) puts it: '[T]he "information economy" is thus one important example of the fusion of communication and production.'

Positing communication as production points once more to the importance for capital to establish a cybernetic relationship between itself and the consumer. When information tools are integrated into and networked across the fabric of everyday life they prominently demonstrate the

diagrammatic power of the Panopticon that Foucault (1977) describes as the ability to institute continuity and automation of surveillance. Each consumer action becomes a statement to be inserted into the various flows of information. Hence, the influence of information technologies on the changing strategies of surplus value creation under post-Fordism rests on the common digital expression of information and the increasingly integrated and networked set of information tools. As a result, webs of information are created, transferred, manipulated, turned into products, shared and sold (Zysman, 2002).

Until recently, economists and marketers considered information about the market as a means of controlling commodity production and giving functionality to a product. From this perspective, product customization through digital 'versioning' – e.g. producing a customized version of the daily newspaper based on a customer's previously specified preferences – lies at the core of the creation of surplus value where information about consumers is said to improve the matching of product features with consumer desires. Increasingly, database marketing is turning this established relationship between market knowledge and commodity production on its head because the informationalization of consumption has created a situation in which digital versioning can most effectively be achieved via the flexible and rapid production of customer sets (as dividuals). Given the specific nature of the means of production – quickly rising computational power, automatically growing information repositories and highly advanced analytical code (software) – the production process for generating a highly specialized set of targets from millions of customer records takes but a few minutes. Hence, rather than adjusting the functionality of commodities to match consumer desires, marketers can now *modulate*, at very little cost and in real time, the functionality of consumers to match an existing commodity. As Milo Kendra explains, Insight pushes the logic of flexible, modular production of targets to its extreme:

> It takes us a few minutes to generate out of more than 100,000 data profiles a nice set of customers with extremely high specificity. But the next step is to put this capability online so our clients can do it on their own time, on their own computer. That is what we are working on right now. The result is that a brand manager can produce his own set of customers based on his own requirements whenever he needs to. He can do it online and it will take him two minutes to find out . . . who might be a good target for his brand.

Understanding the reversal in the production of surplus value in information economies has implications for how we theorize the role of the databases in processes of consumer surveillance and control. By definition, the flexible production of highly variable sets of customers – whose exchange value is determined by the degree to which they satisfy the specialized, functional needs of marketers seeking a market for an existing brand, product or message – requires a high degree of variance and heterogeneity of the circulating information. Too much sameness in the data may speed up production of dividuals but it does not allow for modulations. Yet, only modular commodities have exchange value in the post-Fordist economies of the sign (Lash and Urry, 1994). It is therefore no longer entirely accurate to characterize surveillance, simulation and profiling machines as indicative purely of the desire of capital to discipline deviant consumer behavior and reward consumer compliance, as maintained by Elmer (2004). Dissuading transgressive behavior through reward and punishment makes economic sense only if we maintain that commodity production is organized as a response to previously identified consumer needs and wants, where even small changes in consumer demand can drastically affect the entire system of production and distribution of goods. We recognize, of course, that large sectors of the capitalist production system are organized in this way. If the model is reversed, however, and the generation of surplus value depends on identifying novel batches of consumers to whom to market an existing product, costly and relatively lengthy efforts to redesign supply chains, products and production processes are being replaced by the much more speedy, cost-effective and flexible production of consumer modulations.

Hence, bioproduction in the context of database marketing does not so much refer to the process of disciplining, even if just a part of the consumer population were to be targeted, but to modulation (Deleuze, 1992). That is, within the rules of post-Fordist accumulation the customer production process does not produce surplus value through the individualization and homogenization of diverse populations, as Foucauldians would have it, but through the endless and efficient modulation of consumer subjectivity. Thus, the bioproduction of customers is best understood as the ability to effect and sell modular consumers, or dividuals, by reterritorializing and recoding dispersed, atomistic and diverse practices of more or less independently acting consumers into valuable information commodities. Through this transformation, capital establishes what Arvidsson (2005) and Poster (1990, 1999) would call a new plane of reality on which the traces that these atomistic practices leave can be disembodied and reorganized into

structured patterns of economic value, the configuration of which depends on the code used by the controlling agent.

