The Entrepreneur as a Constructor of Connections

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Abstract
This paper attempts to recast the entrepreneur by synthesizing ideas from personal construct psychology and systems-based evolutionary economics. It retains an Austrian subjectivist emphasis but focuses on rapid product innovation rather than arbitrage. Profit opportunities are mental constructs that link products and revenue streams. Entrepreneurs develop new products by forming novel connections between existing product elements and diverse technologies, mindful of the connections between these products and the complex structures of consumer lifestyles. These linkages are often formed in the context of large multi-product firms, as well as being the basis of new enterprises, so entrepreneurship overlaps with strategic management.

Key words: Entrepreneurship, evolutionary economics, globalization, ‘parts bin’ manufacturing, product tie-in, lifestyle

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Introduction

This paper is an attempt to recast the Austrian view of the entrepreneur in the light of two recent works with which I have had some involvement. The ‘constructor’ theme comes via a PhD on the nature of entrepreneurship by Christine Woods (2002), for which I was an external examiner. Woods investigates the topic both theoretically and empirically via the Personal Construct Psychology of George Kelly (1955) that had earlier influenced my own writing on business behaviour (see Earl, 1984; Harper and Earl, 1996). The ‘connections’ theme comes via a recent book by Jason Potts (2000), which shared the 2000 Schumpeter Prize and was based on a PhD that I had the pleasure of supervising. Central to Potts’ analysis is the contention that mainstream neoclassical economics differs from heterodox varieties, Austrian economics included, by taking the mathematical notion of a ‘field’ as the basis for its perspective on the nature of an economic system. The key feature of a field is that each element in the system is connected to all the other elements in the system, and hence the system has no structural architecture of subsystems and hierarchy. When mainstream economies tries to emulate physics—rather than, say, chemistry—as a ‘hard science’, it sets out to emulate the field-based discipline par excellence. Potts contends that, one way or another, the critics of mainstream economics are operating from a perspective that sees the operations of economies as being affected by the failure of their component parts to be linked so comprehensively.

Instead of viewing the economic system from a field perspective, Potts follows Koestler (1975a) in seeing the world as a system of systems that are themselves composed of systems, and so on: economic agents are complex biological systems operating in complex social and physical environments. From this standpoint, much of entrepreneurial behaviour entails the construction of new systems by forming connections that have not previously existed. Since this connection-constructing process is selective, it is appropriate to consider the workings of entrepreneurial minds before we consider physical and institutional areas in which entrepreneurs play a social role by putting new connections in place. It is here that Woods’ critique of Austrian thinking and her alternative focus on the mind as something that constructs hypotheses is significant. I then explore the kinds of connections that entrepreneurs can construct, particularly given that consumer lifestyles are themselves systems of connections. This leads to a discussion of what the connectionist view of entrepreneurship implies about the dividing line between entrepreneurship and management, followed by a concluding section that reflects on the perspective offered with particular reference to the theoretical role of the entrepreneur in an age of globalization.

Throughout the paper, I make copious use of examples, mostly from the music, publishing and automotive industries, to illustrate the kinds of connections that entrepreneurs form. We are not dealing here with a simple idealized world of trade-offs between alternative bundles of apples and oranges, but the real world of complex systems. Of necessity, therefore, the examples have to be much more detailed than economists are prone to employ and at times the style consequently looks more like that in marketing (where the introspective writing of Holbrook, 1995a has been a major inspiration) or management.

The construction of profit opportunities

Kirzner’s (1973) view of the entrepreneur as having a superior capacity for alertness to profit opportunities is problematic in that it fails to address the issue of how opportunities come to be
perceived. Entrepreneurs may well differ from the general public in terms of the extent to which they go through life ‘on the lookout’ for profit opportunities but profit opportunities are not things that lie around waiting to be found, to which are already attached labels marked ‘profit opportunity’. Rather, as Woods (2002) argues, entrepreneurs construct them as possibilities in their minds. This entails making connections.

