



Horseshoes, global supply chains, and an emerging Chinese threat: Creating remedies one idea at a time

David Strutton

University of North Texas, P.O. Box 311396, Denton, TX 76203-1396, U.S.A.

KEYWORDS

Global supply chains;
Chinese/American
trade relations;
Creative efficiency;
Horseshoe

Abstract The horseshoe shape offers a model from which the complex relationships currently linking most Chinese and United States supply chain partners can be productively visualized. Wielded metaphorically, the horseshoe also illustrates how a momentous global trend may be rising within many Chinese-American supply chains, and why that trend might impose serious threats against United States economic interests for years to come. Because the trend exists independent of almost all domestic firms' potential responses, only rarely can an associated domestic threat be eliminated within a particular United States/Chinese supply chain. Most United States firms possess a critical capability that could diminish the force of the emerging Chinese threat: the ability to manage and execute key supply chain functions more creatively. As the horseshoe illustrates, many domestic firms may soon be compelled to become more creative. To address this need, a supply chain creativity matrix model is developed in this article. The model demonstrates how domestic supply chain firms can stimulate and identify superior ideas amongst their managerial and subordinate ranks, therefore expanding the firm's creative efficiency in the strategic execution of key supply chain functions. Those firms should be better able to defend themselves against these emerging Chinese threats.

© 2008 Kelley School of Business, Indiana University. All rights reserved.

1. The horseshoe model

To understand more about the supply chains that link Chinese and American firms, consider the horseshoe. The horseshoe provides a model to visualize the relationship among three aspects of trade — ideation and product development; manufacturing; and positioning, branding, and supply chain management — that will shape Chinese-American eco-

nomie relationships for years to come. A horseshoe, propped upright on its base, mirrors the contour of most supply chains linking Chinese firms, typically operating near the point of physical production, to United States firms, typically operating near the point of those products' final destinations.

This is what many individuals erroneously assume. However, supply chains always extend from the beginning point of any physical product's conception to an end point where the product is marketed, acquired, and consumed (Coyle, Bardi, &

E-mail address: Strutton@UNT.edu

Landley, 2003). To illustrate, if a product's point of ideation occurred in Fort Worth, Texas when a Williamson-Dickie Manufacturing Company designer combined a new style and fabric for next season's work uniforms, and that new product was then produced en masse by Chinese manufacturers and sold the following year in the United States, either as a Dickies' or private label brand, the supply chain in question began and ended in the United States.

Obviously, at least one, and probably numerous, Chinese firms performed key supply chain functions between those beginning and ending points. Just as obviously, due primarily to the higher value-adding product concept and design, brand management, and sales/retailing functions Williamson-Dickie performed near the supply chain's beginning and end points, the company should, and generally does, command the lion's share of any profits generated. Until recently, most Chinese manufacturers or assemblers have been relatively content to perform the middle area, less-profitable supply chain functions. Chinese firms were generally content with lower profits because their executives and political leaders, who greatly influence Chinese microeconomic practice, understood doing so was necessary to lift Chinese economic, employment, and consumer conditions from they were 15 years ago to where they are today (Fishman, 2006). But supply chain conditions, as well as sources of contentment, can change over time.

2. An emerging global supply chain challenge

Revisiting the horseshoe, assume that new product ideation, prototype development, and positioning begins on the left prong of a horseshoe, moves down around the curve to the lower portions of the horseshoe during manufacturing and assembly processes, and finishes high up on the other prong when branding, sales, and distribution efforts are executed. The supply chain as horseshoe metaphor still works, but applies fully only if the horseshoe is inverted and each vertical prong is embedded in American soil. Repeated thousands of times weekly, the opportunity, as well as the practical necessity, to partner with Chinese firms in such supply chains has long represented an economic opportunity for many United States firms.

The iPod experience exemplifies how the United States has subtly won this supply chain give-and-take to date, and how China, while hardly losing outright, has finished second. The iPod was conceived and created as a prototype by an American company, and is widely credited for extricating

Apple Inc. and its brand from a dismal decade. The iPod continues to be manufactured by many different Chinese firms, who have also benefited. The product was, and is currently, marketed in the United States through various American retailers, who have also profited. Apple shareholders and millions of consumers have thrilled to the cumulative result. But such idyllic domestic outcomes soon may become more unusual, unless domestic supply chain members initiate certain creative strategic responses. That's because the economic necessity to partner with Chinese firms is increasingly imposing an emerging domestic challenge. To the likely surprise and detriment of many United States firms, their Chinese partners are attempting to co-opt for themselves the performance of many of the high value adding and more profitable supply chain functions arrayed along the vertically extending prongs of the horseshoe. That constitutes a problem.

