The Social Behaviors in Conducive Production and Exchange

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Conducive production (the concept developed in the first article of this issue) is a process of creative coordination in production, which also contributes to the development of the social fabric. To understand how, this article looks inside the conducive production process and examines how producer and consumer activities link together in collaborative dialogues. The conventional views of economic man *are contrasted with this new view of productive human beings in the* jazz economy. *Jazz is used as a metaphor for the interactive processes of creation and coordination in the conducive economy.*

Keywords: *conducive production; exchange theory; skill development; economic man; jazz improvization*

In this article, the concept of conducive production is linked to the idea of market exchange. In the conventional economic model, *production* is a narrowly bounded activity involving stable groups of participants, long-term social interactions, and common jargons. *Marketplace trade*, on the other hand, is supposed to occur between strangers with no previous interaction or future expectations of social interaction. Thus, the fact that the market, the major societal-level activity in our current economic model, can occur without contributing to building of the social fabric of society is a major reason why another model is needed.

Our goal is to supplement the existing model with an alternative where productive activities can contribute to the development of the social fabric. As can be seen below, the conducivity model, when embedded in a larger social context, makes much less distinction between production and exchange. Exchange represents the same creatively combinatorial activity as does production, albeit with a less permanently defined group of participants (see the definition of *social exchange* below). Conducive exchange participants are no longer anonymous, and the rules for constructive interaction are meant to build the fabric of communities, cement creative associations of producers at all levels, and embed the family in a social environment that is more supportive of its socially reproductive functions. To understand how this could work, we need to look inside the production and exchange processes and examine how production and consumer activity might be alternatively linked together. This requires a microlevel dissection of the conducive process above (Karasek, 2004 [this issue]), and one new analytic tool. We will have to apply the new analytic tool to both conducive and market exchange, examine the aspects of exchange usually omitted in conventional economics (see Appendix), and allow a comparative understanding.

The new model is based on the broader definition of a social action: social exchange—a value-creating process, which requires more sophisticated human behaviors and communication processes. The less elaborated, conventional (neoclassical) economic model implies only two activities, separated by the marketplace: (a) selecting (or buying) in the marketplace and (b) making things of value for the marketplace. In fact, even the internal organization of production activity was never much discussed by neoclassical economists. (Adam Smith [1996], however, was the significant exception with his division of labor.) The communication processes that link these two activities in conventional economics are simplistic: Only information about price and quality products is to be communicated to consumers, and the parties

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are socially anonymous (and never expect to interact again).

Creative coordination introduces an expanded requirement for broadband communication strategies—strategies that allow transfer of information beyond price and quantity information. Our analytic tool in the section below will double the two basic activities above, to four activities that span across the market boundaries. This enables new forms of creatively productive social interaction to be described, such as (a) user-friendly design, (b) production processes organized by strong user need, (c) innovation copartnering via user-need specification, and (d) need definitions organized by strong production capability. These linking activities outside the firm are still a part of the production process broadly defined—that is, they are creative and value building. They make up a more elaborate market-like trading activity (social exchange) than the conventional market processes allow. The only difference between conducive production and conducive social exchange is that the former occurs inside a clearly defined organization and the latter occurs outside such a clearly bounded social unit, but possibly within a network. Conducive communication no longer requires—or allows—the social anonymity (and thus social alienation) of the marketplace to function in the most effective manner. They require more potentially elaborate horizontal forms of creative coordination and communication of information about mutual needs and capabilities than are common today in the mass production industries, which conform most closely to the conventional model's predictions (whereas conducive production is often found in technically innovative industries and in service industries).

These new communication requirements also represent the primary challenge of making the conducive, "jazz economy" effective. They will require training individuals in new and sophisticated forms of social discourse and interaction. To understand the social implications of the four bridging activities, we use improvizational jazz musicians' descriptions of their art as an example.[2] In later sections, we use *jazz* as a metaphor for the processes of creation coordination in the conducive economy. Almost any of the common definitions of jazz (Marsalis, 1996) tell us something fundamental about the behaviors of conducive coordination: (a) Jazz is based on skills, imagination, coordination, (and style); (b) Jazz is a dialogue where one musician plays and another musician answers, speaking to each other using each others' themes; and (c) Jazz is collective improvisation, with each player playing and the group modifying itself on the basis of individual contributions.

The fundamental characteristic of conducive social exchange distinguishing it from the economic market transaction is that it may take place between specifically identifiable individuals (in this manner similar to classical barter, but see below). The alienating anonymity of the conventional economic marketplace is thus removed. Social exchange, in its specific alternative forms, guarantees the possibility of transferring a much broader range of value from production than the economic market can transfer. We demonstrate below that social exchange is the more general form of commerce and that it logically reduces, in the special case of anonymous trading, to the contemporary economic market process of Western capitalism. Because the social exchange process has significant duration and significant social reciprocities, it represents a significant form of social structure and can be productive (it is more time limited, by definition, than a production organization).

