



Extreme Competition

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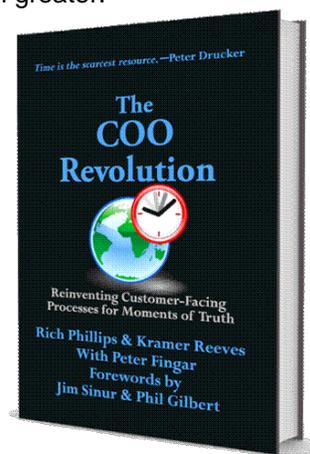
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The New Business MoSAIC

Gartner has coined “The Nexus of Forces: Social, Mobile, Cloud and Information,” and Cognizant has coined SMAC: Social, Mobile, Analytics and Cloud.” Hmm? I thought SMAC (Smack) was a street term for heroin. Is the IT industry now pushing drugs on its customers? Of course not, but it is reaching out to a different audience base beyond the Chief Information Officer (CIO) and on to other C-level executives. Why? It’s because Business Technology (BT) now supersedes Information Technology (IT) in today’s world of extreme competition.

BT is a term that describes the business practice of converging technology and business strategy. As an emerging evolution of information technology, BT involves far more than *tactical* support systems, and moves on to using technology as a *strategic* tool. As written in the book, *Enterprise Cloud Computing*, “The term Business Technology (BT) is frequently used to describe new technologies to differentiate them from traditional Information Technology (IT). The key differentiation between BT and IT centers on decentralization and unstructured environments. Organizations still need the centralized and structured role of IT to provide back-office functionality, but BT is an additional layer focusing on the front office and customer-facing business activities.”

The just released book, *The COO Revolution*, elaborates, “Most enterprises have a gaping hole in the front office of their business models. Unfortunately, this reality is being uncovered at a time when the customer possesses more power and higher expectations than ever before. The customer is no longer king, the customer is now a dictator! As a consequence, the risk of customer defection has never been greater.”



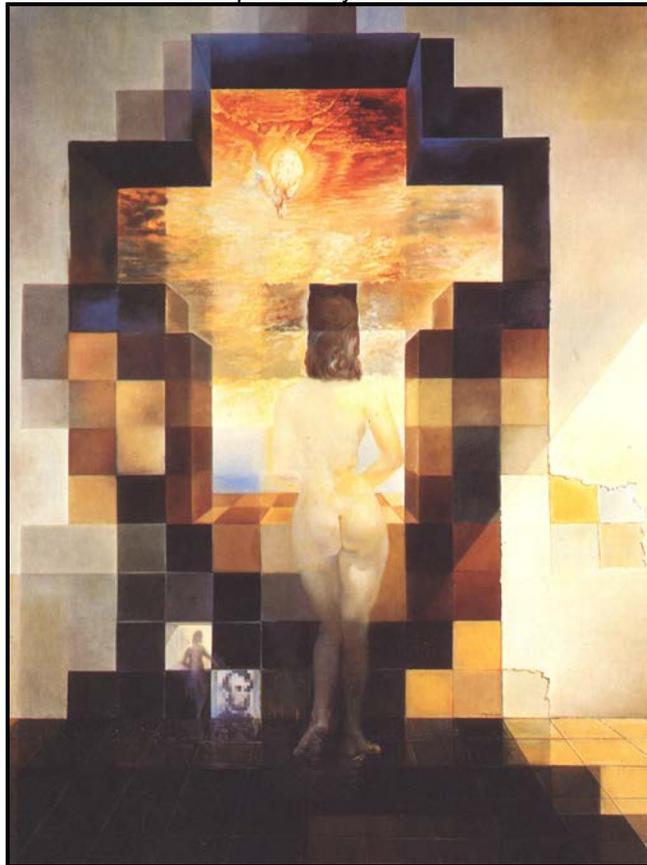
“The good news is that there are capabilities emerging before our eyes that directly address this fundamental vulnerability. The synthesis of Gartner’s four forces (mobile, social, Cloud and information) into the end-to-end processes of an entire value chain offers the opportunity for reinvention. Customer-centric thinking can only occur if there is a *seamlessness* to the processes

that customers touch; if the interaction engine is built to operate in real-time; and if the value chain is capable of operating at the atomic level known as *personalization*. The four forces provide companies with the opportunities to be *instant*, *seamless*, *insightful*, and 'customer-centric,' but only when they are systemically embodied in the processes that run the organization."