Consider the case of an academic publisher as an entrepreneur. In Kirznerian terms, we might expect enterprise to take the form of the publisher having an idea for a book and signing up an author or editor to prepare a manuscript. But the idea for the book does not in itself constitute a profit opportunity until the publisher has attached to it his/her vision of its potential costs and revenues. Only when that attachment has been made can the publisher see whether it is worth proceeding with it. The same applies when the publisher receives an unsolicited book proposal. In effect, the would-be author is saying, ‘I construe this a profit opportunity’ but whether or not it becomes one in the eye of the entrepreneur depends on the prospective net revenue stream that the latter assigns to it. If the publisher sends it out to academic referees, their constructions of it as a profit opportunity may be rather different because they lack the publisher’s knowledge of how somewhat similar books have turned out in terms of costs and revenues. Likewise, different publishers, with different pools of experience and different ways of forming conjectures, may differ over whether or not it could be profitable to take on a particular book. These conjectures sometimes change during the process of editing a manuscript. In the case of Holbrook (1995a), for example, the author’s laudable unwillingness to dumb down his manuscript beyond a particular point led to it eventually being published by a different firm (Sage) from the ‘Big Textbook Publisher’ (HarperCollins) that had originally asked him to write it (see Holbrook 1995a, p. xii; 1995b, pp. 650-1). In short, although not everyone will have a particular idea for a product or an arbitrage opportunity, or be informed of it by someone else, it is not awareness of the possible business activity itself that makes it a profit opportunity but the awareness of the activity combined with the imagined net revenue stream they attach to it.

To the extent that entrepreneurs do have original creative thoughts about what might form the basis of a business project, these too entail making connections. This is clear from the work of Koestler (1975b) and Shackle (1979), the former arguing that creativity entails a novel synthesis of existing notions rather than the construction of something out of nothing, and the latter seeing thoughts as based upon a limited set of elements that are capable of being combined in new ways, much as letters of the alphabet can be formed into new words. (This kind of perspective is also found in Adam Smith’s (1795/1980) writings on the history of astronomy, which Skinner (1979) drew to the attention of economists.) Clearly, people who can call upon different sets of ingredients will differ in the new ideas that they can construct, although different sets of ingredients may sometimes be combined to produce similar novel thoughts.

Entrepreneurs may not only differ from the general public in terms of the mental ingredients they employ and their tendencies to experiment mentally with making new combinations. They may also be more willing to take risks because they do not construe hazards that the rest of the population sees—either due simply to not thinking in terms of particular dimensions, or because they have extra thought dimensions in certain areas that lead them construe wider opportunities than the general public for gain and for managing problems. There is much work waiting to be done investigating these kinds of differences and their implications for policies aimed at promoting entrepreneurial activity.
Learning as the reconfiguring of mental connections

Harper (1996) portrays entrepreneurial learning as Popperian process of hypothesis revision. From the present standpoint, it entails entrepreneurs making changes in their sets of mental connections. In seeking to come up with more effective ways of viewing the world, decision-makers operate by imposing systems of thought on a problem that essentially has the format of a field. Whether they are aware of it or not, they need to avoid being paralyzed by what philosophers of science know as the Duhem–Quine thesis. This holds that it is impossible to test any single hypothesis in isolation from a larger set. (It is discussed in relation to the field issue in Hoover, 1994, pp. 302–3; see also Loasby, 1989, chapter 12.) In other words, when evidence at odds with a particular hypothesis is detected, the problem might lie not with the hypothesis itself but with other theories being taken for granted during the test. Unexpectedly low profits on a particular project might reflect mistakenly optimistic cost or revenue projections on the part of the entrepreneur, but need not do so. Possibly something unexpected is happening in the distribution chain, or something is amiss with the accounting information systems that are used, or someone ‘has their hands in the till’. Or possibly the answer lies in a combination of these factors and others not yet imagined.

If absolutely everything is taken as open to question, entrepreneurial activity becomes impossible. If one cannot have some degree of trust in others with whom one forms business connections, or some confidence that one has a better insight into what counts in a particular market or manufacturing process, there is no firm spot on which to build an enterprise of any particular form. To make decisions, the entrepreneur takes some things for granted and uses a particular set of core ‘do’ and ‘don’t’ rules (Earl, 1984, Harper and Earl, 1996) whose efficacy is taken for granted. When anomalies are encountered, these core elements in the entrepreneur’s world-view determine how they will be construed, in other words, which of the more peripheral elements will be adjusted and the form the adjustment takes. Sometimes, the entrepreneur may sever a particular connection whilst maintaining core constructs—for example, ‘I no longer believe it is going to be possible to make money from selling executive cars that do not carry premium brand names, but pulling out of this market does not mean we are thinking of giving up making cars in general’. Sometimes, the entrepreneur will change the connections between an element and other elements, possibly including new lines of thinking—for example, ‘If we are to maintain our share of the liquor market, we will need to integrate forward into liquor stores and hotels’. Sometimes, the addition of a particular construct will be associated with a change in the strength of connection between other constructs—for example, ‘Given the effect of the September 11 events in New York on travel and the cost of insurance, our profit projections from running this event will have to be scaled back somewhat.’

