

STRATEGIC CHANGE AND THE JAZZ MINDSET: EXPLORING PRACTICES THAT ENHANCE DYNAMIC CAPABILITIES FOR ORGANIZATIONAL IMPROVISATION

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ABSTRACT

How can leaders adopt a mindset that maximizes learning, remains responsive to short-term emergent opportunities, and simultaneously strengthens longer-term dynamic capabilities of the organization? This chapter explores the organizational decisions and practices leaders can initiate to extend, strengthen, or transform “ordinary capabilities” (Winter, 2003) into enhanced improvisational competence and dynamic capabilities. We call this leadership logic the “jazz mindset.” We draw upon seven characteristics of jazz bands as outlined by Barrett (1998) to show that strategic leaders of business organizations can enhance dynamic capabilities by strengthening practices observed in improvising jazz bands.

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Leadership involves turning unpredictably challenging situations into predictably successful outcomes. Despite the temptation to search for one “magic formula” – a set of static routines or capabilities that reliably transform each problem into an opportunity – both leaders and scholars of leadership have sobered to the impossibility of such a quest. Past research demonstrates that a competitive advantage today can become an organization’s albatross tomorrow. Thus, focus for leaders has shifted away from development of a single set of perfect routines toward the development of dynamic capabilities, or higher-level routines, which operate to change existing static routines to address future novel challenges.

How strategic leaders in business build such dynamic capabilities remains a relatively unanswered question. A review of the management literature on dynamic capabilities reveals that while much has been written on the “what” of dynamic capabilities, frighteningly little is known about the “how.” Based on our experience studying successful jazz leaders, however, we believe a far more developed theory of how to lead the creation of dynamic capabilities exists in jazz than in business. We call this leadership logic the “jazz mindset” and consider, as the primary contribution of this chapter, how that mindset can help business leaders shape the development of dynamic capabilities and long-term competitive advantage in their organizations.

Our argument proceeds as follows. First, we briefly revisit the forces of inertia that plague organizations, make it difficult for organizations to change, and therefore prompt leaders to either draw on the organization’s capacity for ad hoc problem solving (“firefighting”) or invest in dynamic capabilities (Winter, 2003). We then discuss the nature of jazz improvisation, pointing out the notion that jazz bands, like successful firms, face the challenge of balancing exploration and exploitation (March, 1991) in a way that involves investment in, and enhancement of, dynamic capabilities. Borrowing from the research on jazz improvisation, including Weick (1996), Hatch (1998), and Barrett (1998), we explore the mindsets that jazz musicians have adapted to enhance dynamic capabilities. Stories of jazz musicians serve as touchpoints that offer a window into similar practices by strategic leaders of innovative firms. This is not primarily a chapter about jazz improvisation. Rather we are using the principles that have been shown to be operative in jazz improvisation as a way to understand the success of firms in building excellence in dynamic capabilities and change.

ORGANIZATIONAL INERTIA

There is broad consensus in the literature that successful firms can fail to sufficiently adapt when faced with certain exogenous shocks, including disruptive or radical technological change (Abernathy & Clark, 1985; Tushman & Anderson, 1986; Henderson & Clark, 1990; Christensen & Rosenbloom, 1995; Christensen, 1997; Sull, Tedlow, & Rosenbloom, 1997; Tripsas, 1997), market shifts (Adner & Levinthal, 2001), and environmental jolts (Clark, 1988). As evidence, one need only reflect on the image of the CEOs of GM, Ford, and Chrysler – what had been the “Big Three” auto manufacturers only a year earlier – arriving for their US Senate hearing in Washington, DC on November 18, 2008 to explain why the US taxpayer should bail them out. As Rick Wagoner, then CEO of GM, told the Senate, “we’re here today because we made mistakes, which we are learning from, and because some forces beyond our control have pushed us to the brink.”

The publication landscape is replete with other classic examples: Disney’s initial inability to export its US theme park success to Europe; LEGO’s loss of market share when electronic toys began to replace plastic ones; Kodak’s failure to address the implications of the emergence of digital technology as a threat to its core business in paper and film; Borders inability to survive in a world with Amazon; Polaroid senior managers’ mental block against recognizing the need to compete in software rather than hardware (cameras) (Tripsas & Gavetti, 2000). The phenomenon is not new, as demonstrated by the Akron tire companies’ failure in the 1970s to address the threat posed by radial tires (Sull et al., 1997) and Swiss watch manufacturers’ failure in the 1960s to address quartz watch competition from Japan (Landes, 1983). In several cases, these firms had innovative technology, foresight into market changes, or accurate predictions of environmental risks before their competitors, but they were unable to take advantage of their ideas or bring products to market. This has become known as the success trap or competency trap – the very strengths and capabilities that were responsible for success are sometimes the source of the rigidities that block the adaptation process (Levitt & March, 1988). Usually these successful firms have enough resources. They have the resources that led to success in the first place, including knowledge, skills, and capital. Capabilities and resources that give one competitive advantage can also get in one’s way. These successful firms are rarely inactive or unresponsive, but instead suffer from what Don Sull termed active inertia: an “organization’s tendency to follow established patterns of behavior – even in response to dramatic environmental shifts” (Sull, 1999). As we demonstrate

below, this is a challenge that jazz musicians also face when they improvise.

One approach dominates the literature in response to the problem of organizational inertia: the creation of dynamic capabilities (Teece, Pisano, & Shuen, 1997). The creation of dynamic capabilities involves investment in a sustained pattern of activity that allows firms to change and adapt (Winter, 2003) – a routine that acts to change other routines. As such, dynamic capabilities are higher-order capabilities, extend beyond ordinary short-term capabilities, involve an ability to adapt in the longer term, and are an alternative to ad hoc problem solving or “firefighting” in the face of problems for which an organization is unprepared. Teece et al. (1997, p. 516) define dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments.” Similarly, Eisenhardt and Martin (2000, p. 1107) define dynamic capabilities as the firm’s “processes to integrate, reconfigure, gain and release resources – to match and even create market change.” Zollo and Winter (2002, p. 340) define dynamic capabilities as “a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness.” Central in each definition is the development of a routinized learning process. Dynamic capabilities are not just a one-time response to an environmental jolt but represent persistent and structured efforts dedicated to improved performance. Therefore, they require deliberate learning efforts on the part of organizational leaders. This chapter concerns what mindset senior managers could take to shape the development of dynamic capabilities and long-term competitive advantage.

What might an organization that has developed dynamic capabilities look like, and what practices does it institute that might serve as models for other firms? We know something about the “ambidextrous” structure of such organizations (O’Reilly & Tushman, 2008; Tushman & O’Reilly, 1996) – Brown and Eisenhardt’s (1997) studies of high-velocity firms demonstrated that rigid or highly formalized routines are inconsistent with the development of dynamic capabilities. The ability to acquire, recombine, and release resources in an innovative, adaptive way requires an organic structure (Burns & Stalker, 1961), a form similar to Mintzberg’s adhocracy (Mintzberg & McHugh, 1985). However, much of the research on dynamic capabilities remains preliminary and conceptual (O’Reilly & Tushman, 2008), resting on the anomalous existence of firms that survive and prosper over multiple centuries (O’Reilly & Tushman, 2008; De Geus, 1997). Furthermore, while we know something about the structural (e.g., Tushman & O’Reilly, 1996) and contextual (Gibson & Birkinshaw, 2004) enablers of these

ambidextrous organizations (see Raisch & Birkinshaw, 2008 for a recent review), we know far less about the mindset of strategic leaders and the practices they initiate to foster dynamic capabilities. This chapter seeks to fill that gap.

It is jazz improvisers' unique strategies to overcome the challenges of inertia that offer lessons for strategic leaders. We agree with Winter (2003) that improvisation itself is not a dynamic capability; improvised responses to novel challenges are the epitome of "ad hoc problem solving." But we also agree with Winter (2003) that "in organizational improvisation, as in jazz, creative achievement typically rises from a foundation of patterned and practiced performance" (Miner, Bassoff, & Moorman, 2001), and thus the creation of the improvisation mindset within an organization is the quintessential investment in dynamic capabilities.

This chapter aims to use knowledge about the improvisation mindset, distilled from those who originally coined the term – jazz musicians – to begin to unpack that mechanism behind organizational ambidexterity. We use a number of field studies and interviews to do so. That said, the purpose of this work is not to propose an ideal formula for organizational ambidexterity based on defined levels of improvisation at certain levels of an organization. In fact, we agree with previous authors that such analysis must be contingent upon the operating environment of the organization (Tushman & O'Reilly, 1996; Gibson & Birkinshaw, 2004). Instead, we look deeply into the "how" of intraorganizational improvisation – the what, where, and how long of valuable improvisation in organizations – with lessons for both leaders and academic theorists studying leadership. We find that adopting a jazz mindset equips leaders, of both jazz bands and business organizations, to maintain a sustainable balance between the passionate drive for novelty and the compassionate preservation of comfortable routines.

