

**Re-intermediation and Deferment Through E-commerce: Neo-Austrian
Interpretation of Capital and Time**

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Introduction

It is commonly believed that electronic commerce (Ecom) reduces intermediation and the time in a business circuit. Several authors have argued that dis-intermediation resulting from the use of Ecom increases efficiency and reallocates resources. Alternatively, transactions cost economics (TCE) theorists argue that electronic commerce decreases transactions cost by way of reducing the distance between the producers and the customers. TCE too argues that dis-intermediation in electronic commerce increases economic efficiency by reducing transactions cost. In contrast to this efficiency theory of dis-intermediation and of quickened money we would argue from Neo-Austrian perspective that this efficiency perspective is limited to technological changes alone (Baumol, Panzar & Willig, 1986). In contrast, we argue that efficiency fails to increase rate of profit or the innovations. For us, intermediation refers to not just to a certain value chain. Contrarily, intermediation goes beyond one industrial segment and its value chain. **It embraces micro-structure of a market (O'Hara, 1997) and provides for coordination (Richardson, 1960, 1972, 1998) amongst both the competitors and between the producer and its consumers. Ecom is an innovation in trade and linkages in an economy and we would argue that it substitutes the previous intermediary-based value chain by a new coordination across several value chains and along the scope dimension (North, 1989).** This coordination is afforded by generation of new and novel cybermediaries (Sarkar, Butler & Steinfeld, 1995). Further, Ecom brings in several layers of possible intermediaries and as a result tends to keep transactions incomplete. It extends the completion of transaction indefinitely and thereby; Ecom instead of shortening the business circuit, the proverbial value chain, would extend such a circuit indefinitely along both vertical and horizontal dimensions. Indefinite extension of business circuits that is the lengthening of business transactions increase effectively the period of production. We argue that the lengthened circuit or the period of production necessarily demands cooperation more intense than what could be provided by the simple value chain intermediation. Noticing that Austrian theory recognizes capital as time that is as the period of production, we can recognize that Ecom enhances capital twice, first by lengthening the period and second by deepening coordination. This theory argues that longer period of production implies higher rate of profit and an increase in capital. Based on this theoretical stance we argue that Ecom enhances capital and increases rate of profit by lengthening the circuit of transaction through a mechanism of deferment of consumption, known otherwise also as the period of production. Lengthening of period comes through re-intermediation and through increased deferment of consumption.

Background

Ecom and the diffusion of information technology, in general, have been believed to contribute to transformation of value chains internal to a firm and to an industry (Porter,

1985). Such a value chain recognizes the vertical dimension and refers to an industry segment. Consequent to transformation of interlinkages in a value chain it was argued (Malone, Yates & Benjamin, 1987) that dis-intermediation or the shortening of circuit would take place. A comparison between the two modes of reaching customers seemed inevitable (Brynjolffson & Smith, 1999). The end result of dis-intermediation predictably would be added value to customers and to the producers. This belief was strengthened by an additional belief in the disutility of a trader. A trader was looked down upon as an irritant causing disruptions and adding significant costs (Benjamin & Wigand, 1995). This argument concludes by pointing out that through Ecom intermediation could be reduced even to extinction and thus offering to both producers and the consumers additional value through effects such as direct sales by in particular a dominant producer commanding price or quality (Bailey & Bakos, 1996). This hypothesis of threatened intermediaries as Sarkar et al (1995) coined it is based upon a certain reading of the theory of transactions costs economics (TCE) (Williamson, 1975, 1985; Coase, 1990). Another approach though not far off from the TCE is agency theory, used by Picot, Bortenlanger and Hohrl (1997) to argue that principals henceforth armed with information would dispense away most of the services hired till date from the agents. This would enable principal to minimize upon the costs of monitoring and hence agents, such as all the intermediaries, would become obsolete.

Possibly Sarkar et al (1995) were the first to indicate that intermediations would possibly increase in lieu of decreasing and such mediations since conducted through electronic modes should be named cybermediaries. They argued that the proponents of dis-intermediation employed a flawed TCE logic. Sarkar et al argued based upon TCE that mediation must increase in Ecom. In subsequent years there have been studies on the extent of cybermediation and a large number of contributors have pointed out primarily by way of citing empirical instances the increasing mediations (Giaglis et al, 2000; Burton & Mooney, 1998; Meck, 2001; Domowitz, 2001; Chircu & Kauffman, 2000). The key paper by Sarkar et al argued from the TCE perspective and showed how TCE endorsed the retention of intermediaries if not a lengthened mediation consequent upon introduction of Ecom. Most contributors agreed to this formulation by Sarkar et al, and these contributions have enriched the argument based upon TCE. The TCE logic employed has identified mediation as one component in the value chain necessary to reduce the otherwise high costs of transactions. Sometimes though TCE has been employed wrongly since it has been argued that intermediaries add to costs of transactions.

