



## A PDC WHITE PAPER

# Informatics-Enabled Projects

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## Project management for the next step in the information age

*Optimizing the way you discover, generate, share, and store information can streamline project management and make your entire organization more competitive.*

### Introduction

Since Peter Drucker popularized the concept of the knowledge economy in his 1967 book *The Age of Discontinuity*, we have been moving away from *things* and toward *information* or *ideas* as the basis of economic value. It seems obvious, in 2017, that you must be a part of the information economy. You use a computer, a smart phone, and a tablet. You store information in the cloud. You likely employ an IT department whose job is to manage, distribute, contain, and secure information. It feels like you've got this information thing down.

But maybe you're not doing as well as you think.

On your latest project, did you waste time searching for exactly the piece of information you need? Have you sat through a meeting you thought was a waste of time? Have you partially completed a project task only to realize you took a wrong turn you might have avoided if you'd had better information about a previous project?

In the last decade, Internet tools (such as Box, Dropbox, Evernote, and Google G Suite) and enterprise tools (such as Salsify, Oracle, Informatica, and Cloudera) have aimed to help tame the wild tides of both personal and corporate information. The problem with focusing on tools, however, is that while they may help with the mechanics of finding or sharing a piece of information, they often don't tell you *what* information to share, or when, or with whom. They don't focus on the *value* of the information.

“We’re entering an era where a company’s competitiveness is determined by its return on information – how democratized its access is, how fast it moves, and how quickly it can be updated and leveraged to generate value.”

— From Box’s [2014 “Information Economy Report”](#)

**INFORMATICS:** *The collection, classification, storage, retrieval, and dissemination of recorded knowledge.* — Merriam-Webster definition

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Organizations with projects that traffic in information—like media, finance, and even software development—are quite obviously in the information business. We argue that *all* businesses should consider themselves to be in the information business. We'll show you why the value of a project—even for a hardcore manufacturing company, or perhaps *especially* for such a company—lies not in finished materials but rather in the often intangible ideas that arise, flow, and pool within and outside of the company. We'll show why, if you aren't paying attention to the information part of your business, you're not only putting yourself at a competitive disadvantage but leaving opportunities untapped. And we'll show you a new (some would say old) way to think about project information that will get the information working for you instead of the other way around.

## Where value lies: the know-how versus the product

Once upon a time, companies primarily purchased raw materials and combined them to make goods. Now many companies focus on combining information into systems that generate value. This is true even for more traditional industries built on commodity products. Take, for example, a company that makes asphalt. It's got factories around the country that [mix aggregate and bitumen](#). It ships millions of tons of asphalt concrete to buyers who pay as much as \$85 a ton for its products. Multiply production by the wholesale cost and you'll get a number in the billions that makes the asphalt seem like the company's most valuable output. But it's not.

What can set the asphalt company apart from the competition is the *information it generates and what it knows* about the asphalt. Value resides not—or not exclusively—in the product itself, but in knowing how to make and use it and extracting and monetizing that knowledge to yield a competitive advantage.

## Project management at the nexus

The function of project management sits at the nexus of what we refer to as the *make* and the *know-how*. As a project manager, you don't actually construct the product (the *make*). But you play an essential role in managing the *information* that allows others to make the product (the *know-how*). At the hypothetical asphalt company, you'd work with

- the R&D department to study technical requirements,
- the marketing department to research what asphalt buyers need,
- the product development department to design a type of asphalt that satisfies those needs, and
- the manufacturing department to create the physical product that customers use.

While the company is known for making asphalt, at every phase, in every interaction, it's also generating, capturing, accessing, and applying knowledge. Often, the knowledge is complex: ethnographic data from market research, customer or supplier data, regulatory requirements, and even information about world economic conditions that might affect the market.

As a project manager, you grapple every day with transferring and transmitting such information securely, effectively, and efficiently both within the project team and among

external stakeholders, including suppliers, customers, and regulators. If you struggle with this, then drawing a distinction between the *make* and the *know-how* can help.

But where does a project manager begin? First is a mindset change. Since information is the project's most important and valuable result, planning around information is the very first job of the project manager.

Separating the *make* from the *know-how* breaks down into the following areas based on how projects and organizations typically use and transfer information: identify, capture, use/share, measure, and connect.