In the next section, we explore the world of jazz improvisation in order to demonstrate that jazz bands are devoted to developing dynamic capabilities.

THE MINDSET OF JAZZ IMPROVISATION

In this section, we argue that jazz bands are led so as to maximize the development of dynamic capabilities. We seek to articulate the mindset that guides players and how this same mindset can be applied by strategic leaders of organizations.

Jazz bands are organized similarly to Mintzberg's adhocracy, Burns and Stalker's organic structure, Brown and Eisenhardt's high-velocity firms, and Tushman and O'Reilly's ambidextrous organizations. Jazz bands, in short, embody

many of the characteristics of postindustrial, postbureaucratic organizing. Jazz bands have minimal hierarchy, decision-making is dispersed, and they are designed to maximize flexibility, responsiveness, innovation, and fast processing of information. A jazz band is a form of social organization that produces order with little or no blueprint, organized from the bottom up: individuals have personal freedom to take initiative and operate on their own authority (their musical imaginations) guided by the constraints of the task, the conventions of practice, and the enactments of other players. Jazz improvisation is a prototype of an organization that builds up routines and yet also values novelty and emergence – an approach that resonates with dynamic capabilities research. As a result, jazz bands engage in simultaneous exploration and exploitation, remaining adaptive to change. Jazz bands consist of diverse specialists living in turbulent environments, interpreting vague cues, processing large chunks of information, formulating and implementing strategy simultaneously, extemporaneously inventing responses without well-thought-out plans and without a guarantee of outcomes, and discovering the future that their action creates as it unfolds. To say that jazz music is improvised means that jazz music is spontaneous, unrehearsed, and not written down beforehand.

In this sense, improvisation is similar to Schön's notion of reflective practice. Schön's defines it as "on the spot surfacing, criticizing, restructuring, and testing of intuitive understanding of experienced phenomena" (Schön, 1983, p. 147; Yanow & Tsoukas, 2009). Weick defines improvisation as the "simultaneous unfolding of thinking and doing" (Weick, 1996, p. 19). Organizational improvisation seems related to O'Reilly and Tushman's notion that dynamic capabilities are the result of leaders' capacity to appropriately adapt, integrate, and reconfigure organizational skills and resources to match changing environments (O'Reilly & Tushman, 2008). Jazz bands too are engaged in reconfiguring assets, developing new skills, noticing, and responding to opportunities.

Jazz Improvisation: Favoring Exploration and Guarding Against Excessive Exploitation

Since the music is composed and performed simultaneously, there is no guarantee of where one's queries will lead. There is an inherent risk in improvising. Jazz musicians must balance exploration and exploitation, acknowledging the risks

of exploration especially when performing in public with no opportunities to fix mistakes. Saxophonist Paul Desmond described what he does when improvising: “(I) crawl out on a limb, set one line against another and try to match them, bring them closer together” (quoted in Gioia, 1988, p. 92). When improvising, one journeys into the unknown and is expected to create coherent musical ideas that are novel and unpredictable. Jazz musicians find themselves perilously “out on a limb,” at the edge of their comfort level, seeking to create coherent, original statements out of disparate, evolving musical material often in the presence of an audience.

Jazz musicians rehearse their art form in a way consistent with what we know about learning and exploiting routines. Following Gavetti and Levinthal (2000, p. 113), “routines reflect experiential wisdom in that they are the outcome of trial and error learning and the selection and retention of past behaviors.” Like with all expert skills, there is a stage of rote learning and practice necessary. Jazz musicians learn to develop routines by imitating others. Students of jazz learn the motifs and phrases of previous masters, practicing them repeatedly until they become somewhat automatic. They study the masters’ solos, learning the overall strategy, choice of notes, harmonization of certain phrases, matching of phrases to chord changes. These phrases, or what they call “licks,” become part of the players’ personal repertoire. According to trumpeter Benny Bailey, “You just have to keep on doing it (practicing phrases) over and over until it comes automatically” (Berliner, 1994, p. 165). Recalling that Harreld, O’Reilly, and Tushman (2007) propose that dynamic capabilities rely on leaders’ ability to adapt, integrate, reconfigure organizational skills and resources to match changing environments, we see a link to the process in which jazz musicians engage. After mastering others’ phrases and styles, musicians begin to combine them with previously unrelated material, introducing incremental alterations. These incremental alterations result in a unique combination of disparate materials that begins to point to the development of one’s unique style. At some point, the player begins to add, recombine, and vary the patterns that have become automatic by sheer repetition. Players borrow material from different contexts, combine unrelated modes, and apply familiar phrases to seemingly unrelated chord changes. We thus propose that jazz musicians engage in a set of meta-practices that foster a unique approach to learning and might offer insight into the mindset that allows organizations to develop dynamic capabilities.

In the following section, we draw upon Barrett (1998) to explore the seven practices that jazz bands adopt to guard against overreliance on exploitation that

leads to inertia, core rigidity, and competency traps. These include the following: provocative competence (mastering the art of unlearning), affirmative competence (“yes to the mess”), leaping in and taking action through full-bodied engagement, minimal structure and maximal autonomy, errors as a source of learning, hanging out in a community of diverse specialists, and alternating between soloing and supporting. We propose that these concrete practices help to develop the mindset that is necessary for strategic leaders to install the dynamic capabilities needed in an organization to combine exploration and exploitation (ambidexterity) and achieve sustainable advantage.

1. Leading with Provocative Competence: Helping the Organization to Unlearn

Improvising introduces instability that increases anxiety and fear of failure. For this reason, there is a temptation to favor exploitation, to fall into competency traps, to rely on well-learned successful stock phrases and routines (“licks”) “which have proven themselves effective in past performance” (Gioia, 1988, p. 53). However, musicians who repeat their solos or flawlessly play rehearsed patterns are not regarded highly by the jazz community. Whereas traditional musicians experiment during rehearsal to deliver perfected performances, jazz musicians perfect their rehearsals to deliver an experimental performance. Like leaders of successful enterprises such as those mentioned earlier – the Big Three, Disney, Lego, Kodak, Polaroid – jazz players must guard against temptation to value exploitation of learned routines over the exploration of new knowledge. How do musicians cultivate the unique mindset that welcomes what some might regard as perilous and risky activity? How do they build up the dynamic capability to guard against competency traps?

Great jazz musicians “trick” their automatic responses by throwing themselves into actual playing situations “over their heads,” stretching themselves to play in challenging contexts. Pianist Bill Evans continually practiced musical passages he did not quite understand, and once he had mastered them took on other difficult passages (Evans, 1991). Saxophonist John Coltrane learned songs in the most difficult, rarely played keys. As Keith Jarrett speaks of this challenge, “You’re never in a secure position. You’re never at a point where you have it all sewn up. You have to choose to be secure like a stone, or insecure but able to flow” (Palmer, 1974).

Such activities allow jazz musicians to develop the leadership skill of provocative competence (Barrett, 1998), a particular kind of leadership that

explores the edge of habit and familiarity, introduces incremental disruption to members' routines, and demands openness to new alternative pathways. In particular, we call attention to the leadership practices of jazz musician Miles Davis. Davis is unique in jazz in that he is considered a pioneer who was one of the founders of three different movements – bebop jazz, modal jazz, and fusion jazz. He was skilled at creating conditions that enhanced dynamic capability, the deliberate investment in creating novel insights. Keith Jarrett recalls Davis “keeping the music fresh and moving” by avoiding comfortable routines, forcing his musicians to play patterns they had never heard before. In an effort to encourage the band to approach familiar tunes from a novel perspective, Davis would sometimes call tunes in different keys or call tunes the band had not rehearsed. This would be done in concert, before a live audience. In a famous 1959 recording session, the musicians arrived in the studio and were presented with sketches of songs – some only partially complete – written in unconventional modal forms using scales that were very foreign to western jazz musicians at that time. One song, “So What,” was minimally sketched without familiar chord changes using two unusual modes in a form the musicians had never played before. One song, “Blue in Green,” contained only 10 bars instead of the more familiar 8 or 12 that characterized American popular music. Never having seen this music before and unfamiliar with these odd forms, the musicians with no rehearsal had the tape recorder running. The result was the album *Kind of Blue*, widely regarded as a landmark jazz recording. The album consists entirely of “first takes” so that when we listen to this album, we are witnessing the musicians approaching these pieces for the first time, themselves simultaneously discovering new music and inventing it. The album introduced modal jazz, changed the history of jazz, and is the highest selling jazz recording in history. Curiously, Davis was stretching the musicians beyond their comfortable capacity; he pushed them to try new and unusual musical patterns without the benefit of rehearsal. What makes this provocative competence toward the building of dynamic capability was Davis' introduction of incremental disruption to handicapped routines, making it impossible for the players to rely on rote learning and habitual responses (see Barrett, 1998). The musicians who played with Davis – John Coltrane, Bill Evans, Keith Jarrett, Chick Corea – went on to have very successful careers of their own and credited the leadership of Miles Davis for much of their growth and development as players. But more importantly for our purposes, many of the forms and unique phrasings that were developed during this highly innovative session were adopted, mastered, and developed by Davis and other musicians. Modal forms became influential in jazz and rock music

from the 1960s onward. Davis was nurturing the sort of ambidextrous, dynamic capabilities that Tushman and O'Reilly discuss: exploration of new repertoires eventually developed into routines that were exploited for remarkable success.