In deciding precisely how to change their minds, entrepreneurs will regard some kinds of business decisions or projections as unthinkable because they conflict with core notions. The latter will be preserved, if necessary, by all manner of twists at the periphery, just as astronomers prior to the Copernican revolution twisted their explanations to reconcile their earth-centered view with new data (cf. Smith, 1795/1980). By imposing different systems to deal with the Duhem–Quine problem, entrepreneurs, and people in general, end up with different views of what is feasible and differ in their openness to change. Entrepreneurs who think of themselves in terms of connections with particular activities—for example, as carmaker, movie producer, beer magnate, media mogul, property developer—will have particular trouble
abandoning such lines of business because doing so requires them to come up with a new self-image. When their capabilities to construct viable hypotheses about market opportunities begin to wane in their core areas, their chances of surviving as entrepreneurs seem likely to be enhanced if they can concentrate thoughts about their core capabilities at a rather more abstract, non-product-specific level. They can then try connecting them to new lines of activity rather than letting their attention become absorbed with anxiety regarding maintenance of existing activities.

**Consumption systems**
If entrepreneurs are to survive in business, they will need to possess some understanding of the thought systems employed by end users of the products with which they are involved. Sales will not be achieved if the package on offer is deemed inadmissible by the rules of thought employed by many of those in the target market. Like entrepreneurs, consumers have their own firm spots on which to stand and their rules of thought normally operate in a way that is at odds with the field conception of economics. Consumers typically have lives that ‘revolve around’ linked sets of activities and products that comprise their ‘lifestyle’ (Earl, 1986, Thompson, 1996) and would not even dream of consuming many of the goods that lie outside of these sets but which fall within the lifestyles of others. Conversely, they would find it unthinkable not to consume certain products. Knowing what will appeal to particular consumers thus requires an appreciation of the contexts in which choices are being made, which are themselves a reflection of the thought systems that consumers use.

To understand the fabric of particular people’s lives, the entrepreneur may need to trade with them repeatedly, itself a connection-forming activity. By cultivating the goodwill of a regular clientele, the entrepreneur can engage in relationship marketing, using knowledge acquired from previous transactions to make more accurate constructions of areas of possible demand (see further, Earl, 1999, pp. 253–7). For example, anyone who has dealt over a number of years with a good hi-fi store will appreciate this point readily: staff seem to have an uncanny ability to recall what one’s system consists of, and hence how best to upgrade it on a piecemeal basis.

The existence of consumer lifestyles means that patterns of substitution between rival brands of particular kinds of products depend on their complementarities with other kinds of products. Though already entailed in the comment about hi-fi retailing, this point frequently applies in a much more subtle manner. For example, consider the adoption of automatic washing machines in Britain in the 1970s, in favor of twin-tub designs. British suppliers were bemused by the loss of market share to Italian products. The latter offered inferior drying abilities compared with more expensive local machines that had been designed to cope with the inclement British weather. The change in market share arose not because of the price difference per se but in association with the adoption of central heating systems that made it far easier to finish the drying process indoors if necessary (see Hesselman, 1981, p. 24). British manufacturers did not see this connection and had made their automatic machines so that they offered spin speeds equivalent to the outgoing twin-tubs, with all that this entailed in terms of extra production costs.

Due to the complexities of household consumption systems, one change of lifestyle can have all manner of market implications but may be dependent on a crucial ingredient. Continuing the previous example, we might also note that the demand for automatic washing machines itself would have been associated with the growth in households where both spouses went out to work and hence required the convenience of machines that could perform the entire wash/spin
cycle on their own, for example, during the night. Dual income households, in turn, were better able to afford central heating and double-glazing systems. However, they often could not function without a child-minding infrastructure (children’s television included!) and convenience foods. Their inability to be available at home to deal with trades-people during business hours meant that they would often need to engage in do-it-yourself work at weekends and would demand reliability as a key requirement of their appliances as well as providing a fertile market for home security systems—and so on.