There seems to be a conflation where accounting costs has wrongly been assumed to represent the costs of transaction. TCE argues (Williamson, 1975) that transactions costs arise because parties in an exchange behave opportunistically. The cost necessary to overcome opportunism or in other words, costs that is borne to protect property rights when opportunistic exchange partner is faced is known as the transaction cost. It follows that in Ecom where parties may not transact repeatedly or do not have trust such transactions costs will rise instead of disappearing. Coase's (1990) theorem shows that formation of a firm alone can force costs of transactions to remain limited. In other words TCE would demand either the birth of a firm or the birth of trusted intermediaries. The former implies that Ecom will cease to operate. The latter, close to most of the TCE

proponents of cybermediation, shows that mediation will necessarily remain following introduction of Ecom.

Schmitz (2000) takes up agency theory to defend the thesis that mediation will remain or else increase following introduction of Ecom. Fallacy in Sarkar et al's (1995) approach is that mediation has been considered as a singular service. Schmitz, in contrast, argues based on agency theory and market microstructure theory that mediation has multiple aspects. Three aspects has been considered and these are to first, to hold inventory in order to service immediacy and insurance; second, to reduce asymmetric information by building reputation; and finally, to gather, collate and disseminate information on the market. Scmitz argues further that intermediation in Ecom does not increase marginal cost to the principal (the producer) and the intermediaries must produce the three types of services jointly, that is the market in lieu of having three different types of intermediaries would have only one type.

Sarkar et al (1995) indicated that Ecom necessarily engenders mediation in the areas of search and evaluation, needs assessment and product matching, customer risk management, product distribution, product information dissemination, purchase influence, provision of customer information, producer risk management, transaction economies of scale and for integration of customer and producer needs. This detailed listing appears to cover the three modes described by Schmitz (2000). Meck (2001), for example, indicates three groupings of cybermediation, which are aggregation of buyer demand and seller products, searching and matching, and pricing and facilitation. Domowitz (2001) similarly indicates reintermediation in Ecom and defends such a thesis through TCE. It appears that most authors agree to certain broad types, and their argument rests on TCE or its extension. What, however, seems to be missing is the relevance of increasing returns and the consequential restructuring in industrial segments that are adopting Ecom.

Restructuring in segments through the cycle of intermediation followed by dis-intermediation and finally through cybermediation have often been underscored as exogenous. The basic teaching from increasing returns suggests, however, that a pull in demand on the structural elements in a market has a cascading effect. This cascade pulls through the economic interlinkages across not only segments along a vertical direction but more often and more vigorously across the direction of scope (Richardson, 1996, 1997, 1998). As a result, novel divisions of labor and novel microstructures appear especially along the scope linkages. Such structures in turn demand further employment of information technology for linkages and for transactions. This cycle of increasing and synergistic spawning of divisions in market and in the diffusion of Ecom thus displays increasing return. Ecom consequentially restructures the previous market arrangement along directions of scope, and therefore cascading effect of restructuring can be felt through a large number of interrelated industrial segments subsequent to introduction of Ecom in a lone segment. Contributions by previous scholars sadly missed this point of both lengthened intermediation and cascading effect of restructuring following Ecom along markets other than where Ecom got introduced. This re-intermediation in other markets is of great consequence since they alter very significantly structures and interrelationships amongst markets.

Evidences and departure to a new theory

Evidences of reintermediation are in plenty. There are, however, other related changes in market, such as in the emergence of novel framework of liability (Valimaki & Martikainen, 2001), or the emergence of new relationships between the wholesaler and the retailer (Nettesine & Rudi, 2000), or in offerings of greatly dispersed prices (Pan, Ratchford & Shankar, 2001). Several data based search and research on price offerings on the electronic commerce have shown that prices offered on internet are often not lower than on offer through other modes of retail sales. Internet pricing has shown personalized effects based on quality differentiation and on personalized offerings. Ecom offerings have been compared to mass customerization, necessitating spawning of very large number of novel intermediaries. Technology has allowed firms to identify and track customers, on the online stores as also on websites. Firms now can create individual consumer profiles matched by all other relevant information on choices, demographics, cultures, and preferences. Internet retailer can deploy complex pricebots and can effectively discriminate price offers based on such profiles of preferences, etc. Ecom has thus opened up the possibility of offering extremely variegated personalized pricing. This forum can also offer equivalents of typical marketplace bargains. It follows logically that retail offers on Ecom cannot disintermediate and eliminate stages of intermediation necessary to gather market and competitive intelligence. Market clearing in Ecom therefore necessarily requires very large increase in information transacted and processed. These in turn demand services from new entrepreneurs offering specialized facilities for search and offer. Ecom market thus increases the market along the dimension of scope.

Along with personalization of pricing, the electronic retailer can now design its product offers on personalization of the qualities of the products. This results into offers of extremely variegated apiece products, which in turn calls for revolutionary changes in the entire system of production that once through Tayloristic mode had developed along the line of corporatization and mass production of mass-standard goods. Mass customization and recently, mass customerization and co-production of new product offers especially through cooperation along the direction of scope have increased enormously the number of products on offer. Co-development of products by a group of competitors' complementors or collaborators in association with current or potential customers; and the strategy of producing products' versions have catapulted previous industrial vertical segments into a jumbled up flux of cross-connected firms. Expansion along scope direction has deferred consumption of a good. Consequently period of production has increased. This expansion has created numerous linkages or mediations along the scope axis before a product can be consumed. Vertical organization consumes a product necessarily earlier than this scope-axis expansion.