Your first step will be to **identify** all the places where pertinent knowledge resides: in documents, specifications, blueprints, and the minds of experts. The most efficient way to do this is using some kind of assessment process. Recognize that the information may not reside exclusively within the company. It may be part of a past project, but it also could be from another organization that is doing a superior job. This step also requires that you

### **A NOTE TO THE CFO ON SHAREHOLDER VALUE**

Separating the information enables you to communicate your company's value more convincingly, both to potential customers and to Wall Street. It's a method of getting more from what you already have and unlocking unmonetized value. Because you've separated the knowledge and have begun thinking of it in terms of information turns, you can measure and improve its value. Investors will be very interested in this.

first define your project mission so you can target your identification activities. It may seem obvious, but an asphalt company wouldn't generally gather information about the toy industry.

Next comes **capturing** the knowledge, which involves categorizing and organizing it through the lens of its intended audience and use. You may supplement codified or written information with interviews of experts within and

outside the company and develop categories and keywords to organize the information. Store it in a place that's accessible to those who need it (here's where the tools and the IT department come in).

**Using and sharing** the information lies at the heart of making project management more efficient. You've captured and categorized the information. Now, how do you move information around the project so you're sharing it intelligently among team members?

Good communication plans are the key. While all project management teams communicate, that communication is typically ad hoc. Teams often don't create a plan that explicitly defines what information must be exchanged in a meeting versus what can be shared on an intranet or through an email. Two concepts from other areas of business

can be helpful here: the critical notion of *push* versus *pull* and the idea of *lean project management*.

### **Pushing and pulling information**

Maybe you've heard of push vs. pull marketing. *Push* marketing relies on telling an audience about a new product or offering. *Pull* marketing involves potential customers seeking out a product because they already have an interest in it. There's an important role for both.

You can apply the same idea to information. Many people involved in managing a project make decisions. Too often, the knowledge they rely on to make those decisions is pushed to them. Those who generate information export it at regular intervals whether recipients need it at that moment or not. Think of supplier status reports, work change orders, or patent filings.

### **MORE EFFICIENT EDUCATION**

Extracted knowledge can be a boon for educating and assimilating new employees. Once you have codified the knowledge it takes to make and use asphalt, you can easily communicate it to someone just joining the company.

Making information explicit, codified, and searchable allows decision makers to find it when they need it. The information is always there and ready. This *pull* method of information dissemination streamlines projects because people don't have to sort through information coming at them when they don't need it. There will always be information that must be pushed—safety data from a test failure that affects the whole project's mission, the regulatory

change that stops progress in its tracks. But to prevent information overload, push information must clear a high bar in terms of focus and necessity: originating from those whose focus is on a particular issue and flowing to those who must do something about that issue immediately.

### **Applying lean ideas to information**

Remember those interminable meetings that fail to offer anything useful? They're a sign that your information profile may need to go on a diet.

If you're familiar with the concept of lean project management, you may already have a framework to think about this. Even if you're not a fan of the lean approach, understand that we're using it here simply to help you think about how you might improve the management of information around projects.

You want your information to be lean—not anorexic or obese. You want to be able to answer questions like: How long does the information sit before it gets used? How long do information consumers (other project managers, R&D staff, quality control, etc.) wait

to get the information they need? You want the right amount of information, not too much or too little. And you want it to be in the right place at the right time.

Another consideration is the fact that information can take many forms—print, visual, video. Choosing the appropriate vehicle for disseminating information is an important part of making knowledge explicit. For example, if you're doing a field service repair for a customer in the middle of a snow storm on the side of the road, you probably don't want to read a detailed description of how to fix the equipment. You'd rather bring up an instructional video on your phone that you can watch and follow step by step quickly as you're working.

This is not a new problem. A [2004 article in \*Knowledge Management\*](#) reported that 40 percent of corporate users said they can't find on their intranets the information they need to do their jobs and that knowledge workers spend 15 to 35 percent of their time searching for information. Given those dismal statistics, it makes sense to focus on measuring and improving information flow.

With a plan in place that considers who needs what information, when, and in what quantities and formats, you can take the next step to improve project efficiency: **measurement.**

### ***Using information turns as a metric***

You're probably familiar with the idea of *inventory turn*. It's common in factories, supermarkets, and anyplace where profit margins depend on quickly cycling inventory, whether turning raw materials into products or just-picked lettuce into salad. Companies that focus on inventory turns have a *make* mindset: how fast can you get something on the shelf and off again?