The successful entrepreneur may not only need to understand how potential customers make mental connections, and the connections that make up their lifestyles. There is money also to be made by construing synergistic marketing links (cf. Ansoff, 1965) between core products and possible tie-in products based on a shared brand. Shrewd thinking in terms of connections has led to the assembly of modern mass-media/entertainment businesses whose magazines promote television programs and vice versa and both promote particular kinds of merchandise (such as movies and recorded music) produced elsewhere in the corporate empire. Failing that, the media contents can be connected to products of particular advertising sponsors (as with travel and home-improvement programs) or devised to be ripe for commanding product placement fees. Similarly, a highly successful children’s novel is no longer merely a book competing in no particular manner with other books and other ways of spending money. Nowadays, it is a book to which may be connected a movie (with soundtrack CD and subsequent video and DVD release), PC and PlayStation games, displays or rides at theme-parks, a wide range of toys and artifacts, with licensed brand extensions even to clothing, bedding, food, toothpaste and so on.

In fact, well before the age of *Harry Potter* and suchlike, children’s books were sold on the basis of connections: four decades ago *Thomas the Tank Engine* may not have had its marketing synergies exploited to the full, but its appeal was nonetheless increased by the fact that it was part of a series involving a shared set characters and hence offered scope for readers to spread the set-up costs of getting to know the characters more effectively and get more out of them. Likewise, publishers such as Hamish Hamilton used different imprints to signal comparable books in terms of style or level (even as ten-year-olds, my contemporaries and I knew what made a ‘Reindeer Book’ different from an ‘Antelope Book’, much as many adults have particular expectations about books on a ‘Paladin’ or ‘Picador’ rack compared with those from a more mainstream brand of paperback). If the competitive arena really were a field in which products were all so transparent that there were no costs entailed in getting to know (about) them, then there would be no need for the entrepreneur to construct such connections and we would not see the remarkably skewed earnings that comes from an ability to capture rents by doing so.

**Connections, browsing and search**

As the number of products on offer grows, despite the parallel growth in globally significant brands, the consumer’s problem remains one of bounded rationality (Simon, 1982). A corresponding marketing problem is to get one’s brand on the consumer’s agenda of things to explore and to keep it there. Earl and Potts (2000) examine this issue in relation to the role and
The design of shopping malls, but it clearly also has a counterpart in the world of ‘virtual’ shopping. The rise of the Internet may make it easy for consumers to search for things that they want, such as information about the latest activities of a particular recording artist and whether or not they have a new album available, or whether a particular highly specialized product exists. However, scope for finding information does not guarantee that consumers will think of trying to find it. An increasingly significant entrepreneurial skill thus lies in the construction of connections that have corresponding hyperlinks that will capture the consumer’s attention and lead to particular browsing pathways being taken. Web-based retailers such as Amazon.com employ precisely such connection-based techniques to generate sales revenue for themselves and the firms whose books and music they supply: for example, investigation of a particular product at their website leads to information coming up about other products bought by previous purchasers of the product, thereby suggesting possible similarities or complementarities.

Producers can similarly exploit connections with other producers by swapping links to each other’s websites, or by trading them if the flow of benefits seems to be skewed in a particular direction. Thus, whereas I might have thought, without any provocation, to check via a direct search to see whether long-dormant progressive rock band Pallas had resumed their activities, my actual route to discovering their website and new album was from the King Crimson website to the Uriah Heep website (the link being John Wetton, who has played bass with both bands), and thence to browsing on the latter’s excellent list of other bands’ sites. There, I noticed a link to Pallas. In providing such a listing, Uriah Heep may not immediately generate sales of their own recordings but they increase their chances of staying on the agendas of potential customers: in future, when I want to look up particular bands or remind myself of bands that I ought to check out, I have a bookmark of their site ready and waiting. An increasingly important entrepreneurial capacity henceforth will be that of creating frequently visited website nodes to manage the networks of search and browsing that potential buyers undertake. Enterprising academics that seek to ensure a wide readership for their writings can pursue similar strategies in terms of the links they offer at their websites: Nicolai Foss, for example, provides useful links not only to fellow economists’ homepages but also to various organizations and to jazz guitar pages (see http://www.cbs.dk/staff/nicolai-foss/njflinks.htm).

**Products as systems**

From the Koestler/Shackle perspective, the creation of new products does not entail creating something from scratch but making new connections between existing ideas, capabilities and technologies. This happens at both the small business and corporate level.