"In other words, an entirely new business model is emerging that is both demanded by the modern customer and enabled by the confluence of recently-available platforms when leveraged systemically and not as point solutions. This business model capitalizes on six strategic principles, operating as a synthesized composite:

1. Customer centricity as the basis for everything;
2. Customer interaction in real time;
3. Management of all value chain elements as a strategic business process and set of capabilities;
4. Interjection of the value proposition into the moments of truth that occur every day;
5. Strategic alignment of enterprise resources to value drivers; and
6. Iterative transformation practices and business principles that foster unprecedented agility."

"Similar to viewing an exceptional art mosaic, observing any of the environmental forces or enabling capabilities in isolation prevents one from recognizing the broader fundamentals in play. The entire picture does not emerge until the viewer steps back and embraces the 'ah ha' moment of the overall *mosaic*, one in which the powerful message is revealed through the inter-related elements operating in concert." For example, squint and peek through your eyelashes and see who the famous person is in this mosaic portrait by Salvador Dali.

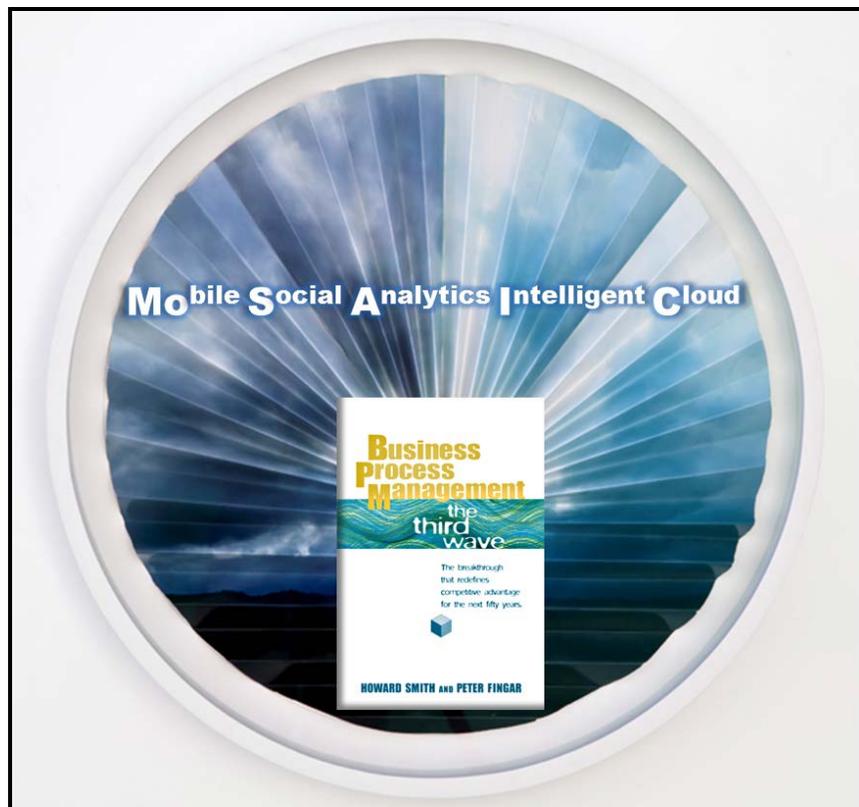


The New Business MoSAIC

MoSAIC = Mobile, Social, Analytics, Intelligent and Cloud. We'll take a high-level view of each of these forces, though each could be a standalone in-depth Column.

While this nexus of MoSAIC forces is new since the publication of the seminal book, *Business Process Management: The Third Wave*, they don't diminish the role of the BPMS; they *amplify* the need for it. For now, let's just leave it that the BPMS is the breakthrough that helped launch business technology (BT). Yet, to our dismay, the BPMS has been all too often relegated to the back and middle offices as a *tactical* resource, instead of as a *strategic* business tool.

But all that is about to change thanks to a new business *MoSAIC* that demands pivoting the BPMS from the back and middle offices to reach out to the front office, while seamlessly managing the complete end-to-end processes of the back office, the middle office, suppliers and trading partners across the entire value chain, all under the real-time dictates of customers. Let's briefly step through the new business MoSAIC.