But let us return to the mindset of the leadership that facilitated the discovery of such novel ideas. What makes Davis' disruption provocative rather than noxious? First, his interruption was affirmative (see Barrett, 1995): he held an image of members as competent performers able to meet the demands of a challenging task. He believed in their overall potential and capacity to perform successfully even if they felt uncomfortable (and possibly irritated). Second, he did more than just disrupt habit patterns: he created alternative pathways for action. He imported new material that opened possibilities and suggested alternative routes for his players. Once the song began, passivity was not an option: the activity was impersonally structured so that musicians were required to play something, to take some kind of action. Third, the interruption was incremental. These foreign contexts were scaled to be challenging but not overly disruptive – Davis drove for passion but simultaneously showed compassion for the accompanying discomfort that would be released. His leadership played a role in cultivating generative metaphors and seeding suggestive narratives (see Barrett & Cooperrider, 1990) to provide a transition from known to unknown (Brown & Eisenhardt, 1997).

Miles Davis' provocative competence as a leader helped his bands develop dynamic capability, essentially nudging them to search, recombine, and reintegrate resources (O'Reilly & Tushman, 2008) that would become new successful routines through reflective interpretation (Brunner, Staats, Tushman, & Upton, 2009). But can provocative leadership also be applied to successful firms that are guarding against reliance on prior success? Here we cite two examples: Toyota and Giant Manufacturing Company (Giant Bicycles).

Consider the way Toyota developed the Lexus LS 400, the first Japanese luxury sedan and a car that "stunned the auto world, beating the [Mercedes] Benz 420SEL on aerodynamics, cabin noise, comfort, fuel efficiency, and maximum speed" at nearly US\$30,000 cheaper (Dawson, 2004, p. 31). Shoichiro Toyoda, son of the company's founder, initially preferred to stick with what Toyota Motor did best – "squeeze water from a dry washcloth" to build "cheap cars for everyman" (Dawson, 2004, pp. 5, 67). Fortune magazine commented that "getting the Lexus out of Toyota, whose forte is rolling out wheels for the world's millions, is like producing Beef Wellington at McDonald's" (Taylor III & Sheeline, 1989). When US consumers were asked if they would buy a Japanese luxury car, "many consumers said they couldn't even understand the concept of a Japanese luxury

car,” recounted one Toyota Motor executive, adding “they thought the term was an oxymoron” (Dawson, 2004, p. 40). Toyota had been exploiting well-learned routines in a lower market – it was not a luxury car manufacturer.

Eiji Toyoda, President and Chairman of Toyota Motor at the time, practiced provocative competence to build dynamic capabilities. He disrupted routine and assembled a heavyweight team with an intentionally provocative challenge: Toyoda announced that the Lexus “was not to be benchmarked against the ‘best car’ in the world, but, rather, against every individual best part in the world: the best transmission; the best suspension; the best audio system...” (Dawson 2004, p. xix). This was the equivalent of Miles Davis’ changing keys or introducing new forms that forced musicians to play in new and unfamiliar ways. Toyoda demanded that the Lexus LS 400 was to go from 0 to 60 in 7.9 seconds (with a V8 engine, a 4 L, 4-cam 32-valve fuel-injected motor capable of 250hp) and have a top speed of 150 mph (faster than any of the competition), while being the only luxury car to avoid the gas guzzler tax by having a fuel efficiency rating of 23.5 mpg. To do so, the LS 400 would have to achieve a drag coefficient of less than .29, where the average luxury car achieved .38 to .40 and the average sports car achieved .32 (a Porsche was around .30). This all had to be accomplished while maintaining the design, comfort, quietness, quality, safety, and resale value required to compete with BMW and Mercedes. It was as impossible as playing a song no one had ever played, in a key no one had ever heard, using a mode that was yet to be invented.

Toyota was unlearning routines in a dramatic way, primarily because the learned responses simply wouldn’t achieve the goals that had been set. Employees began to experiment on the margins: the LS 400 evolved out of some 450 prototypes, compared to 2–3 for the average Toyota, and included thousands of innovations (see Dawson, 2004 for detail). While Davis’ challenge to his musicians generated a breakthrough in jazz history, Toyoda’s challenge to his employees resulted in a car that made Toyota a leader in the luxury market: the Lexus broke countless records and has been the best-selling luxury automobile in the United States for most of the past decade.

Consider also the example of Giant Manufacturing Company (Giant Bicycles). By 1998, it had become the largest bicycle manufacturer in the world, producing 6.4 million bicycles worldwide. But in early 2008, its female customers were neither as satisfied nor as profitable as its male customers (Shih, Bernstein, Bernstein, Wang, & Wei, 2009). In the midst of continuing success and a worldwide biking boom, Tony Lo, CEO of Giant, offers a great example of

provocative competence in his approach to the women's market. When we spoke with Lo, he described his motivation for moving to the edge of the unknown with Giant's female customers:

When my wife complained that [Giant] equipment didn't fit her needs, I would say "okay... but do you really need that?" and I would just try to push it off. But you know wives... even if I kept saying that, it was not enough... she was quite serious. So I tried to find products to suit her needs, and I found that very difficult! And that's only for one woman – the wife of the CEO of the largest bicycle company in the world. Then I discovered that she's not the only one – her, and her friends, and their friend... the bicycle has never fit any of their lifestyles. One day I said, "that's enough! I'm going to do something!" (Interview with Tony Lo, March 25, 2009)

Lo discovered that Giant was systematically leaving women behind as it pushed up-market in search of profit. In the early 2000s, Giant's retail organization had implemented a standardized sales strategy to increase profitability and sales. As a customer walked in the door, salespeople would first classify him or her as a lifestyle, performance, or sport customer and then "customize" the sales approach accordingly. The routine aimed to migrate customers up-market over time, from lifestyle to performance to sport, with significantly increasing margins along the way – a standard best practice in retail. On sales and profitability metrics, the routine was working wonderfully. Men were very successfully being moved up-market. Women, however, were not. In 2006, several years after implementation of the standardized sales routine, nearly every female customer was classified as a "lifestyle" customer. Giant's retail stores didn't care – their primary interest was in chasing higher-profit, higher-volume customers, and if they were men, so be it. Lo visited a number of stores only to see the same pattern over and over again – an exploitation of available routines is simpler than the exploration of new ones:

No one is really paying attention [to women], and even if they wanted to pay attention, they can't. For instance, a bike shop is already crowded... it's very difficult for them to squish out even one corner as a women's corner. So what they do is use the same salespeople and treat the sales the same way – the same way they sell to all of the men.... Even if you go to a pretty good bike store in the US, everything is designed for men. The language is for men. Even in the display, women always come in second. All of the models in the window are for men.... (Interview with Tony Lo, March 25, 2009)

In a demonstration of provocative competence, Lo saw a strategic opportunity. After exploring the perimeter, his next step was to dislodge habit. Rather than

going to the established retail channel for answers, he decided to go straight to the customer: he was convinced that the only way to create a successful business model for women was to open a store exclusively for them. As he put it, “because your only customers are women, if you don’t know how to sell to them, you’re out of business – period. So you experiment for survival.”