As an example of the former, consider the fusion between virtuoso violin techniques/compositions and the electric guitar, a genre known in rock circles as, of all things, ‘neoclassical shred’. The fusion is epitomized in unadulterated form by the work of Kevin Ferguson, an enterprising but little-known guitarist who recorded the extraordinary self-released album ‘From Strad to Strat’. In keeping with the earlier discussion of website links, I discovered this CD, after years of hoping someone would come up with just such a fusion, whilst trying to find web materials regarding well-known electric guitar virtuoso Steve Morse. However, anyone with a similar vision—be they a would-be consumer or rival supplier—who thinks of keying ‘Paganini’ and ‘electric guitar’ into a search engine will discover that Ferguson is by no means the only artist to record violin showpieces on an electric guitar. Others have made further connections, most notably Julliard graduate Katherine Thomas, who performs as
The Great Kat Guitar Goddess and seeks to appeal to the darker side of guitar fetishism by blending electric guitar renditions of classical violin and orchestral music with heavy metal rock and over-the-top, aggressively sexual Satanic/sadistic/masochistic video imagery. Whatever next?

At the corporate level, as even an informal examination of the catalogues of modern consumer electronics firms such as Sony, or automotive firms such as Toyota, will attest, innovation tends to entail new combinations of a multiplicity of technologies. Each new product feature, such as a PlayStation II’s capacity to read DVDs, or electronic stability systems in cars, builds upon existing technologies, and the products of supposedly ‘different’ industries may end up as elements of each other’s products—as with the incorporation of audiovisual entertainment systems and GPS/DVD-based navigation systems in cars, or the menus of digitized cars in PlayStation games such as Gran Turismo. Some technologies, such as LCD systems, soft touch keypads and memory chips, may be added to an astonishing variety of products and their growing ubiquity makes it easier to apply them in yet more applications, as users can employ the same skills in all manner of different contexts. All it requires is that an entrepreneur dreams up the possible connections or is prepared to back financially an inventor who sees them sooner.

As well as being the basis of new types of products, fresh connections provide the basis for new generations of existing products. In cases of the latter, however, innovation is often of deliberately of a restrained nature in order to make the most of knowledge of how customers form mental connections regarding the particular firm’s products. Successive generations of products as diverse as cars and the music of particular recording artists may incorporate some stylistic cues—what we might call ‘signature’ or ‘trademark’ design features—from previous generations, tending to evolve rather than making revolutionary breaks with the past. For example, over almost two decades, Volvo moved gradually away from safe but boxy designs to successively more curvaceous shapes and an emphasis on the combination of driver appeal and safety. Because of the gradual progression and ever-present distinctive grill design, current products remain recognizably Volvos: the Volvo/safety connection has been maintained even though customers may have taken a long time to adjust their constructs to the idea that structural integrity did not require cars to look like tanks. By contrast, Ford Europe in the early 1980s had trouble getting customers to switch straight from the conservative Cortina to the radical-looking Sierra, while the lackluster performance of Fiat in the lower-medium sector has been associated with an ongoing failure to connect one generation of its cars to another, even by model name (as if the firm was conceding that its products stood for nothing in particular).

‘Parts bin’ enterprise

Firms with a capacity to devise new combinations that fit into buyers’ thought systems should have greater potential for survival than those that do not, for the latter will lose market share to them and suffer higher relative costs due to failures to achieve economies of scope. Just as we can test for the existence of a market for a particular product by using an internet search engine—as with the Paganini/electric guitar example—so one might even imagine strategists in these firms systematically looking at a matrix of all possible combinations of their products or major components to see what new connections might be made in theory and what might be the practical objections to them. By raiding the parts bins of existing models and adding relatively
few new parts, the enterprising firm may be able to occupy lucrative new market niches and gain first-mover advantages by defining a new genre of product. Toyota, for example, created the ‘soft roader’ market when it created its RAV4—essentially a re-bodied, jacked-up Corolla 4WD wagon with a 4WD Camry’s engine and transmission system. Subaru countered a few years later by re-bodying its Impreza (itself based on a shortened Subaru Legacy platform and shared transmission system) as its Forester model. When, later still, Ford got on to the act—by which time Toyota was already offering a second-generation RAV4 and maintaining its lead in styling appeal and premium pricing—it did so with an engine and 4WD transmission system in its Maverick/Escape model that was closely related to that of its Jaguar X-Type sedan. In turn, the latter owed quite a bit to the second-generation Ford Mondeo.

