

Best-in-class digital document processing: a payer perspective

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This article is one of several papers we will be releasing in the near future on the importance of digital for payers.

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Despite the promise of digitization, paper forms will remain for many years. Payers that find a better way to handle both paper-based and digital information will have a competitive advantage.

Leaders throughout industries have ambitious visions of how digitization will transform their core businesses. In service industries, the vision typically includes completely new consumer journeys enabled by comprehensive self-service, integrated omnichannel offers, and full utilization of all available data. As a result, data flows digitally in a highly automated manner, costs are lowered, efficiency and quality improve, and flexibility increases.

This vision may come true at some point. In the near term, however, it is highly unlikely that payers will be able to adopt fully paperless processes, despite the myriad problems manual document processing entails. Although many payers have taken steps to move away from paper, they have found that eliminating it is more difficult than they anticipated. Both internal and external factors have made the transition to fully paperless processes nearly impossible as of yet.

We expect that a large share of all paper-based interactions at most payers today could remain paper-based for at least the next several years. Given this, finding ways to process paper-based documents in the most efficient way possible—and to smoothly merge data from paper and digital sources—is becoming an imperative for all businesses that must process a high volume of documents from consumers, providers, and vendors. In this article, we describe an approach that payers can use to achieve these goals.

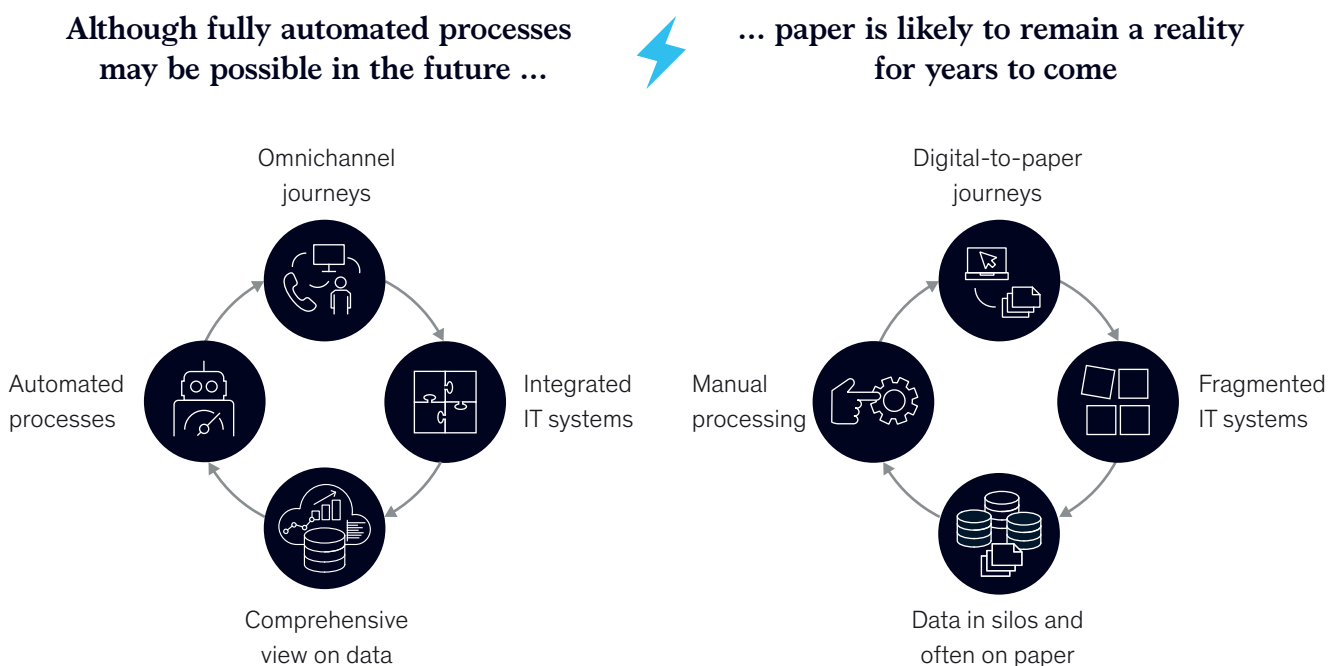
Obstacles in the path to digitization

In every industry in which paper plays a significant role, manual document processing causes problems. Manual processing is slow and tedious. It requires employees to perform repetitive, monotonous tasks while adding little value, which can reduce their job satisfaction. Manual processing is also error-prone and not transparent, and thus often causes operational inefficiencies and confusion among teams. As payers expand their use of omnichannel strategies, the lack of process transparency also impairs consumer satisfaction. In addition, paper data can hinder growth, since it makes it more difficult for companies to gain insights from advanced analytics.

Given these problems, it is not surprising that pundits have predicted the demise of paper for more than 30 years.¹ Nevertheless, fully paperless processes have yet to materialize in many businesses (Exhibit 1). Progress has been especially slow in service industries. One large German payer, for example, still uses about 100 tons of paper each year for its claims operations alone.² A medium-sized European payer purchases five truckloads of paper each year just to support customer service.³ Yet both companies have striven to eliminate as many paper processes as possible. Why have these and other payers found it so hard to stop using paper?