Mo- Mobile first! Again, from *Enterprise Cloud Computing*, "The shift from the data and computer-centric world of IT to the people and communication-centric world of BT is driving a shift in personal devices with the exploding use of smart phones and tablets. Mobility isn't just about making an application available on a remote device by wireless; it's a change in life style."

One shared world. One shared computer.

Six billion mobile subscribers have windows into the One, the Cloud. "If either your PC or your Smart Phone was to fail and not be available for three days which would you choose to have working? If people who were asked this question are in a support function they would say their PC as their work is fundamentally based at a given desk and they have access to a phone on the desk. If their roles are operational, they are driven by events, meeting people outside their own

offices and so on, and their choice would be the Smart Phone. One observer dubbed it, 'Value creating roles need to be where the event is happening; supporting roles have the process delivered to them.' That observation may be a little harsh, but if you examine the logic, a Smart Phone can be with you at all times. You can do email and, if you are really determined, even create documents and handle spreadsheets. But most of all you can be in touch with constantly changing circumstances and be able to direct activities. This is why it's easy to spot business people everywhere tapping away on their Smart Phones; it has become normal business behavior."

The "Mo" in MoSAIC also relates to the computer science of "mobile processes." As previously mentioned, via the deep computer science of "mobile processes," business processes can change their structures via communication channels in flight, in real-time. That's what's needed to seamlessly use real-time *prescriptive* analytics to respond to moments of truth with ever demanding customers. For it's not just what you can promise at the moment of customer interactions in the front office, it's also what you can actually deliver -- *in the now*.

S - Social

As cited in *Enterprise Cloud Computing*, "The ability to manipulate information outside the body is a mark of mankind. But there's more to it than just manipulating information.

Humans are intensely social creatures that crave social interactions—just consider the most harsh of punishments, solitary confinement. With the advent of easy-to-use 'Consumer IT,' Social Networks are changing the ways we live, learn, collaborate, work, consume and play. These huge changes in society also disrupt the way we design and manage our organizations and our value chains that deliver value to customers. Of course those leaps that change the game are what companies desperately seek in the creative economy. Leading companies are turning to Social Networks to tap new sources of business intelligence and creativity that can lead to innovation. Yet others view Social Networks as some newfangled time waster and a distraction. It's likely that the word 'social' in Social Networking has puzzled business managers. After all, Social Networks aren't new, and here's perhaps what your boss thinks of them: a digital version of Woodstock, 1969. The abundance of social media is creating an overabundance of noise. So of course your boss is not the least bit interested in having employees take up such time wasters."

"Today consumers are protecting themselves by using the Social Web—the days of asymmetric information favoring the seller are over. As a business that wants to adapt to the way it now is, it cannot seek a fool's paradise of the past where society's information was dispensed top-down through centralized control via the press and advertising. As Kermit Pattison reported in the *New York Times*, 'Your customers are talking about you — and the whole world is listening.' 'Social media for business now is life or death,' said Dan Simons, a restaurateur in the Washington area who closely monitors these forums. 'You could open a business and do everything right, but if you're unaware of these social media you will perish. Social media can take a business and put a bullet in it. Customers are abuzz with opinions — the only question is whether that buzzing reaches your ears. The first step is to tune in."

If you are a brand-name company and have a gorgeous and sophisticated Web site, your company's Web site is the last place customers go to get informed and make purchasing decisions. BPM pioneer, Alan Treffer writes in his early manuscript for the book *Customer Apocalypse*, "Generation D [digital] does not want to be sold to. Being sold to is being controlled. No, the seamless experience they desire with your business, to which they would probably never admit, is based on wanting to discover you and your product or service. So, on top of all that connectivity, you have to figure out how to facilitate their discovery, proactively, but invisibly, to create the illusion that they are discovering all on their own." Treffer goes on to describe the notion of "next-best-action," "which goes on the premise of offering and promoting the right thing to the right person at the right time. It balances what your customer wants and needs, and what your customer's interests might be, with our own business objectives, and then continuously

reevaluates and rebalances to optimize the outcomes. The next-best-action is carefully and thoughtfully constructed based on contextual information and insight.”

