Jazz As a Metaphor for Knowledge Work

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In today's knowledge-intensive world, as organizations increasingly need to create "value from difference" rather than "value from sameness," work can no longer be organized and executed as it was in the era of command and control in the executive suite and mass production on the shop floor. Large, complex organizations and traditional planning are being challenged by small groups of people willing and able to make swift decisions and leverage technology to ensure a perfect match with a complex, ever-changing context. Outcomes at work have therefore become dependent on the quality of complex interactions—their speed as well as the ability of team members to make decisions on the fly based on interpretations of ambiguous data.[1] Knowledge workers must often discover what it is they are producing in the act of producing it, and in collaboration with others, rather than carrying out their own individual roles in a pre-conceived plan. For most organizations and industries today, creating a culture of collaboration in real time is the where the major challenge lies.

The increased emphasis, in the work world, on complex interactions in real time has made the jazz ensemble—where work takes place in real time, every interaction is different, and each individual player's musicianship is valuable only in collaboration with others—a place to look for models of successful improvisation.[2] In everyday language, improvisation is often used to mean what we do do when we are poorly prepared, when we "wing it." Yet most of us improvise all the time—in conversation, for example—in order to achieve the best possible outcome in situations whose outcome is not predictable. And more often than we may realize, we improvise successfully. Improvisation, in any case, is about creating and taking advantage of new opportunities for learning and experimenting. It is a process where operating without a rigid pre-conceived plan becomes an asset, not a liability. In jazz, it is also a sine qua non, and the guidelines jazz musicians use to achieve the best possible interactions—what we call the Jazzcode—can help reinforce something we are all born with and need to use at work: the ability to adjust to new situations and, working in collaboration with others, make good decisions in real time.

Since every live situation is unique, deciding what to do—the ultimate leadership decision, as opposed to deciding how to do something, which is a managerial one—cannot be done in advance or from behind the front lines. Decisions about what to do must be made rapidly by the person or persons closest to the action, which is complex and constantly unfolding. As jazz musicians learn, however, even though you are never fully in control, you can still be in command. The Jazzcode offers guidance that can be used by both individuals and teams in order to improve their performance.

The Individual Player: Being Yourself While Being With Others

In jazz, as in any work where the goal is to create value from difference, for an individual or a team to be "different" is an asset, not a liability. In today's work world, being yourself and putting a strong fingerprint on your work becomes more and more legitimate, and even necessary, as globalization and technology make it possible to leverage almost any expertise on a global scale. How, as an individual who works in teams, can you make the best use of the talent for improvisation that almost everyone possesses by being yourself in the moment? By being *prepared*, *present*, *always learning*, and *open with others*.

1 McKinsey Quarterly 4/2005: «The Next Revolution in Interactions»

2 The analogies between jazz practice and topics such as innovation and leadership have been explored in books including *Jamming: The Art and Discipline of Business Creativity* (1997) by John Kao and, more recently, *Yes to the Mess: Surprising Leadership Lessons from Jazz* (2012) by Frank Barrett. Both employ the jazz metaphor in fairly general ways, whereas we believe that there are lessons about knowledge work to be learned from a more detailed account of jazz practice and closer analogies than either Kao or Barrett draw. See also HBS Case 609-050: "Miles Davis: Kind of Blue" (2008) by Carl Stormer and Robert D. Austin.

Preparation

How can we prepare ourselves to be good improvisers? Good jazz musicians spend their entire professional lives preparing not only for each performance but for their every interaction with other musicians by really knowing their own instrument and role, by fully understanding the context in which they will be playing and the other players, and, of course, practicing. No great jazz musician, however talented, has ever been born knowing how to improvise (although the truly great ones might seem as if they had). Preparation for improvising might seem like an oxymoron but definitely is not.