Alternative Behavioral Presumptions for "Economic Man's" Behavior

The human behavioral model for the conducive economy requires a broader definition of human activity than model of human behavior which underpins our contemporary neoclassical economics. An important component of our current concept of "economic man" comes from Jeremy Bentham's (1789) model of a utilitarian social calculator in the marketplace. Bentham's economic man, with predetermined preferences for goods reflected in personal utility computations (all "pains" and "pleasures" were strictly measurable), was equipped to calculate the optimal decisions about all social choices. Little consideration of interactions with other individuals was needed in this individualistic calculus. Social decisions could represent the simple sum of all individuals' utility calculations.

Bentham claimed, and neoclassical economists have ever since concurred (contemporary Nobel prize–winner Olsen, for example [1965]) that this model described the set of human behavioral assumptions sufficient to validate the neoclassical-economic synthesis, which is the logical foundation for market-oriented social policy. It implies the need for no social decision processes except the decentralized marketplace available to everyone. This was an apparent

democratic political innovation in Bentham's time when the alternative was decisions under the unlimited control of a royal despot. However, two hundred years later, this same validating logic for rejection of social decision processes is now the cornerstone of the "privatization" movement, fostering a current society with its own set of threats to democracy. This is a major pathway through which Habermas's dystopian critique of a technical-rational world replacing the communicative-rationality world is coming about in reality.[1] Thus we claim that there could be broad justification for developing a more sophisticated set of socially collaborative and constructive human behaviors to model and guide economic life. Bentham's individualistic pain-and-pleasure calculus is far from a full description of our current economy.

Consider the following paraphrase of a modern corporate executive: This deal between our two companies cements a long-term bond of friendship and cooperation upon which we will build many future endeavors (Killing, 1980). What is being described is a corporate deal, certainly conventionally considered to be an economic transaction; however, in fact, it is being described as a platform for future joint growth—a production process based on two very specific productive parties—as opposed to a time-limited and clearly measurable commercial transaction between strangers.

The discrepancy is particularly obvious in the case of the technology transfer agreement, which in many cases would fit our conducive production model. Killing (1980) described technology transfer experiences involved in 74 British and Canadian license agreements, and 30 joint ventures (Killing excluded situations involving passive investors or simple takeover, i.e., excluding purely conventional monetary purchases). As Killing (1980) stated, there are these requirements for success:

1. The requirement of a skilled and active customer—"Even to function effectively as a technology buyer, a firm needs a certain technical competence. Otherwise it cannot evaluate what is being offered" (p. 45).
2. Social exchange processes must represent committed and specially structured social relationships. In technology transfer arrangements, the exchange process must be similar to a teaching experience. The effectiveness of the lessons must be constantly monitored by the teacher. Thus producer and consumer must be in close personal contact for a significant period of time; there must be guidance established for feedback and correction.
3. The requirement for feedback or two-way communication in the social exchange process implies relatively equal power, status, and relatively equal response flexibility between producers and consumers. The equity of any contract requires equal power to the producer and the consumer, otherwise, the consumer surplus will be expropriated by the stronger party only. This means that very large producer organizations, for example, modern multinational corporations could be very poor at conducive value exchange and production.

An Analytic Model for Conducive Production and Exchange

First, we define production activities to be those that occur within the boundaries of a defined social unit (some form of organization, it could be called the firm) toward a specific goal. Within the production process are a combination of capabilities (perhaps workers' skills) that create the valuable goods or services (the product generation process) that will be sent outside the boundary into the society. The society outside is often now termed *the marketplace*; however, as we will see, the conventional marketplace definition is too restrictive for conducive processes. The user—the equivalent in our approach to the consumer—is outside the boundary of this social unit (the firm) and sends signals about needs to the production unit, providing its goals. The signal, in turn, generally arises as a result of the user's pattern of capabilities (as was discussed in the New Definition of Needs section in Karasek, 2004). Thus, need-generation and product-generation processes are modeled by this analytic tool.

Conventional Market Production and Exchange

Here we apply our new analytic tool to conventional market trade. To clarify the importance of communication of needs and production capabilities, Figure 1 shows a conventional market trade loop between a producer and a consumer divided into four subactivities, represented by four numbered arrows (each anchored with a base block to show the point of initiation of the activity): (1A) Producers offer goods and services to the market; (2A) Consumers select (buys) from the

