Why Agile Isn't Agile Enough for OpX in the New Economy

ARRAYWORKS℠

Executive Summary

Global organizations continue to digitally transform themselves and pursue innovative strategies that leverage digital business ecosystems — collections of strategically aligned, symbiotic relationships that transcend corporate borders for the purpose of uncovering new business models and untapped revenue streams. Fueled by the wave of global hyper-connectivity, corporate value chains are becoming leaner, faster, and more responsive than ever before, bringing much-needed business value to their prospects and customers.

While technology advances bring the possibility of exciting new revenue streams, it also comes with its own set of challenges. Intense interconnectivity breeds complexity — an added dimension of vulnerability to business change. For over a decade now, companies have responded to change with agile development methodologies. And while it is essential to leverage technology to meet the ongoing challenge of business resilience, the modern enterprise doesn't need another change-tolerant methodology to tweak an old architectural paradigm. What is needed is an entirely new paradigm in platform architecture. One that can respond to change at the very foundational level, yet still leaves room for software professionals to do what they do best: deliver features that offer true customer value rather than time-devouring technological plumbing.

This white paper will highlight the opportunity business leaders have to respond to external change and the new paradigm in platform architecture necessary to make that change a reality both for their organizations, and the ecosystems they participate in.

The Drivers Behind Digital Business Ecosystems

New Business Rules
Redefined processes, partnerships and business models

Real-time
Processes, information, action

Hyper-connectivity
Machines, people, projects, processes, smart devices

Cloud
Increased access, collaboration, connections

Computing horsepower
Moving and analyzing massive amounts of data

Mobile
Apps, data access, integrated platforms, remote management

Market Factors Driving Ecosystems

If you ask any corporate executive what his or her biggest challenge is, they will most likely say the inability to keep pace with the accelerating velocity of change - the breakneck pace of global business on Internet time.[1] Even market leaders who have dominated their spaces for years are finding that they must bring their new ideas to market ever faster if they intend to perpetuate hard-earned income streams.

As the pace of business accelerates, so does the level of complexity, and astute corporate leaders have come to realize that they can't deliver the required level of business value all by themselves anymore. They need the cooperation of the participants of an ecosystem: a supporting infrastructure of connected companies, vendors, and even public entities working together to deliver business value that their customers demand.

The proliferation of technology has become a major enabler of digital business ecosystems. As connectivity methods increase, so do avenues of cooperation as well as competition. A recent Forbes Tech article, "The Rise of Digital Ecosystems in the We Economy", describes how ecosystems create a new era of digital orchestration: "The new power brokers will be the master orchestrators that place themselves at the center of these digital ecosystems. These leaders will quickly master new digital relationships with their customers, end users, suppliers, alliance partners, developers, data sources, makers of smart devices, and sources of specialty talent. All will share the same goals: to grow new markets... and their individual businesses.[2] "

Thriving in an Environment of Ubiquitous Connectivity

Organizations have a great deal to gain by participating in digital business ecosystems. By collaborating to create business value, a group of like-minded companies can shape the future of business on a much grander scale than those acting alone. Home Depot, for example, runs a global network of more than 2200 stores worldwide. But the home improvement giant has recently launched Wink, a Home automation support network made up of companies that sell everything from door locks to thermostats, to HVAC systems, most of which support interconnected technology in some form or fashion. The entire system gives homeowners a single point of contact for home automation support through a single easy-to-use automation hub.[3]

[1] Andy Grove, CEO Intel, "Internet time is the concept that events occur at a faster rate on the Internet than elsewhere or that, everywhere, the Internet is affecting the pace of change."

[2] Daugherty, Paul, "The Rise of Digital Ecosystems in the 'We Economy', Forbes, Mar 2015, accessed Oct 2016. http://www.forbes.com/sites/ciocentral/2015/03/09/the-rise-of-digital-ecosystems-in-the-we-economy/#314daac55d94

[3] Jacobsen, Julie, "Wink, Home Depot Aim to 'Take Confusion Out' of Home Automation', CE Pro, Jul 2014, accessed Oct 2016

Another example is the Global Food Safety Initiative (GFSI). GFSI was established in 2000 as a private company in Belgium for the purpose of increasing income by maintaining food safety standards for manufacturers and farms. Today, CEOs of many consumer companies collaborate to bring much-needed trust to the global food supply chain. The net result has been fewer high-profile recalls and greater harmonization of safety standards throughout the entire ecosystem. With fewer negative public news stories, every member can operate more smoothly, and hence, more profitably.[4]

9.1 billion connected things today

28 billion projected by 2020

50 billion projected by 2025

Source: IDC

As the trend of business ecosystems gathers steam, some companies will find themselves in a position of power relative to the other players in the same value chain. But in an era of fast-paced business and technological change, only those that can recognize impending external changes and respond to them in time will survive and eventually thrive. Those are the companies that will rewrite the digital business playbook in a way that puts them at the front of the pay line.