CONCLUSION

The complex role of information technologies in general and databases in particular in the creation of a global surveillance society is now well understood (e.g. Lyon, 2001, 2003a). In addition, sociologists have produced extensive analyses of the implications of intensified surveillance on the reorganization and articulation of social relations, the erosion of the public–private divide, the construction and commoditization of risk, consumerism and the nature of state power among other things (e.g. Bogard, 1996; Gandy, 1993; Lyon, 2003a; Lyon and Zureik, 1996; Marx, 1988; Norris and Armstrong, 1999). In this article, we explore the increasingly important, yet in the critical literature largely overlooked, relationship between consumer surveillance, ever growing customer databases, modern marketing practice and contemporary strategies of capitalist accumulation. We argue that the emergence and proliferation of the customer database has given rise to techniques, competences, expert systems and productive units aiming not only at the supervision, administration and simulation of consumption but at the flexible production of customers as information commodities. In other words, the reterritorialization and recoding of decoded and deterritorialized flows of customer information – resulting in customer profiles that potentially contain, for each individual, thousands of transactional data points in addition to detailed demographic, psychographic and geographic information – is not merely a matter of understanding consumer preferences and behaviors to configure flexible and efficient global production systems. Rather, the massive combining capabilities of the database allow for the restructuring of the gaze of marketers who recognize that new instruments of knowledge also contain the possibility for new forms of production, valorization and accumulation.

Reducing the effects of panoptic techniques to improvements in consumer discipline and control (typically expressed as improved market segmentation and targeting capabilities, customization, one-on-one relationships, interactivity, etc.) ignores the economic innovations brought about by the integration of database technology into existing post-Fordist modes of production. We argue that the constant and compounding growth in the volume of data coupled with the rising analytical powers of computers has endowed the customer database with an immediate strategic importance in a company's economic value creation process. In short, because of the massive informatization of consumers it is now more

efficient (faster, more flexible and cheaper) to manufacture customers as modular configurations of propensities, as calculations of possible future values and as purified groupings of selective homogeneity. To borrow from Foucault, database marketing relies on and works through biopower: making people up by classifying them according to categories. But biopower becomes productive in an economic sense only when it creates surplus value. To do so, classification must become real-time modulation. Put differently, in the age of database marketing, biopower is production power when the flexible production of customers exploits the logic of post-Fordist capitalism. Database marketing thus emerges as the most advanced stage of marketing in late capitalist control societies.

Importantly, by saying that databases are bioproduction machines we do not merely nor chiefly refer to Foucault's notion of saviors (Foucault, 1991), or forms of knowledge of populations in all its different elements, dimensions and factors of power that constitute the building block of modern administrative forms of governing populations. To be sure, databases are no doubt instrumental in the ongoing development of 'market intelligence', as the profession calls it. The technology represents an irreversible epistemological event (Rose, 2001). Yet what we would like to emphasize is that the actual purpose of the database is no longer limited to supplying epistemological power over consumers but to manufacture consumers ontologically.

Arvidsson (2004) suggests that database marketing should be regarded as a response to the twin condition of marketing modernity: the increasingly mobile (spatially, economically, culturally) consumer and the disappearing consumer body (see also Lyon, 2003a). The ability of the customer database to capture what Arvidsson (2004: 467) calls 'the communicative action of life in all its walks' effectively turns increasingly complex and mutable consumer practices into value. In other words, ubiquitous information gathering transforms what has previously been seen as a practical marketing problem in need of more control – the mobile, creative and unpredictable consumer – into a productive and economically important force. Now, action and inaction, movement and inertia, indeed all of life, has value when inscribed as digital information and rematerialized, packaged and sold as information commodity. Put simply, marketers' continuous quest to create demand and mobilize consumers finds its latest frontier in the manufacturing of customers from the material created by the 'labor' of consumption. Other methods to minimize the distance between supply and demand, such as product customization and one-on-one marketing (see Peppers and Rogers, 2005), cannot compete with the

complete collapse of consumption into production represented by the overall reversal of the production process.