Figure 1-A-1: Pure Market Exchange

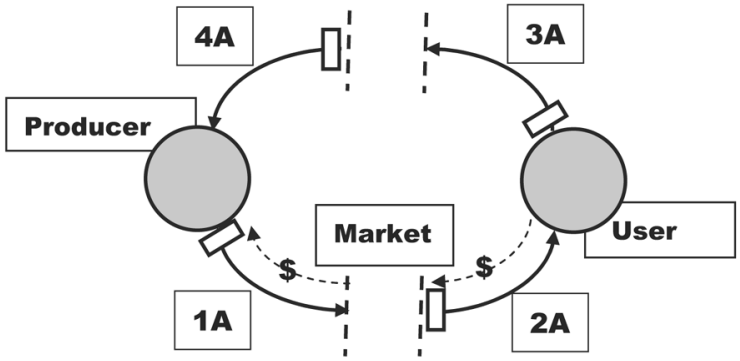

Figure 1-A-2: Distorted Market Exchange

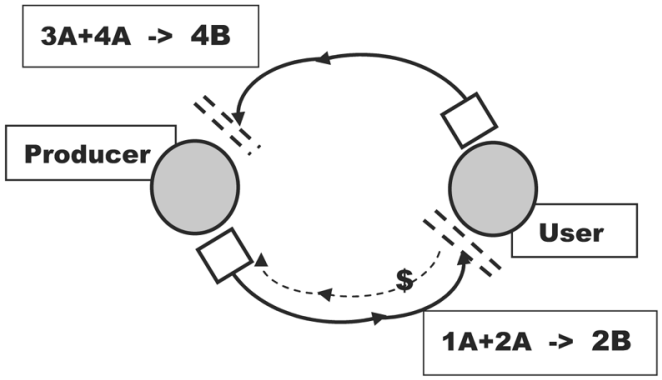

Fig. 1-B-1: Conducive Production & Exchange

Step 1

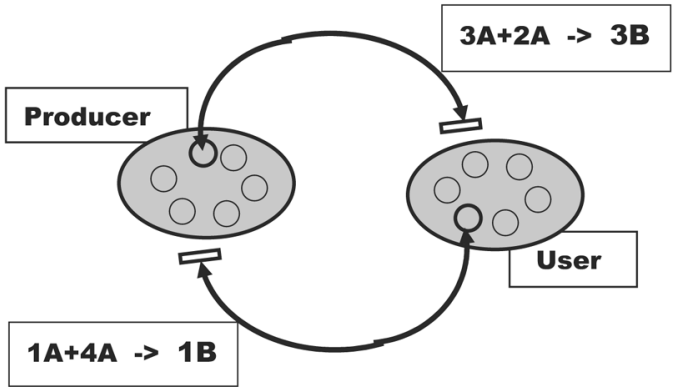

Fig. 1-B-2: Full Conducive Production & Exchange

Step 2

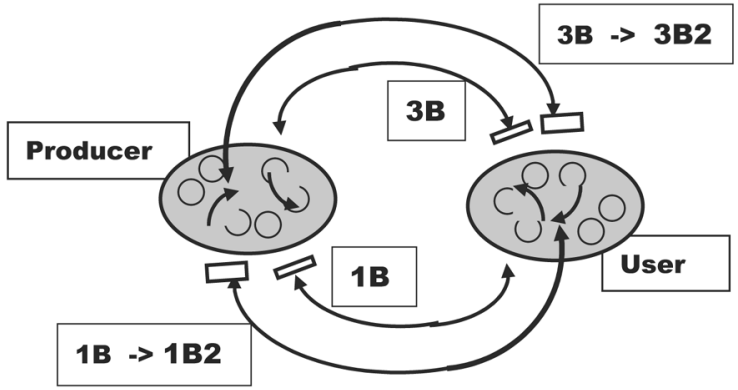

Figure 1 Pure Market Exchange

market; (3A) Consumers actively report their other needs to the market; (4A) Producers assess the needs of the market, to plan future production. (The flow of money in the opposite direction to the flow of goods in 1A and 2A, which standard economic textbooks would emphasize, is shown as a dotted line because it is not the major focus of this discussion.)

There is no communication directly across the market barrier from one specific party to another specific party—indeed, that is strictly forbidden in neoclassical economics. The market represents the generalized consumer to the producer, and the generalized producer to the consumer. Thus, there is a general and a specific component to market transactions. Trade occurs when the consumer finds something in the marketplace produced by a generalized producer (he or she does not know them) but that can satisfy the consumer's specific needs (Linkage 1A). The person's needs are the specific here, and the market is the general (and also the producer's production capabilities are a specific).

"Design" represents movement from specific to general. Design requires starting from a specific set of capabilities or needs (Linkages 1A and 3A, respectively) and transforming those into a set of requirements or products that are understandable or usable in the general marketplace. "Translation" is a movement from general to specific. Information about a set of production capabilities or a set of needs (Linkages 2A and 4A, respectively) that are available in the general marketplace is translated into the specific needs or requirements of that consumer or producer.

There is also an initiator of either a production-related or need-related process involving the partner who takes the initiative of instigating the exchange or combining the elements into a pattern. The initiator may be either the producer or the user (or outside in the market), represented by a small block at the base of the linkage arrow.