As much as companies stand to gain from tech-enabled collaborative relationships, they also must be wary of an insidious downside. Change, that four-letter word known to cause massive disruption in corporate business models, can wreak far greater havoc on an ecosystem than it ever could on a single entity. The more connection points that exist between ecosystem players, the greater the chance that any single failure could cause ripple effects throughout the system, culminating in supply chain chaos and eventual customer dissatisfaction.

Each firm must take measures to protect its own income stream from the impact of a system-wide disruption. Both historically and currently, business leaders have turned to popular software development methods and philosophies designed to respond to external changes. However, each method du jour (agile being the latest) continues to prove itself to be too rigid. Agile is simply not sufficient to respond to dynamic, continuous change.

[4] "What is GFSI?", Global Food Safety Initiative, 2016, accessed Oct 2016, http://www.mygfsi.com/about-us/about-gfsi.html

Agile and the Tyranny of Change

In the new “economy,” agile is simply not sufficient to respond to large-scale business change in the era of the digital business ecosystem.

Agile has gained a tremendous amount of notoriety for over a decade. Born out of the lean thinking philosophy of the manufacturing sector, agile has become a popular way for companies to attempt to meet their software development goals, reduce waste, increase speed, and improve overall productivity of the effort. The movement has become so widespread that it has spawned a whole new industry of development tools, practitioner certifications, and highly paid consultants ready to help companies “do agile.”

While it’s true that agile techniques have their place in the enterprise, the most visible implementation of agile still lies in the IT department. The word, “agile,” is often followed by the words, “development” or “methodology.” As a result, the practice is dominated by programmers and engineers whose passion is creativity in a high-performance micro-universe where they can control all technical aspects of the project. Within the friendly confines of IT, software developers and agile practitioners have access to and control over every bit and byte their IDE allows them to change. So managing to their own level of granularity is very safe and predictable.

But a software engineer’s affinity for control is the very thing that makes them absolutely cringe at the notion of having to make decisions in an environment of uncertainty, conjecture, and so many unknown variables. Even seasoned team leaders don’t like to give time estimates for completing projects. They’ve seen how drastically business change can impact their timelines, so they naturally shy away from committing to manage a can of worms they haven’t even opened yet.

The modern digital business ecosystem doesn't need another change tolerant methodology to tweak an old paradigm. It needs an entirely new paradigm.

Make no mistake. The agile methodology is a worthwhile project management technique. But like all approaches, it must be used for the right job, and using agile to react to external business change in internet time is like using a screwdriver to wash windows. The task at hand is simply not a good fit for agile or any methodology, no matter how change-tolerant it may be. What the enterprise really needs is an entirely new technological architecture paradigm that can respond to fundamental change with far greater speed and agility than even the most agile methodology.

Ecosystems — Agile, But Fragile

Business ecosystems, done right, can be very powerful (as illustrated in our previous white paper, "Digital Business Ecosystems, An Evolutionary Leap in Value Creation"). When seemingly dissimilar organizations bring their respective strengths to the table in a collaborative effort, they can deliver tremendous business value — far more, in fact, than any single entity could deliver on their own. However, as ecosystem partners normalize operations, they naturally create more points of connection and inadvertently create more potential points of failure. They can become so interconnected that even a minor unexpected change in the digital relationship can cause major disruption throughout the network.

Some data flows between trading partners can become so complex that even simple runtime errors can be extremely difficult to track down. If a company doesn't have visibility into their partners' systems, root cause analysis becomes nearly impossible. Over time, what started out as a minor issue can become major strain on business functions. Pity the poor customer at the far end of the value chain, who pays the price in frustration and dissatisfaction.

The modern digital business ecosystem doesn't need another change tolerant methodology to tweak an old paradigm. It needs an entirely new paradigm. One that can respond to threats as quickly as they appear. The modern enterprise must recognize a fleeting market opportunity and quickly seize it before competitors do, and agile just isn't agile enough.

