

Technologyforecast

Managing the end-to-end process

In this excerpt:

An interview with Stephen Kaufman, Chief Technology Officer, Schawk

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Using metadata of smart digital assets for end-to-end process management

Stephen Kaufman of Schawk discusses how the confluence of process and asset management enables the company to manage its end-to-end process while facilitating the versatility of staff contributions to customer value.



Interview conducted by Vinod Baya, Steven Kahn, and Bo Parker

Stephen Kaufman is CTO of Schawk, a worldwide brand services consultancy headquartered in Des Plaines, Illinois. Schawk's clients include many well-known consumer product companies, pharmaceutical firms, and global retailers. Kaufman provides Schawk with strategic technology visioning and currently serves on Schawk's Strategic Advisory Board. He is chairman of Schawk's Technology Leadership Council and, specific to the packaging industry, is also chairman of the Intelligent Packaging Consortium (IPC), which creates Extensible Markup Language (XML) standards for the packaging supply chain.

Kaufman came to Schawk in 1993, where he became the founder and first CEO of Schawk Digital Solutions. Schawk Digital Solutions created BLUE, the packaging industry's leading digital asset management and graphic arts workflow suite. In previous roles, Kaufman has served as Schawk's technology director and vice president of client strategy.

In this interview, Kaufman shares how Schawk manages changes at all stages of its end-to-end process by combining metadata from smart digital assets with a business process management and digital asset management system.

PwC: Would you please tell us about Schawk and its business?

SK: Certainly. Schawk has been around for more than 50 years. The company started in Chicago as a printing plate manufacturer, reinvented itself through the years, and has expanded the scope of its offering to include integrated strategic, creative, and executional services. Our focus today is on helping companies create compelling and consistent brand experiences at home, on the go, in the store, and on the shelf, starting with

brand strategy and design, through production and print management. We currently operate in 17 countries out of 48 offices worldwide, mostly in North America, with some significant presence in western Europe, Asia, and Australia. We refer to our offering as brand point management and while our sweet spot is packaging, our services include specialized pockets of expertise that include retail marketing. Our client base includes 64 Fortune 500 companies, across different industries, but concentrated in the CPG [consumer packaged goods], retail, and life sciences categories.

When our work relates to packaging services specifically, one of the values that Schawk might bring to a brand client would be a “fit for use” analysis. This analysis allows us to apply our deep knowledge of the printing and publishing process, and help the brand client understand up front if their design intent can be accomplished with a given process.

Capturing intent early on and helping the brand client steward that intent through a complex production process brings high value to the brand and often significant cost avoidance. Said another way, we are simply determining the feasibility of a potential plan. We translate what the brand wants to execute from a creative notion into an engineering action. We want to stand at that nexus between creativity and execution.

PwC: What is the key business process that is the core competency and a differentiator for your company?

SK: I should point to this graphic that shows our key end-to-end process. [See Figure 1.] As you move to the right in the graphic, the processes become more transactional. All the way to the right is delivery, which is almost completely transactional. However, on the left, the activities are human driven. They are creative- or decision-based activities, completely non-transactional. So our end-to-end process has strong elements of both kinds of activities.

The overall process starts with a client trying to understand and identify a market opportunity [not shown in the figure]. That activity eventually results in a revenue forecast against the opportunity and usually a VP-level decision to move forward to market test the production of the product or the product design.

From that point, the process moves to a creative phase. The client might hire three or four competing design firms for ideas about how this new product can best be launched. This is where creative agencies, including Schawk’s strategic design company, Anthem Worldwide, may be involved. You might start with fifteen ideas and narrow it to four. Then you narrow it down to two, and finally the client will pick one idea. At this stage, the client’s brand marketing or marketing services people are still in control and these activities are largely being orchestrated from within their walls.