1. In Linkage 1A, the producer takes his or her set of internal production capabilities and organizes them to most effectively meet a very general need that he or she perceives to exist in the marketplace. He or she must, of course, have some sense of market needs to be successful; however, the producer is producing for a very general set of needs in the marketplace—not for the needs of one specific person. For example, a hardware producer might offer a line of door hinges and knobs that she or he thinks will fill the needs of most builders in the market.
2. In Linkage 2A, the consumer selects from the full set of goods that are available in the marketplace—the offerings produced for a very general consumer. The consumers select and adapt them to their very specific internal needs. In our door hardware example, a contractor would select the specific hinges and knobs he or she needs for a specific door in a specific house under construction.
3. In Linkage 3A, the consumer analyzes his or her specific unmet needs and tries to get them met, communicating using the categories of things that are typically used and produced in the marketplace. This is a kind of personal-made-public advertisement of which could ultimately be aggregated into a major new market need (often expressed as the amount of money spent on similar products). The contractor may need a piece of hardware that will automatically lock a door in an open position if pushed past a certain point. If producers have not offered such a product, the contractor may go together with other contractors, hoping to voice a common need for a new type of product. If many contractors carry out the same search process (and troublesome reworking of existing hinges), this new need can be communicated to the market. A specific need becomes a general need.
4. In Linkage 4A, a producer looks at the generalized needs that are expressed in the marketplace and responds with a new reorganization of production capabilities to meet those needs. The producer may acquire information about these unmet needs by a market survey. The producer responds to a generalized need (a hinge to make doors stay open) by producing a specific product, presumably that would be purchased by a broad group of customers—taking us back to Linkage A1.

Distorted market exchange, Figure 1-A-2. This figure describes what we would consider to be an enormous current social problem: the direct control of consumption by big producers and of small producers by big consumers. The freedom that is to come in the pure market economy is supposedly to come through free-

dom of choice at the market boundary; however, that is a fiction in these cases. The dominance relationship is one form of linkage, or bridge, across the market divide, a linkage with a strong one-way communication process. This dominance is shown in Figure 1-A-2 where the market boundary line is shifted radically—yielding a much bigger operating space for the big producer, or big consumer. What had been two separate activities now collapses virtually into one linkage: 1A and 2A collapse into an enlarged 2A—which we relabel as linkage 2B. "Mr. Producer: you do not have to go out in the market to find out what is needed: you will be told by Wal-Mart what you need to produce." Even in Sweden, the giant Konsumer's Federation (KF) specifies, via its ability to sell to its numerous co-op member consumers, a set of products that producers then see the advantages of making. On the producer's side, Linkages 3A and 4A collapse into an enlarged 4A, which we relabel as Linkage 4B: "Mr. Consumer, you don't need to think about choice in the marketplace, you will buy what General Motors sells you—another gas guzzler."

An unfortunate concomitant to this distortion of the pure market is that the hierarchical social organizational structure of mass commodity production, a consequence of Smith's specialization of labor principle, becomes even more extreme within these expanded big producers and consumers. The hierarchical control and the specialization inhibit the collaborative combinations of skills noted in the jazz quotations below.

Moving Toward Conducive Production and Exchange—in Two Stages

The primary difference between the market model and conducive model is that conducive production and exchange involves direct interaction—however it is a more constructive form of interaction than simple barter.[3] This direct communication can be thought of as a bridge between the two halves of the market exchange process. This direct communication occurs for all four of the above-noted processes. We describe two stages in the movement from the pure market economy to conducive production and exchange.

The specific configuration of production capabilities or its processes within the firm (see Appendix) is composed of productive elements that could be workers' skills or machines. This combination is called the *Set of Capabilities*. This is represented in Figures 1-B-1 and 1-B-2 by a set of tiny circles, each representing a worker's skill (or other production element), set within the larger circles that represent the complete production process to which they belong. The customer can also be a social unit, with a Set of Capabilities. Communication about skills possessed and needed, and how they link, is the primary topic of discussion in conducive production.

The first stage, Figure 1-B-1. Here a more benign form of bridging occurs—yielding the first stage of truly conducive behavior. The two parties in the market are bridged by direct—and two-way—communication, and the barrier of the intermediating market is fully removed. Interactive communication about needs and production possibilities replaces the consumer's process of going to the market to select (or for the producer to present). The interactivity is presumed to be mutually collaborative—a search for a common pathway toward a goal better than either party could separately attain—as discussed in the Needs section in Karasek (2004). For the producer, this means that the process of designing a good product, (Linkage 1A) is now combined with Linkage 4A—a producer requesting information about users needs (and now for a specific user) and using them to revise one's production possibilities: that is, user-friendly production, here labeled Linkage 1B. The producer's focus shifts from what a market might need to what this specific trade partner might need.

Typical examples are widespread in the present economy. A custom cabinet maker can create a kitchen, designed for the specific needs of that client only, through the medium of many meetings with that client. In the course of these meetings, producer and customer are involved in intensive learning. The customer learns about the capabilities of the producer and previously unknown design options; the producer learns progressively more about the specific customer cooking goals. In the service economy, for example, an organizational consultant will meet several times with relevant individuals from a corporate client to develop a customized set of training programs, including businesses services.

On the user side, the process of specifying a need is no longer conceived of as assessing what the market has to offer but what this specific partner could produce: Linkage 3A is combined with Linkage 2A—yielding what we call now Linkage 3B.

The second stage, Figure 1-B-2. Here the interaction is still a dialogue; however, one party takes a larger role in influencing the other. At this point we introduce the, above-defined, Set of Capabilities that each organization (or person) possesses. In this final stage of conducive engagement, a producer can influence the user internally in a constructive manner to facilitate or encourage new forms of production for the user (Linkage 1B becomes Linkage 1B2). This comes in the form of reordering that user's internal set of capabilities. For example, users in the need-specifying role have such a compelling demand to present to the producer, that the producer decides it is worthwhile to reorganize his or her entire production (set of capabilities) to take advantage of it; Linkage 3B becomes what we call Linkage 3B2.