Production organization of a vertically integrated corporation stood upon standardization. Production of apiece products with variegated quality, chosen often by the buyer herself, demands that the entire chain of logistics and the supply chains get linked to the electronic commerce platform and that the stages in production are increased immensely and at each step of production each apiece product contains unique information. This has resulted into enrichment of information and subsequent differentiation of previously firm-internal business activities. This is a classic example of increasing return based expansion in divisions of labor. Such a picture of electronic

commerce led economy shows that stages of production must increase, that different economic agents must undertake each stage, that variability must increase and that mass production of personalized wares must hasten. In short, electronic commerce demands that an economy increase both its division of labor and the long period of production.

Velocity of money or good in an economy refers to technical efficiency. This efficiency refers to particular states of affairs of technology. Efficiency raising and finally efficiency-equalizing (in the equilibrium) must refer to a structure unchanged. Increasing return in association with continuous innovation in production and trade stands upon a dynamic equilibrium (Richardson, 1996). Such a dynamic equilibrium necessarily implicates structural transformation of the market and its microstructures. As a result efficiency perspective by remaining structurally contained and constrained fails to explain why such technological states do change or why certain particular economic agent reap in profit. Moreover, efficiency theorist's 'profit' is actually a rent earned. Profit, however, is speculatively earned. Surprise must be a cornerstone in profit making. Efficiency theorists fail to underscore how electronic commerce brings about novelty and surprises in the trade and commerce.

Interpreters of TCE have assumed that electronic commerce brings about a frictionless (Brynjolffson & Smith, 1999) or transactions-cost free market. They have wrongly committed TCE to such an explanation this is my first objection. Second, reduction of transactions cost would increase efficiency and would not increase rate of profit or the capital or even would not hasten innovation. About my first objection I must point out that TCE refers not to an accounting cost in an economy, instead it refers to cost due to opportunism or due to increased difficulties in protecting one's property rights. Cost of information is an additional element. Therefore TCE proponents of electronic commerce wrongly refer to accounting cost. Moreover, we would argue that electronic commerce couldn't reduce opportunism either inside a firm or in an economy. It follows then electronic commerce would in all likelihood increase transactions cost. Regarding the second objection, TCE refers to efficiency that the organization of firm achieves in transaction costs when this firm replaces the erstwhile market based opportunistic and costly transactions. Electronic commerce is by definition inter-firm or inter-agent and cyber mediation of transactions cannot reduce the cost owing to opportunism. In fact in all likelihood such costs would increase because trust is recognizably the most intractable problem in this commerce. Increase in efficiency following reduction in transaction cost, according to TCE framework, happens through vertical integration, for example. Electronic commerce has opened up a direction that disintegrates verticality of large corporation. Bringing closer the buyers and sellers has been putatively the transaction cost reducing factor; whereas we observe that costs even while reduced on this count is an accounting cost. Accounting cost reduction is fictional and this reduction cannot ensure achievement of profit or even of long-term efficiency.

A long period of production refers to the entire input-output table of an economy. A short period of production refers to a specific transaction chain of a business or a sector. Electronic commerce increases the length of both these periods. Vertical integration linked up several such industrial sectors. Ecom and associated expansion along the direction of scope have crossed boundaries of specific transaction chains or of industry sectors. Increase in these periods takes place because of several other factors as well. With increase in the division of labor there would be

increases in asymmetric information, insurance and valuation risks, joint productions of services and other goods, increased asset specificities, information impactedness and reduction in internal production. Innovations increase in electronic commerce because each economic agent has incentives to speculate and each agent looks for rewards from surprises that it might bring about in offerings, timings, and linkages. Electronic commerce reminds us about the traders of the earlier times when apiece goods were traded based on highly asymmetric information. Cantillon referred to this and Shackle defined the Neo-Austrian version of profit based on that understanding of Cantillon. Austrian theory argues that capital is time. This time is the period of production in an economy. Increase in period of production is a reflection on the increase in rate of profit and of capital in an economy. So we could summarize that Ecom increases speculative profit by furthering period of production that results from novel and increased cyber-mediations.

Shackle argued about surprise. He discussed profit and its rate from the perspective of lengthened periods of production and increase in division of labor amongst economic agents who are speculators. Electronic commerce has opened up this opportunity. In these commerce intermediations in particular cyber mediations have increased and will continue to increase. Transactions cost must increase because a principal cannot check opportunism and lack of trust between agents any longer. We have argued how TCE framework fails in explaining the emergent phenomenon of electronic commerce. Neo-Austrian framework offers a cogent explanation as how electronic commerce increases rate of profit and the capital in an economy based on electronic commerce.

Intermediation and coordination

Received theory presents intermediation as the structure of a market. Microstructure of a market (O'Hara, 1997; Goodhart, 1989) refers to dynamics of transactions, relations, expectations and the time. Intermediaries served the most essential function of the microstructures of a market. Economic agents who interpolate them in between the producer of a good or services and its consumer are intermediaries according to the structural theorist. As a result of this structural emphasis the presence and the relevance of an intermediary can be analyzed in terms of costs of transactions. A dispersed microstructure of intermediation can remain so only so long as transactions costs (Coase, 1990) do not favor formation of vertically integrated (Williamson, 1985) or multidivisional firms (Chandler, 1990). This appears to be a static view of the market. This approach is static because it can indicate substitution of one structure by an alternate structure alone and it fails to indicate other functions of structures.