Exhibit 1

Fully digital processes are the goal—but paper won't disappear soon



¹ Milliken, G. The paperless office: 30-year old pipe-dream? Wired. 2014.

² Allianz Capital Markets Day presentation. Nov. 3, 2016.

³ Interview with a company executive.

The progress toward fully digital document processing has been hindered by a variety of factors. Internal roadblocks include general organizational rigidity, risk-averse decision making, and employees' fear of job losses. Moreover, designing and building new IT solutions, then integrating them into existing organizational technology, is inherently complex and usually requires changes in both behavior and processes, as well as significant company investment.

Given the economic benefits of fully digital document processing, many companies are starting to find ways to overcome these obstacles. However, they have found it much harder to get around external obstacles. Payers operate within ecosystems that include partners, vendors, providers, government agencies, and consumers. Getting all these stakeholders to agree to adopt fully digital communications requires a comprehensive transformation, which for many of them entails significant switching costs. For example, providers in countries with multipayer health systems may need to adapt their claims submissions processes to account for the requirements of different payers. Many consumers may be reluctant to switch to digital self-service because health insurance is often a low-involvement product—touch points are infrequent, which gives consumers little incentive to memorize login credentials and keep their contact information up to date.

Moreover, regulations may hinder the move away from paper in many countries. Payers and other companies that deal with health data are usually subject to strict data protection laws. Security and privacy standards are not only stringent but also often tailored to the use of paper-based communication. In some cases, regulations may require a member's signature on a form. Even if the regulations do permit two-factor digital authorization as an alternative, it is often difficult for payers to establish sufficiently secure transactions.

In short, paper-based processes endure because they are well-established in payer organizations, avoid high switching costs for outside parties, and do not require members to interact with digital platforms they may use infrequently. Because this situation is unlikely to change rapidly, payers that want to gain a competitive advantage must find better ways to handle paper while moving toward the longer-term vision of fully digital processes.

Getting from here to there

Payers can generate significant value during the transition to a fully digital future by optimizing the way in which they process paper documents and other data. The consequences of suboptimal document processing are significant. Effective handling of paper is crucial because data is at the core of the payer service offer, and paper continues to be a main source of data from day-to-day operations. Furthermore, data analytics is increasingly important to support strategic decision making. Leading businesses use analytics to discover valuable consumer and operational insights; the lack of access to data in digital form makes it much harder for a payer to do this.

Fortunately, new technologies have emerged that enable more efficient processing than has been possible before, including quicker and more accurate information retrieval from paper documents. (This retrieval process is called document ingestion.) Ranging from intelligent character and pattern recognition to machine learning, the technologies have made impressive progress in recent years.

The benefits offered by these new technologies go far beyond efficiency improvements (as important as those improvements may be). Accurate, structured data is a prerequisite for many other digitization efforts, from omnichannel to analytics transformations. Automation efforts rest on good data and cannot be successful when information is buried in large piles of paper.

The basics of digital document processing

Digital document processing has three main phases. The first phase, document ingestion—our main focus in this paper—is the route through which incoming information on paper documents is “consumed” and then made available in a structured, digital fashion (Exhibit 2).

In the second phase, digital data is processed internally using automated workflows. By optimizing these workflows, data usage can also be optimized, which often avoids the need for redundant stakeholder communications (for e.g., asking consumers for the same data multiple times). By combining the data derived from paper documents with the wealth of digital data already available, a comprehensive data landscape can be established, significantly enhancing data evaluation and analytics possibilities.

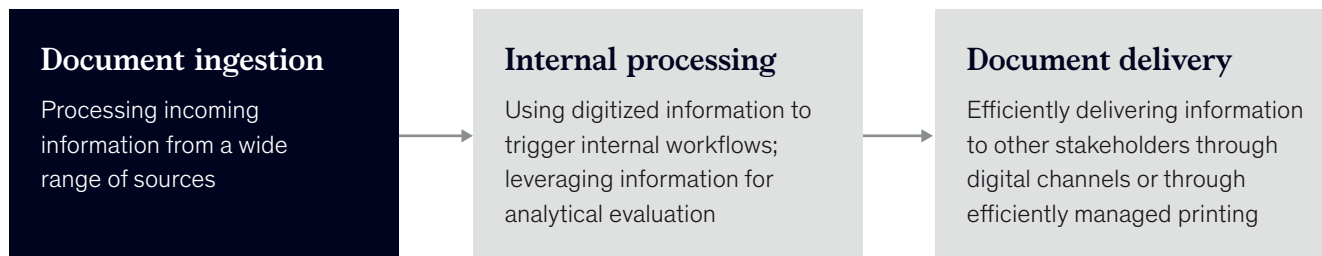
In the third phase, documents are delivered to stakeholders more efficiently. Many types of outgoing communications are shifted to digital channels, and the processes required for paper-based communications are streamlined. Keeping coherent records is a crucial efficiency lever because it ensures that information is sent to the appropriate point of contact (for e.g., when billing confirmations are sent to providers).