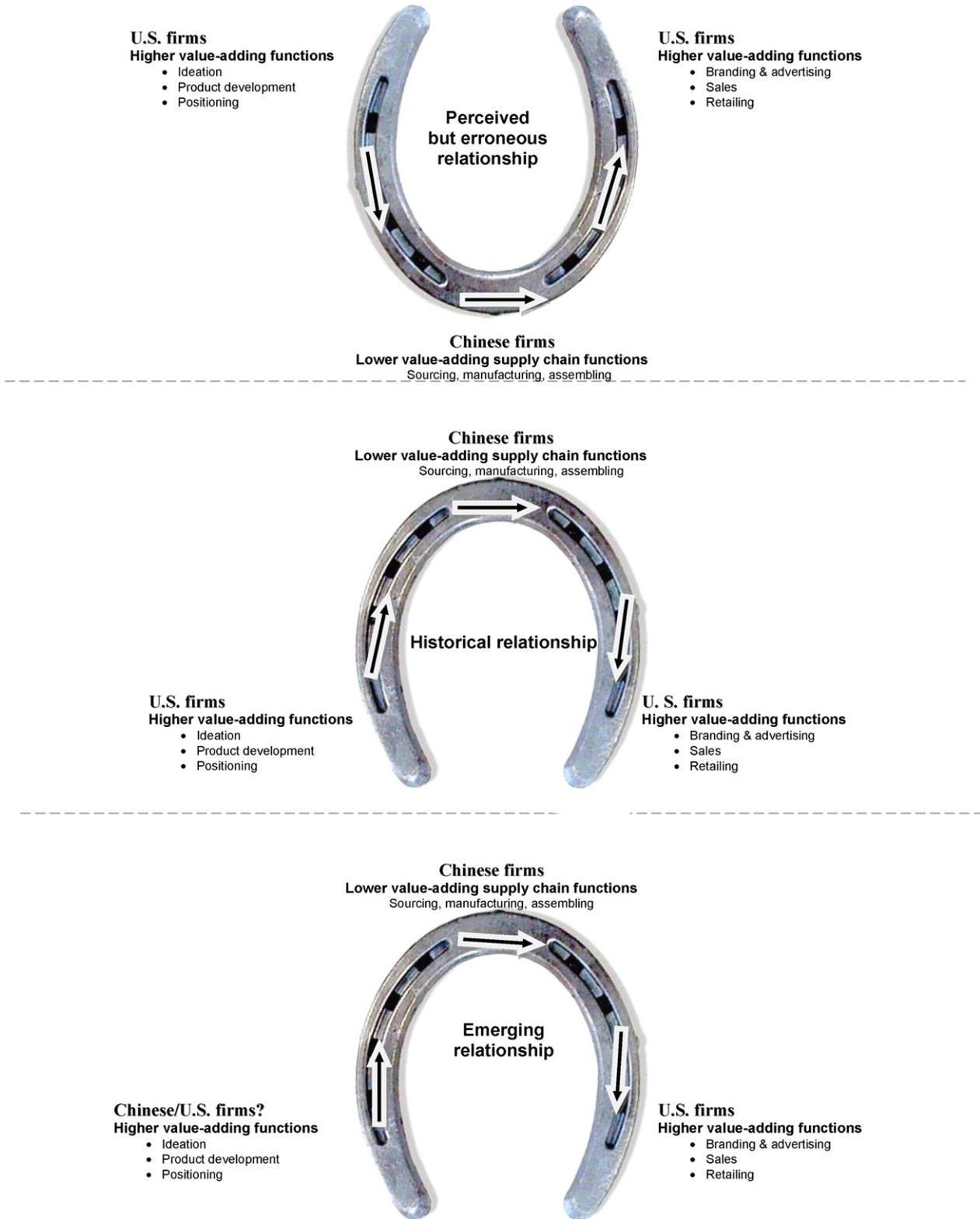
Figure 1 captures the complete set of falsely assumed, historically accurate, and possibly emergent global supply chain relationships, by graphically portraying:

- The frequently perceived, though erroneously conceived (in other words, it must be inverted), horseshoe relationship that is often assumed to link United States and Chinese supply chain partners;
- The properly conceived inverted historical horseshoe relationship that traditionally has prevailed among United States and Chinese supply chain partners; and
- The emerging horseshoe relationship, wherein Chinese firms co-opt performance of what is for them the non-traditional higher value-adding supply chain functions for themselves, to the detriment of United States firms and the domestic economy itself.

3. Why is the challenge arising now?

Numerous Chinese firms already possess, or are near the acquisition of, the capabilities necessary to secure the upper hand in the horseshoe tug-of-war that would allow them to break away from the near exclusive manufacturing and assembly they have traditionally performed. Many more Chinese firms possess the motivation to acquire these capabilities. In addition, neither this threat nor Chinese firms' capabilities can be eliminated, because they exist independent of any United States firm's possible response. In this emerging struggle for supply chain supremacy, Chinese firms, and indeed China

Figure 1. Horseshoes, global supply chains, and an emerging Chinese threat?



itself, enjoy several essentially unassailable advantages.

Such advantages include certain core supply chain values that permitted China's new economy

to burst so prominently and rapidly onto the global scene in the first place. Those core supply chain values include lower costs, quicker response time, and, despite the distances involved, greater speed

to market with finished products (Coyle et al., 2003). The net result is that most Chinese supply chain partners simply execute certain functions with an efficiency that yields greater supply chain value than any other domestic firm with whom the original United States firm might partner. Some Chinese manufacturers also already feature world-class technological capabilities. But Chinese factories almost always derive additional advantage from the dual facts that multiple competing suppliers are located within mere miles and minutes from the factory, and that most factories' core capital asset, their personnel, is a very adaptable machine. Few, if any, United States firms could ever out-cheap or out-speed the Chinese.

Still, China routinely produces millions of comparatively less expensive physical products. It also produces tens of thousands of engineers and scientists annually. We cannot presume that Chinese business and governmental strategists are not similarly aware of their relatively disadvantaged global supply chain positions, or are not working toward turf-grabbing, or targeting higher-value-adding supply chain functions that better serve their interests. This is especially true in a global economy where thousands of container ships, after having arrived in the United States brimming with consumer goods, return to China holding recycled materials. It's also true in a world where Chrysler LLC has just partnered with Chinese interests to deliver \$10,000 Chery cars, a product idea originating in China, to the United States market.