Microstructure of intermediation we would argue serves a major function. This function is coordination. Coordination elongates the period between production and consumption. Elongation of this period is absolutely necessary to the formation of capital because capital is nothing but deferment of consumption. Static coordination achieves this elongation in a limited sense while coordination of dynamic situations enhances this period substantially. **The static structural account on microstructure of intermediation fails to capture this key aspect of coordination, which is a central theme in economic thinking because in its absence competition and innovation fail. Coordination between agents in a market is the key to the puzzle that market**

survives through transformation, and that agents undergo changes in order to live through. Ecom refers to structural changes in market mediations and hence in the microstructure. Such changes lest reduce to anarchy or disruption must adhere to coordination, or more properly to coordination of expectations. Equilibrium or more particularly a dynamic equilibrium cannot be attained or maintained without the intervention of coordination. Coordination without mediation is impossible. We will take up two modes of coordination. Intermediaries are there in order to coordinate between two groups: first between several producers – current, potential and complementing, and second between producers and customers – current and potential. The former refers to aspects of competition relating to interoperability and inter-dependent innovations. The latter refers to aspects of creating and managing demand in the context of uncertainties. We discuss these two aspects; in this part very briefly on coordination with customers and in the following section on coordination amongst producers.

Ecom mediates between price quantity and most importantly the product (innovation) decisions of the producer, and the utility expectations of the customers. Under the circumstances of no-innovation, or of one single homogeneous product enjoying monopoly a la Chamberlin (1933), there is no need of coordination between the producer and the customer. However, following Richardson's argument, a market experiences a sequential competition when there are continuous innovations in product. This competition is between a current product and a future product (and not as suggested by Chamberlin between two identical current products). In Chamberlin's analysis a product can be substituted but completely only following the completion of the life cycle of the product. In sequential competition, as suggested by Richardson, all the products get substituted having fulfilled only partially their life cycles, and as a result firms follow a strategy of offering versions of products (Varian,). Such versions or sequences of products talk about market making. A particular product brought out through innovation can be produced necessarily in shorter quantities and prices that can be fetched support only normal profit.

A product version or a sequence necessarily must make a market through arousing customer expectations on future utility. A sequence of utilities implies therefore that customer's changes in perceptions or expectations of utilities take place in harmony with producers' perceptions or expectations. In other words, producer and customer must have mediated relations, which make it possible for the two parties to adhere to a common frontier of utility ensemble. In static non-sequential competition the role of mediation remain very restricted. In sequential competition innovations in products would fail in the absence of mediations. In other words, mediation must increase in such innovation-led increasing return experiencing markets based upon sequential competition. Ecom based mediation serves precisely this function of increasing mediation.

Moreover previous markets with near-zero innovations in products could afford to make calculations on prices and quantities, such as the average cost, marginal cost and marginal return. In sequential competition no product can complete its life cycle and hence calculations of quantities and prices remain no longer exogenous. Price-quantity variables now come under the scanner of negotiated settlements. Uncertainties about the potential product and information asymmetries between the current product market and that of the market of the product next in sequence necessarily implicates microstructures in the market who can bear the risk, who can provide insurance, or hold the stock-in-

progress, and who above all can calculate on durability of the current product. This switch to sequential competition therefore relegates price-quantity variables to non-importance and substitutes those by new endogenous and negotiated variables. Microstructure of mediation becomes the absolute necessity. Ecom therefore in lieu of dis-intermediation demands vigorous intermediation through novel market microstructures.

Finally, a future product and its arrival as well as its power to fulfill the expectations of customer must defer the consumption of that potential product. Consumption of current product is given up in expectation of the arrival of the future product. Deferment thus takes place twice at the levels of both consumption and production. Ecom and its intermediary-based coordination therefore shift the consumption through elongating the chains of intermediation. This often happens through several kinds of limit orders or limit pricing, or through other modes of negotiated and insured shifts. Dispersion of prices can happen only when intermediation advances to raise buffers for absorbing the shocks. Price dispersion in Ecom can be afforded because enough mediated buffers have been put in place. This brief account above on customer-producer coordination shows us how intermediation and deferment increases in Ecom. To recall, this deferment is of the first kind arising from customer-producer coordination of expectations.

Deferment and normative coordination

In this section we elaborate upon coordination that appears necessary between producers. The context of production is a sequential competition that is production of future products through innovations and based upon increasing returns and along dynamic equilibrium. Successions of short-lived products from several producers must entangle them in a web of expectations on successions. Another aspect of product is that a product in future must remain interoperable with a set of other products emergent from complementors lying in the scope direction. Richardson (1997, 1998) did not elaborate upon inter-operability. There are two possible courses, in the first inter-operability can be considered as non-sequential that is when inter-operable elements are pre-reconciled and they reflect a situation of timeless equilibrium. In the second aspect, it may refer to an input-output system – an interdependent succession of events through which intermediate products get apportioned to the final consumable products. Input-output system allows for technological changes because consequent to technological changes or changes in tastes, et cetera, the successions or the relative apportionments might change. This second mode, even if not immediately and directly as in Leontieff system, conceals the element of time and therefore does not depend on pre-reconciliation and on equilibrium conditions. Richardson seems to have preferred the first mode. We argue instead that the second mode alone can explain time-based, technological and unforeseen changes that remain operative over any inter-operable system.