The first component of the preparation required to become a skilled improviser in jazz is *knowing your instrument and its role* in an ensemble. This means, first of all, that you must achieve a level of mastery so that the technical aspects of playing your instrument, no matter how complex, become second nature, which allows you to concentrate on the *what* rather than the *how* when you are playing. For a musician, knowing your instrument in this way involves being able to play notes, scales, and chords, vary your tempo and rhythm, and so forth; for knowledge work, the tools and techniques you must master include language (oral and written), listening and organizational skills, and concepts and quantitative skills that are fundamental to your area of expertise. Mastery of these tools allows you to apply them focus on applying them to the unique, real-time context in which you are working. When you are in the middle of a jazz performance, you don´t have time to think about execution—all your energy is focused on what you should play, which requires you to pay attention to what the other members of your group are playing. It

also requires you to understand your instrument's role in the group—the bass and drums, for example, which constitute what is called the rhythm section in a jazz ensemble, each have a function in the group that is different than that of the other instruments.

If, in the midst of a jazz performance, you were to think about how to play, you would lose part of your mental capacity and your ability to fully *understand the context* in which you are playing would be lost. For jazz musicians, part of preparation for interactions and performances involves knowing jazz history and tradition so as to be able to use it to expressive effect and, especially, knowing the musicians with whom one is playing. When Red Garland played his last solo with Miles Davis (on the 1958 album *Milestones*), his improvisation consisted of playing Miles´s solo from a Charlie Parker recording done ten years earlier; Garland had memorized the solo on Parker's song "Now's the Time" and placed it in another tune as a farewell to Miles. In business, understanding the context might mean knowing your clients'—or your co-workers'—histories, values, preferences, strengths and weaknesses, possible reactions, and so on, as well as the dynamics of a marketplace.

Needless to say, in addition to knowing their instruments and understanding the context in which they play, great jazz musicians—like all musicians—prepare by *practicing*. Serious musicians spend time practicing every day. At the beginning they seek to master the basics. Later their strategy will vary. Some will spend less time with their instrument and more time listening to and really understanding the music, the tradition, and the choices made by other players. Some choose to practice what they are already really good at while others look for weak spots and work on those. One common

thread among experienced musicians is that they will come back to the basics of the instrument: how to get a beautiful tone, how to control the dynamic range, how to phrase in a musical way, and how to make musical choices that allow them to play to their strengths.

In business, practicing might mean becoming intimately knowledgeable about subject matter. Carl found this kind of practicing to be helpful both when working in sales and consulting at IBM and when running a startup. Going over the subject matter of a meeting in his head, memorizing definitions, rehearsing different answers before a presentation or meeting, or just talking about a subject—all these are ways of practicing as musicians do. When Carl was running a startup, www.studentuniverse.com, he and his business partner would spend one or two hours every day for four years talking about strategy and deals. By probing their subject matter very thoroughly, they were able to see opportunities where nobody else saw them and negotiate deals more favorable than one would have thought possible for a company this size. Carl applied much of the same approach to learning business as he did to learning music, always practicing using new software, improving his skills at financial modeling, checking out new technology, trying to undestand the business models of competitors.

Presence in the moment

To survive in situations involving complex interactions and decisions in real time—whether in a jazz group or in other kinds of organizations—we need to be present in the moment where the action is taking place. Speed requires full attention; with higher speed comes a greater need to concentrate our attention on the unfolding environment. Presence— the most important asset in a knowledge organization—is poorly often managed. We try to be present in too many places at the same time, are unable to shield ourselves from interruptions, and don´t really know what it takes to be fully present in the moment (perhaps, in part, because work designed to produce "value from sameness" placed less of a premium on presence, and in part because modern technology, which enabling so much more communication than was once possible, also functions as a giant distraction machine). Yet, presence is required to interpret complex situations. As the importance and frequency of complex interactions increase, so does the importance of optimizing presence. Presence is the feedback mechanism that makes it possible for us to interact with our external environment. Without presence and active listening, even the best jazz musicians would be irrelevant and without ability to create value.

Presence is what all good musicians have in common. By "presence" here I mean not only the ability to listen but also to be totally engaged with the situation they are in, to be "lost in the moment."