Continuing with insights from *Enterprise Cloud Computing*, “Social Networks are also places where work gets done. It’s in the new digital communities in the Cloud where product innovation is customer driven and value is ‘co-produced.’ Customers become *prosumers*: *producers* and *consumers* of value. As Forrester Research analyst, Jeremiah Owyang explains, ‘Companies of the Future will collaboratively design products with customers using Web tools. These products will meet the specific needs of the people, reduce costs, and streamline the go-to-market process.’ One online manifestation of this is called Dell IdeaStorm, which nods to Sun Microsystems’ Johnathan Schwartz’s mantra that ‘intranets are anachronisms.’ The Web is a platform that can allow customers and companies to build products efficiently and quickly using real time feedback.”

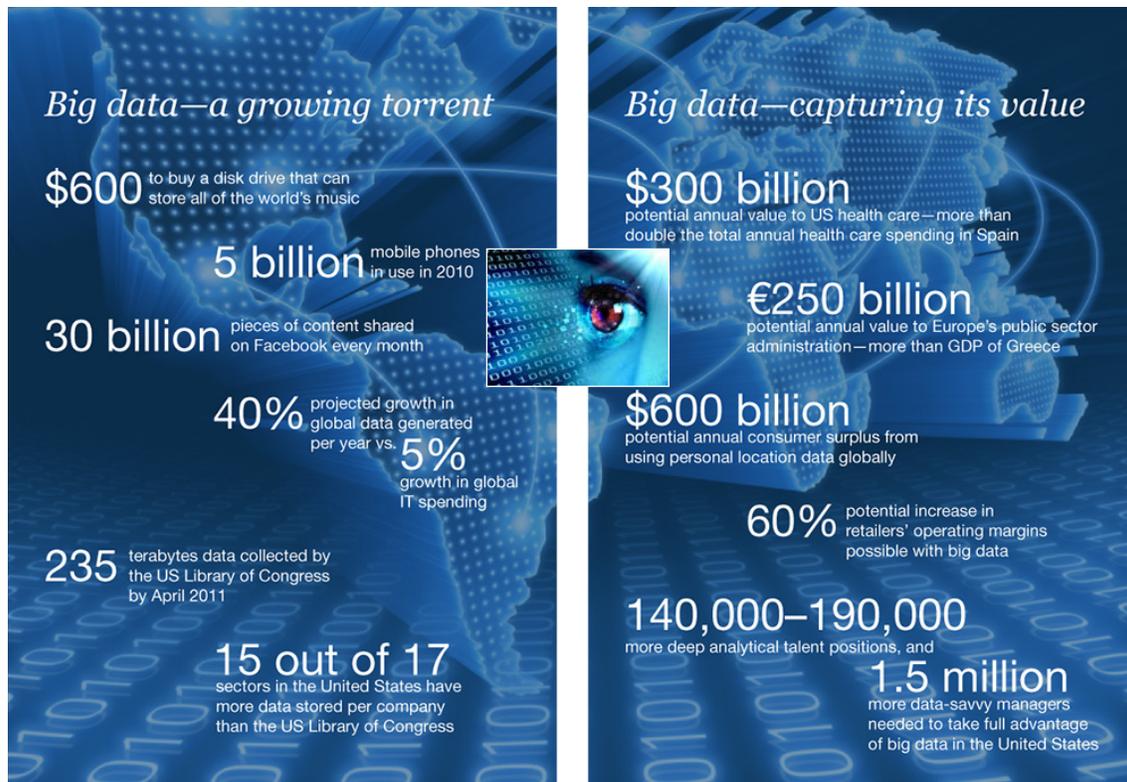
The “S” in MoSAIC also applies to social networks *inside* the enterprise.

“Social” is all the craze in enterprise-class software these days. Enterprise software providers are in a rush to provide social networking capabilities in their offerings: salesforce.com’s Chatter, Cisco’s Quad are but two examples. These are very cool upgrades to existing enterprise software. They allow workers to Tweet, to discover people with appropriate knowledge or skills, share knowledge, and control who can participate. Essentially they are communication tools with “implicit collaboration.” They are, however, potentially noisy, distracting communications media.

Keith Swenson, lead author of *Mastering the Unpredictable*, elaborates on the need for *goal orientation* in enterprise social software, “In general, social software systems record what is happening now and in the past, but for the most part completely lack any representation of the future. Enterprise Social Software will succeed only if it has some representation of goals or other future activities. You need to be able to represent and track goals. You need to be able to talk about what you want to do, how this is broken down into finer detailed goals, and to track progress against those goals. You want to be able to ask others to do things, which when accepted form goals for those other people. This is the essence of planning, which is an important part of any work.”