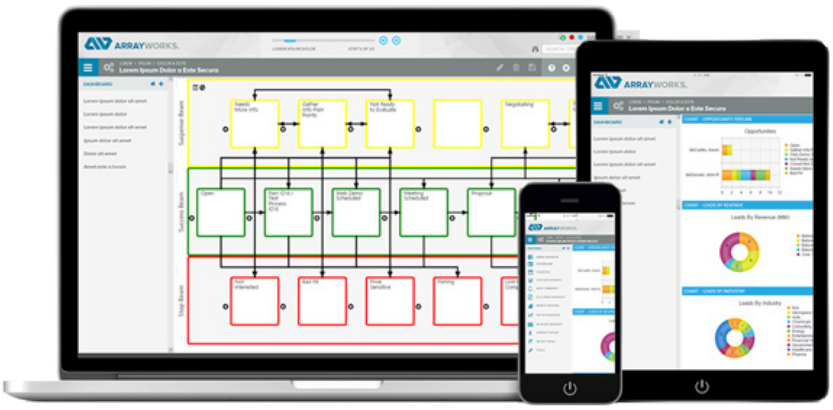
A New Generation of Business Process Engineering: The Low-code Platform

In a hyper-connected collaborative economy, dynamic business demands responsive enterprise capabilities. Yet agile, the fastest, most flexible software development methodology just isn't fast and flexible enough to meet the need.

These stark realities have given birth to a new generation of tools to automate constantly changing business processes. A new generation of low-code development platforms is capturing the attention of business leaders and application development and delivery (AD&D) professionals alike. These innovative BPM tools empower business users who possess the domain expertise to create or re-engineer their processes quickly and easily, allowing them to respond to change much faster than the traditional approach of gathering requirements and turning them over to IT to interpret and implement. This new paradigm allows business users and IT to effectively collaborate.

Providers in this new space offer a wide spectrum of features and functions. While some offer little more than simple diagramming tools, others go further by offering enhanced process modeling and collaboration features with standard BPMN or BPML language syntax checking. The more full-featured players allow business analysts the ability to model a business process, communicate with remote stakeholders, gain consensus and then swiftly deploy.

Keep in mind that the optimal solution doesn't shut out the IT department from the business process re-engineering effort. Quite the opposite. Even though these tools require no coding skills on the part of the business user, they deliver soundly coded application frameworks behind the scenes. This gives AD&D teams the opportunity to do what they do best: add advanced features that deliver true business value rather than spend time wiring up tedious, error-prone plumbing code that devours most of the development cycle.



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The Rise of the Business Process Modeler

Business process modeling, as a profession, has gained a great deal of mindshare in recent years. The demand for Operational Excellence (OpX) professionals has risen considerably in global enterprises of all sizes. Consequently, a large number of tools and methodologies have emerged to help these experts capture their organizations' current processes and modify them to react to impending change.

Some of the titles these professionals hold sound very similar to each other, but imply very distinct differences in responsibility and skill levels depending on the organization that hired them. Data analyst, winner of CNBC's "Sexiest Job of the 21st Century" award, is a position that can regulate, normalize, and calibrate data so that it can be taken out of context and paired with other data sources without losing integrity. Data scientists further this job description by bringing strong business acumen to the table along with communication skills suitable to influence senior executives.[5] BPM specialists are adept at fleshing out business processes within their organizations and modeling them using a purpose-built modeling tool using industry-wide process notation. With the accelerating interest in business process improvement, expect all of these professions to grow significantly in the coming years.

While recognizing the importance of the roles these professionals will play, arming them with the right technology platform will be just as important. Companies looking to acquire a low-code business process development platform face a dizzying array of options, features, functions, and modeling methodologies. And because the field is so new, many aren't sure what they truly need, or what tool capabilities might be available to them.

In order to maximize return on investment, process pros should keep the following platform features and functions in mind:

[5] Simpson, Jack, "Data analysts vs. data scientists: What's the difference?", Econsultancy, Nov 2015, accessed Oct 2016, https://econsultancy.com/blog/67203-data-analysts-vs-data-scientists-what-s-the-difference/

Essential Low-code Platform Features

Dynamic Digital Representability – *no compromise real world mirroring*

Consider your platform as a digital canvas upon which you will paint the big picture that is your digital business ecosystem. If your platform can't represent your ecosystem, you won't have the necessary context for automation or optimization. As the digital landscape continues to evolve and expand, platforms must allow for rapid creation of the appropriate containers (entities) to represent that which needs to be digitally represented and also allow for those entities to dynamically morph into something different on a continual basis. The only constant in this game is change.

Entities can be people, places, things, transactions, machines, sensors etc. – anything that exists in the real world is a candidate for digital representation. Entities have fields, attributes and relationships (to other entities) which collectively establish their individual characteristics. The basic building blocks of any ecosystem-enabled platform are the entities that mirror the entirety of all the elements upon which best practices, processes, business rules etc. can be built.