Moreover, while the absolute power of the Chinese economy as a recently re-awakened manufacturing giant is already astonishing, China's largest exporter, Foxconn (Hon Hai Precision Industry), was only 206th on the Fortune Global 500 list during 2006 (Fallows, 2007). Imagine the negative multiplier effect on the horseshoe threats that would arise if dozens of Chinese firms populated the same list. That day will probably arrive sooner rather than later. Until recently, based on rationales likely motivated by a dual desire for self-preservation and self-enrichment, Chinese officials have tamped down the absolute size of domestic firms. But a countervailing growth spurt, and consequent supply chain land-grab, might arrive swiftly if officials found their interests were better served by encouraging domestic firms to ramp up their size.

Presumably, if a United States firm was performing the same less rewarding supply chain functions as those performed by most Chinese firms, it would be motivated to secure control over additional higher value-adding supply chain functions. Not surprisingly, increasing numbers of Chinese firms are doing exactly that. Examples abound where

Chinese firms are demanding that key ideation, design, research and engineering—or in other words, more creative supply chain functions—be performed in China by Chinese firms. In fact, their partners recently made those exact demands to the Intel Corporation, Microsoft Corporation, and Google, Inc. Those signature firms responded by relinquishing performance of key supply chain functions to their Chinese partners (Fallows, 2007).

Nothing about this threat is wrong, and no one should view it as an affront. Instead, nothing less than simple national self interest is being pursued through the large and small actions of uncounted Chinese firms. For logical reasons, Chinese firms are relentlessly attempting to secure higher value, or beginning of the process, real estate along the horseshoe model. One thing that motivates all people, firms, or nations is their own self-interests. The struggle for power, influence, and ultimate control over which firms perform which critical supply chain functions has always existed (Pelton, Strutton, & Lumpkin, 2002). It always will. One key difference here is that this particular tug-of-war involves global implications. Another difference is that the emerging trend portends badly for many United States firms' interests. The threat is real. In fact, a correspondent for the *The Wall Street Journal* (2007, p. A17) suggests:

Since the dawn of the American Republic, we have never faced the kind of economic challenge that China presents. It is playing the game of global capitalism almost as adeptly as we are, and our response for now seems to be a mixture of fear and disbelief.

Clearly, readers understand that the game of global capitalism entails far more than just supply chain machinations. But just as clearly, the time is right for United States firms facing supply chain threats to consider their strategic responses, because for many of them the implications of any ground surrendered along the horseshoe model are dire. As an initial response, domestic firms should identify key supply chain functional areas, or metaphorical lines in the sand, which they would defend vigorously if turf-grabbing efforts ensued from their Chinese partners' camps. When considering their next responses, no combination involving fear or disbelief will suffice.

4. Creativity as a partial solution

Fortunately, neither fear nor disbelief is necessary, given that virtually all domestic firms already possess within their grasp a strategic solution that should diminish the force, and lessen any associated

negative consequences, of this emerging global threat. The solution is creativity: more specifically, the creativity with which domestic managers derive and identify the inspired and resourceful ideas that will buttress, on a case-by-case basis, their firms' strategic responses to the Chinese threat. Should United States supply chain managers think and act more creatively, the effect could be akin to introducing a steroidal stimulant to boost the effectiveness of any situation-specific strategic responses their firm develops and enacts.

As noted, the best line of creative attack or defense will differ on a case-by-case basis. No one-size-fits-all creative solution exists. But creativity itself likely represents a unifying should-fit-most-situations solution that threads through all strategic responses that ultimately prove successful long term. To prosper, rather than simply survive, in the future, domestic firms partnering with Chinese firms should introduce more creativity, ingenuity, and innovation into how they develop, manage, and execute key supply chain functions.

4.1. Building creativity's case

All supply chains function and succeed, relative to competing supply chains, based on the principle that the most efficient provider of any function should execute the function (Wong, 2003). Greater creativity can foster greater efficiency within any firm. Moreover, the means to pursue creativity more effectively exists within any firm's grasp. Specifically, if the firm's managers think and act more creatively, then their firms can develop and execute ideas more efficiently, and create additional functional value at key points in their supply chains. Therefore, if their management becomes more creative in ideation and strategic execution processes, United States firms can introduce and sustain a pace of improvement their Chinese partners cannot counter. The net result will be greater domestic retention of control over key supply chain functions.

In effect, becoming more creative requires that United States managers begin running faster now. Staying more creative will require those managers to run even faster for an unknown number of years into the future. Simply being more creative offers no relief to any firm. But all things being equal, more creative managers, and the firms they serve, should increasingly prevail in this emerging supply chain struggle. This tendency should be especially pronounced when the struggle in question involves Chinese partners described by James Fallows as being "happy with crappy" (2007, p. 69). Head to head, creative should trump crappy: just ask toy makers Mattel, Inc. or Hasbro.

Compared with less imaginative peers, creative managers should confront Chinese supply chain challenges more readily and more responsibly. In the best case, creative managers should assume ownership of, and act on, new ideas that offer superior alternatives to the status quo more willingly. Even in the worst case, creative managers should be less willing to uncritically hold fast to a status quo that unquestionably portends badly for their firm's long-term interests. Less creative managers are generally more fear-driven in their thoughts and actions. Logically trending toward cautious, so-called safer alternatives, less creative managers appear more likely to fuss obsessively over already settled or good-enough details while relentlessly ignoring the expanding the big picture challenges. Naturally, times and places exist where excessive worrying over details makes sense: Six Sigma works. But given the unavoidable nature and mass of the challenge that domestic managers will face in managing future relationships with Chinese partners, here and now is probably not that time and place. In today's world, seemingly more cautious and less creative choices no longer automatically represent safer alternatives.