Mere possession of a range of technological capabilities does not guarantee success in creating new products (see further Pavitt, 1999), for someone must first notice the potential connections and overcome any barriers to making them happen. This entrepreneurial role is sometimes played by outsiders rather than by staff in the organization that seemingly should have been best placed to recognize the potential and act upon it. For example, the first MGB V8 sports cars were put together by customizing specialists outside of British Leyland/Austin Rover, using the latter’s parts, as were the first Range Rovers with larger capacity V8 engines. (In Australia, this was the resting place for many of the 4.4 liter engines from the spectacularly unsuccessful 1973–1974 Leyland P76 sedan, a decade before the manufacturer made the connection and despite the fact that the P76 engine had originally been developed in the UK in the late 1960s for a large Rover sedan that never made it into production.) Stranger still, the Fender Stratocaster electric guitar had been in production for over four decades before Fender offered its Big Apple model featuring twin-coil pickups of the kind that had been privately fitted by many players who wanted a Stratocaster that had the sound of a Gibson Les Paul, its main rival. In the meantime, firms such as Ibanez and Yamaha had begun to produce near-clones of the Stratocaster that offered the best of both worlds: a mixture of single-coil and twin coil pickups. (Fender’s recent Showmaster range is a belated attempt to produce something similar for the premium market.)

Just as the creative insight may rest outside the firm that has the technological capacity to make new products by making new technological connections, so the technologies may be bought in from outside suppliers as ready-made components or as capabilities supplied through a corporate alliance. This being so, the entrepreneur may be someone with an eye for what will fit from other people’s parts bins—a key feature in the initial success of the Lotus sports car company was founder Colin Chapman’s legendry skills in this respect—or the capacity to persuade other suppliers to tailor something that will fit, based on their particular skills (which may entail relational contracting or other forms of quasi-integration: see Richardson, 1972), or the capacity formally to stitch together workable business alliances. Entrepreneurs who have a vision for a product but whose comparative advantage does not lie in making deals with suppliers can subcontract this role to entrepreneurs who specialize in doing precisely that. An excellent example here is the ‘virtual firm’ system that is often employed in major building products: the property developer has the idea and raises the capital, but the transforming of it into reality is handled by a construction management company that hires and oversees an army of specialist subcontractors (see Earl, 1996).

In some cases, the fact that certain components are outsourced may be something that can be exploited in marketing terms to appeal to those ‘in the know’ amongst potential buyers.
For example, Mitsubishi reminds potential buyers that its Lancer EVO VII is equipped with Brembo brakes, OZ wheels, Momo steering wheel and Recaro seats, just as the pickups on a Big Apple Stratocaster guitar remained branded as Seymour Duncan products. In other contexts, entrepreneurs do not shout about their skills in outsourcing, a very notable example being Rolls-Royce, whose cars prior to the German takeover employed inputs from less elite brands such as Citroen (adaptive suspension systems) and General Motors (transmission). To do otherwise might result in customers making all the wrong connections regarding the quality of the product.

Skills in keeping the customer uninformed of the connections upon which products are founded look set to become a major entrepreneurial capacity the more that skills in making additional product lines relatively cheaply from existing elements are used as part of a strategy of price discrimination. The car market again illustrates this difficulty. For Jaguar and Volvo to remain premium brands under Ford’s ownership, their use of Ford components needs to be discrete. Similarly, if it becomes widely known that one can obtain premium Volkswagen or Audi build-quality, engines and structural engineering at a budget price by buying a Skoda or SEAT, then the brand equity of the first two marques will collapse. Whilst the manufacturers seek to conceal their capacities to make connections, enterprising consumer magazines can set about trying to make potential buyers aware of them and in doing so provide the latter with all the ammunition they might need to justify to their peers their deviant decisions to buy products whose brands have hitherto lacked cachet.

**Entrepreneurship and design standards**

If entrepreneurship is about making connections, then competitive success may depend upon setting up systems within which it is more difficult for other entrepreneurs to make connections that one is capable of making. This process is obviously at work in some markets, where even though products take the form of modules that can be combined in different combinations, the interfaces between them are specific to the brand in question. The specifics of Canon and Minolta camera and lens relationships provide an example here, as do Apple Macintosh computers versus PCs. However, there are also many cases—the IBM PC being one of them—in which entrepreneurial insight takes the form of setting out to create a set of open standards to enable other entrepreneurs to make money by selling products that hook up with one’s own and in the process generate demand for one’s own product.