Being able to establish a foundational representation of YOUR entities, the way you want to see them is the first and most important step toward digital transformation. Be sure your platform can accommodate this critical need and is not merely providing an interface on the front end to connect obsolete legacy data models.

Equally important is the platform's ability to allow perpetual modifications and additions over time. As real world variables are augmented or changed, so must their digital equivalent.

Benefits:

- ✓ No compromise foundation for ecosystem variables
- ✓ Forms basis for meaningful metrics and high fidelity decision support
- ✓ Enables context for insights – a birthplace for discovery and innovation
- ✓ Never obsolete – model morphs and evolves with the business ecosystem

The common thread is PEOPLE. Platforms should provide a means for stakeholders to collaborate and communicate – before during and after a process is deployed.

Collaboration tools built in – *communication is critical to continuous improvement*

Let's assume you have established your digital world with all of its vast complexity and related entities. You have optimized processes which are monitoring events and proactively getting the right information to the right people at the right time on the right device.

The common thread is PEOPLE. Platforms should provide a means for stakeholders to collaborate and communicate – before during and after a process is deployed.

Look for communication tools where users can record observations, share insights about their system experience in real-time and in context to what aspect of the system they interact with. The digital picture that the platform allows you to paint is never static and making it easier for the users to provide feedback is invaluable.

Benefits

- ✓ Promotes enhanced consensus building
- ✓ Improves user participation and satisfaction
- ✓ Gleans more feedback from the user base
- ✓ Increases overall organization-wide awareness

Intuitive Array of Declarative Tools – *enable new roles and liberate old ones*

Business analysts need the ability to digitally represent and model all aspects of the ecosystem. Every stakeholder, place or thing and how they are related should be declarable by the analyst. The interface should be simple and straightforward, allowing the user to create or change the necessary elements, attributes, relationships, business rules and process points.

There should be a minimum of technical jargon in the user interface; business users aren't programmers, so they shouldn't be required to deal with technological terminology only a trained developer would understand. By keeping the user interface free of complicated coding notation, any business user, regardless of technical background, should be able use the tool effectively and configure the desired solution.

Benefits:

- ✓ Because of the ease in which elements can be digitally represented, more robust representations and containers for ecosystem variables are made possible.
- ✓ Sets the stage for a better, metric-rich CONTEXT for optimization as business objects are correlated and their movement through various process states are defined
- ✓ Empowers business experts and Citizen Developers to more directly affect change
- ✓ Liberates and leverages IT by removing the burden of mundane engineering efforts, freeing them to focus on truly custom requirements
- ✓ Enables rapid design and deployment by distributing the solution development load

State-Based Modeling – *better process for process betterment*

In contrast to sequential workflow modeling, State Engines are more suited to the nature of the ecosystem - where collaboration between companies take on the form of events or choices which typically occur outside of the workflow and do not necessarily follow a particular set course.

UML, the Unified Modeling Language, has been around for decades, and has become the standard lexicon for programmers and administrators alike. But UML can be difficult to understand, particularly for business analysts who aren't accustomed to interfacing directly with software developers. State-based modeling offers business professionals a more straightforward alternative to communicate business processes with other business leaders quickly and without the need for remedial ramp up on official business process notation.

In state-based modeling, any entity can assume one and only one state or condition at a time. It also offers a forthright way to model difficult time-based topics like loops, waiting times, and algorithms that listen for specific user inputs before continuing. State-based conventions empower business analysts to communicate concepts that would be very difficult to grasp using standard UML diagrams. And simpler, more effective communication brings analysts closer to that all-important stakeholder approval and buy-in.

Benefits:

- ✓ Event driven objects more suited to ecosystem variables
- ✓ Easier to read and better conduit for dialog and exchanging ideas
- ✓ Promotes greater stakeholder understanding, collaboration and basis for consensus, promoting greater employee buy-in
- ✓ Adding more features will not complicate the structure – it will simply mean adding more states and actions
- ✓ As intelligent or smart objects, States can monitor or drive any number of events

Built-in Feedback Mechanisms – *auto-generation of meaningful metrics built into architecture*

Processes will perpetually morph and evolve in response to new business requirements. As such, meaningful process performance metrics are a crucial component of successful continual process improvement. Analysts should be able to trace an instance of a process from its current state all the way back to inception. If every process is capable of generating these types of metrics, it can reveal where the bottlenecks are and how to resolve them in the next iteration.