Modifying the example above, our 1B2 cabinet maker might also offer a line of carefully designed computer furniture that could stimulate her or his individual clients to rethink the layout and use of their offices, facilitating development of more effective work routines inside those companies. Henriksson and Lindqvist's "Apartments on the Workshop Floor" (1977) was such an initiative by an architect.

Producers who want to cultivate a highly trained work force and flexible production capacity would want to produce for the 3B2 kind of customer because it helps to build workers' skills. There are certainly home-building clients whose concept of their dream kitchen is so unique and so compelling that our cabinet maker is motivated to arrange his or her production capacities to create this interesting new kitchen, and even buy some new tools for the challenge.

The reader may now ask whether this much influence is not just like the undesirable Figure 1-A-2 versions (Linkages 2B and 4B) of domination of one party by the other. However, this is different because the motivation structure of the participants is different—reflecting the new definition of needs (Karasek, 2004). In the case of the free market examples, market domination—monopoly power in production or consumption—represents a unilateral application of unmoderated power. However, in this conducive example—Linkages 1B2 and 3B2—the general motivations of the parties are to benefit through mutual collaboration, and thus the dominant party's attitude toward the other party is that of a benign outsider with collaborative control of a weaker party, with sensitivity to maximizing that party's developmental benefit, and without harming his or her chances for further independent collaboration with other parties. It should be noted that any dominance noted above derives from the influence of a good ideas, not a personal power base.

The last section of Figure 1, 1-B-2 (the outer loop), shows first what happens when 1B2 and 3B2 are combined, as they would be in jazz music. Here there is maximal creative coordination—with (a) two forms of bidirectional communication and (b) mutual internal modification of internal sets of capabilities.

Figure 1-B-2 also shows the full mix of conducive interactions, some involving a benignly dominant party and others involving a profoundly egalitarian interactive integration. Thus four linkages appear on the diagram: 1B and 1B2 and 3B and 3B2. This complexity of the mixture of coordination forms can be seen in Herbie Hancock's comment: "We were sort of walking a tightrope with the kind of experimenting we were doing in music, not total experimentation, but we used to call it 'controlled freedom'" (as cited in Berliner, 1994, p. 341). The difference between the maximally interactive and the benignly directive modes are illustrated in the different band-leading styles of two great jazz musicians from the 1920s. Marsalis (1996) contrasted the more directive approach of Jelly Roll Morton, who wrote out the scores (simple music, easy to hear the individual musicians—a 1-B-2, in fact, almost a 2-B style), to that of King Oliver, who was more improvisational (a bit halting and awkward at the beginning but really takes off after people get into the themes—a 1B style).

Summary of Analytic Model

We now review the four conducive communication linkages in terms of their general, logical properties (see Appendix). All four directly link producers and consumers without the market separation. In the first bridging activity, 1B2, the pattern that governs the final form of the joint activity is determined by the set of capabilities within the producer; in addition, initiation for the interaction comes from the producer; however, the producer facilitates the user's development. An even more user-friendly linkage is 1B, where the initiator is again the producer; however, the final form of the joint producer interaction depends more directly on the pattern of needs of the user. Aspects of this pattern are seen currently in our economy as customized production, niche production, or possibly mass customization. A third linkage, 3B2, involves a major

user, whose patterns of needs are so compelling that they affect the internal set of capabilities the producers use to generate output and also provide the initiating impetus for the joint transaction. However, this powerful user operates to facilitate the producer's development. In the final user-driven linkage, 3B, the initiation and the process of producer-user interaction again comes from the user. However, production configuration of the producer (possibly a very small producer) determines the shape of the final output. This example, where the user honors and encourages the producers' response, is illuminated via the jazz music and audience response examples below.

The bridging functions can also be categorized in terms of power relationships. A cursory look at Figure 1-A-1 shows that the arrows are unidirectional in Linkages 2B and 4B; the bridging activity is initiated without expectation of a detailed response from or participation of the other party. In Figure 1-B Linkages 1B and 3B, on the other hand, involve extensive two-way communication among relative equal parties—a dynamic and adaptive process. Linkages 1B2 and 3B2 are initiated by somewhat more dominant producers or users whose offerings or needs organize the response of the receiver; however this is done in a respectful and developmental manner. Linkages 1B and 3B, in particular, allow and promote important egalitarian democratic social processes. All four linkages, particularly 1B and 3B, have qualities that capture one stage or another of the innovative, improvisational interactions so characteristic of jazz.

The conducive social exchange process actively supports creative linkage of capabilities and thus is a form of social structure that produces value. In addition, because these are socially integrating economic and social transactions, with significant duration and significant social reciprocities, these activities contribute to the strength of the social network. The interactions represented by Linkage 1B or 1B2 can produce an important set of tools to help define user needs and build internal user coordination and the capabilities of the users. As recursive communication continues, this user growth can, in turn, stimulate the producer's own capabilities, as shown in the conducive value diagram (Figure 1 in Karasek, 2004). Linkage-activity 3B represents an adaptive partnering, which can build the self-esteem of the producer. Linkage 3B2 can increase the effectiveness of the producers' capabilities and train their internal coordination processes to be able to respond to effectively transmitted needs from the user.