You can apply [the same idea to information](#). An *information turn* refers to how fast—and how well—you can move information from the point of discovery to the point of use. Once you have isolated the information, you can apply inventory management principles to increase its value to your organization by measuring how fast it moves and how well the information is being used. ([Metrics](#) can help here.)

We'll talk more about the final and potentially the most valuable benefit of separating the *make* from the *know how* in the next section: **connecting** your information to the larger world. In a way, this is the most significant piece, because it's where you'll find value that extends beyond your company's current way of doing business and beyond your customers' expectations. When we delight our customers, we move into the very lucrative land of higher margins. When you can tie your knowledge to external systems beyond the individual product you create, you can further enhance that product's value. No matter what your product is, it is just part of a larger system. Understanding the big picture of that system opens the door to higher profits.

## **Adding value beyond the product**

Once you get good at generating, storing, managing, and measuring information, you can go beyond using the information to simply speed up and streamline product

development. You can extract value directly from the information by selling it, *even if you don't define yourself as an information company.*

Fully participating in the information economy means accepting that *every* company is, in some sense, a media company. Every company is producing information. Best-in-class organizations handle their information in a way that treats it as an entity separate from the production of their products.

### **Thinking beyond your organization: compartmentalizing for know-how protection**

Within a company, project managers make tacit assumptions every day that presume the product will be designed and built at captive facilities. But the informatics age demands new distinctions. Organizations must communicate project information across a geographically dispersed and extended enterprise of open innovators, co-design partners, and value-added suppliers. Further, the design must reflect the fact that manufacturing capabilities with the potential to meet an organization's needs may exist anywhere in the world. To truly realize the benefit of separating the *make* from the *know-how*, you'll need to enlarge your view and consider how you can segregate information that other organizations could use.

In the case of the asphalt company, perhaps a manufacturing plant elsewhere could do a better job of turning raw materials into finished product than the asphalt company's internal manufacturing operation. Of course, the offshore plant should manufacture to spec and would need all the relevant technical data to do so. However, its managers don't need other information (e.g., about application temperatures or drying times) proprietary to the asphalt company. When the *make* is separated from the *know-how*, then any company can make the *product*—but only the asphalt company can understand and package the *information* about asphalt in a way that customers find valuable.

“Working with PDC is a fusion of scientific rigor with concern about the needs of the individual & the team.”

— Brian J. Maleska, Principal, Adventus Materials Strategies LLC

We introduced the hypothetical asphalt example at the beginning of this article. It wasn't without precedent. Years ago, I worked to help an asphalt company in Tulsa understand that while asphalt is cheap and highly commoditized, *knowing what to do with the asphalt is difficult and potentially of more value.* The asphalt company's customers didn't always know how, under what weather conditions, or with what equipment to apply and maintain the product.

As a result of our work together, the company decided to upend its business model. Now, customers buy the company's information as the primary product. The company effected the shift we've been discussing here: separating the *make* from the *know-how*. The beauty of this shift was that the company already possessed all the requisite knowledge. The company could extract, codify, and set up systems to measure their information and turn it into something they could sell (i.e., realize value from).

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This positioned them to take the next step by integrating the *know-how* of asphalt use with the *know-how* of traffic patterns and weather data. The asphalt company now can become more than an asphalt expert. It can become an expert on how to resurface a highway with minimal traffic disruption by combining knowledge about asphalt application with knowledge about traffic flow and how to distribute and time repairs to avoid rush hours.

## Conclusion

We used a simple product—asphalt—throughout this article to illustrate our point. But examples abound of companies with complex products that have chosen a similar path. Famously, IBM made its transition from an iconic computer mainframe maker into primarily a service provider. Doing so likely saved the company. If you're in any business that is, or is in danger of becoming, a commodity, you owe it to yourself to start thinking about how to separate the knowledge from the object. Be realistic. Is yours really the only company that can possibly make your product?

Start your transition with your projects by identifying and extracting the knowledge you already have as each product is developed. Realize that your end product is inevitably part of a bigger system that you can affect and profit from when you become *informatics enabled* in the world of connected systems.

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Make your organization more competitive by optimizing the way you discover, generate, share, and store information.

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For information about informatics enabling your project management contact  
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