In many things, size matters. America is the only nation possessing, as a legacy asset, sufficient creative scale and power as a base from which it could perpetuate and sustain creativity-based advantages that will enable its firms to maintain or enhance their current positions in supply chain relations with Chinese firms. This advantage should not be ignored. Instead, the opportunity it presents should be exploited. Not being similarly well endowed with creativity-facilitating infrastructures, China's other Western partners may be less likely to hold the line on their supply chains as time passes.

5. Classifying supply chain creativity

The question why domestic supply chain managers should think and act more creatively when dealing with Chinese partners was just addressed. That naturally leads to the question of how this desirable outcome can be best secured domestically. However, before addressing this question, the differing types and impacts of creativity that can arise within a supply chain should be classified.

There are as many definitions of creativity as there are dictionaries. However, after reviewing several sources, a single theme emerges. The amalgamated definition suggests being *creative* involves seeing the same things as everyone else but thinking of something different. In other words, regardless of the setting, creative individuals possess the ability

and willingness to take existing objects or ideas and combine them in different ways for new purposes. In this context, new purposes could relate to the creative recognition of threats within ones' supply chain, such as the one that Intel now faces, or the creative derivation of astute and innovative solutions to those problems, like the solution Intel is now initiating (Batson, 2007).

Within any firm, creativity can arise at any, or all, of three levels. Like the idea that guns don't kill people on their own, however, firms don't become more or less creative on their own either. Management owns creativity and the keys to unlock it, not the firm itself. Therefore at Level I, a firm's management could be or become, and consequently manage or lead, creative in ways of varying intensity. At Level II, a firm's management could lead or manage in ways that facilitate greater creativity amongst subordinates. At Level III, both senior managers and key subordinates are both thinking and acting in ways that facilitate and contribute more or less creativity in the firm. When developing or evaluating responses to Chinese threats emerging along the horseshoe, Levels I and II Creativity feature the most relevance. Presumably, if either Level I or Level II Creativity is achieved, greater Level III Creativity should follow automatically.

Within any firm, the realization of genuine creativity must involve two inescapably connected pro-

cesses. Process I involves original thinking that management could stimulate amongst its ranks or subordinates' ranks. Process II, which necessarily must follow, involves identifying, at either the managerial or subordinate level, new strategic ideas based on that innovative thinking that presumably would prove useful. If managers or subordinates engage in original thinking, but never identify any useful strategic ideas based on their novel thinking, each group could be described as imaginative. But neither can be described as creative unless new and useful strategic ideas or responses are also identified.

Figure 2 depicts the Supply Chain Creativity Matrix (SCCM) that emerges when the two relevant creativity levels, management and subordinate, and the two creativity processes, stimulating original thinking and identifying useful creative ideas, which inevitably must be coupled for genuine creativity to arise within any firm, are combined in a unifying scheme.

6. Maximizing creative effectiveness in the supply chain

Each cell that collectively comprises the SCCM contains multiple facilitating methodologies. By utilizing the methods arrayed in the first column, or Creativity Process I, greater original thinking can

Figure 2. Supply chain creativity matrix

Maximizing creative effectiveness within the firm	<i>Creativity Process I</i> <i>Stimulating original thinking</i>	<i>Creativity Process II</i> <i>Identifying useful strategic ideas (based on original thinking)</i>
<i>Creativity Level I</i> <i>Where management leads more creatively</i>	<p>Cell 1: Facilitating methodologies</p> <p>Lower associative barriers</p> <p>Create intersections</p> <p>Exploit outsiders imaginatively</p> <p>Explore multiple perspectives</p>	<p>Cell 3: Facilitating methodologies</p> <p>Postpone judgment</p> <p>Avoid conventional wisdoms</p> <p>Exploit inequalities</p> <p>Answer four go/no-go questions</p>
<i>Creativity Level II</i> <i>Where management inspires greater creativity among subordinates</i>	<p>Cell 2: Facilitating methodologies</p> <p>Exemplify values-based leadership</p> <p>Accept impressive failure occasionally</p>	<p>Cell 4: Facilitating methodologies</p> <p>Achieve a balanced view of risk</p> <p>Evaluate consequences</p>

be stimulated within either the managerial or subordinate ranks. By utilizing the methods arrayed in the second column, or Creativity Process II, either management or subordinates should be better able to more effectively identify useful strategic ideas, based on the original thinking stimulated earlier. Creative domestic firms should more readily discover and identify bleeding-edge insights and capabilities. In due course, their innovative insights and strategic capabilities should enable those firms to more skillfully thwart their Chinese partners' efforts to perform higher value-adding functions along the horseshoe they jointly occupy. While speaking about reinventing strategic DNA, Gary Hamel suggested this sort of maximized creative effectiveness was recently exemplified by the institutionally innovative supply chain architecture Apple used to launch iTunes (Hamel, 2006).

6.1. Level I: Facilitating creative managerial leadership within the supply chain

6.1.1. Lowering associative barriers

Genuinely creative thinkers within most firms will probably encounter a need to overcome the opposition of others who reject their truly innovative ideas. Such pushback would likely emanate first from those situated close to where the creative individual lives and works. While each of us would presumably do well to honor any true innovators embedded in our midst, counting upon the timely arrival of innovation prophets is not an efficient way for domestic managers to ensure that original thinking is stimulated in response to the Chinese threat. Therefore, no recommendations are offered here regarding that. But perhaps no such recommendations need be offered, because the biggest obstacles to accepting truly creative insights from others, or perhaps more importantly to generating such insights, are that most managers or subordinates ever encounter are those that exist within themselves.