We have all been completely lost in the moment at many times in our lives. This is what happens when we go participate in a sport like skiing or tennis, have sex, or engage in any interaction where something is at stake. We direct our full mental capacity at the unfolding situation in order to make sure we are able to understand and respond to what is going on. Deep concentration in dynamic settings is something humans enjoy and we do it quite naturally—so naturally that often we don´t notice how concentrated we are until after the fact.

Conversely, distraction or a lack of mental capacity can prevent us from being present in the moment. This happens if we become too preoccupied with our own execution (which is why, as we have seen, it is necessary to master one's own instrument and role), or if we worry too much or too little. In live situations, mental capacity can become divided between a management and a leadership layer. It is almost as if you have two voices in your head. The manager is preoccupied with your execution and role, concerned about recognition and criticism—in short, internally focused and in constant dialogue with itself. The leader in you, by contrast, is concerned with what is taking place in the external environment and how well you are fitting your contribution to the context. In order to clear more mental space for the leader we need to reduce the scope of operations for the manager, we need to do three things: simplify the work, create a feeling of safety ourselves and others, and become fully engaged. Some of this we can do for ourselves, although those others who help create the conditions under which teams work can also play their own role in helping team members to be fully present.

Since improvisation in jazz is such a complex task, jazz musicians help themselves and their fellow musicians manage this complexity by *simplifying* their tasks. For example, a musician will play fewer notes to lessen the difficulty inherent in the task of, say, four or five musicians all listening to one another and respond-ing in the moment to what others are playing. In ordinary conversation, we make the task of listening and responding in real time to an interlocutor by using only our "active" vocabulary. At work, we can find ways to make our jobs easier by, for example, giving ourselves more time to do a certain task, doing a smaller part of the task, allowing ourselves to be sloppy whenever possible, and minimizing structures and processes.

Since the manager's voice inside us also worries about risks, we can reduce the scope of the manager's influence if we can *make ourselves and those we work with feel safer*. We do this for ourselves partly by achieving the mastery that allows us to play our instruments without thinking about the how of playing. We can also add to our own and our teammates' feelings of safety by cultivating their trust in us and ours in them. Members of a jazz group learn, for example, that it is critical to give one another positive feedback and act with integrity. To give a negative example, when the great bassist Charles Mingus, on the title track of the album *Money Jungle* that he made with Duke Ellington and Max Roach, defiantly played the same note over and over again—prompting Ellington to respond on the piano by angrily mimicking Mingus' playing—his violation of the trust of his fellow musicians dragged down the quality of the whole group's performance.

It is not enough, however, for members of a team—whether it is a jazz group or a work team—to feel safe in order to play well together—they must also *be fully engaged*. On "Money Jungle," Mingus shows his lack of engagement by deliberately provoking Ellington—for reasons that are totally opaque to the listener—thereby damaging the entire group's efforts. Some of the reasons

knowledge workers may be less than fully engaged while working in teams may include boredom (if the task has been simplified too much) or feelings that one's efforts and contributions are not being recognized. While an individual or team member has some control over his or her own level of engagement (by being adequately or inadequately prepared, for example), those who are responsible for creating the conditions under which teams work in an organization can also take steps to foster engagement, as we will see below.

Learning and renewal

The best jazz musicians constantly learn and renew themselves through a long career. Every performance represents a chance to try something new because every interaction is unique. It is not unusual for musicians to peak late in their careers, perhaps because the most important qualifications are not muscle power and speed but an ability to place their contributions in context in a way that provides maximum impact.

It is not paradoxical to say that improvisation—the ability to delay decisions and place an action in time in such a way that you get the best possible fit with the context and your own intent—can be learned. It is learned through imitation, careful analysis of performances, and constant practice and experimentation. This is true, of course, not only of jazz musicians but of all improvisers; this is how we learn language, manners, and organizational culture. In jazz as in many other complex activities, however, there is always a new horizon beyond which one can go, and the best performers constantly seek to do this. In order to ensure renewal, they will continually look for sources of inspiration outside their own domains. The great saxophonist

John Coltrane listened to ethnic music, and Miles Davis listened to classical. Henry Ford got the idea for an assembly line by observing a meat factory in Chicago.[3] When I worked at IBM as a consultant, some of our best work was done when we were able to transfer lessons from one industry to another, as when we taught telephone companies about variable pricing of inventory-based goods in the airline industry. Sometimes the best way to get better at what you do is to try something else besides what you do, to put yourself in a context where you must learn what someone else knows and you do not.