The more obviously democratic linkages are 1B and 3B where the initiator and the determining pattern are supplied by different actors in the transaction. Clearly, here is a need for much coordination. The initiator might be especially adaptive to the users' needs, making the customers feel good because they have gotten just what they wanted—however, this occurs in the context of an interaction where both parties' wisdom and capabilities are equally significant (the architect-client relationship is often described this way when successful). Although less often discussed, the needer (user) can also be the initiator and stimulate a production activity that is uniquely relevant to the producer. In this manner, the producer's capabilities are being validated by being honored by a very appreciative user. This so-called angel role of helping the other actor in both these cases helps the group or collective. Thus people who can perform in this manner are much sought after and are very valuable to the survival of creative groups. They can be well rewarded by the group for providing such services.

The initiator must be smart enough to understand the other actor's pattern. In addition, there must be very good communication facilitated by common languages (from practice together perhaps) between both parties. It will take a while to get to know each other—some learning will occur via response to initially sensitive interactions (in jazz). The action is designed to make the other party feel good in some manner, as well as to do something jointly constructive. However, this form of assistance should not be confused with other social reciprocity models in which the joint activity is undertaken to make the other person feel obligated (a major proposition of the sociological area known as *exchange theory,* which has some similar propositions to neoclassical economics), because the anticipated constructive output is the social glue.

Finally, it is possible that individuals who are deprived—socially or economically—may be less able to respond in this long-term manner (apparently, but not really, altruistic, because it pays off to individuals in the long run). Thus, general economic conditions may be a contingent factor determining the applicability of the conducive production model. One example of a clearly deprived group, observed to display extremely selfish and collectively destructive (and not at all conducive) behavior was the hunger-starved Ik tribe in northern Uganda, during a long period of famine described by British anthropologist Turnbull (1972).

Four Linkage Activities in Detail in Jazz Music

Linking-activity 1B represents an interaction in which the producer organizes her or his production capabilities to adaptively meet the needs of a particular consumer in the most user-friendly manner. However, this bridging arrow is bidirectional; the success of the economic exchange depends on exchange of information between producer and consumer. In jazz, a producer responds to a particular user or comusician, and this user, in turn, replies to the producer, leading to continual adaptation of offerings and needs in the improvisation process. In the quotation below, the master percussionist Max Roach revealed how closely he tailors his product to the specific needs of the user and his comusicians. He organizes his production capability to produce a very different sound and feel for each new need. As each new solo instrument enters, it creates a need for a different percussion texture and feel.

> While every different situation presents special problems, there are some cardinal rules. For example, you should try to match the timbres of the particular instrument you're accompanying. If a piano solo is followed by a saxophone solo, you should give each proper consideration, using your imagination to play things that are musically appropriate behind each player and making the multiple percussion set blend with the entrance of each new instrument. To change and keep everything interesting, you might use brushes on the snare drum to accompany the pianist and then switch to sticks on the cymbals when the horn player enters. If there's a soft passage where a trumpeter is playing with a mute, you wouldn't pick up some heavy sticks and start pounding. (cited in Berliner, 1994, p. 346)

In linking-activity 1B2 the producer, who may be a large-scale producer, has such an effective production idea that it can modify or expand the needs of a potential user. The user-consumer, on seeing the offering, realizes that this very effectively produced good or service will be of value, perhaps filling a need that was heretofore poorly understood or expressed. Although common in the present economic world, 1B2 interactions are not always easy to identify in the jazz context. This is primarily because, in the adaptive exchange among players, it becomes very hard to identify what is a product and what is a need. In jazz, the activity of communicating needs must also be carried out by playing music, and thus is very similar to the production process—which of course is playing music.

> I'd play the line for awhile [lines that Ahmad had composed for Don Pate], and then, when it became too repetitive for me, I'd change the line and play something else. Then Ahmad would turn around at the piano like the strict disciplinarian he is, and say, "Only play the line! Only play the line!" But being rebellious like I am, I would continue what I was doing. I would acknowledge the line and go in and out of it. . . . Eventually, Ahmad would give up his vocalizing, "Play the line!" and if you played something that he liked, he'd play your line back to you on the piano and smile. So, that was his way of compromising or giving. He still wanted you to play the line, but at the same time, if you took the risk and had the creativity to augment it, he was large enough to accept it. (Pate, as cited in Berliner, 1994, p. 429)

Linking-activity 3B2 is initiated by a user who has such a compelling and effectively communicated need that producers look at this need and reorganize their production capabilities to meet it—a less reciprocal activity than Linkages 1B and 3B. In this case, a powerful, effectively communicated need of the user is capable of causing the producer to reorganize her or his capacities and processes to meet that need. The communication may not be as directly tailored to the receiver, perhaps a small-scale producer.