A - Analytics

Analytics + Big Data: The use of massive volumes of stored data in conjunction with real-time analytics to make smart, fact-based decisions in real-time and at the atomic level of individual customer interactions-- at *moments of truth*. In short, Analytics + Big Data are the most important things for business since the Internet.



Recent “state of the art” capabilities for mining data consisted of data junkies sitting at a desktop, sorting through mounds of information stored in enterprise “data warehouses.” Hunting and pecking, these “quants” were charged with the unenviable task of finding the nuggets and patterns of important information buried in all of that data.

Now, imagine the hundreds of data elements available through the single transaction of a consumer using Yelp to help select and connect to a given merchant. This same story could be recounted for any enterprise mobile application that interacts with a given consumer. Enter the power of “Analytics + Big Data.” While analyzing the interaction of that same consumer on a historical basis (traditional Business Intelligence) provides *rear-view mirror* information on a given purchase decision, Analytics + Big Data allows that same application to provide marketing insights and interventions in real time, actually offering that specific consumer a promotion targeted to them based on buying history, click-through pattern, geography, and a virtually-unlimited combination of related facts -- Alan Treffer's “Next-Best-Action.”

Okay, let's drill down a little on this term “analytics.”

The first stage of business analytics is descriptive analytics, which accounts for the majority of all business analytics today. *Descriptive* analytics answers the questions of what happened and why did it happen. Descriptive analytics looks at past performance and understands that performance by mining historical data to look for the reasons behind past success or failure. Almost all management reporting such as sales, marketing, operations, and finance, uses this type of post-mortem analysis.

The next phase is predictive analytics. *Predictive* analytics answers the question of what will happen. This is when historical performance data is combined with rules, algorithms, and occasionally external data to determine the probable future outcome of an event or a likelihood of

a situation occurring. The final phase is prescriptive analytics, which goes beyond predicting future outcomes by also suggesting actions to benefit from the predictions and showing the implications of each decision option.

Prescriptive analytics not only anticipates what will happen and when it will happen, but also why it will happen. Further, prescriptive analytics suggests decision options on how to take advantage of a future opportunity or mitigate a future risk and shows the implication of each decision option. Prescriptive analytics can continually and automatically take in new data to improve prediction accuracy and provide better decision options. Prescriptive analytics ingests hybrid data, a combination of structured and unstructured data, and business rules to predict what lies ahead and to prescribe how to take advantage of this predicted future *right here, right now* at customer moments of truth!

All three phases of analytics can be performed through services in the Cloud. Prescriptive analytics technologies need to be adaptive to take into account big data, structured and unstructured, with the growing volume, velocity, and variety of data that most mission critical processes and their environments will produce.



Watch analytics guru, Tom Davenport explain: <http://bit.ly/14xKH2n>

The ability to capture, process, select a response, present the response, and do this at multiple click-points in the customer interaction process presents considerable opportunities. Specifically, there is an unparalleled level of marketing precision, engagement reach and data collection horsepower – *in real time* – that our data-geek friends performing historical analysis could never have fathomed. The implications of this higher-order capability in transforming business cannot be overstated. Contrast the real-time marketing offer targeted at the atomic consumer level when the buyer needs to make a decision, to that of an asynchronous mailer with a 15% off coupon, received four weeks after the consumer already made the purchase. This is game changing! And not just for giant corporations as Analytics + Big Data are available in the Cloud for all comers, large and small.

But wait. As Clay Richardson of Forrester Research tells us, Big Data Ain't Worth Diddy Without "Big Process." Read Clay's blog posts on Big Process: <http://bit.ly/HzpXuQ> and <http://bit.ly/o5QUXY>

I - Intelligent

To manage the inherent complexity in inter-enterprise or value-chain business processes, smart companies will demand ever "*smarter processes*." But "smart" doesn't mean some Orwellian thinking machine; it means *intelligent agent technology*.



(in-development: email info@mkpress.com to be notified of final book and title)

What's an agent? Backing away from technology for a moment, the everyday term, agent, provides a starting definition: "one who acts for, or in the place of, another." A software agent is a software package that carries out tasks for others autonomously without being controlled by its master once the tasks have been delegated. The "others" may be human users, business processes, workflows, or applications.