Openness

Openness is an important trait for creating trust and fostering innovation in complex interactions. Openness in this context means both the willingness to share freely of one´s own knowledge and insight without filtering, and receptiveness to new ideas presented by others.

One of the most important principles in improvisation is to not stop the flow. You can make a lot of mistakes that might go undetected in live music (and other real-time situations) but there is one thing you must never do: stop playing. Thus the most important principle in jazz improvisation, in addition to attentive listening is that you cannot reject an idea. If someone in the group makes a leadership decision you have to follow it. If you don't, you are making yourself more important than the music. In jazz, everything that happens must be embraced; once you do embrace what has happened, you can influence it and allow it to influence you. In organizational life, this translates into saying "Yes, *and*…" instead of blocking the other person's idea by saying "No," or half-accepting it by saying "Yes, but…."

If the participants in a complex interaction are to make autonomous decisions and yet build on one another's decisions in order to achieve a goal, they must have access to the same information. This is why listening attentively is so critical: if the players in a jazz band can´t hear one another they will not be able to play together. This is true in other settings where members of a group must make decisions in real time. When the Norwegian police arrived at Utoya on July 22, 2011, while a massacre was taking place on a nearby island, they were unable to act because they did not have the necessary information; as a result, they waited passively for thirty minutes while the carnage took place.[4] Meanwhile, local residents were rescuing wounded youths from the ice-cold water using their own boats; they did not have a central command, but they could hear the shooting, understood what was going on, and, following their instincts, were able to act much faster than did the police.

Group Improvisation: Making Collaboration Happen

While individuals work on acquiring the attributes and skills—preparedness, presence, learning, and openness—that enable them to work successfully in teams, teams themselves, and those who are responsible to building and leading them, can also make collaboration by designing it in certain ways. The key principles here, which grow out of the attributes of skilled individual improvisers, are fundamental to successful improvisation in jazz. These principles are small teams with complementary roles, shared references, and empowerment.

3 Lecture at Schibsted ASA in Norway (2008).

4 NOU 2012:14: Rapport fra 22. juli kommisjonen.

Small teams with complementary roles

It is nearly impossible to improvise in large groups. The history of jazz shows that most innovation has taken place in small groups: for example, the Charlie Parker/Dizzie Gillespie Quintet, the John Coltrane Quartet, the two Miles Davis quintets, the Bill Evans Trio, and the Modern Jazz Quartet. Even in larger groups, the most interesting musical pieces have often been created when only a subset of the entire group interacts. The same phenomenon can also be observed in settings such as dinner parties: if you have more than four or five guests, chances are that the party will break up into parallel conversations. In order to keep one conversation going, jazz groups have found that less is more. If you have more than four players participating in a conversation, then you might want to plan parts of what is taking place. Moreover, in order for members of a group to collaborate, they must have distinct, complementary roles. A saxophonist, pianist, bass player, and drummer can have a conversation. Four drummers will become engaged in a battle.

There are other reasons why a small group will achieve the best improvisations. A small group is flexible; has less complexity; can more easily establish trust; ensures visibility for all its members; and enforces fewer compromises of the kind that can undermine the integrity of the work.

Flexibility. In a small group, it is easier to make decisions because it is easy to be heard and fairly easy to voice dissent. In that sense, a quartet is a more robust unit than a trio because you can have two against two, whereas in a trio, any dissent will involve two against one. Crucially, it is also easier to organize small teams and for them to change plans in midstream.