Johansson (2005) called these persistent internalized obstacles *associative barriers*. Functioning like internal anchors, their presence drags down the creative instincts, abilities, and activities of anyone lugging them around. In a global supply chain, associative barriers emanate from connections that domestic managers or subordinates have already established with extant supply chain ideas, principles, methods, or processes. By definition, the smarter managers are, and the more they learn how things ought to be executed procedurally in their dealings with Chinese partners, the more associative barriers will exist. But even beyond that,

the presence of associative barriers can inhibit creativity amongst most supply chain experts.

Still, associative barriers are typically positive in global supply chains. If none existed, an ill-fated combination of sluggish decision-making and an absence of orderly processes would soon prevail. Human brains enjoy finding things in order, grouping known processes together in logical flows, and discerning familiar structure in their surrounding environment. An efficient supply chain would order itself this way, too, if a chain could think. Domestic managers with high associative barriers tend to swiftly arrive at conclusions when routine problems arise. They enjoy more focused thinking, and an ability to turn logically toward how they or others have handled similar problems in the past. But individuals burdened with high associative barriers are less likely to respond creatively to unique or new problems. This is a disadvantage for American firms, for the simple reason that the emergent threat posed by their Chinese supply chain partners represents an absolutely unique set of challenges and problems.

Now may not be the time, and their supply chain relationships with Chinese partners may not be the place, for domestic managers to make quick, known decisions in pursuit of obvious solutions, because given the new horseshoe model reality, decisions and solutions are anything but obvious. Instead, the times and situation call for lowering domestic management's associative barriers. Domestic supply chain managers who lower those associative barriers may earn material advantage for their firms through their newfound ability to think and respond more creatively.

6.1.2. Creating intersections

Several reasons why supply chain managers should push themselves toward greater open-mindedness, especially to places where they don't automatically reject creative insights, were just addressed. Consideration, therefore, should logically turn toward understanding how managers might arouse more open-mindedness and greater creativity within themselves and their subordinates. One approach involves creating intersections (Johansson, 2005). To illustrate how it works, consider the role sets of product designers, marketers, logisticians, inventory and transportation specialists, or accountants and financial managers. The human occupants of each role set arrive from and work in different fields, but then interact in the supply chain. Each professional field's members are initially educated and professionally indoctrinated through direct and indirect experience to think and respond differently, one from the other, even

when encountering the same stimuli. This fact is logical, predictable, and observable. In fact, it should be accepted and, more importantly, leveraged to positive ends, by any domestic firm creative enough to exploit the phenomenon when addressing the Chinese threat.

Every professional field referenced above features its own unique concepts and take on the world. Those unique concepts consist of proven, discipline-specific knowledge sets and practices that have evolved or devolved over time into hardened edifices of esteemed thoughts. Accountants' or marketers' thought processes suggesting that there is only one way, and no other way, of thinking is absolutely in play, and powerfully so, within these professional fields. When the modern Chinese supply chain partner or adversary comes along, similarly bolstered and burdened by its unique strengths, weaknesses, and cultural insecurities, and featuring its own hardened patterns of thought, it predictably poses unpredictable threats for which no off-the-shelf solutions exist. It is difficult to dispute that the first nation whose managers think and act with greater creativity is more likely to secure the upper hand in the horseshoe struggle.

It is therefore logical to suggest that the most effective strategies that could be created to counter the emergent threats that domestic firms will soon encounter in their supply chains will likely emerge from still unacknowledged ideas. To date, these ideas remain unacknowledged and essentially hidden, because the right disciplinary concepts have not been combined to reveal them. But such ideas assuredly exist, and by creating intersections domestic firms can unearth them. For all intents and purposes, such ideas are perched on or near the peripheries of the professional disciplines referenced above. In fact, many such ideas are situated almost precisely where the dominant concepts within the various disciplines could intersect, if management to create such intersections strategically.

When managers operate within a specific field, they are primarily capable of effectively combining concepts that already exist within their field. Understandably, they are also predisposed to do just that. But if domestic managers were required, through circumstance or artificial contrivance, to think and operate mindfully at an intersection between two fields, such as accounting and logistics, they should be better able to combine concepts from those disparate disciplines, and to create new ideas and superior solutions. The task of herding divergent professional thinkers together would presumably be the responsibility of management's management.

6.1.3. Exploiting outsiders imaginatively

Are firms capable of stimulating intersectional outcomes within their precincts? They are. One method involves exploiting outsiders imaginatively. Strategically introducing outsiders, and honoring their perspectives, can promote the creative stimulant introduced above. Depending on the circumstances, strategically embedding a revenue-oriented marketer into a cost-oriented logistics context, appointing a Chinese board member to a domestic firm, or employing a motivated team of Asian consultants featuring diverse pedigrees to generate new insights, could create intersectional effects.

Creating and honoring this official outsider role within a domestic firm could keep important questions flowing, and new perspectives emerging, if a firm confronts its own horseshoe challenge. Similar to how United States visitors to China notice what the Chinese themselves take for granted, official outsiders may notice when supply chain insiders are inappropriately holding fast to suddenly or subtly irrational standards, destructive myths, or impractical traditions. When challenges arising within global supply chains are not familiar, the natives won't take them for granted if the outsiders don't let them. Instead, greater creativity and ingenuity could be stimulated amongst those natives, providing a medium through which more effective responses can be engendered. Motivated and empowered outsiders can assist in that process.

6.1.4. Exploring multiple perspectives

Similar intersectional and associative barrier-lowering effects can be stimulated when domestic managers purposefully generate, within their own minds, perspectives which otherwise would have to be introduced from the outside. What if they were to mindfully approach the horseshoe challenge from the perspective that would be naturally taken by an anthropologist, Picasso, or their Chinese counterpart? The ability and willingness to shift contexts and explore multiple perspectives in response to emerging Chinese threats might prove hugely valuable to domestic managers and their firms. As IBM's Joel Cawley suggests, "The next layers of innovation [will likely] involve the intersection of very advanced specialties" (Friedman, 2005, p. 353).