This second mode is close to the Austrian understanding of time-dependence of capital and yet it is different in significant manners from it, based as this proposal is on Shackle's (1972) argument. In fact, we begin from Shackle's argument and develop this idea a bit more. Normative coordination is this additional element that Shackle did not explain. Normative coordination we wish to argue is an outcome of 'capital as time' thesis of Shackle. We do so more because strategy apprehends and orients this dimension

of time. Criticality of time in orienting one's product-lines or technology constitutes a strategic move, and such a move must be able to influence and orient the moves of other firms. This capability to be able to orient the orientations of other firms, dependent on the expectation on expectations, can be achieved by strategic knowledge. Two corollaries follow. First, we have now a new definition of capability that is the capability to leverage strategic knowledge about others. Second, a strategic knowledge is about the processes in other firms and is about the possibilities of their orientations towards own strategic advantages. This dimension of orientation is captured by the second mode of inter-operability. Time enters here because orientations appear in possible cascades. A particular ex-post orientation tells us about the choices committed and acts executed. Success in orienting processes of other firms by leveraging strategic knowledge towards own advantage becomes strategic only when this resultant orientation accrues a Cantillon profit or only when this ex-post inter-operation appears as 'capital as time'. An orientation through normative coordination of several intermediate products is an act of deferment of the consumption. A deferment of consumption achieved through elongation of the period of production or through elongation of divisions of labor constitutes capital. It follows then that strategic acts are undertaken to increase capital. Such strategic acts become possible through normative coordination.

Shackle (1972: 304) argued, "... capital is time ... capital is the manifestation of the role of time lapse in the productive process ... capital is delay. But delay is an inconvenience, a disutility, a discomfort, something which will not be borne except for a reward. ... capital seems to ... offer a prize for, the endurance of delay ... (as) a marginal balance." A pure Austrian approach assumes that deferments are pre-reconciled amongst parties. Pre-reconciliation takes place through coordination or inter-operability of the first mode, as described above. However, there are opportunism and cheating, there are technological changes never foreseen, and there are changes in utilities. Such changes moreover happen along temporal successions. Richardson (1960) does not recognize such changes. In contrast, Richardson's schema fits in with the Austrian schema of plan-coordination. Departures that Richardson, and following him Leijonhufvud (1993) and Krafft and Ravix (2000) made consisted in recognizing that pre-reconciled plans would still take a time – a duration that information needs to flow across firms and a time called 'gestation lags' that would remain invariably across investment commitments of firms. The problem of aligning pre-reconciliation with plans (which in equilibrium surely would be equivalent to strategy) is then a problem of quickening of computation (this alignment is computationally feasible). Krafft and Ravix (2000: 152) find out the computational algorithm with two forms, namely 'maintain competitive investments under a maximum threshold level' and 'maintain complementary investments over a minimum threshold level' – and they argue that 'viability of the industrial system is ensured only if the two conditions are proved simultaneously'. This leads them to argue that firms must act for coordination of both competitive and complementary investments.

Time lag in this model does not take into consideration delays or deferments owing to possibilities. Technological innovation at any point of time offers possibility to link up with or be complemented by a set of alternatives. This is the first objection. Second objection is that deferment is capital and it happens not because of a 'market failure'. In the Richardson type of argument delay is undesirable. Krafft and Ravix argue for institutions that could alleviate problems of delay. These institutions can take up

several forms, such as sequential contract from the property rights approaches of Hart (1988), Grossman and Hart (1990), et al, where there is information delay say due to uncertainty but there is no investment delay; or, if there is irreversible investment while there is no information delay a firm needs to make right decisions regarding profitability of a competitive investment (Dixit & Nalebuff, 1991). Other forms of coordination that might be taken up include informal market relation, licensing, strategic alliances, and formal agreements of various sorts, vertical integration or simply integration. Nature of the institution, it is argued (Langlois and Robertson, 1995; Teece, 1980, 1986, 1988) would depend on the type and length of delay. Teece (1986) argues that if the delay is caused by an autonomous innovation (which is relatively independent of other stages of production) then several types of institutions might emerge depending on the internal capabilities of the relevant firms. In case the innovation is systemic (in which simultaneous changes in several stages of production is required) Langlois and Robertson (1995) argue that there is the likelihood of vertical integration. Similarly when there are delays in both types and the delays are long, vertical integration resolves the simultaneously present coordination problems, because the incumbent will have to generate information on strategies that other firms can implement as well as the incumbent will have to muster coordination of the entire chain of systemic innovation. In case the innovation is autonomous and the delays necessarily shorter a large number of cooperation tools would suffice. And when there is only one type of delay market based transactions or when both the delays are of near zero duration simple market based relations would be able to resolve the coordination problem. Institutional arrangements of the type vertical integration according to this argument appear necessary only under specific circumstances.