Sometimes the creation of common interfaces between modular products will be necessary in order to remove technological uncertainty for customers and thereby promote the growth of the market as a whole, as with the development of the digital synthesizer market following the adoption of the Musical Instrument Digital Interface (MIDI) standard that enabled different brands of synthesizers and peripherals to be wired together. In markets where systems can be assembled in this way, the role of the entrepreneur may evolve along a variety of connectionist tracks as the market develops, including the following (see also Langlois and Robertson, 1995):

1. As a standards promoter, such as by selling licenses to one’s technology or by promoting cooperative activities at the trade association level or through strategic alliances;
2. Trying to become a leading specialist supplier of a particular product that connects with
   the output of other suppliers rather than continuing to be a supplier of an entire system;
3. Specialization in designing systems tailored to those with particular requirements;
4. Using purchasing skills to package other producers’ elements into low-cost systems for
   a mass market; or
5. Developing new kinds of modules that hook into the technology.

The choice of track to take will depend not merely on being able to envisage oneself in that role
in the first place, but also on assessments of comparative advantage in terms existing capabilities
and capacity to develop what seem to be pertinent new ones.

Where entrepreneurship stops and management begins

The view of the entrepreneur proposed in this paper needs to be considered in relation to the
roles of strategists and other managers in firms, for clearly it is not a viewpoint that applies
merely to the start-up phase of business. It can be used to frame decision-making in firms of
diverse sizes and stages of evolution. It can be applied to the founding of a business, where the
entrepreneur construes that there is money to be made by making a particular connection, such
as between product elements to form a new product or system, or between potential customers
with a particular unmet need and various presently underutilized resources that can be combined
to meet that need. It can be applied further, to making sense of the growth of a business via
relationships with customers and/or linkages between past products and ones subsequently
added to the firm’s portfolio. These linkages may be within the supply chain of what the
entrepreneur’s business already produces, where vertical integration of some kind is seen as
necessary to ensure quality, cost or supply goals are met. Or they may be made horizontally
between any particular activity and others that employ similar production processes and/or
marketing. By successively constructing new connections, the entrepreneur builds a complex
business architecture that often entails both some degree of vertical integration and horizontal
diversification, with new products based on lateral linkages later being produced with the aid of
further forays into vertical integration.

Such a view of entrepreneurship overlaps to some extent with linkage-based views of
the economics of corporate strategy offered by Moss (1981) and (Kay (1997), but both
present business strategists as rather defensive characters who manage connections between
products or activities in order to keep the firm going in the long run. Moss draws his inspiration
from the forward/backward linkages literature in development planning. Whereas Austrians such
as Kirzner tend to provoke thoughts about the start-up of a business, Moss concentrates on
how additional business opportunities come to be taken on by firms that already exist. Instead
of seeing this as a reflection of an inherent drive of entrepreneurs to strike forth boldly with the
aim of bringing some grand vision to fruition or, more modestly, ‘to make things happen’ (as
many of the subjects in Woods’ (2002) study saw their own motivation), Moss argues that the
direction taken by a business as it grows is a reflection of attempts to solve resource
imbalance/capacity underutilization problems perceived in what it is doing right now, or which
are judged likely to arise in future due to competitive activities of others. Kay’s analysis of
strategy begins with the connectionist thinking of Ansoff’s writing on synergy but then sees the
development of larger firms as increasingly being concerned to contain the strategic vulnerability
that comes from building too much on too few common threads.
Each time the structure comprising the firm adds a new connection between production activities in a vertical or horizontal direction it will be doing something new, to a greater or lesser extent. Adding twin-coil pickups to an electric guitar may have had very few manufacturing implications for Fender, beyond cutting out guitar bodies and scratch-plates differently, and somewhat different wiring. Dropping a more powerful engine into an existing car may require more challenges to be addressed, such as re-engineering front chassis members to accommodate the width of a V8 engine, or learning how to create reliable turbocharger or supercharger installations and fit them within the confines of an existing body. Other kinds of diversification, particularly those involving vertical integration, may entail coping with a whole host of problems that entail totally unfamiliar technologies (as would attempts by Fender to diversify into digital keyboard instruments, or a mainstream automotive manufacturer setting out to make an electric car with a body formed from plastic composites). In order to judge whether a new line of business represents a profit opportunity, the entrepreneur needs to have a capacity to judge the implications of such a move in terms of the competences required, as well as physical resources. From a connectionist perspective, we might see competence in terms of the ability to make a particular connection with a particular degree of reliability and for a particular cost. A useful analogy here is with the playing of a musical instrument, a matter of matching finger movements to instructions on the sheet music: an accomplished player may need very little time to be able to perform a particular piece seamlessly and without error, whereas a novice might require much practice and still be able barely to offer a tolerable performance. Without an ability to judge the degree of difficulty the business will experience in implementing a new connection, the entrepreneur will be unable to size up the costs the new venture entails and may over-estimate revenue streams in the event that quality and reliability levels turn out to be harder to achieve than anticipated.