The next stage is often referred to as production artwork. This stage occurs as the client moves that one idea—we sometimes call it the “big idea”—into the supply chain for packaging and brand point management. In other words, while the package design file is moving physically into the supply chain, the “big idea” is moving quickly toward the consumer. Our role as stewards of that idea is to facilitate that movement through the process such that the original intent is not distorted or diminished along the way. This activity is executed in our “virtual” office if we are on-site at the customer’s location, or it might quite literally move into our brick-and-mortar operations and into our systems.

During this all-critical phase, the client routes that design through its legal department, regulatory department, trademark group, and so on. Everyone is vetting the content in their area of expertise. As the process progresses, more investment is involved and the stakes get progressively higher. A mistake anywhere past this phase is going to be very costly to the client, because they’ve now ignited a lot of supply chain activity. Also, the liability for consumer-readable text is always exceptionally high.

Brand point management process

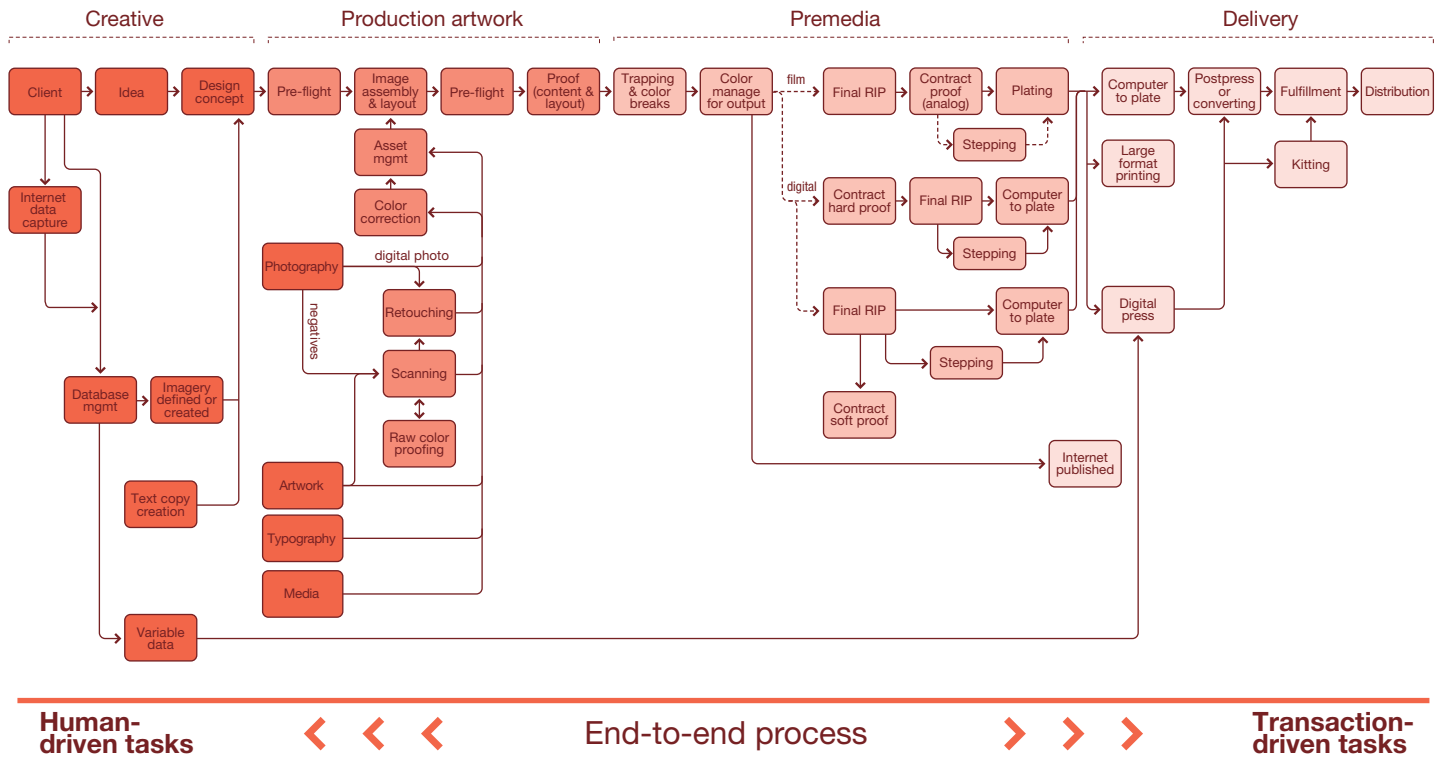


Figure 1: The key end-to-end business process for Schawk, the brand point management process, starts with strategy and creative and continues to delivery

Source: Schawk

Once we get all these designs finished and approved by the client, we then move to premedia. Premedia is an industry term that signifies an engineering phase that involves looking at that digital file representing the packaging and asking, “How is this actually going to work on a high-speed printing press with, let’s say, a polymer substrate, soy-based inks, and a metallic emboss?” This is a highly technical phase, and in a sense we are applying a technical process to a creative endeavor. We might also ask postproduction questions like: “What if this product sold in a high-humidity market, where the temperatures are such and such?” There are a lot of engineering aspects at this point in the flow.

During this journey, small changes are taking place in the artwork. To the untrained eye, the design might stay the same, but in premedia terms, they actually might change things by as little as a thousandth of an inch to get them to work on these high-speed presses.

At the back end of premedia we have a digital file that we send to the printer. The printer might test that digital file on its printing presses, running 500 or 1,000 samples. The printer might check the sealing machines and how the product works with that design. Then the printer will move into mass production and pilot the materials, and then the printed product will be picked up and moved into a further production step, or possibly directly to retail distribution.

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PwC: What are some of the challenges that you must contend with in this process?