According to this thinking, longer delay caused by systemic innovation can be managed as per pre-reconciled plan. There is little uncertainty involved. Autonomous innovations according to this argument would experience shorter delay. Both these appear to us as unsustainable. Systemic innovations we understand as ex-post. Systemic innovations appear through an uncertain mechanism called by Shackle as 'orientation'. The delays and their lengths are attributable to this orientation. Delay as deferment refers to the postponement of the consumption with the expectation that there would be a profit at the margin; and the longer the delay or the 'average period of production' the higher is capital. "It is this orientation of the presently co-existing objects which solely contains what we are measuring when we examine the 'period of production'. Orientation is thought, design, intention, expectation. Thought is mutable and elusive, thoughts in different minds about 'the same' objects need have little in common." (Shackle, 1972: 322) An ex-post systemic technology offers solution to the plans 'now' made but there is little to ensure that such plans would indeed be executed. The binding to plan is ordinarily verified through committed or irreversible investments. The average period of production is computed from such plans "accepted for the time being as a basis of immediate action, but by no means guaranteed" (Shackle, op cit: 322). Technology dictates the current configurations that would give the plans stability in some 'short period'. Invariably advances in technology would tend to shorten this period "but the pace of innovation would itself be limited by economic considerations, by commercial organization and habits and by contracts" (Shackle, op cit: 322). We might understand an average period as per the plans made by all participants to be the production net in an

epoch, and the short period as per the plans made by participants to a systemic technology (as in a chain of Ecom usage) while a period even shorter as per plans made by those few who participate in an autonomous technological innovation, involving as it were a few through Ecom. However, we must emphasize that lengths of periods are determined more by economic states of affairs than by technological innovations. Increase in the average period, for example, Shackle argues, is never realized to the full because the production net is too lengthy and circuitous and negotiation with the net too protracted owing to the presence of durable equipment or the inertia caused by irreversible investment.

Epochal increase in the average delay reflects the general rise in capital and in divisions of labor. Systemic increase in delay reflects an increase in divisions of labor. The velocity with which an intermediate product might move through Ecom intermediaries reflects technological pace and the productivity but that hastened velocity cannot compensate for the lengthened divisions of labor. Prior to its appearance technology is uncertain, however, following its appearance, it determines the circuit of production and hence the plans for production. Human ingenuity reflected in the strategic moves, however, bypass such determinations by inventing and innovating further on economic organization of production. This step a firm takes with the hope of reaping a profit, which is beyond technological rent (the Schumpeterian profit) and which belongs to the Cantillon profit. The firm resorts to strategic surprise and evocation of expectation. Modes through which expectations can be raised include of course lengthening of the production net, bringing about novelties and surprises in combining resources or in design of contracts and finally in innovating upon new technologies and in engendering divisions of labor. To underscore, Ecom affords best such requirements of mediation.

Coordination under such circumstances must look forward to the future. The coordination discussed above referred to the plans made previously. Concurrent coordination refers to the adjustment process. However, plans for deferment of consumption and on surprisingly new forms of intermediate products and combinations thereof are unique to a firm. This plan refers to the present and the future. Incumbent firm expects that novel routes of production net will emerge from its strategic choices. Firms belonging to the strategic milieu expect that expectation of the incumbent follow a path that is advantageous to them. Coordination of expectations can be achieved through intermediations, acting as a surrogate for dialogues amongst the parties. A dialogue often continues for rather long, however, often taking off to a rounding up through the evolution of norms. A norm is not a rule. It is not a routine either. A norm is always robust when it speaks only of what parties are not expected to do and when it allows freedom to parties to write whatever their expectation guides them to. A norm sets in injunctions then. Injunctions allow a very large space to the parties in a dialogue to expect on expectations of others.

Strategic expectations of economic agents, several producers complementors and intermediaries experience deterrence caused by durability of investment. Durability reduces uncertainty, shows commitment and exacts reciprocal durability of investment from other parties. Ex-post plan and existing technological paths are durable too. Novelty in technology or innovation and reduced durability of investment allow economic agents to engender differentiation of labor and increase in lengths and numbers of nested circuits of a production net. An agent defers the consumption with the expectation of profit. Profit

would be allowed to this agent only if there are other agents who participate in the deferment and each of whom holds expectations on profits. The deferment must complete itself at a future time on approaching the average period of production. Similar to the normative dialogue these expectations need to follow norms in order to bring about completion of a particular production net. Norm guides the expectations of agents by disallowing them certain paths and the agents with the freedom to expect on expectations of others keep generating short-period nests and an average period dialogue by remaining within the norm. Short periods remain nested within the overall structure of the average period.

To put in another way, it follows from our analogy that divisions of labor does not possess uniqueness or some unique rationale. Divisions of labor across firms or across several groups, such as the intermediaries would then, we argue, be contingent to a situation of expectations. Such divisions retain fluidity. Designing an end consumable product through severalties of coordination might take several paths with several alternative and possible divisions amongst the participants who all join in the deferment-based expectations on expectation. The only binding that these groups or firms would consider necessary is what we have called normative binding. A great deal of ambiguity can be allowed in such engagements. Participants who could only guess based on partial and always evanescent evidences offered by the partners, use as it were a mix of axiomatic and subjective probabilities, or better still would be to think about potential. This potential gelled in time is the capital.