Giant’s more-experienced retail organizations thought Lo was crazy. Just as Miles Davis’ provocative moves often left his musicians bewildered, even as CEO, Lo met with resistance internally. Why would corporate open a store exclusively dedicated to their worst (lowest-profit) customers? In our interview with him, Lo recalled hearing over and over again, “Oh that’s a very expensive project! The market is small! And we don’t understand women!” And Lo admitted that, on every dimension, they were right. Lo recalls the head of Giant Taiwan telling him, “If you twist my arm, I will do it, but it’s not for business, so you cannot ask me to make money doing it. We’re just doing it for you.” But Lo insisted it be profitable, to which one of the field leaders sarcastically responded, “Well, if that’s the case, maybe headquarters should do it!” And so Lo, for the sake of openness to whatever lay ahead, did exactly that.

In the process, Lo nurtured an affirmative image. He became an evangelist for the idea, which he claimed was so simple it was crazy no one had done it successfully. Lo said in retrospect, “When I encountered skeptics, I told them: ‘What about women’s apparel shops... women’s shoes... women’s spas... women’s fitness clubs...’” And when the skeptics responded that there was no women’s car company, Lo pointed out that women and men interfaced with their cars in very similar ways but with their bikes quite differently, like the other examples. Each challenge was just an opportunity to learn and refine the concept, and he made sure it wasn’t his opportunity alone. In only one year, the special project team of product designers, marketing specialists, and service operations experts had already made “many, many modifications” to the business model. The affirmative image Lo projected provided confidence about Giant’s and its employees’ ability to be successful.

Lo’s approach to the project team demonstrated the last two points of provocative competence: creating situations that demand action while opening and supporting alternative pathways. Lo picked Bonnie Tu, EVP and CFO of Giant, to lead the effort – someone with the seniority, reputation, and financial background to marshal resources – and then “gave her the freedom to break all of the rules.” Not coincidentally, Bonnie was the most senior woman at Giant. Having given Bonnie the mandate, Lo did something that few CEOs do: he gave her space to

develop any and every option, telling her, “there are no limitations, it’s all your creation, just surprise me. If our women customers are satisfied, then that will be great.” Then Lo, who typically checked in on his most important projects daily, told Bonnie, “See you in six months!” Bonnie had carte blanche to be entrepreneurial. When Bonnie decided to replace Giant’s typical central store fixture – a display with Giant’s latest and greatest bicycle – with a comfortable, chocolate leather couch, Lo simply smiled in approval.

Lo’s smile substantially broadened, however, when the Liv/giant store, Giant’s first all-women’s store in downtown Taipei, turned profitable only four months after its grand opening. Even after incurring nearly twice the opening costs of a typical Giant store, this was one of the fastest paths to profitability in Giant’s retail history. Everything about the store had been designed to be as modular as possible to optimize Giant’s ability to experiment, learn, and innovate. Their all-women clientele, 80% of whom became repeat customers, appreciated the effort more than anyone could have predicted. The improvisation encouraged by the provocative competence of a leader like Lo had substantially paid off. When we last talked to Lo, his greatest problem was deciding where to open the next all-women’s stores while still finding time to ride with his wife, who had already purchased three bicycles – first lifestyle, then performance, and now sport – from the Liv/giant store in Taipei.

As seen in both the Toyota and the Giant examples, provocative competence guards against the temptation to continue to exploit successful routines and demands experimentation and exploration of new possibilities. Toyota, Lo, and Miles Davis are all examples of leaders who were attentive to emergent possibilities, demanded that units unlearn or abandon routines, and reintegrated and redirected resources (e.g., through a heavyweight team or a new sales channel) so that new skills could be developed and new routines created. The result: a by-the-books example of growing dynamic capabilities instead of core rigidities in an established organization (Leonard-Barton, 1992).

Provocative competence is an art that must be scaled appropriately. Miles Davis did not demand that musicians switch instruments. Toyoda and Lo chose which parts of the organization to nurture and refine, creating organizational designs, structures, tasks, and culture that encourage improvisation in the right locations. Also, they were careful to preserve organizational memory, to maintain those routines that are crucial and retain practices that should not be abandoned. These leaders were good at designing organizational structures to sustain successful existing procedures while simultaneously triggering improvisation and creativity

beyond existing capabilities and business models.

One potential pitfall: leaders practicing this mindset sometimes appear to others as unrealistic and out of touch at the time. The data that would support such unusual moves simply doesn't exist, nor therefore do the market indicators that would warrant changes in resource allocation and prioritization. That's one reason why it's not enough that leaders disrupt routines and create stretch goals. Part of developing a jazz mindset includes leaders engaging in very close monitoring of the current capabilities of the system so they scale the disruption to just the right amount. Too much disruption would lead to discouragement and failure. Of course none of these moves is sufficient if the leadership does not provide enough resources to allow exploration and improvisation. Lo gave his director freedom, while Toyoda devoted considerable resources (financial and human) to the Lexus project. Various parts of the organization engaged in improvisation, exploration of new routines, and resources to retain promising repertoires and routines. Provocative competence can be contagious.

2. Affirmative Mindset: "Yes to the Mess"

Since jazz players must compose on the spot when improvising, there seems to be limited foresight and control at one's disposal. That such a precarious situation does not lead to anarchy speaks to the subtle and tacit mindset that is sensitive to the dynamics of unfolding while envisioning future paths. The mindset that gives coherence to the music is an appreciative, retrospective sensemaking. Simply put, improvisation requires an affirmative mindset.

Since jazz players cannot prescribe where the improvised music is going to go beforehand, they are left to make sense of what has just happened and guess what is likely to happen next. The musician therefore looks back on what is emerging – the various chord progressions, melodic fragments, rhythmic patterns – and then jumps into the morass, seeing the potential for embellishing on motifs, linking familiar with new utterances, and adjusting to unanticipated musical cues that reframe previous material. The mindset of appreciation, or affirmative mindset ("yes to the mess"), is a continual dialogical exchange:

After you initiate the solo, one phrase determines what the next is going to be. From the first note that you hear, you are responding to what you've just played: you just said this on your instrument, and now that's a constant. What follows from that? And then the next phrase is a constant. What follows from that? And so on and so forth. And finally, let's wrap it up so that

everybody understands that that's what you're doing. It's like language: you're talking, you're speaking, you're responding to yourself. When I play, it's like having a conversation with myself. (Max Roach cited in Berliner, 1994, p. 192)

Improvisation involves continually attending to cues, retaining some part of the past while varying other parts – looking back on what has happened while extending it. Improvisation requires “daring to care” about integrating the passion for something new with the compassion for its impact on what has come before.

At first glance, this mindset does not seem to be immediately relevant to strategic leaders. Conventional approaches to strategy emphasize a deliberative model, an analytical process based on rigorous analysis of market, customer needs, competitors' place in the market, etc. Executives formulate the strategy and then implement it “top down,” beginning with a situation analysis, crafting vision statements with long-and short-term objectives, planning for how to achieve objectives, allocating sufficient resources, assigning responsibility for tasks and processes, managing the process by monitoring results, comparing best practices, controlling for variances. However, if locked into strategic plans, leaders might not notice unanticipated, emerging opportunities.

Henry Mintzberg first offered the distinction of emergent strategy: day-today incremental and unplanned actions taken by managers (Mintzberg & Waters, 1985) which bear some resemblance to Lindblom's disjointed incrementalism (Lindblom, 1979). Emergent strategy involves managers' responses to problems and opportunities that could not have been foreseen. But what is the mindset that is necessary to notice the opportunities one had not anticipated? This is where the heuristic of the jazz mindset offers some insight. Jazz musicians respond to cues when the future is not easy to predict and there is no way of telling what the right strategy should be – when circumstances change and the deliberate strategy is no longer appropriate (even though it has been a winning strategy). Jazz players look back at what has happened with an affirmative assumption that there are positive opportunities to be gleaned, that something sensible and coherent can be distilled if one pays close attention to what has been happening. Without a jazz mindset, managers are likely to miss the subtle opportunities that emerge.

Andy Grove is popularly credited with ingeniously, strategically, and deliberately leading Intel into the microprocessor industry. As we know, the real story is quite different (Tedlow, 2006; Grove, 1996). The success of Intel was largely a story of the top leadership team saying yes to the mess. Grove did not foresee the market in advance, plan for shifting strategies, and allocate resources in

the traditional model of deliberate strategy. Instead, as the DRAM market slipped away, Intel's profit went with it: from \$198 million in 1984 to less than \$2 million in 1985.