A basic software agent stands on three pillars, three essential properties: autonomy, reactivity, and communication ability. The notion of autonomy means that an agent exercises exclusive control over its own actions and state. Reactivity means sensing or perceiving change in their environment and responding. And, even the most basic software agents have the ability to communicate with other entities – human users, other software agents, or objects.

Add to this definition the ability to plan and set goals, to maintain belief models (their own and other agents' beliefs), to reason about the actions of itself and other agents (including humans), and the ability to improve its knowledge and performance through learning, and you then have the core ingredients of an "intelligent agent." An intelligent agent represents a distinct category of software that incorporates local knowledge about its own and other agents' tasks and resources, allowing it to operate autonomously or as a part of a community of co-operative problem solvers (including human users), each agent having its own roles and responsibilities.

Agents can be integrated into BPM frameworks that contain, in one package, specific problem-solving functions, data, and control. Intelligent agents support a natural merging of BPM and knowledge-based technologies. Intelligent agents can facilitate the incorporation of reasoning capabilities (e.g., encapsulation of business rules within agents). They permit the inclusion of learning and self improvement capabilities at both infrastructure (adaptive routing) and application (adaptive user interfaces) levels. Intelligent user interfaces (supporting task-centered user interfaces and intelligent assistance to end-users) can be a boon to productivity in a complex world of multi-company business processes.

How big is the need for intelligent agent technology? Let's turn to *Science World Report*, "What is Industry 4.0? The term 'Industry 4.0' was coined, similar to Cloud Computing, to have a short and symbolic keyword describing the smart factories, intelligent machines and networked processes that facilitate and result from the 4th industrial revolution that is now beginning. This will be one of the major trends shaping the first half of the 21st century."



“To put this into perspective, the first industrial revolution started around 1780 with the first mechanical manufacturing facilities and especially the invention and widespread use of the steam engine and coal for energy. The second phase set in around 1900 with electricity and the development of large capital goods industries like steel and oil which enabled mass-manufacturing. The microchip, computers and globalization ushered in the third industrial revolution in the 1970s, which expanded highly efficient production on a global scale and scope never seen before, all on the foundation of automation. This trend now matured and is still growing, with multi-national consumer good corporations like Volkswagen planting highly automated factories on all continents. It will over the next years be supplemented by the fourth industrial revolution that merges the existing vast industrial infrastructure with the Internet of Things and Cloud Computing, creating a direct and real-time interface between the virtual and physical world: The birth of Cyber-Physical Systems!” (Read the full report here: <http://bit.ly/142z18F>)

Are current Enterprise Architectures capable of supporting a “self-organizing, self-governing, adaptive, nonlinear, complex organization, community or system, whether physical or social, the behavior of which harmoniously blends characteristics of both chaos and order?” Are they ready for Industry 4.0? Is it time to question the first principles of Enterprise Architecture in light of global Chaords that are neither centralized nor anarchical business networks?

If we consider intelligent agents as fractals in a multidimensional business ecosystem, some of the key components of *multi-agent problem-solving* are essential. To achieve common goals, agents need *coordination*. Effective coordination requires cooperation, which in turn can be achieved through communication and organization. That’s where the agent-oriented BPMS comes in to provide the needed choreography.

C - Cloud

With so much hype surrounding cloud computing, and with 40 definitions coming from 40 different experts who are asked what cloud computing is, I’ll not add to the fray. But, as I want to address no-nonsense business executives responsible for the success of their organizations, we need a baseline definition devoid of bias. So, we can turn to the National Institute of Standards and Technology (NIST), an agency of the United States Department of Commerce. “Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

Rapid elasticity is the key attribute of cloud computing; scale up, scale down, on the fly. The most important point for our discussion is that the Cloud becomes a Business Operations Platform

(BOP) that can be deployed by the largest and the smallest of enterprises, anywhere, everywhere -- the great leveler.



With the emergence of Cloud-based, long-lived, loosely-coupled, stateless architectures, the existing Enterprise Architecture approaches and many of today's BPM systems will quickly demonstrate their lack of flexibility and inability to choreograph participants in complex business ecosystems made up of large numbers of actors spread across the globe.