The argument of Krafft and Ravix' or Leijonhufvud's regarding the failure of market to offer solutions to coordination problem when there are two types of delays, namely that on information delay and investment gestation lags – has led to organizational and inter-organizational solutions. They including Teece or Langlois and Robertson, have found vertical integration of several firms as solutions to longer delays or varieties of contracts as solutions to shorter delays. We observed that delays when caused by strategic intentions or by changes in market-tastes or through increased divisions of labor, all of which appear consequent to Ecom, bring about uncertainties or expectations about future. The received argument refers to the alignment between plans made in past and the current states of affairs. The proposed alignment in received theories offers technological solutions (that tend to reduce delays) that raise efficiency and organizational solutions in the form of dis-intermediation. However, institutional solutions are different from such organizational solutions. Coordination in Ecom is an institutional problem and therefore it requires an institutional solution. Normative coordination is an institutional solution. Normative coordination limits the failures in coordination. An institution might not offer a particular organizational solution as the preferred mode. Several organizational or quasi-organizational including contractual solutions might be considered as specific solutions. Vertical solution, we would argue, need not be considered as the only preferred solution to coordination with long deferment. Vertical solution can be considered only when information being exchanged across firms refers to pre-reconciled plan. Information that cannot unambiguously describe a situation or that can remain incomplete evidence and is required to adjust to envelopes of expectations on the future – cannot even while exchanged help formation of vertical integration. Ecom offers such intricacies and hence eludes organizational solution such as achieved through dis-intermediation. Moreover, deferment in the received

theories is undesirable and technological solutions that raise efficiency have been proposed for reduction of its length. We argue technology fails to reduce the duration of average period of production. Contrarily technology increases this period of deferment, which represents capital. Technologies from firms who are not vertically integrated and who makes non-durable investment need not reduce the deferment period, and in circumstances might even hasten deferment.

Conclusion

End of the day following introduction of Ecom there could be fewer intermediaries in a vertical value chain. However, vertical value chains have lost their attractiveness in a time of increasing returns based scopewise innovations in product. Products in this setting of Ecom offer sequential competition. Firms and their customers coordinate their expectations on the next versions of products. Similarly, firms who are competing in sequence or in the same time must coordinate their expectations on each other because products from their stables must fulfill obligations of interoperability, as well as these must satisfy mutually agreed upon restrictions on quantity and prices. Coordination amongst producers too affords a cascaded deferment of both consumption and completion of a systemic product. These two types of coordination involve incompleteness of contracts, uncertainties and liquidity of investment. The length between production and consumption thus must create enough number of economic agents who can trade in risks, insurances, information and liquidity. The intermediaries, who in this Ecom environment are the cybermediaries, offer this service as the microstructure of market. Cybermediaries therefore emerge to fulfill this novel task. The economic value adding activities by these cybermediaries lengthens the circuit of production that terminates in consumption. A lengthened circuit indicates deferred consumption and a consequent rise in capital and in profit. Ecom therefore requires possibly more quantity of intermediation and surely novel modes of mediation. Necessarily little of this novel mediation takes place along the previous value chain. Most of the novel cybermediations appear in the scope direction and away from the vertical industrial segment. The economy under Ecom increases in the scope but not through Chandlerian large multidivisional firms. The economy increases through highly differentiated and variegated cybermediaries who lengthen the circuit of capital and in consequence who though through increasing the riskiness of a business increase the profit. This profit does not arise in technological innovations particularly of the kind that increase efficiency. Contrarily this profit is strategic because the cybermediaries arranges and then rearranges the configurations of a market and thus through bringing about surprise the cybermediaries reap in enhanced profit.