Purposefully changing one's perspective in response to non-routine problems stimulates imagination and creativity. New perspectives can be facilitated by reversing assumptions. Here domestic managers could write down the most obvious critical assumptions associated with the horseshoe challenge, compose the inverse of each key assumption, and then determine the best responses based on the new assumptions. The effort permits minds to

temporarily escape the usual associative barriers. Similarly, barrier-destroying perspectives could be engendered by inverting goals. General Motors' management, for example, could determine how GM might best achieve the opposite of what it actually seeks: in other words, they could identify the strategic actions GM could pursue to ensure additional Chinese manufacturing forays, like the Chery, into its supply chain positions.

6.2. Level II: Inspiring greater creativity among subordinates

6.2.1. Exemplifying values-based leadership

Few desirable subordinate behaviors ever evolve independently from management's leadership style. Of the leadership qualities that could stimulate greater creativity amongst subordinates, a leadership pattern best described as being values-based could prove crucial. If their leaders displayed values-based behaviors, in effect exuding confidence that the Chinese challenge can be mastered but without resorting to dogma regarding the best way to master it, subordinates would logically perceive that more room exists for them to be self-starting, fully engaged, and creative (Langer, 1989). When reporting to confident but discriminatingly uncertain leaders, employees should be less likely to pretend to understand what they don't, say they will do something when they won't, or hide mistakes when they could. Each non-response should enhance creativity.

In such settings, subordinates are more likely to assume, again logically, they do not have to be right 100% of the time. This supports the creativity cause, because being right all the time is impossible whenever genuinely creative ideas are being stimulated. In such settings, subordinates are more likely to suggest potentially useful process improvements or entirely new processes. An admission of uncertainty by anyone leads naturally to a search for information. With more information, additional creative options may come into focus.

The preceding discussion may initially appear contrary to conventional managerial wisdom. To be sure, because more knowledgeable individuals tend to rise as managers, the sense that anyone managing subordinates should know how to answer most questions may prevail. In such settings, asking questions and therefore admitting their uncertainty may prove intimidating to subordinates, even when the pursuit of creativity is an overtly acknowledged expectation. But if managers made it clear they view absolute certainty all the time as being, if not foolhardy, irresponsible and non-supportive of the creativity cause, the uncertain subordinates might find it easier to ask questions.

While the resulting managerial feedback should stimulate subordinates' ideation efforts, the process of answering the resulting questions may simultaneously feed and stimulate more creative managerial thinking as well. New questions, which often introduce new perspectives to extant or emergent supply chain threats, actively provide substantial information and new points of view to managers. Moreover, if managers solicit additional information from the questioner in the process of answering questions, both groups should grow more creative. Finally, when managers accept occasional deviation from routine ways of doing things, naturally more creative subordinates are more likely to thrive and contribute. If not simply compelled to make existing processes or solutions incrementally better, subordinates may more readily compose radically different and better processes and solutions in response to the Chinese supply chain challenge.

6.2.2. Accepting impressive failure

Subordinates should be rewarded when they succeed. But capable subordinates should also understand a failure to generate new ideas often represents the greatest failure, and could be noted in the future. Of course, subordinates should be encouraged to learn from and over time upgrade processes as a result of their mistakes. Management should likewise communicate it is acceptable to make occasional mistakes by stretching one's vision, but that repeating the same mistake is never acceptable.

Subordinates should be encouraged to generate numerous new ideas. The rationale is simple: the more new ideas stimulated, the greater the likelihood that a truly groundbreaking new idea can be identified. Creative subordinates will experience more failed ideas because they produce more ideas. Management should recognize this relationship, and acknowledge it publicly. Therefore, creative people should not be punished for impressive failures. Mistakes and false steps are part of the process for lowering associative barriers, stimulating inter-sectional thinking, and creating new ideas. Within reason, failing impressively should be acceptable, because over the long-term useful outcomes can result from stretched imaginations.

One time-tested means of stimulating innovative ideas—brainstorming—has not been discussed. Many assume brainstorming stimulates many useful new ideas. However, people generate almost twice as many new ideas when working or thinking by themselves (Minter & Reid, 2007). The primary reasons apparently relate to *fear rider* and *free-rider* phenomena. Their effects create sessions where most participants let others do all the thinking,

either because they are afraid to publicize truly innovative ideas, or because they are too lazy to think with sufficient effort because someone else will willingly do the work.

6.3. Identifying useful strategic ideas at creativity Levels I and II

Peter Drucker wrote, “Nothing is so useless as doing efficiently that which should not be done at all” (Beatty, 1998, p. 88). If for no other reason than to avoid pursuing useless efficiencies, domestic firms seeking to parry Chinese threats should carefully identify only the best of creative ideas stimulated during Process I, and proceed accordingly based on only those ideas.

6.3.1. Postponing judgment

As a first step toward maximizing creative effectiveness, management should postpone judgment of any new ideas generated within the firm. The recommendation is simple. But unless management allocates sufficient time and resources to the identification task, execution will prove challenging. Postponing judgment almost always proves psychologically challenging for reasons already explained: managers possess the rooted field expertise that enabled them to manage in the first place. Managerial minds judge quickly, almost mechanically degrading the value of genuinely original thinking by comparing creative ideas to ideas already known to work within the familiar context. Creative minds should judge more leisurely.