> If I would play with Horace Silver, I would learn something about drive, because Horace was so strong on the piano. If I would play with Blakey, I would also have to play something interesting, something with life in it. If you played something dull, then it was just like you were in their way. Horace and Art were supposed to be playing background for you, but at the same time, they were really driving you and pushing you. And if you didn't respond, you might as well stop playing and let them go ahead without you. They didn't let you coast. You had to get into it. (Farmer, as cited in Berliner, 1994, p. 372)

In this example, Art Blakey and Horace Silver are creating a need for Art Farmer's solo, ostensibly creating an accompaniment for the solo. However, in fact, the need has a powerful, and somewhat impersonal, driving force but is still developmentally focused. Consider our contention that the interactions of the conducive economy are self-motivating, and growth producing. It is important to note that Farmer is not complaining about being driven in this way. Quite the contrary, he is excited by having his capabilities challenged. He is pushed to perform at his best.

The last linking activity, 3B, involves a kind of adaptive partnering and is perhaps the most unique kind of linkage behavior noted here. In this case, the user-consumer is the initiator; however, the user's needs do not define the producer's response, as in 3B2 above. Instead, the user very effectively shows the producer how the producer's capability can be specifically useful in filling the need—in effect honoring the producer capabilities—perhaps capabilities he did not even know he had. The user builds the self-esteem of the producer by showing how relevant his or her capabilities are. Of course, the user does have some limits depending on what producer responses or offerings are useful. However, the experienced consumer can be very creative about the process of becoming an effective user to maximize the impact of the producer's capability. If you are a jazz musician, you can pick out the specific capabilities that your musical partner has (that partner might not be thinking of at the moment) and honor them in a specifically designed passage (which is a way of expressing a need). This passage, if well designed, will trigger the musical offering or contribution of that partner, showing the partner how important his or her capability is by how carefully you have set it up. In other words, you can make the producer feel good about his or her production capabilities.

An excellent example of 3B activity is described by Marsalis (1996) in discussing the break. The break is a time when the jazz groups senior players give less senior musician their so-called big chance to play a solo selection in the middle of an improvisational sequence. The musicians are given the chance to lead the rhythm of the group—sink or swim. However, even though they show off their own talents, they are to do this in the context reflecting the harmonies and themes of the group's current improvisation (i.e., King Oliver giving the younger Louie Armstrong the chance to improvise a quick harmony to Oliver).

Putting Linkages Together Into Sequences

The producer-user exchanges above often occur in sequences. For example, Linkage 3B often occurs in sequence with 1B. This can make it hard to separate in jazz quotations. Both activities involve active learning and adaptation on the part of the producer and the consumer. It becomes less important who initiates the interaction. The configuration of the overall transaction is what is most important.

The ideal conducive economy encourages participants to continually improve their products, revise their needs, and expect continuous improvements in economic and social relations. Thus, the examples given for 1B above are also relevant to 3B. As Art Farmer put it, "You never say: 'Well, this is it, it's finished.' You're always on your way somewhere. To me, playing is generally a never-ending state of getting there" (as cited in Berliner, 1994, p. 284-285). These processes have been as important for the breakthrough innovations of modern technology. Steve Jobs, with a small band of computer software and hardware engineers, worked so energetically in the breakthrough development of the Macintosh and Lisa computers at Apple Computer because "the journey was the reward," and of course it was a conducive, skill-developing personal bonanza for many of those who worked on it.

Jazz musician Curtis Fuller described an improvisational sequence that begins with a 1B interaction, a producer creating a product tailored to a specific user need, but quickly the dynamic of the engagement of the audience adds 3B interactions.

> If I play that and I see someone sway or someone says, "Yeah!" I'll stay right on this because they understand where I'm coming from, and I've got this going for me. . . . I'll deal with that phrase and expand on that, develop that. . . . And when I see those little interests tapering off, I'll say "All right now, come on. Let's try something else and take it another way." I'll put something else out there in my solo, and I flirt with it to feel them out to see what the response would be. It could be something melodic or rhythmic, something like a quotation, but not a gimmick. Just something that would stir up their interest. When I get that audience around that, they won't let me off the stage. (as cited in Berliner, 1994, p. 468)

The process follows rules derivable from its developmental focus, the equalitarian goals, and the requirements of social reciprocity; however, it is also dynamic. In the Pate quotation noted above in 4B (p. 465), a directive 4B interaction evolved quickly to a more accommodating 3B exchange (to maintain a positive personal chemistry between the players one suspects). The combined economic-social exchanges in which we engage every day often incorporate elements of several different linking activities and can follow different pathways to similar (if not exactly the same) destinations. The combination of sequences of these steps in the proper sequence describes the sources of the motivating energy behind the economic dynamic of the conducive production diagram (Karasek, 2004).

Conclusion

These jazz quotations clearly reveal the communicative nature of the value transactions:

> You don't know what the other player is going to play, but on listening to the playback, almost every time, you hear that you related your part very quickly to what the other player played just before you. It's like a message that you relay back and forth. *You want to achieve that kind of communication when you play* [italics added]. When you do, your playing seems to be making sense. *It's like a conversation* [italics added] (Tommy Flannagan, cited in Berliner, 1994, p. 369).