Less complexity. Not only can four players fit in a car and share a pizza but the coordination costs are acceptable. As you add more people, you are also increasing coordination costs exponentially. You might get 20% more input by adding a fifth player, but the scheduling constraints and overall complexity increase by a factor of five. Most people can´t keep track of more than five to seven simultaneous stimuli. Add a fifth player or team member to a group of four and it becomes almost impossible for everyone to keep track of all interactions and their own role at the same time—the success of many jazz quintets notwithstanding.[5]

Easier to establish trust. It is easier to establish trust in a small group because the greater transparency tends to prevent hidden agendas. A small group also makes it much harder to keep secrets and mask lack of competency, while making it more important for each member to carry his or her own weight.

Ensures visibility. In a smaller group, not only can everyone can keep track of the interactions but there is room for everyone to play a solo. When there is room for everyone to speak and be heard, everyone can also receive praise and recognition for their contributions. In jazz, small group players usually love their jobs, while players in large orchestras often hate theirs—perhaps because they are not heard or seen as individuals.

Fewer compromises. Creative decisions are often not well handled by larger groups, which often adopt a consensus approach to creativity leads to dilution of the original idea. In general, the standardized processes that large groups are tempted to adopt can become the antithesis of improvisation and decrease the likelihood that the final result will be new and fresh.

Shared References

Shared references are essential to the art of jazz improvisation. If Carl is playing the drums and the bass player throws in a quotation from a well-known tune like "Salt Peanuts," his recognizing the reference will enable him to pick up his idea and respond to it immediately. In any group, shared references are a handy way to avoid having to explain the context and the rules of engagement. Finding shared references is also a rapid way to build trust, create excitement, and explain a goal. In that sense, shared references save work. Anything the team agrees to before the performance or project can be considered shared references—for example, language, symbols, standards, anything that will reduce ambiguity (but that may also limit freedom as the situation unfolds). Organizations often exist in order to develop shared references that give the company a competitive advantage. Shared references such as values can be difficult to develop across organizational boundaries.

In general, shared references may be of three kinds: references to the past, the present, or the future. Shared references may be to past per-

5 Miller, G. A. (1956). "The magical number seven, plus or minus two: Some limits on our capacity for processing information". *Psychological Review* 63

formances, established processes, or traditions. Shared references in the present might include a sense of pacing or what in music is called tempo. When teams share a sense of purpose or have an aligned vision they possess shared references to the future that are a must for a fast-moving team.

Empowerment

"If I had known what you should play, I would not have hired the world´s best saxophonist," Miles Davis once said to John Coltrane when Coltrane asked him he wanted his sax player to play.

In order for a small team to interact effectively, all of its members must be empowered individually, and the team empowered within the organization, to make decisions and solve problems. In the US Marines, teams are never told how to accomplish a mission, only what the mission is. Often, the person closest to the context is the person best equipped to decide. When Thorleif Thorleifsson and Borge Ousland sailed around the North Pole in a 32-foot trimaran, their rule for delegating decisions was simple: the one with the most knowledge decides. In expert teams, the players on the ground might not have the most subject matter expertise, but they have the best understanding of the context. Subject matter expertise, as we have seen, is worthless without contextual understanding. And when the context changes rapidly, the team must be empowered to figure out what to do. In order for them to do this and have the maximum impact, in turn, they must have a complete understanding of their purpose and a willingness to always think holistically about the task at hand. Or as jazz musicians would say it, the music comes first.

Although jazz, like the other arts, has often been discussed in terms that exalt genius and mystify the process of artistic creation, there are really no mysteries in jazz other than the magic of skilled practitioners working together in real time. Their presence in the moment is what unites them—provided they have the same understanding of the musical context and what they are trying to accomplish together, and confidence in their ability to accomplish it. Experienced musicians are comfortable making decisions even when lacking perfect information or certainty about what will result. They have learned to be themselves while being with others and, in so doing, to create something that none of them could do by themselves. What enables them to do all this is ultimately not genius, although jazz has had its share of geniuses. The more telling factor in the performance of even the greatest jazz groups—as well as high-performing teams in organizations of all kinds—is a code that anyone doing complex work in teams can learn and follow to achieve higher performance. ∎

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