To elaborate, let's turn to social visionary, Dee Hock, the founder and former CEO of VISA International, an organization that he says was founded on *chaordic* principles, from a blending of chaos and order. VISA now connects over 20,000 financial institutions, 14 million merchants, and 600 million consumers in 220 countries. Hock explains that "By chaord, I mean any self-organizing, self governing, adaptive, nonlinear, complex organism, organization, community or system, whether physical, biological or social, the behavior of which harmoniously blends characteristics of both chaos and order." In his view, today's current forms of organization are almost universally based on compelled behavior, or tyranny. The chaordic organizations of the future will embody community, based on shared purpose. A chaordic organization harmoniously blends characteristics of competition and cooperation [coopetition]. Hock's book, *Birth of the Chaordic Age*, is a broadside against the dominance of today's command-and-control institutions.

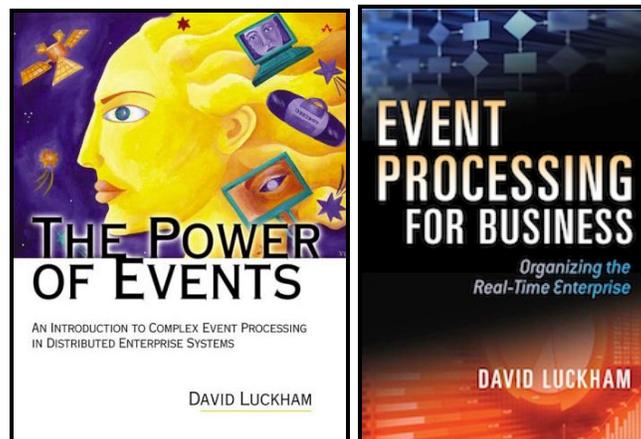
But wait, there's a much deeper, scientific treatment of the notion of chaords. This is from Michael Schillo and Klaus Fischer's short article, "Holonc Multiagent Systems," "The term 'holon' was originally coined by Arthur Koestler, basing it on the Greek word 'holos' for 'whole' and the suffix '-on' that denotes 'part.' According to Koestler a holon is a self-similar or fractal structure that is stable, coherent and that consists of several holons as sub-structures and is itself a part of a greater whole. As biological examples he names e.g. a human being, which consists of organs which in turn consist of cells that can be further decomposed and so on. Furthermore, the human being is part of a family and a society. None of these components can be understood completely without their sub-components or without the supercomponent they are part of. The concepts of fractal and holonic system design in manufacturing were proposed to combine top-down hierarchical organizational structure with decentralized control, which takes the bottom-up perspective. While earlier approaches in this area restricted self-similarity and did not employ the recursive power." Hmm? Complex adaptive systems are indeed holonic and fractal and thus require multi-agent systems to power them.

The "C" in MoSAIC also relates to what's happening in real time in the Cloud: Complex Event Processing.

All modern information systems are event-driven, where an event can be as simple as clicking a mouse button. According to Gartner research, event-driven business applications can be sorted into four categories: 1. Simple event-driven (or message-driven) applications where application programs explicitly send and receive messages directly to and from each other. 2. Event-driven applications that are mediated by integration brokers, which transform and route simple event messages according to logical rules. 3. Event-driven applications that are directed by business process management (BPM) engines that manage the end-to-end flow of a multistep process using special, BPM-oriented types of events. 4. Complex event processing (CEP) applications,

where a sophisticated event manager logically evaluates multiple events to enable decoupled, parallel, asynchronous processing or business activity monitoring (BAM). Complex event processing is most effective when event messages carry information relating individual events with other events and causal information on how an event came about.

As described in the landmark book on complex event processing, *The Power of Events* (2002), by Stanford professor, David Luckham (David's 2nd book was written in 2011 for a business audience), some CEP messages may not even carry business data swapped between applications. Instead, they contain information about low-level events that, when aggregated into patterns, can reveal high-level business intelligence. As an everyday example (unfortunately), consider how the intelligence agencies filter low-level noise among terrorist groups to derive meaningful information used to set terrorist alert levels for law enforcement agencies.