It was then that Grove, in his own words, "stepped outside himself" and adopted his now well-known first step in attacking difficult problems: "set aside everything you know" (Tedlow, 2006; Grove, 1996). Why? Because everything Intel senior management knew was holding them back. As world leader in DRAM technology, they continued to invest resources there. Scientists, technologists, the sales force, even Intel customers were so familiar with the existing processes that they could not imagine Intel NOT focusing on DRAM. The comfort of their past experiences, based on their own familiar histories, was overwhelming the external reality. In fact, Intel's initial progress in microprocessors was somewhere between accidental and clandestine. An Intel manager invented the microprocessor accidentally while developing technology for a calculator, but Intel strategists barely noticed the separate market potential of microprocessors. Owing to Intel's profit-based algorithm for allocating fabrication capacity, microprocessors were getting manufactured (as they were very profitable), but the shift in strategy was entirely emergent. In fact, the deliberate strategy remained focused on DRAMs – it took Intel three long years to get out of the DRAM business.

Jazz musicians find themselves in situations similar to the Intel strategic leadership team. Jazz players are successful because of their confidence that no matter how incoherent or unpredictable the current situation appears, there will be some positive pathway out – a creative possibility to be found and explored. They find themselves in the middle of messes all the time. They cannot stop to problem solve or put situations in order or say to other players, "I don't like those notes you played. They didn't match with what I had in mind, so let's go back and do it over." In fact, the major reason why improvisation works is that the musicians say an implicit "yes" to each other. Comedy improvisers have a deliberate phrase to capture this. They call it "Yes, and..." In comedy the practice is that actors make offers as they enact scenes. The other actor's responsibility is to accept the offer and move it forward. Andy Grove and Gordon Moore had an affirmative mindset – they were able to notice an emergent strategy and say "yes" even though it would mean a radical shift and there was no guarantee that it would succeed.

Indeed, as Grove recounts in his book, *Only the Paranoid Survive*, "I looked out the window at the Ferris wheel of the Great America amusement park revolving in the distance, then I turned back to Gordon [Moore] and I asked, 'If we get kicked out and the Board brought in a new CEO, what do you think he would do?' Gordon

answered without hesitation, 'He would get us out of memories.' I stared at him, numb, then said, 'Why shouldn't you and I walk out the door, come back and do it ourselves?'" (Grove, 1996) "Welcome to the new Intel," Grove announced in a speech not long afterwards (Tedlow, 2006).

An affirmative mindset is needed to develop dynamic capability because it involves openness to new opportunities and willingness to respond to the world as it evolves, taking a few steps at a time as one discovers what is sustaining. It takes a certain approach to "unlearn" the routines associated with deliberate strategy, to notice the small, spontaneous acts that are usually not intentional (Brunner et al., 2009) – the paths that emerge from opportunities in the environment. They can come from throughout the organization, just as a phrase or rhythmic pattern can appear from anywhere in the jazz combo.

3. Leap In and Take Action: Learning Through Full-Bodyed Engagement and Ongoing Experimentation

Research on engagement at work has shown that when people are fully engaged, they are more committed to contributing to the effectiveness of the organization. Kahn (1990, p. 694) calls engagement "the harnessing of organizational members' selves to their work roles; in engagement people employ and express themselves physically, cognitively, and emotionally during role performances."

However, a standard portrayal of the competent manager is as a detached observer – analytical and dispassionate – removed from the immediacy of conflicts to handle challenges objectively. This is tied to a desire for an organized picture of life, perhaps one that lends a feeling of control. When novel, challenging situations arise, leaders are "expected" to not lose their cool and to seek an analytic explanation. The action is inside the mind: management is a process of noticing discrepancies, stepping back and analyzing them, and working through the puzzles intellectually. However, detached intellectual analysis usually means that people ask familiar questions, generate standard classifications, and produce familiar types of answers. Relying on a detached mindset is far more likely to bind to established routine than lead to breakthrough insights.

Jazz players, on the other hand, leap in and take action, risking full engagement. They leap in with full commitment even with the possibility of embarrassing themselves. Jazz players frequently throw themselves into situations that are novel, perhaps even terrifying. They are anything but detached. If you look at photos of jazz musicians playing their instruments, you see individuals fully immersed,

completely absorbed in their playing. When Keith Jarrett is improvising jazz, he is completely absorbed and can often be heard moaning.

Although he doesn't mention moaning, Lee Fleming's detailed description of Hewlett-Packard (HP) and its success in inkjet printing provides an example of an organization leaping in and taking action in several "high variance inventive trials" to create "technological turbulence" (Fleming, 2002, p. 1073). HP exploited some of its existing knowledge but mostly engaged in rapid prototyping and testing – what Fleming calls "a repeated and continuous process of recombinant search" and a "stream of inventive episodes" – to achieve technological breakthroughs in inkjet printing (Fleming, 2002, pp. 1066–1072). The two key HP inventors, John Vaught and Dave Donald, "considered and built numerous combinations of inks, resistors, slides, electrodes, explosives, lasers, and piezo-electrics" before developing the final product (Fleming, 2002, p. 1072). In his own words, Vaught described a portion of the inventive process in January 1979:

My first thoughts for a design were quite conventional... but before the parts got out of the shop I conceived of a pair of electrodes using the ink between them as a resistor to vaporize a small portion of ink very near the end of the tube thereby ejecting a droplet. We built such a device and Dave provided the electronics to drive it. It failed because we couldn't get the resistivity of the ink low enough to produce enough heat and it also produced hydrogen and oxygen at the electrodes. New idea! Let's produce a small spark between the electrodes and ignite the bubbles to eject the drop. It worked! One small problem, we couldn't produce the explosive mixture of gasses rapidly enough to meet the 2 kHz vision. Oh well, let's just put all the energy required for vaporization in the spark and forget about hydrogen/oxygen explosions. It worked! About this time we got permission to turn the gravure printing investigation into an ink-jet investigation. Finally, we were out from under the table. Dave and I life tested this version and got two days operation at 2 kHz before it failed which was not nearly long enough. Electrode erosion was the culprit. Then came the idea of a small resistor on the inner wall of the capillary to provide the energy necessary for vaporization. All this time Dave is strongly urging me to enter all these ideas in my lab notebook; what a waste of time I argued... (Fleming, 2002, p. 1066)

Even after they got it to work, admitted John Meyer, "it wasn't clear at an elementary level how it actually worked..." (Fleming, 2002, p. 1069).

Vaught sounds a bit like a jazz musician when he admits in an interview with Fleming, "I bore easily. [But] HP Labs was a wonderful place: I had to work in a single field for only two or three years and then like magic it was a whole new field; a paradise for creativity" (Fleming, 2002, p. 1065). John Meyer at HP recalled of the entire team of inventors, "we were very much involved during this time, ideas were flowing freely back and forth, people were doing things in one area and other

people working on different aspects of it, it wasn't compartmentalized" (Fleming, 2002, p. 1068, emphasis added). When the manufacturing team set out to build their own prototype printhead, the process was so rapid that they punched the inkjet orifice by hand using a sewing needle borrowed from an engineer's wife (Fleming, 2002). Meanwhile, inspiration came from everywhere, including the coffee percolator on Vaught's desk:

You think of things that are totally unrelated... Inventors just don't go home and see it at that moment in time. It is something that has happened way back in time. Due to a lot of things. As near as I can recall the percolator [inspiration] y it wasn't [rising] bubbles, if you think about it, if you left the top off, it went poof, poof, poof and blew gobs of coffee all over the place. When it comes to the moment of truth, you think about a lot of things. (J. Vaught, personal interview) (Fleming, 2002, p. 1067)

The HP story is also particularly relevant because it demonstrates that breakthrough innovations do not have to come from outsiders. HP was an established firm that was also successful in creating breakthrough innovation internally. In fact, Fleming argues that it was, in part, because of HP's size that it was able to innovate successfully: "it is less likely that the engineers from a purely mechanical or purely electrical engineering firm would have thought of or built such crazy combinations, simply because they would have lacked access to or inspiration from such a wide variety of readily available components" (Fleming, 2002, p. 1072).

Consider also IDEO, the Palo Alto-based design firm famous for producing a number of creative products in a range of industries including household, commercial, and industrial products and services. It invented the computer mouse, the "neat squeeze" stand up toothpaste tube, the Polaroid I-Zone instant camera, the thumbs up/thumbs down on TiVo's video recorder, etc. IDEO is famous for its ability to learn about customers' needs and design new products to meet those needs. The company includes employees from diverse backgrounds including MBAs, electrical engineers, software designers, and linguistics experts. David Kelley, the founder of IDEO, deliberately assembled a diverse group of people who could think outside the box. He refers to the employees as "crazies" and "weird," proud of their deviance. They look at issues from a variety of angles, and according to Kelley, this is the source of their creativity. They leap in and throw out ideas, play with a myriad of material, get physically involved by creating material prototypes, testing them out, destroying old ones and building new ones. Employees are encouraged to become intimately familiar with "user needs."