SK: A key challenge is dealing with changes at all stages of the process, while ensuring that we have a good view of the state the process is in and ensuring that costly missteps will be avoided. For example, in production artwork, many files need to be routed to many internal and external supply chain stakeholders. A lot of quality assurance is going on, but the content is still somewhat in flux, which adds complexity. Let’s say the food product originally was designed to contain coconut oil, but now palm oil is a much less expensive commodity, and procurement has decided to substitute an ingredient. That new information has to make its way through nutritional analysis again, because there might be an impact on taste or quality, and so on. The important thing to note is the deep interconnection of the entire flow. The artwork for the product must be revised to reflect the ingredients, and if we have 32 different sizes or variations for the various markets (convenience, grocery, club retailer, etc.), then we need to make that change from coconut oil to palm oil in all 32 instances. We have to be diligent about this. If it was an allergen ingredient such as peanuts, it could be a matter of life or death.

Also, ongoing business dynamics have led to an explosion of customizations for our clients. For example, in the late ’90s, you might have found one or two basic variations on a candy wrapper. Then, maybe the brand owner would change it once at Halloween and put a pumpkin on it, and at Christmas it might have a holly leaf on it, and that would be about it.

In today’s market, the same company might have a size and a package for Wal-Mart and a different one for Target and a different one for Sam’s Club or Costco. They might change that package four or five times in a year for seasonal promotions, and they might also do

a cross-brand promotion for a not-for-profit organization and have a temporary color variation on the package, and so on. Today, there are many more iterations of individual packages than we saw 10 years ago. On top of that, different geographic and regulatory requirements create additional customization requirements for the package design.

Being able to deal with these challenges is how we create value for our clients.

PwC: How are your clients trying to drive more value into the end-to-end process?

SK: At some of our more advanced clients, they talk about their involvement as “touches.” A large consumer product company might have five or six million touches a year if you consider all of the company’s products globally and the number of times people at the company made some decision, large or small, relative to some product, large or small. They know each of those touches costs money, and so they’re looking to their supply chain to provide automation and expertise so that they can reduce that number of touches. And when there are touches, the client wants to be sure that they are “high value.” This is the business issue where business process management [BPM] and automation are coming into play for us.