This capability requirement casts the entrepreneur in a role very much like that of the strategic manager in the recent literature on resource-based approach to the firm, with its focus on understanding the core competences of the firm and how its particular set of resources gives it a competitive advantage. (For a compilation of the key sources, see Foss, ed., 1997.) In the context of the large firm, a team often undertakes this role, though ultimate responsibility for it may rest with a particular individual, such as a chief executive officer who ‘signs off’ any significant new venture. The strategic decision-makers may not have the task of making the hypothesized connections come true, but they have to be able to judge that the new connections are capable of being put into place and, if not assembling the teams who will actually have to implement their decisions, they will need to be able to make good decisions when assigning to someone else the responsibility and resources for assembling and running a team to do so. Operations managers in such teams in turn plan, coordinate activities and deal with surprises as the need arises, in order to try to make a reality of the connections envisaged by the entrepreneur.

**Conclusion: Entrepreneurship in a globalizing world**

The connectionist perspective on entrepreneurship is sharply at odds with how mainstream economists are driven to view the theoretical place of entrepreneurs in the modern world of globalization, a viewpoint that leads them to favor particular policies aimed at fostering it by making entrepreneurial activity more attractive to undertake. From the field perspective, the world is increasingly a place in which competition may come from any quarter, limiting scope for
the earning of supernormal returns. The removal of barriers to parallel importing enables entrepreneurs who spot opportunities for arbitrage anywhere in the world to constrain the ability of manufacturers to practice price discrimination between markets. Aided by internet search engines, consumers can choose in an informed manner with unprecedented ease and source their purchases from anywhere on the planet that offers the best deal. The same applies to the allocation of investment funds in a world of electronic share trading. Workers, too, are able to shift to any location where their services are in demand, aided by increasing standardization of language and business practices, whilst physical relocation may not even be necessary insofar as tasks can be performed remotely via modern telecommunications systems. The rise of the Internet and cheap access to high-powered computers means that many e-commerce businesses can be started up at very low cost (see further, Friedman, 1999). In short, an increasing perfection of markets is eliminating breaks in chains of substitution.

If globalization really did entail the economic system coming closely to approximate a field, then little role would remain for the typical Austrian conception of the entrepreneur as someone whose special capacity of alertness to arbitrage-based profit opportunities helps to bring the economic system closer to equilibrium. In the world of globalization, everyone is under pressure to be alert to potential for doing a better deal in order to prevent others from encroaching on their standards of living, and the information necessary for doing so is available to anyone with an internet connection. One conundrum would remain, however, for mainstream and Austrian views of market coordination alike, namely, the difficulty that decision makers have in deciding where to invest when they do not know the plans of others in terms of investment schemes that are competitive with and complementary to possibilities that they are considering (what is sometimes known as the Richardson Problem, following Richardson, 1960/1990).

The message of this paper is that if we cast the entrepreneur in the role of someone with a comparative advantage in making connections between product elements, products, capabilities and cost/revenue streams, the entrepreneur emerges as a much more dynamic character than the typical Austrian figure. Instead of acting to take the economy nearer to some kind of Pareto optimum, the connection-making entrepreneur is a disequilibrating agent who opens up opportunity sets in the manner envisaged in Schumpeter’s (1943) work. By making novel, previously unimagined connections (cf. Shackle, 1979), the entrepreneur creates new elements from which yet further sets of combinations can be made, leading to economic growth and the seemingly infinite variety of products between which modern consumers can choose. Rather than necessarily filling in gaps in chains of substitution and making the economy better approximated by the neoclassical ‘field’ perspective, new combinations may provide bases for rents to be earned—at least for a time—by offering, for example, ‘unique selling propositions’ and/or providing a niche-market product that appeals to customers who otherwise would have found themselves choosing between rather different possibilities none of which really did what they wanted.

Whilst its non-equilibrium aspect may go against the Austrian tradition, the connectionist approach provides opportunities for building bridges between economics, marketing, strategic management, and the literature on innovation. If Austrian writers find it appealing, it may also take them into an interest in the cognitive process, such as lateral thinking, by which entrepreneurs come to construct novel connections.
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