Engagement extends to physical space – each employee creates his or her own work environment. There’s a wide range of strange items in the workspace including a DC-3 wing suspended from the ceiling in the Palo Alto office. The work environment is playful and highly interactive with toys and strange objects at anyone’s disposal. People are highly energized and engaged, sharing stories, playing with gadgets, proposing ideas. IDEO has a highly collaborative culture; work is intense and hands-on, continuously involving the company’s version of “deep dives.” Employees become like cultural anthropologists, inquiring into the world of the users, engaging in deep empathy. They essentially do field research into the world of the user, then regroup and share what they noticed through intense brainstorming sessions. Kelley calls the process “focused chaos” – a phrase equally applicable to Keith Jarrett’s performances.

4. Minimal Structures and Maximum Autonomy

Traditional organizations seem enamored with control and structure – rules, regulations, proper reporting relationships, job requirements, standard operating procedures, clear and rationalized goals, and forms of centralized control. Unfortunately, they often structure out creativity. Creative teams, on the other hand, tend to adapt minimal structures. Minimal structures help to create mindfulness and help people to be responsive to one another. Minimal structure, a concept of modularity, refers to patterns of loose or tight coupling in a group. Loose coupling connotes weak or infrequent ties between people or units. Tight coupling means that the behavior of one unit has a direct effect on what happens in other units.

Jazz improvisation is a loosely structured activity in which action is coordinated around songs. Songs are made up of patterns of melodies and chord changes, marked by sections and phrases. Following Bastien and Hostagier(1988, p. 585) songs are “cognitively held rules for musical innovation.” The musicians know the chord changes to “All of Me” or a 12 bar blues, so that often musicians who have never met are able to “jam” and coordinate action. These minimal constraints serve as signposts that occur regularly and predictably throughout the tune, signaling the shifting context to everyone. When musicians improvise, it is usually based on the repetition of this song structure. These guiding structures are nonnegotiable, impersonal limitations: musicians do not have to stop to create agreements along the way. But in some moments, the task trumps the rules: that is, regardless of the explicit rules, I may be called upon to respond in concrete

spontaneous ways. I must be open to the invitation, the stimuli coming from others, and be loyal to those moments rather than loyal to a normative, decontextualized set of a priori rules. Weick has pointed out that “bonds among most subsystems, in most organizations, should be relatively loose. This means that both stability and adaptation are achieved with less interdependence, less consensus, and less mutual responsiveness than we usually assume” (Weick, 1979, p. 110).

These minimal constraints allow considerable freedom to express diversity. Players are free to transform materials and intervene in the flow of musical events, altering the direction of the piece. Once there is a mutual orientation around the root movement of the chord patterns, even the basic chords themselves can be altered, augmented, or substituted.

These minimal structures also allow temporal flexibility. A healthy group typically shifts from tight to loose coupling over time. Coordination is not achieved by static rules, but through the evolution of ties between players, allowing for the emergence of surprising detours. There is strong enough interdependence to complete tasks and bring ideas to fruition, but the ties are not so tight as to be suffocating.

One example of a firm that has demonstrated dynamic capabilities in such a loosely coupled context is Omron, a \$7 billion, 35,000-person global Japanese manufacturer of sensors, control system components, advanced electronics, health care devices, and related services. Omron’s “song” is its deeply rooted, globally defined Principles. In our interview with him, Omron CEO Hisao Sakuta specifically identified the Omron Principles as one of the most important strategic structures – a singular commonality that connects all activity within the firm (Kanter & Bernstein, 2009). When we challenged him on how one set of principles could possibly unite people across dozens of different geographies, languages, and cultures, he had no delusions of grandeur, recognizing the minimal nature of that structure and openly encouraging improvisation around it:

Whenever I speak with employees, I tell them their interpretation of the Principles should not be a set answer. Please be true to your own personal understanding and how you can express it using the language of the Principles. We have 35,000 employees, and I think it’s perfectly fine for there to be 35,000 different understandings of the Principles.... No matter how different the workplaces are in terms of race, value sets, geographical locations, etc., as long as we can continue this common debate and discussion, we are able to maintain a flexible attitude to respond to any changes to come in 50, 100, 200, 300 years. And I believe we will be able to refine the Principles by doing so. (Interview with CEO Sakuta, December 20, 2007)

Building dynamic capability that keeps the best of learned routines and also encourages novelty and experimentation. In the case of Omron, the nonnegotiable minimal structure is the core principles; but too much agreement and too much consensus on what these principles mean would be limiting. Some leaders would try to force universality and compliance, putting in place structures to ensure strong governance across a global footprint. Instead, Sakuta uses the minimal structure of the Principles – not how they are written, but how they are interpreted – as his governance structure. The result is maximum autonomy for localized innovation that can ultimately help produce Omron's next major innovation. Past successes included using Omron's advanced sensor technologies to prevent counterfeiting on high-resolution color copiers, make digital cameras capable of automatically identifying and focusing on faces in a photo, create auto systems that automatically applied the brakes prior to an accident, develop automated systems that nearly eliminated the possibility of fatal injuries in industrial laundries, subway stations, and construction sites, and improve food safety through the deployment of biosensors capable of automatically detecting if food would be harmful (past date, diseased, poisoned, etc.) if ingested.

Another organization that understands dynamic capability means mastering minimal structures is Toyota. The same organization that was capable of unlearning enough to create the Lexus also learns through constant improvisation on the factory floor. Toyota operates on four simple rules: “(1) All work shall be highly specified as to content, sequence, timing, and outcome; (2) Every customer-supplier connection must be direct, and there must be an unambiguous yes-or-no way to send requests and receive responses; (3) The pathway for every product and service must be simple and direct; and (4) Any improvement must be made in accordance with the scientific method, under the guidance of a teacher, at the lowest possible level in the organization” (Spear & Bowen, 1999, p. 98). Those simple rules provide the minimal structure necessary to avoid chaos on a fast-moving factory floor. Outside of those rules, ordinary workers are given maximum autonomy to constantly improve their methods and suggest improvements elsewhere. They have mastered the art of learning while simultaneously executing for efficiency.

On a recent tour of Toyota's Tsutsumi Plant, we watched as the installation of the center console on the third-generation Prius caused a bottleneck in the process, it triggered a full line stop three times within our short observation time window. As problems mounted, more supervisors came over to investigate the problem. In

many manufacturing environments, there are sets of rules that dictate responses to breakdowns in the manufacturing line. Usually the problem rises up the hierarchy. Solutions are removed from the purview of the line worker. Why? Because managers are more capable of handling exceptions and unusual events. That's what supervisors do – they handle the messy breakdowns. But not at an organization like Toyota that holds to four simple rules above and allows the employee the autonomy to address unusual challenges. Here the supervisors did not tell the operator what to do. To the contrary, the supervisors provided support to get the line moving again, doing the operator's job for him, freeing the operator to solve the problem by adjusting the tooling facility to make the installation smoother. This was all done in seconds, even as the line continued to move. Like IDEO's policy of allowing employees to design their own workspaces, Toyota is famous for allowing its operators to design their own tools, workspaces, and processes. The result: seamless processes that almost resemble a dance in the most unlikely of places – a factory floor. Toyota performs thousands of such dances leading to extraordinary throughput and quality by providing operators with minimal structure and maximum autonomy. When supervisors get involved, they bring expertise and extra hands, not autonomy-squelching structure, very similar to the "semi-structures" that Brown and Eisenhardt found in their computer industry studies (Brown & Eisenhardt, 1997).

What makes this part of building dynamic capabilities? Investments in minimal rules that free employees to deviate from normal practice in response to challenges are investments in organizational learning. In these cases, learning does not come from an attempt to achieve a major breakthrough; rather than "trying something new," learning comes from the much less momentous act of momentarily "trying something else." Freedom to inquire into and solve nonroutine problems supports employee learning about larger systemic issues. On the surface it looks like what Winter (2003) said dynamic capability is not – ad hoc problem solving. But by institutionalizing the principle of minimal nonnegotiable rules that demand employees otherwise adapt and respond to problems as they arise, these organizations are fostering a meta-capacity for improvisation and organizational change. What jazz bands, Omron, and Toyota have in common is a jazz mindset that supports dynamic capabilities. They are able to explore and experiment with novel ideas (autonomy) while still staying loyal to essential routines (structure).

5. Errors as Source of Learning

Appreciating the affirmative potential in every musical utterance, even errors, becomes a self-fulfilling prophecy for improvising musicians. Jazz improvisation is marked by a restless adventurousness, an eagerness to travel into unexplored territory. There are hazards, risks, gambles, chances, speculation, and doubts. Jazz is an expressive art form that encourages players to explore the edge of the unknown, and since improvisation legitimizes risk taking, it is inevitable that there will be discrepancies, miscues, and “mistakes.”