PwC: As you just mentioned, you have adopted business process management [BPM] technology to manage your end-to-end process. Was there a moment that caused you to pause and realize you couldn’t stay with what you had and you needed to look at BPM?

SK: Yes. There was a watershed moment. I think it was a collision of two factors. One factor was that our

“The process model represents the single place we can go to understand and visualize the process and analyze any potential changes.”

understanding of the process itself became richer and deeper. Initially, we saw it as a relatively straightforward, linear process. But the more we peeled that onion, the more dependencies we discovered. These dependencies included critical path gateways and events that had triggers that we might not have understood when we started studying the problem.

This nonlinearity of the process is a result of how both our business and our clients' businesses have evolved. Formerly, we worked in a very narrow slice of the workflow, maybe from very, very late creative to very early execution, just to get through a little bit of content approval. Gradually, however, the supply chain has become more complex as Schawk itself has begun to work on multiple aspects of the brand point management process as well as working across multiple regulatory environments and multiple demographic and geographic markets.

The second factor was the matter of “framework” selection. We had the problem defined, but faced the question of what toolkits addressed the problem, had reasonable TCO [total cost of ownership] metrics, and were sustainable from a technology perspective. Once we started looking at jBPM and other BPM frameworks, we started to believe they could indeed interoperate with our workflow software. We then found a specific BPM framework that had enough computational capability and enough backbone to be worth the integration effort.

PwC: When you had a deeper understanding of the process, what were you looking for from your process management system?

SK: As I said, the workflow itself has become much more complex. We could no longer look at the workflow as linear. And the business rules, which were essentially hard-coded in our legacy system, needed to be much more dynamic and intelligent. We needed the notion of

triggers and metadata associated with the triggers. The systems that sit beneath these supply-chain-oriented workflows needed to be more robust and smarter than they were formerly. We basically came to understand that the tools that we had in place simply weren't capable of being the foundation for this cross-supply-chain workflow. I think the word “nimble” properly describes what we were looking for.

PwC: A good portion of your process is human driven and results in digital assets, such as files, documents, graphics, and so on. Have these assets become smarter over time and do they bring benefits from a process management perspective?

SK: Yes, I would strongly agree. As I look at asset management and workflow, there are systems where the most important thing in the database is a digital file, and the metadata attached to the digital file actually drives the entire process. This is flawed in a number of ways. In our tool and in our core philosophy, the most important “thing” is the process itself, and the digital file is nothing more and nothing less than metadata dangling off the process. In other words, the process is the king of the hill, and the assets are well-dressed subjects in the palace. We believe that the process-driven tool is stronger than the file-driven tool, because we don't believe the file is an overarching notion. This distinction is critical and fundamental.

We ran into this dichotomy early on, because we were too heavily focused on asset management. So we flipped that paradigm and began putting much more of our thought in the process piece, like the BPM piece. Assets enter and exit, and they have intelligence and metadata. The more metadata they have, the more intelligent the digital assets can be, but typically they're still players on the stage of process. You don't want process to be a player on the stage of assets.

PwC: So, for you, the drive toward a process-driven tool was actually the confluence of these smart digital assets with a process orientation driven by a BPM system?

SK: That is indeed what we have done and it works for us. Many workflows today are embedding the metadata (process details) inside of the file, and that creates a number of limitations during the workflow. If you want to read or write metadata, you have to have access to the asset and the security to write to that file. What if there are multiple copies or versions of the file? Which one holds the “truth”? How can this be arbitrated in a structured way?

Additionally, these assets are large and cumbersome to move around. You wouldn’t want to have to move it from point A to point B just to get the metadata. We believe the trend is that an asset will simply have a serial number as metadata, and its serial number will refer to a database in the “cloud,” so to speak, and the data in the cloud will be the definitive record for that asset.