These examples illustrate a major difference from the model of man represented by Bentham's computationally-exact, interactively repressed, omniscient data gatherer with preordained tastes: the economic man.

Interestingly, Marsalis (1996) pointed out that the birthplace of jazz, New Orleans, Louisiana, in the early 1900s, was a diverse amalgamation of people with all types of backgrounds who had to relate to each other on the basis of equality—French, Spanish, and Mexican. They all included their music in a polyphonic improvisation of blues, ragtime, and street—with everyone coming in playing differently. It was harmony through conflict—but conflict with a strong collective purpose and with mutual respect. This appears to be a good historical example to illuminate the creative coordination behaviors needed in the conducive economy.

Appendix
The Logic of Conducive Combinations and Characteristics of the Set of Capabilities

The primary activity of conducive production processes involves creating new combinations of specialized skills which are of value for users. The underlying logical rules for optimally combining inputs—the basic activity of production—differs dramatically between conventional neoclassical economics and conducive production. In neoclassical economics, production inputs are presumed to be completely separable, and simply additive: The whole will always equal the sum of the parts. Such assumptions allow use of simple analytic models and powerful matrix algebra to determine levels of inputs and prices of outputs (see modern economic classics such as: Sraiffa's *Production of Commodities by Means of Commodities*, 1960], and Dorfman, Samuelson, and Solow, 1960)—with human beings, unfortunately, forced into this mold as an element similar to any other.

In conventional neoclassical economics, the firm is actually only a black box in which inputs are turned into outputs, in specific proportions, and with specific prices; however with absolutely no other internal mechanisms specified (although Adam Smith, the exception, actually did specify a division of labor). Other common concepts in this analytic perspective are unidimensional ranking, linearity of association between elements, sequential ordering, predetermined specification of a goal, and determination of the unique least-cost pathway toward a goal.

Conducive production, on the other hand, requires understanding of the very specific associational properties of each participant's skills and capabilities. The sum is almost always different from, and usually greater than, the sum of the parts. A particular set of elements (the Set of Capabilities) calls forth a particular best combination of the whole. The elements suggest a gestalt, an image of the whole in the terms of modem psychology (Haider, 1956): a pattern that has a specific boundary and specific elements in a particular relationship to each other, and where adding an element or changing the boundary changes the whole gestalt, not just the scale factor for proportions (such as one ton of coal, for two tons of iron ore).

This requires a new system of logic because of the importance of the relational specificity of association. Similar to *shade*, *hue*, and *complement*, there can be a special relationships between inputs of a certain distance from each other (i.e., skills with a certain relationship to each other). In such a "color logic," because there are only so many colors per-

ceivable to the human brain, moving off one end of the color spectrum puts one back at the beginning: a cyclical relationship (when you go from red to violet the next step is from violet to blue). There is thus a limited boundary for a whole within this type of logic system (whole being, for example, the new idea for a good and feasible product), and a pressure for completeness. This can mean that completing the last open element in a set of elements to fulfill a particular user need carries almost a motivational force. The skills are so related to each other, and the joint action so close to being realized, that they cry out to be completed by the missing skill to form the combination for some user.

Several concepts commonly used in these conducive combination discussions, and inconsistent with conventional economic calculus, would be the following: (a) elements that are supplementary, complementary, or redundant, or incompatible—finding contrasts, matches, and so on suggest color matching; (b) elements having common properties (speaking a common language) so they can hook together; (c) elements that are close together or far apart; (d) the overview of the elements; (e) the overview-element linkages: the manner in which the subcomponents are associated with the whole; and (f) closure of the combination of elements.

The kind of subdivisions between production elements that were created for Smith's mass production manufacturing, that is, entirely independent elements, with minimal interaction with other elements, are not the best elements for conducive production. In conducive production, the issue is recombination of specialized elements—hooking together of components—and the recombination process generates its own logic of associations. And now the elements are likely to be the nonmaterial skills.

The important issue is finding the correct building blocks that have the right combinatorial possibilities. One requirement of combinations is the requisite variety concept of Ross Ashby (1956). The notion is that enough building blocks must be available to the organizer-combiner that have a variety of contributions, so that the combinations created will be sufficiently variable and rich. If there is no such variety of inputs, there is no advantage to be obtained from alternative combinations of these inputs. In addition, if there is no variety of combinations of actions available to the organizer, then that organizer will not have power to effectively deal with unpredictable challenges in the environment, and the organizer will perish.

Notes

1. The issue is becoming more critical with the privatization movement of the 1980s and 1990s: Market activities in the eyes of many economists should replace other social forms of productive activity and previously public infrastructure activities, that is, school, health care, elderly care, and community organizational activity, should all be privately owned and sold at a profit to participants (presumably to make these activities more efficient).

2. Most jazz quotes are taken from a volume devoted to understanding the creative process of jazz (Berliner, 1994).

3. Barter exchange would represent the most basic version of this figure, involving two parties, each one being a producer and a consumer with two-way communication as in the conducive production.

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