For good reasons, following precedent makes sense in many situations. But in situations involving threats that require dynamically creative solutions, precedence can frequently prove a poor referent framework from which to evaluate the superiority of ideas that emerge from unusual concept combinations, such as the most creative ideas and strategies. The threatening situations unfolding in numerous United States-Chinese supply chains will surely demand dynamically creative solutions. However, precedent-based solutions to pressing challenges are often developed, based on ideas that are assumed to represent employees’ their best work, and then a better alternative is identified shortly after a deadline passed. The need for supply chain managers to slow down their minds, and extend artificial deadlines by allocating sufficient resources to the identification task, is real.

6.3.2. Avoiding conventional wisdom

In the midst of the identification process, management and subordinates should consciously avoid conventional wisdom, especially those reflecting

sentiments like “if the idea was so great, someone would have thought of it already.” During Process II, that is exactly the wrong way to think. The fact is, genuinely intersectional ideas are exactly not what someone would have thought of before. The connection between the intersectional concepts and the emergent Chinese threat that has to be aligned to expose the truly creative idea would never have been evident to any other team that had not created the same connections established during Process I.

6.3.3. Exploiting inequality

In any critical setting, some people are better at original thinking and less effective at execution. Such diversity arises naturally within firms. But during Process II, managers should exploit that diversity or inequalities artificially. Evaluation teams should be constructed such that strong original thinkers complement strong do-ers. Then, when asked to identify the best strategic ideas from among any new batch, management won’t need to encourage team members to blend their divergent views in identifying useful choices. The team members will naturally do it themselves. By exploiting inequalities within an evaluative team, management can leverage the fact that, in the process of identifying the best creative ideas, combinations featuring divergent thinkers usually produce the best results.

6.3.4. Answering four go/no go forward questions

Once the preceding three perspectives are in place to both frame and lubricate the identification process, the evaluating team should answer four go/no go questions. Each question should be answered with respect to each idea batched during Process I. Responses should then be compared for each competing idea using whatever metric the firm deems most appropriate, either compensatory or non-compensatory, based on the unique constraints its Chinese threat is imposing. The questions are:

1. Is this idea compatible with the realities of the firm’s marketplace, organizational culture and supply chain culture?
2. Does this idea mesh with our firm’s capabilities?
3. Would successful execution of this idea serve to fulfill the exact purpose for which it is intended?
4. Should the firm act based on this idea, would it then be pursuing more ideas than it can effectively manage?

No matter how many seemingly attractive ideas or solutions are stimulated during Process I, the prospect of failure increases markedly if the ideas chosen by a firm to develop strategically don't fit with its existing supply chain constraints or organizational culture, or would force the firm to acquire new, enabling supply chain capabilities at too high a cost (Crawford & Di Benedetto, 2006). Answering these questions forces management to visualize how and whether each idea being evaluated could be adopted within supply chains they share with Chinese partners. Answering each question affirmatively, in the order listed, should lessen the likelihood a deficient strategically creative alternative is pursued.

6.3.5. Achieving balanced risk

Even after answering these questions, choices among competing creative alternatives in settings as complex as global supply chains will be accompanied by various types of unmitigated risk. Such risks also include the consequences associated with choosing nothing at all. Therefore, the risks associated with vetting any ideas that have survived this far should be evaluated from a perspective that increases the prospect that the best creative ideas will be identified, despite their risk. To do this, managers and subordinates must assess the risks associated with actually choosing one competing idea, as opposed to choosing another alternative or none at all, from a properly balanced perspective.

The key to success relates to the need to avoid certain common psychological traps. These traps are predictable and, therefore, somewhat manageable. If the firm avoids those traps, by default it will have attained a more balanced view of risk. Insofar as risk and genuine creativity inevitably rise or fall together, achieving a balanced risk perspective during the identification process is crucial. Otherwise, wonderful ideas might be eliminated from further consideration because they were inappropriately deemed too risky.

Prospect theory (Kahneman & Tversky, 1979) provides insights into how a productive balance can be struck between domestic workers' needs to mitigate risks of a primarily psychological nature, and domestic firms' need to stimulate and identify creative ideas to counter Chinese initiated threats within their supply chains. Prospect theory suggests that when risky decisions present, the anxiety and concerns that accompany them typically surface not so much because people hate uncertainty, but rather that they fear losing. Given their shared human natures, managers and subordinates naturally find it easier to envision how their lots could quickly get

worse than how their lots could quickly improve. For most, the prospect of loss is more vivid, and experienced more viscerally, than the prospect of gain. Consequently, people tend to hold steadfast to the status quo when things are going well, staying securely within their fields instead of thinking and choosing creatively. By contrast, people tend to take huge risks when things are going badly, at exactly the wrong time because that is when they lack often time, resources, and sound reasoning. Nothing management could reasonably do can change these human tendencies, except, in the process of evaluating these surviving creative alternatives, remaining aware of the need to accept and encourage a balanced view of risk in good and bad times alike, and to push forward creatively despite naturally arising human fears.

6.3.6. Evaluate consequences

Unique behaviors, such as the decision to choose an innovative strategic idea to counter a unique Chinese threat, may generate unique consequences. The final step in identifying useful strategic ideas from any batch created during Process I involves mapping out key consequences that would ensue from each idea's implementation. Therefore, when comparing creative ideas that survived the four questions, teams should build simple decision trees. Then these decision trees should be used to estimate the values of the respective consequences of the outcomes associated with each idea and the probabilities that each outcome will arise. Unless ethical issues that escaped previous filters emerge, final decisions about the superiority of one strategic idea as opposed to others that survived this far should be made exclusively according to consequences. Evaluating each idea's consequences automatically brings to mind the goals driving the process and how well the idea will facilitate attainment of the outcomes being sought. Thinking upfront about the totality of the consequences associated with executing strategically based on one as opposed to an alternative competing idea can result in a huge future payoff.