PwC: Most process improvement approaches aim to standardize tasks to eliminate variability. Was preserving the context that leverages the versatility of staff in the human-driven processes essential while you extended process management to the end-to-end process?

SK: That was a very strong consideration for us, since human tasks on the creative end of our processes need considerable freedom. In general, when you get into the creative process, if you use words like workflow, KPI [key performance indicator], and process, I think the typical knowledge worker in that field sees those terms as potential restrictions to creative freedom.

There’s a cultural limitation of putting a highly auditable and visible process in a creative space. So you need to figure out ways to introduce process management without interfering with the versatility of human processes, which create immense value in the creative and execution phases of our processes.

PwC: Enterprises are continually transforming as they deal with changes in their processes. What is the role of BPM in handling and managing these changes?

SK: Over the years, we have learned that enabling the agility of our client to make changes during the process is impeded if we work in extremely linear workflows. These are workflows where a design is approved and then “locked” from a graphics perspective, and then nobody gets to touch it until it gets to production.

But the reality is that during that process, somebody might want to change the graphics. More often, they want to change some copy or content or tag or ID. If we don’t have tools like BPM, the management of change during the work in progress is particularly difficult and costly to the client. These files are managed by different systems, so they might be in a desktop graphics application like Adobe Illustrator early on, and then they can get transitioned into Acrobat files or fully proprietary file formats. If the client wants to make even a simple typographical change, the process to support that kind of change, the sign-offs, the execution, and the communication of that change to the rest of the supply chain can be extremely manual.

Changes of this type cost time and money and in some cases preclude a client from making them at all in the linear workflow. If they were pursuing an optional change, the price point or the time required for that optional change might simply cause them to say, “We can’t make that change, because either we can’t move the date or we don’t have the budget.” With BPM, we can lessen the cost of this change and manage it more efficiently. Now, rather than having to make their final change 30 days before their in-market date, we can perhaps provide them a window so they can make a change 15 days before their in-market date. The actual metrics for this vary from client to client and have as much to do with production and distribution logistics as anything, but the basic trend is the same—BPM facilitates a more flexible change environment deeper into the process.

That’s very, very valuable to brand customers from an ROI [return on investment] perspective. Imagine a

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market where only two key brands compete for valuable space on the shelf of a global retailer. If one brand makes a change shortly before the holiday season, the other thinks, “That’s going to give them a competitive edge this Christmas season. We need to get something to market to match that.” You can only imagine the amount of money at stake in the retail environment when they can execute that responding change before the holiday season as opposed to after.

There’s an industry standard that estimates that for a given product, roughly 70 percent of the buying decision is made in the store. For the end customer, the process of looking at the package, analyzing the buy decision, and deciding whether to put the product in the shopping cart is often based around the look and feel of the product, and the graphic presentation of the product or branding concept. To be sure, it’s all a very mercurial process, but changes and counter-changes, executed in a timely fashion, can have a high-volume impact on market share and the success of our clients’ products overall.

PwC: What is the role of modeling in business process management? What value does it create for you?

SK: Modeling is very important and is the foundation for our system. The process model represents the single place we can go to understand and visualize the process and analyze any potential changes. As I learn more about a process for one of my clients, I find it interesting how assumptions they had in the beginning can change as the clients learn more about their own process. Modeling helps with that. It shows the parts of an existing process that are causing the most problems, and what parts aren’t as much of a problem. Bottlenecks, critical paths, what-if scenario building—all of these help the brand control its process flow and decision-making algorithm.

PwC: How does the BPM system help you with planning for and visibility into the end-to-end process?

SK: The client might have greater agility now, but the interdependence in the process is much more complex and needs to be presented visually and explicitly. BPM helps with that. For example, five years ago, if we had 32 salad dressing flavors to do, we’d probably do the execution in one location with one team of people. They’re all sitting 15 feet from each other, and they’re sharing any nuances that need to occur with production. Well, we don’t have that much time anymore. Sometimes, Schawk’s tactical production artists need to turn around those 32 design mechanicals in 72 hours. That faster turnaround means we need visibility into a load-leveling production plan. I might do 15 of them here in Des Plaines, just outside of Chicago, and I might want to send 5 to Chennai, India, and the balance to Penang, Malaysia, tonight to get worked on.