References

- Bailey, J. and Y. Bakos. 1996. An exploratory study of the emerging role of electronic intermediaries. *International Journal of Electronic Commerce*, 1(3), 7-20.
- Baumol, W., J.Panzar & R.Willig. (1986) 'On the Theory of Perfectly Contestable Markets', in J.Stiglitz & F. Mathewson (eds) *New Developments in the Analysis of Market Structure*. Cambridge, MA: Macmillan, pp. 339-65. or in Williamson (ed) (1990), pp. 456-482.
- Benjamin, R. and R. Wigand. 1995. Electronic markets and virtual value chains on the information superhighway. *Sloan Management Review*, 36(2), Winter, 62-72.
- Brynjolfsson, E. & M.D.Smith. 1999. 'Frictionless commerce? A comparison of internet and conventional retailers'. Working Paper, MIT Sloan School of Management, available at <http://ecommerce.mit.edu/papers/friction>
- Burton, A.F. and J.G.Mooney. 1998. The evolution of electronic marketplaces: An exploratory study of Internet-based electronic commerce within the American Independent Insurance Agency system. *Australian Journal of Information Systems*, November, 20-44.
- Chamberlin, E.H. 1933. *Theory of monopolistic competition: A reorientation of the theory of value*. Cambridge, MA.: Harvard University Press.
- Chandler, A.D., Jr. (1990) *Scale and Scope : The Dynamics of Industrial Capitalism*, Cambridge, Mass.: The Belknap Press of Harvard University Press.
- Chircu, A.M., & R.J.Kauffman. 2000. Reintermediation strategies in business-to-business Electronic Commerce'. *International Journal of Electronic Commerce*, 4, 17-42.
- Coase, R. (1990). "The nature of the firm", in O.E.Williamson (ed). *Industrial Organisation*. Aldershot: Elgar: 3-22
- Dixit, A. & B.Nalebuff. 1991. *Thinking Strategically*, New York: Norton.
- Domowitz, I. 2001. 'Liquidity, transaction costs, and reintermediation in electronic markets'. eBusiness Research Center, Pennsylvania State University, WP 4-2001.
- Giaglis, G.M., S. Klein, and R.M.O'Keefe. 2000. Disintermediation, reintermediation, or cybermediation? The future of intermediaries in electronic marketplaces. (Mimeo)
- Goodhart, C.A.E.1989. *Money, information and uncertainty*. London: Macmillan.
- Grossman, S. & O.Hart (1990). "The costs and benefits of ownership: A theory of vertical and lateral integration", in O.E.Williamson (ed) *Industrial Organization*. Aldershot: Elgar: 252-280.
- Hart, O. (1988) 'Incomplete contracts and the theory of the firm'. *Journal of Law, Economics and Organization*, vol. 4(1), pp. 119-40.
- Krafft, J. (2000) (ed) *The Process of Competition*. Cheltenham: Edward Elgar.
- Krafft, J. & J.L.Ravix. (2000) 'Competition and Industrial Coordination', in Krafft (ed), pp. 143-164.
- Langlois, R.N. & P.L.Robertson 1995. *Firms, markets and economic change*. London: Routledge.
- Leijonhufvud, A. (1993) 'Towards a Not-too Rational Macroeconomics', *Southern Economic Journal*, vol. 60(1), pp. 1-13.
- Malone, T., J. Yates and R.Benjamin. 1987. Electronic markets and electronic hierarchies, *Communications of the ACM*, 30(6), 484-97.
- Meck, A. 2001. 'Shopbots, powershopping, powersales: New forms of intermediation in E-Commerce – An overview'. Beitrag 203, Volkswirtschaftliche Diskussionsreihe, Universat Augsburg.
- North, D.C. 1989. "A transaction cost approach to the historical development of polities and economies", *Journal of Institutional and Theoretical Economics*, 145, 661-68
- Pan, X., B.T.Ratchford., and V. Shankar. 2001. Why aren't the prices of the same item the same at Me.com and You.com? Drivers of price dispersion among e-tailers. EBRC Working Paper 11-2001. Pennsylvania.
- Picot, A., C. Bortenlanger, and H. Hohrl. 1997. Organization of electronic markets: contributions from the new institutional economics, *The Information Society*, 13, 107-23.
- Porter. M. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.
- O'Hara, M. 1997. *Market microstructure theory*. Oxford: Blackwell Publishers.
- Richardson, G. B. 1960. *Information and Investment*. Oxford: Oxford University Press.
- Richardson, G.B. 1972. 'The organization of industry', *Economic Journal*, 82: 883-96.
- Richardson, G.B. 1996. 'Competition, innovation and the increasing returns', DRUID Working Paper no. 96-10, Aalborg: DRUID.
- Richardson, G.B. 1997. 'Economic analysis, public policy and the software industry', DRUID Working Paper no. 97-4, Aalborg:DRUID.

- Richardson, G.B. 1998. 'Production, planning and prices', DRUID Working Paper no. 98-27, Aalborg: DRUID.
- Romer, P. M. 1987. Growth based on increasing returns due to specialization. *American Economic Review*, 77(2): 56-62.
- Sarkar, M.B., Butler B., and Steinfeld C. 1995. Intermediaries and cybermediaries: A continuing role for mediating players in the electronic marketplace, *Journal of Computer Mediated Communication*, 1(3), Special Issue on Electronic Commerce, <http://www.ascusc.org/jcmc/vol1/issue3/vol1no3.html>
- Schmitz, S.W. 2000. The effects of Electronic commerce on the structure of intermediation. *Journal of Computer Mediated Communication*, 5(3), March. <http://www.ascusc.org/jcmc/vol5/issue3>
- Shackle, G. L. S. (1972). *Epistemics & Economics: A Critique of Economic Doctrine*. Cambridge: Cambridge University Press.
- Storey, V., D. Straub, K. Stewart, & R. Welke. 2000. 'A conceptual investigation of the Electronic Commerce industry', *Communications of the ACM*, 43(7), July, 117-123.
- Teece, D. 1980. 'Economics of scope and the scope of the enterprise'. *Journal of Economic Behavior and Organization*, 1(3): 223-47.
- Teece, D. 1986. Profiting from technological innovation: implications for integration, collaboration, licensing and public policy. *Research Policy*, 15: 285-305.
- Teece, D. 1988. Technological change and the nature of the firm. In G.Dosi, C.Freeman, R.Nelson, G.Silverberg and L.Soete (eds) *Technical Change and Economic Theory*, London: Pinter. :256-81.
- Valimaki, M., and P. Martikainen. 2001. Online intermediary liability framework. HIIT, Helsinki, Finland.
- Williamson, O.E. 1975. *Markets and Hierarchies*, New York: The Free Press.
- Williamson, O.E. (1985) *The Economic Institutions of Capitalism*, New York: Free Press.
- Wind, J., & A. Rangaswamy. 2000. 'Customerization: The second revolution in mass customization'. eBusiness Research Center, Pennsylvania State University, WP 06-1999