Jazz musicians often turn these unexpected moments into something sensible or perhaps even innovative. Errors are a source of learning. They are often integrated into the musical landscape as an occasion for further exploration that might lead to new pathways otherwise thought impossible. Herbie Hancock recalls that Miles Davis heard him play a wrong chord but simply played his solo around the “wrong” notes so that they sounded correct, intentional, and sensible in retrospect. Jazz musicians assume that “you can take any bad situation and make it into a good situation. It’s what you do with the notes that counts” (Barrett & Peplowski, 1998).

When errors do happen, rather than search for causes and identify responsibility, musicians treat them impersonally: they make adjustments and continue. Davis does not seek to fix blame or search for causes of the mistake but simply accommodates it as material to be queried for possible direction. Such a move is affirmative as well as forgiving: his utterances contain fragments of Hancock’s, making the “error” sound intentional in retrospect. Such reflection grants validity to the other’s offering and leads to transformation, redirection, and unprecedented turns. Jazz improvisation assumes that there is affirmative potential waiting to be discovered from virtually any utterance: rather than treat an unintended enactment as a mistake to be avoided, often jazz musicians treat these gestures as another theme. They do not stop to analyze the error, problem solve, and set up controls to prevent its recurrence. Rather they repeat it, amplify it, and develop it further until it becomes a new pattern.

In 2006, Amazon launched UNBOX, a video download service with great promise. Within a week, the device was pronounced “a complete and utter failure” (O’Brien, 2009). It took as long as 7 hours to download a 90-minute movie and, once downloaded, the movie could not be shown on any other device. As if that wasn’t bad enough, the Amazon player would intermittently launch itself.

We might imagine that the designer of the service was in deep trouble, but such was not the case. CEO Jeff Bezos reflected, “The thing that allows for all the teams to come together after a failure is the recognition that this is just a first failure (for the project). We may have to work through a couple more,” says Bezos, “...if we

have conviction, that gives us energy to pursue (another) approach” (O’Brien, 2009).

Amazon CEO Bezos illustrated strategic improvisation – an example of learning while doing. It’s a story about taking action, revising assumptions, valuing learning from failures, trying again, discovering as you go. When Bezos calls it “just a first failure,” he furthers a unique leadership logic, essentially an improvisation mindset. Jeff Bezos sounded like Miles Davis when he announced, “if you only extend into places where your skill sets serve you, your skills become outmoded” (O’Brien, 2009). But in the desire for discovery, for taking risks, for replenishing knowledge, and for renewing skills, errors must be embraced.

Indeed Amazon is able to glean important lessons from its errors. Consider the Kindle (which, sources suggest, had built-in wireless because Amazon learned from the UNBOX how important fast delivery-on-demand was). The first version of Kindle was very imperfect – anyone who saw the device got the sense that you were watching Amazon learn as they go. Kindle 2, in fact, included a special section called “experiments” so that users can access the ongoing experiments Amazon is attempting. And the Kindle DX has built upon all of this. It’s predicted that, in two years, Kindle devices will produce \$840 million in profit based on \$3.7 billion in sales (O’Brien, 2009), nearly 20% of Amazon’s sales and profits today.

Although open heart surgery would not appear, on its face, to be a good context in which to exemplify using errors as a source of learning, Amy Edmondson, Richard Bohmer, and Gary Pisano found that cardiac surgery teams with a “learning leader” who fostered “a learning environment by admitting (his or her) mistakes to the team” were most successful in adopting a new surgical technique (in this case, minimally invasive cardiac surgery) and performing it effectively (Edmondson, Bohmer, & Pisano, 2001, p. 10). In what they term “serving as a fallibility model,” team leaders who would say, for example, “I screwed up. My judgment was bad in that case,” signaled to others on the team that errors and concerns could be discussed without fear of punishment” (Edmondson et al., 2001, p. 10). The authors emphasize the importance of creating an environment of psychological safety for the team, but also inherent in their data is the importance of focus on learning from mistakes. Learning from mistakes became a meta-capacity of the surgical team, a form of double-loop learning over time (Argyris, 1977) that is resonant of the development of dynamic capabilities.

On the other hand, failing to use errors as a source of learning is indicative of the organizational inertia of organizations that fail to adapt – Bazerman and Watkins (2004) argue that organizations that fail to learn from errors become vulnerable to

predictable surprises, and Sitkin (1992) ties the unwillingness of organizations to embrace small contemporary failures to the failure to respond to a large future crises. In a well-documented example, Ulmer, Sellnow, and Seeger (2007, p. 141) find that “many of the flaws in NASA’s organizational culture that led to the Challenger disaster reemerged in the Columbia crisis” a decade and a half later, even after “dramatic changes in leadership, shuttle structure, and communication procedures were enacted to remedy problems found during the Challenger investigation.” Jazz bands do not change leadership, structure, and procedures when they encounter an error. To do so is to use an ad hoc solution to a dynamic problem. Instead, the impersonal acceptance of those errors makes them ripe for learning and the creation of dynamic capabilities.

6. Hanging Out in Communities of Diverse Specialists

An essential part of learning jazz is becoming a member of the jazz community, “hanging out,” learning the code, behaving like one of the members. Learning is not simply a matter of transmitting decontextualized information from one person to another. Local jazz communities of peers in large metropolitan areas such as Detroit, Chicago, and especially New York have served as informal educational systems for disseminating knowledge. Musicians get together to listen to recordings of great soloists, memorize their solos, play tunes in different tempos and keys until they find the right feel. They join other musicians, “hanging out” in coffee shops and bars after a performance to exchange stories. Stanley Turrentine remembers he learned from others by “asking about things I didn’t understand” (Barrett, 1998). Novices discover they need to learn certain “standard” tunes, which include appropriate keys, tempos, norms, and conventions of the trade that are not written down. One young trumpeter even recalls learning how to dress from “hanging out” with Miles Davis (Berliner, 1994). A special fraternity develops among jazz musicians as they guide each other through various experiences, trading ideas along the way.

Brown and Duguid (1991) refer to organizations as communities of practices. To foster learning, they contend, organizations must see beyond conventional, canonical job descriptions and recognize the rich practices themselves. Xerox repairmen, for example, were known to teach each other how to fix the recalcitrant machines through war stories shared during coffee breaks (Orr, 1996). Essential to organizational learning is access to legitimate peripheral participation (Lave & Wenger, 1991), understanding how to function as an insider. This recognizes that learning is much more than receiving abstract, noncontextual, disembodied

knowledge. It is a matter of learning how to speak the language of the community of practitioners. That is done, in part, through interaction with a wide variety of practitioners in the community, producing “generalists” with diverse experience in the field. In an elegant empirical test of the value of these generalists, Huckman and Staats (forthcoming) have demonstrated that “teams with relatively more generalists are more likely to deliver projects successfully when tasks change” (emphasis added). The need for success in the face of task change is a common feature of both jazz bands and organizations handicapped by organizational inertia.

If we think of important innovations over the last three hundred years, we typically associate them with individual creativity and genius. In the 14th century, Johannes Guttenberg invented the printing press. In the 18th century, James Watt invented the steam engine and Eli Whitney invented the cotton gin. In the 19th century, Thomas Fulton invented the steamship, Alexander Graham Bell invented the telephone, Thomas Edison invented the phonograph and the light bulb, and Marconi invented the radio. In the 20th century, Henry Ford created innovations for the assembly line and produced the modern automobile; Steve Jobs invented the personal computer. The list goes on and on with examples of innovation that occurs because of individual genius. Andrew Hargadon cites the following New York Times obituary written to honor Thomas Edison:

No figure so completely satisfied the popular conception of what an inventor should be. Here was a solitary genius revolutionizing the world and making an invisible force do his bidding – a genius that conquered conservatism, garlanded cities in light, and created wonders that transcended the predictions of utopian poets. (Hargadon, 2003, citing the New York Times obituary section on October 18, 1931)

As Hargadon points out, this glorification of genius is misleading. What gets overlooked are the interactions through which innovations develop. When we ask questions about where ideas come from, as in the study of Thomas Edison and the “invention” of the light bulb, the story is far more complex than the popular conception.