So now I’m actually pushing out beyond the traditional brick-and-mortar of a single Schawk location and leveraging a global production capability that works around the clock. We need to find the lowest price point where we have the production lift tonight or tomorrow night to do that work. That can be down the street or across the ocean. We don’t have the luxury to have people sitting together sharing best practice. The best practice has to be embedded in the workflow as metadata, and we have to be able to shuttle that work around even though our client may not know or care about the physical location of the production work. They just want us to do each SKU [stock-keeping unit] at an agreed-to price, and in an agreed-to time frame. On our end, we intend to use BPM to orchestrate work to and through our highest-value production locations.

Another example is using the process-supported knowledge in BPM to predict a finish date given a process and a known start date. This is called

“Date-Rippling” scheduling. You can ripple forward from a start date, or you might ripple back from an end date, answering the question, “If I need it in store by dd/mm/yyyy, what date do I have to start?” Prior to using BPM, we didn’t really handle that well, particularly when clients wanted completion time estimates that were accurate within a few hours of asking the question.

PwC: We discussed how the digital assets are getting smarter because of the metadata associated with them. What role does this metadata play in managing the process?

SK: What’s unique about BPM, or at least the way we’ve begun to think about applying it, is that the metadata needs to be much more dynamic. BPM can actually orchestrate the change to the metadata during the process. Rather than thinking, “I have 10 data fields in this file. Let’s push it through the process and hope nothing changes with that data while this file is in the pipe,” we need something more dynamic.

As we move through each decision point, we want to move the process information, reroute data and replicate data, update data, act on data. With BPM, we can create triggers that can actually manipulate and modify the metadata itself, so that the next step is more informed about what it should be doing and where it should be going than the preceding step. In a sense, we’re adding some intelligence to the workflow that it just didn’t have with the older toolkit.

PwC: Does this metadata allow you to introduce a level of standardization into these highly variable human-driven processes?

SK: Yes. In many cases, the process is not completely standard because the way individuals do work is subject to change and personal interpretation. So, what becomes standard is a higher-level abstraction of what the process represents, and for us the metadata is a key component in that abstraction. Abstraction is a technical term, but what it really means is creating repeatable patterns that operate above the level of work instructions, and more at the level of activity, or direction, or process step.

I need to get that “abstracted” data out of the file asset and into a database, because it defines the intelligence that I need to manage that asset or project. This data in turn informs the process, together with other factors, like a rejection, revision, status change, or altered deadline.

With BPM, we can make these little bits of data into decision gates in the process itself. So if somebody rejected a proof, the workflow moves this way instead of that way. If we pick up a file asset that’s a newer version than we had in the first instance, then we might want to know who worked on the asset and in what location it was worked on. This way we can determine whether we have the right version. I think the key here would be a very interconnected process managed by a flexible system that supports intelligent decision making. That’s the core goal: informed, effective, and process-relevant control. ■

Subtext

Smart digital asset

Digital assets resulting from versatile and creative human processes, such as documents, media files, contracts, presentations, and several other work products. They have become smart as they now include rich metadata that can be used in process management.

Process modeling

The activity of describing how work gets done in an enterprise at the appropriate level necessary for a desired objective. The resulting process models have the potential to be strategic enterprise assets.

Collaboration and content management systems

Systems and technologies used to collaborate on and manage digital assets resulting from versatile and creative human activity.

Business process management systems

Systems and technologies used to model, analyze, execute, and orchestrate business processes across standardized transactional activities and variable human activities.

Meta-process management

An approach to managing and changing the end-to-end process, spanning standardized and variable activities, to achieve continuous improvement.

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