Under a post-Fordist regime of capitalist accumulation, the flexible production of information has come to dominate value creation and surplus extraction strategies. Therefore bioproduced customers can no longer be reduced to a supporting (epistemological) role of other marketing functions but now represent a commodity with economic value that is itself in need of marketing. Hence, we need to conceive of customer databases as the factories of the 21st century because they seamlessly fuse communication and production into a highly flexible manufacturing system that is perfectly adapted to the rules of post-Fordist regimes of accumulation and control (Arvidsson, 2005; Liagouras, 2005).

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Notes

1. The name of the company has been changed to protect its anonymity.
2. The notion to conceptualize databases as panoptic technology is not uncontested. For example, Bauman (1998) rejects such a move by pointing out that at the heart of the Panopticon is a desire for disciplining and controlling individuals, while databases merely serve as a gatekeeper for deciding exclusion and inclusion. We do not think that these two perspectives of database technologies are mutually exclusive. Indeed, in this article we argue that in order to generate economic value both functions – disciplining and sorting – must work in unison.
3. While not expanding on the role of consumers as 'productive' in this article, we would like to point out that database marketing is in the business of making 'ideological products' in the sense described by Lazzarato (1996: 144), thus positing the public (in the sense of the consumer – the shopper, the reader, the movie goer, the restaurant guest, etc.) in a double productive function. First, as the addressee of the outcome of database marketing (e.g. through targeted communication), the consumer is a constitutive element of the production process. Second, the consuming public is productive when it receives and reacts to the communication targeted at it by giving this communication 'a place in life'. In other words, when the public integrates the product of database marketing into its social communication it allows the ideological product to live and evolve (Lazzarato, 1996: 144). In this article, however, we focus on the productive function of the database itself.
4. This second valorization strategy is elemental to post-Fordism as it mobilizes 'all forms of life (in their collective and cooperative forms) [as] the source of innovation' (Lazzarato, 1996: 145).
5. The site of the ethnographic fieldwork can be described as one of a fast growing breed of information service providers that offers to its clients – typically marketers

at larger consumer product manufacturers, retailers of all sorts, financial institutions, etc. – so called customer intelligence and micro-marketing services. Developing customer intelligence and 'doing' micro-marketing is premised on exhaustive data mining activities of massive customer databases that are either provided by the client or owned by the customer intelligence company or a combination of both. Customer intelligence companies claim to enable 'direct to consumer marketing with pinpoint accuracy and unprecedented results' (from company's marketing material), meaning that their data mining activities are able to identify consumers with a high likelihood to respond to marketing activities. The company where the ethnographic fieldwork was conducted is a little more than 10 years old and has sales offices in three major cities in the USA and Canada. The overall value proposition that these companies present to clients consists of an alluring tale where 'total market information' is said to grant marketers 'intimate access to every consumer's life' as well as the ability to turn this intimacy into 'real profits' (from companies' marketing material). Of course, this transformation of massive but 'raw' market information into what database marketers refer to as 'actionable consumer intelligence' requires the perceptive deployment of highly sophisticated analytical tools and statistical techniques, a service that is highly valued by brand and product managers.

6. All names of informants have been changed to protect their anonymity.
7. We certainly do not suggest that consumers have been stripped of their agency or their ability to develop ruses to 'fool' the system. Rather, the point we are making is that even such ruses leave digital traces that are subsequently assembled before they become input for amorphous forms of identity production (lists and scores) through the application of material and concrete mathematical methods. It is this stage of identity formation that we are concerned about here and that Poster describes in his work.
8. This term refers to the organization of large computer-generated customer lists into 10 equal parts where, for example, the top 'deciles' represent the 10 percent of consumers with the highest score for the respective product and the lowest deciles assemble the bottom 10 percent.
9. Consider a popular metric employed by marketers to assess a consumer's potential value for the firm: 'Customer Lifetime Value' (see e.g. Rust et al., 2000).

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