Rich meta data about a process' performance can help the analyst assess whether the process is working as expected, or needs to be tweaked even further. Having effective self-documenting meta data also allows an analyst to make a change, measure its effect, and revert back to the previous version if the change doesn't produce the hoped-for result. Tools that offer this capability put the power into the hands of those closest to and best able to solve the problem.

Benefits:

- ✓ Drives strategy and direction of the organization
- ✓ Provides focus for an organization, department or employee
- ✓ Supports informed decisions
- ✓ Improves performance

Integrated "At Time" Knowledge - *information where and when it's needed*

Platforms that provide the proper digital containers and contexts for ecosystem variables also provide an ideal conduit for integrating knowledge into every aspect of the user experience. The availability of context-specific knowledge assets attached to various steps in any process is now possible with the right platform architecture and declarative tools.

Learning, sharing, innovating, and collaborating are all activities related to people and the sharing of domain knowledge, referred to as Knowledge Management. Examine how the platform provides users with information that is targeted, relevant and timely without forcing them to be inundated with information, forced to visit innumerable websites in search of data, or read through reams of printed material to guide their actions.

Benefits:

- ✓ Focused, targeted, relevant and at-time knowledge
- ✓ Enhances internal collaboration
- ✓ Captures and shares best practices
- ✓ Provides Just-in-Time learning, reduces training, and speeds productivity

Self-Documenting – *eliminating a time-consuming burden*

From a compliance perspective, a process often must be documented and communicated in written form to confirm required practices have been communicated and are being followed. This represents a logistical challenge as processes and best practices constantly change. According to a poll by ITWorld, writing documentation that explains what a section of code does or how a process works is a time consuming task and one of the top 9 things programmers hate most.[6] Another one of the top 9 is writing validation tests.

A platform's ability to generate these documents automatically will spare IT from this frustration and save significant time, effort and cost.

Benefits:

- ✓ Reduced time to usability
- ✓ Shifts time-burn burden away from IT through the platform architecture
- ✓ Streamlines creation of mandated compliance documentation

[6] Arg! The Top 9 hardest things programmers have to do. ITWorld, http://www.itworld.com/article/2823759/enterprise-software/124383-Arg-The-9-hardest-things-programmers-have-to-do.html

Visually Compelling – *the power of perspective*

A picture is worth a thousand words. A compelling interface evokes interest, attention or admiration in a powerfully irresistible way. It puts company processes on display with an emphasis on readability, speed, and ease of use. Look for an interface that features an intuitive look and feel coupled with superior visually capability, allowing users to find what they need and easily navigate the entire ecosystem.

You want powerful visualization of what's important to each user, within the context of your ecosystem, even in a climate of constant change.

Benefits:

- ✓ Visual content can be processed faster by the human brain
- ✓ Enables clarity and understanding across business units and teams
- ✓ Provides configurable dashboards, metrics and knowledge tailored to each specific user
- ✓ Exposes previously unrecognized opportunities with data mining tools

Conclusion

The fourth industrial revolution demands enterprises respond in internet time. Agile methodologies just aren't quite agile enough to react to the tsunami of sweeping business changes that the enterprise must account for. Organizations will need to select platforms capable of representing the people, places, things and data that exist within their ecosystems, and enable fluid processes that match the velocity of change in today's connected world. By taking advantage of new low-code development platforms, companies can react to business change without disrupting the fragile web of interconnected touch points between customers, vendors, and other ecosystem partners.

Arrayworks' unique approach to modeling entities, data, and process enables business users to collaborate with IT using a broad set of declarative tools to speed the deployment of enterprise innovation, realizing measurable business value. Your business gets faster, better results, better customer experiences, increased ROI, higher employee buy-in and ownership, better visibility into sales, service, and operations, both within their own company and the digital business ecosystem.

An efficient and intuitive low-code development platform is the key to welcoming business change and capitalizing on it for maximum flexibility and competitive advantage.

About Arrayworks

Arrayworks was founded in 2000 to fulfill a simple yet breakthrough promise: technology should empower enterprises to achieve their most audacious goals.

Our platform's unique data-driven model lets you bring your business processes to life, adapt them on the fly, and tie everything together on a single platform. Built from the ground up to manage today's velocity, veracity and variety of data, you'll be creating flexible apps tailored to the exact needs of your business. By uniting knowledge, resources and existing systems, you can guide every employee to greater achievements, deliver superior customer experiences, and lead your business to extraordinary outcomes.

Contact us to learn more about working together.

Toll free: 844-692-7729

info@arrayworks.com

www.arrayworks.com