Edison understood the learning potential of informally “hanging out” with a collection of diverse specialists. He assembled a group at Menlo Park – 10–15 engineers from different industries and backgrounds. They essentially played together, intimately experimenting and learning together as they tried out wild ideas. The groups led by Edison learned from telegraph signals, generators, and a variety of other industries and specialties. Hargadon puts it bluntly: “Edison neither invented the light bulb nor acted alone in improving upon it. The web around Edison was thick with ties to other people, ideas, and objects that together

made up his particular invention'' (Hargadon, 2003). Innovation is not so much the result of invention as it is one outcome from creating inventive connections and networks from diverse worlds, cultivating improvisation and learning by doing, cherishing failures as essential for learning. In other words, innovation is facilitated activity in a community of diverse specialists hanging out together, telling stories about incremental iterations, unexpected outcomes, new insights and approaches, hints about future probes.

This is exactly what jazz musicians do. They know that learning depends upon your relationships with others in the jazz community. They do not innovate by isolating, breaking off from others. They don't wait for inspiration. They don't think of themselves as creating something out of nothing. They innovate by being tightly coupled to a diverse group of specialists, noticing the potential in people, ideas, and utterances, making comparisons with other people and different activities, seeing the best in what already exists, combining disparate parts in new ways. This takes the mystery out of improvisation. Jazz players are skilled at combining and recombining. They do not "think outside the box." Rather, they bring together the owners of lots of different boxes and combine and recombine them. Jazz musicians do what Edison did – they connect various units, notice positive variations, and redistribute emerging ideas.

The focus on individualism in invention has led to some popular aphorisms that now seem virtually unchallengeable. Individual managers should "think outside the box," "push the envelope," and question the constraints that have been taken for granted. Managers are encouraged to break away from the constraints of tradition to create something new. In fact, efforts are made to guard creative people and creative activity from the flow of organizational life. So R&D groups are separated from the organization – physically as well as culturally. "Skunkworks" groups are created to break away from the ordinary culture so as to free the imagination to create something brand new that will be a game changer. None of these principles or practices is blatantly false or irrelevant. However, one of the claims of this chapter is that they are misleading in some cases and fail to understand the nature of the creative process. Creativity and innovation are inherently social accomplishments and involve linking with current and past activities, not separating from them. Building dynamic capability means that experienced people have a chance to query one another, tell stories, and share wisdom. Much of this kind of relational learning happens in informal settings. This insight is likely to get missed if we continue to valorize individual genius. Separating creative types from day-to-day activity might lead us to lose sight of the

most important task – connection with disparate ideas and diverse specialists.

7. Alternating Between Soloing and Supporting

One of the most widespread, yet overlooked, structures in jazz is the practice of taking turns. Jazz bands usually rotate the “leadership” of the band: that is, they take turns soloing and supporting other soloists by providing rhythmic and harmonic background. Each player has an opportunity to develop a musical idea, while others create space for this development to occur. In order to guarantee these patterns of mutuality and symmetry, players take turns accompanying, or “comping,” one another. In written arrangements, the scored passages often precede the soloist’s improvisation and channel, sustain, and embellish it. In a sense, the background accompaniment conditions the soloist and organizes the course of the solo through passing chords, leading tones, and rhythmic accents. In every part of jazz, it is not enough to be an individual virtuoso, one must also be able to surrender one’s virtuosity and enable others to excel. In order to “comp” or accompany soloists effectively, jazz musicians need to be very good listeners – interpreting others’ playing, anticipating likely future directions, and making instantaneous decisions in regard to harmonic and rhythmic progressions. They also may see beyond the player’s current vision, perhaps provoking the soloist in different direction, with accents and chord extensions.

This has considerable implications for organizational learning. Dynamic capabilities are frequently seen as top-down competencies. The senior team learns and acts dynamically for the organization. Based on the jazz analogy, we propose a different model: leading the development of dynamic capabilities involves accepting a soloing and supporting mindset – leaders who learn the art of leading and followership, just as members of a jazz band do. Novel ideas often come from voices that traditionally have been silenced. The deceptively simple practice of taking turns creates a mutuality structure that guarantees participation, inclusion, shared ownership, and organizational dialogue (Senge, 1990; Weick & Roberts, 1993; Tsoukas, 2009), all of which can lead to dynamic capability in organizations just as it does in jazz. Recent research on collective intelligence confirms this: “groups where a few people dominated the conversation were less collectively intelligent than those with a more equal distribution of conversational turn-taking” (Woolley, Chabris, Pentland, Hashmi, & Malone, 2010). Recent studies of distributed leadership in schools (Higgins, Young, Weiner, & Wlodarczyk, 2009) and collaborative intelligence (Hackman, 2011) provide further support for the

powerful value of simply taking turns: “team leadership is not a solo activity... shared leadership is an extraordinarily valuable resource for accomplishing the full array of leadership functions needed for team effectiveness” (Hackman, 2011, p. 165).

Soon after becoming CEO of IBM, Sam Palmisano proposed a “values jam” – a 72-hour web chat about what IBM stands for, open to over 350,000 IBMers in 270 countries. One board member questioned whether this was “socialism” (Kanter, 2009), but Palmisano nonetheless proceeded with considerable success. Approximately 140,000 IBMers participated, and IBM found itself a new values statement. Since then, IBM has executed a number of organizational jam sessions – for new products, services, etc. – and even markets the tool at collaborationjam.com.

Taking turns soloing and supporting is ultimately about taking turns at egocentric passion and altercentric compassion. As technology makes it easier to accomplish that, perhaps the sort of dynamic capability jazz bands have been building for decades will become more common in organizational life as well.

CAPABILITIES IN IMPROVISATION, NOT IMPROVISED CAPABILITIES

In witnessing the application of these ideas through our fieldwork at a number of organizations worldwide, we have observed four commonalities at firms that are most successful in building dynamic capabilities through a jazz mindset.

First and foremost, returning to Winter’s (2003) precise definition, dynamic capabilities arise from improvisation only when improvisation “rises from a patterned and practiced performance” (Winter, 2003). The leaders discussed in this chapter, both jazz and business, were adept at building improvisation capacity. While such ad hoc problem solving may be successful, it is not the focus of this chapter and may, in fact, lead to chaos. Instead, we are proposing a mindset – a set of meta-responses – that may improve the chance that an organization will adapt ordinary routines in the face of an exogenous shock. This is a key point: we are describing a defined process by which improvisation can transform ordinary routines into dynamic ones – a meta-practice that itself is not improvised but rather quite specific. Jazz bands have a specific practice for building capabilities in

improvisation and keeping the jazz mindset alive. This is a disciplined practice that allows adaptation and improvisation.

In the examples above, all leaders – jazz and business – communicated their intentions transparently to others. As such, the jazz mindset was a shared mindset and a shared set of practices. In each case, the leader made it clear (whether through words or notes) when it was time to improvise – and when it was time to fall back to what Winter (2003) calls “the ‘how we earn a living now’ capabilities.” None of these leaders advocates abandoning routines on an ongoing basis. The jazz mindset must be bounded – for a certain period of time, within a certain group of people, within a certain location, etc.

CONCLUSION

Adaptation is difficult for many successful firms. The data is quite conclusive – surprisingly few leading firms survive more than a few decades (Louca & Mendonca, 2002; Foster & Kaplan, 2001; Devan, Millan, & Shirke, 2005; Wiggins & Ruefli, 2002; O’Reilly & Tushman, 2008). Christensen and others have demonstrated market leaders’ tendency toward failure to discern or respond to disruptive innovations (Christensen, 1997). However, firms that develop dynamic capabilities and become “ambidextrous,” whether structurally or contextually, are able to exploit the routines that lead to market success while simultaneously adapting to new markets and technologies – the solution to Christensen’s innovator’s dilemma (Christensen & Raynor, 2003; O’Reilly & Tushman, 2008; Gibson & Birkinshaw, 2004). Senior leaders of these firms notice discontinuous innovations and the emergence of novelty, legitimizing search processes and reprioritizing, recombining, and rearranging resources accordingly. However, we know little about the mindset of leaders who are able to succeed. Following March (1991), “much of the research exploring how dynamic capabilities might enable firms to adapt to changes in markets and technologies is preliminary and conceptual. What is missing is a clear articulation of those specific capabilities that facilitate exploration and exploitation.”

In unpredictable markets, it’s rare that strategic leaders know the right strategy in advance. They must learn to manage so that the correct strategy emerges within the firm. This means leaders need to do more than make incremental improvements on sustainable products. The genius of strategic leaders such as those described above is not that they can see into the future. Instead, their genius is rooted in the construction of dynamic capabilities and improvisational competence in their

organizations, through the practices of provocative competence (unlearning), affirmative competence (“yes to the mess”), leaping in and taking action with full-bodied engagement, minimal structures with maximum autonomy, hanging out in diverse communities of specialists, learning from errors, and alternating between soloing and supporting. In short, they nurture a jazz mindset.

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