6.4. Implementing the supply chain creativity methodology

With three exceptions, implementing the 12 SCCM methodologies featured would produce a change in managerial, and therefore, subordinate, mindsets, rather than any direct functional changes. Naturally, when changes in ways of thinking or perspective are introduced, and hopefully stick, changes in actual behavior and functional outcomes necessarily should follow.

During implementation, Cell 1 methodologies should be implemented first, and in the order each method is arrayed within the cell. They should be followed in order by Cell 2, 3, and 4 methodologies, which need not be introduced in any particular order within the cell compartment. The rationale underlying the need for changes in mindset as each relate to lowering associative barriers, creating intersections, exploring multiple perspectives, and so on, would need to be communicated overtly to managers or subordinates through whatever channels best suited a firm and its culture. By contrast, overt policies, processes, and metrics would need to be introduced to ensure implementation of three methodologies: exploiting outsiders imaginatively, answering four go/no go questions, or evaluating consequences.

7. Creating blue ocean strengths?

Any supply chain member's strength is reflected as much in what it can prevent from happening as in what it can achieve inside the supply chain. Rare indeed would be the domestic firm that possessed the absolute power necessary to prevent threats in their global supply chain relationships with Chinese partners from actually surfacing. That the trend exists at all suggests it will mete out its threat independent of any actions any domestic firm might pursue to eliminate it. But domestic firms should never mindlessly accept less desirable positions along on the metaphorical horseshoe—incrementally submitting over time against inexorable encroachments—from increasingly powerful Chinese partners cum adversaries. To the contrary, this article demonstrates why more creative domestic firms can check Chinese firms' efforts to secure more desirable positions more effectively inside the supply chains that link them.

Writing about the 3M company, *Business Week* suggested, "the fragility of innovation—the ease with which it can be lost, even with the best of intentions—is emerging as a key management theme" (3M, 2007). Creating a delicate global supply chain balance wherein the requisite efficiency is sustained, while what soon may prove necessarily high levels of creativity is stimulated, will likely prove an ongoing challenge for many domestic firms for years to come. This new reality is likely to apply regardless of where the domestic firm competes or with whom it partners. Given the reality of the Chinese threat, however, this article knowingly ignored the need to pursue intra-organizational balance. Instead, it developed a basis for and description of a model demonstrating how domestic

supply chain firms might stimulate and identify superior creative ideas within their managerial and subordinate ranks, avoid losing those ideas, and then utilize their strategic applications in their global supply chains in defense of high value ground that was once secure, but is no longer. More creative domestic firms should enjoy better prospects of remaining securely grounded along the higher value-adding positions on the vertically extending prongs of the metaphorical horseshoe, largely because their Chinese partners will have little chance staying abreast of, much less superseding, innovative strategies that those domestic firms will have introduced and executed. With respect to the domestic or foreign competitors who also partner globally with Chinese firms, but who fail to respond to the emergent supply chain threat in a similarly creative fashion, the creative firm's competitive advantages should prove material and sustainable over time.

Over time, the broad suggestions offered here may prove redeemable based on other emerging market trends. One trend in particular suggests that bottom-line, process-oriented supply chain methods such as Six Sigma actually can be pursued to the point where firms harm their competitiveness by valuing the creation of process-oriented sameness over the value associated with creating what Kim and Mauborgne (2005) described as "blue ocean differences." Hopefully, ideas introduced above can assist domestic firms in their efforts to create blue ocean differences that permit them to retain the current positions of relative supply chain advantage that most still enjoy with their Chinese partners.

Acknowledgment

The author would like to thank Marvyn Boatswain and Ariadne Strutton for their useful assistance.

References

- 3M: Is Six Sigma losing its mojo? (2007, June 11). *Business Week*, 24–36.
- Batson, A. W. (2007, March 23). Soon made in China: High tech products; Intel investment shows how nation's economy is climbing value chain. *The Wall Street Journal*, p. B4.
- Beatty, J. (1998). *The world according to Peter Drucker*. New York: The Free Press.
- Coyle, J. J., Bardi, E. J., & Landley, C. J., Jr. (2003). *The management of business logistics: A supply chain perspective* (7th ed.). Mason, OH: Southwestern.
- Crawford, M., & Di Benedetto, A. (2006). *New products management*. New York: McGraw Hill.
- Fallows, J. (2007). China makes, the world takes. *The Atlantic Monthly*, 300(1), 48–73.

- Fishman, T. C. (2006). *China, Inc.: How the rise of the next superpower challenges America and the world*. New York: Simon & Schuster.
- Friedman, T. L. (2005). *The world is flat*. New York: Farrar, Straus, & Giroux.
- Hamel, G. (2006, September 13). Innovation is the key for cos. *The Times of India*. Retrieved from <http://timesofindia.indiatimes.com/articleshow/1984988.cms>
- Johannson, F. (2005). *The Medici effect*. Boston: Harvard Business School Press.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–292.
- Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Boston: Harvard Business School Press.
- Langer, E. (1989). *Mindfulness*. Cambridge, MA: Perseus Book Group.
- Minter, D., & Reid, M. (2007). *Lightning in a bottle*. Naperville, IL: Sourcebooks.
- Pelton, L. E., Strutton, D., & Lumpkin, J. R. (2002). *Marketing channels: A relationship marketing approach*. New York: McGraw-Hill.
- Wong, A. (2003). Achieving supply chain excellence. *Total Quality Management*, 14(2), 151–159.