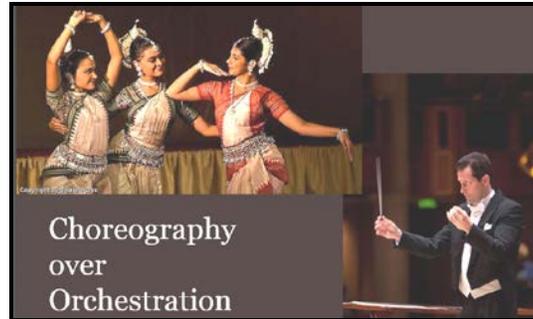
In a business context, Luckham asserts that *low-level events* that occur in “the Cloud” of network-based business interactions can yield valuable business intelligence. By using complex event processing for business activity monitoring, CEP can close the loop between BAM and the business process management system that, in turn, can act on the business intelligence.

As companies extend BPM outside their walls and on to the complex business ecosystem across the value chain, the value of CEP becomes an obvious lynchpin for business activity monitoring and real-time process analytics. Businesses must design their processes to make the fastest use of actionable knowledge when it arrives. Event processing is about taking immediate action right now -- Alan Treffer's “Next-Best-Action” in real time.

The New BPM Challenge: Choreography in the Large

The difference between active, central control and adaptive coordination can be compared to an Orchestra versus Ballet. In orchestration, the conductor tells everybody in the orchestra what to do in real time and makes sure they all play in synchronization. The conductor is an active leader, corrects for anomalies in real-time, and can introduce new information only he or she has. Orchestration in information systems also has an equivalent, the orchestration engine.

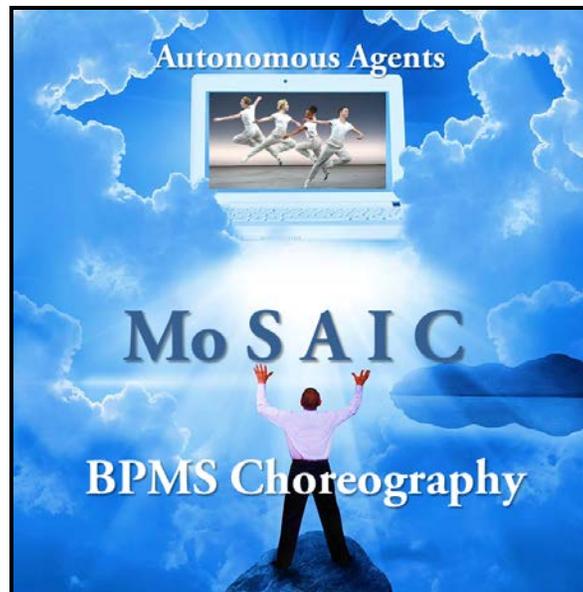
In choreography, the choreographer coordinates the *plan* but is not part of execution. Each participant is responsible for its own adaptive behavior. Orchestration defines a procedure and Choreography defines a protocol.



Military style “command and control” management is giving way to “connect and collaborate,” and the reason is clear. In today’s world of total global competition, no one company is in control of its end-to-end value ecosystem. Typically, over 20 companies are involved in a given value-chain instance. Thus orchestration of the entire business ecosystem by a single conductor is of days gone by. Orchestration still applies to *some internal* enterprise processes, but choreography rules when we reach across the enterprise or *outside* to the entire value-chain network where participants have their own dance moves -- and their own BPMs.

Choreography is the future via the foundation of peer-to-peer multi-agent systems, with autonomous mobile agents sharing common goals. Of course, no sane person would hand over control of enterprise transactions to an unsupervised network of software agents. To investigate, negotiate, design, implement, monitor and maintain complex, long-running enterprise partnerships you need a system that not only supports cross-boundary processes natively but has the right model. Such a model isn’t based on the flow of work through a diagram, but on a framework including object types and distributed policy management (Role, Person, Interaction, Entity, Activity, Rule, and so on).

Indeed, there’s something new going on in business, as BPM methodologist Martyn Ould elaborates in his book, *Business Process Management: A Rigorous Approach*, “Do your toes curl when someone uses the phrase ‘paradigm shift?’ Did they curl just then? Terms like that get debased so quickly, we just as quickly learn to treat them as noise. So, when a real paradigm shift comes along, it needs a lot of volume to say ‘This Really Is A Big Change, Guys.’” BPM, amplified by the new business MoSAIC, is one such paradigm shift.



Welcome to agent-oriented BPM as the great choreographer of business. Unleash the true power of the BPMS. Plug the new business MoSAIC amplifier into your BPMS and turn up the volume!
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