To get digital document processing (including document ingestion) right, payers must understand and master all three phases. As part of this effort, they need to consider the full range of documents that will have to be processed. Incoming mail and other physical documents are an important source of data, but not the only one—many documents that arrive digitally can pose significant challenges if not handled correctly. Emails, for example, may require significant effort to become structured, digital data that can be processed automatically.

To get digital document processing right, payers must understand and master all three phases.

Exhibit 2

Digital document processing includes 3 main phases



Mastering document ingestion

To incorporate the full range of documents that need to be processed, a digital document ingestion workflow typically has six steps (Exhibit 3):

- **Scanning**, to turn paper documents—physical mail, for example—into digital images
- **Optical character recognition (OCR)**, to detect characters in the digital images and convert the output of a scanner or fax machine into digitally stored text
- **Data extraction**, to pull out relevant pieces of information from the OCR output and other digital sources (for e.g., email or online chats)
- **Interpretation**, to take effective, logical steps to transfer the information to relevant IT systems
- **Exception handling**, to recognize errors and uncommon scenarios and provide alternative routes for their proper handling
- **Data utilization**, to ensure awareness of newly available information, trigger relevant workflows, integrate data into consolidated views of consumers and providers, automate processing, and ensure data security

Effective document ingestion cannot be established without a proper foundation. To build the best possible processes, payers need to put these critical components in place: technology, organization, and capabilities/sourcing.

Technology. Document ingestion requires effective new tools. However, it also has significant implications for the supporting IT architecture.

Introducing new technology is a pivotal element in establishing document ingestion. Although basic OCR solutions to digitize information are typically easy to implement, subsequent steps in the workflow are much more challenging. In particular, turning a large range of semistructured, or even unstructured, information into meaningful data often requires highly advanced OCR solutions such as intelligent character recognition (ICR) software, which has much higher recognition accuracy than traditional OCR software.

Once the information is made available in a structured digital format, the data usually requires further refinement before it can be processed automatically; it is because of this requirement that document ingestion goes far beyond the mere reading of information. For example, the data must be embedded into comprehensive records stored in a consistent format and find its place in comprehensive data models describing consumers and providers from a payer point of view. An event bus (a software mechanism that allows different components in an IT system to commu-

Exhibit 3

Digital document ingestion has 6 main steps



Integrated data utilization

Make all relevant employees and IT department aware of new information

Trigger appropriate internal workflows as a result of incoming communication

Create a 360° consumer and provider view

Automate processing of information and establish machine-generated follow-ups

Ensure data security and privacy standards

OCR = optical character recognition; API = application programming interface

nicate with each other) must pass the information on and ensure that all relevant IT systems are made aware of the new data. Automating this part of the process often requires a wide range of application programming interfaces or robotics solutions.

Organization. Improving document-handling processes takes significant cross-functional effort, strong organizational commitment, and careful change management.

Document ingestion has important implications for a payer's organization. At a minimum, the organization needs to establish corresponding roles and responsibilities to ensure that all steps in the ingestion process run properly. More importantly, altering the way paper is handled requires a significant change effort. Many organizations could benefit from establishing a dedicated team to act as a "digital factory" that uses a process-by-process approach to achieve organizational change in all business units and departments. Such a team is usually staffed with full-time members who operate in an agile environment with substantial management support. The digital factory builds new IT tools and processes, but also reshapes the ways different organizational units work on a day-to-day basis. The addition of cross-functional project teams with rotating personnel inside of the digital factory enables the spread of new knowledge throughout the organization.

Capabilities and sourcing. Implementing the correct technologies and processes and ensuring that the necessary changes are embraced typically require the use of both internal and external expertise.

To successfully implement document ingestion, companies need the right capabilities—they need to be able to redesign existing processes, build required technologies, run the new systems, and manage change. These capabilities can be built in-house or acquired by partnering with vendors or other organizations. In many cases, both internal and external resources are necessary.

Currently, the document ingestion industry is shaped predominantly by OCR vendors. Their solutions are a central pillar of the overall technology blueprint, but some organizations have found their products difficult to install and run. Furthermore, know-how is usually lacking outside of these specialized firms. As a result, companies often find themselves locked in with individual vendors. Strong vendor management capabilities are therefore especially important.

Road map to optimizing digital document ingestion

Companies that successfully implement digital document processing—including document ingestion—often use a similar approach, which is frequently embedded in a larger digital transformation.

First, these companies identify the right technology vendors to build and run the necessary components along the full document processing value chain. In addition, they typically assess the potential of process redesign and identify the behavioral changes that will be needed throughout the organization.

Second, the companies often use a dedicated project team to put the essential IT infrastructure in place relatively quickly. Typically, they undertake an initial technical proof of concept and then start building the IT infrastructure while transforming the first end-to-end processes (for e.g., invoice processing for a group of chosen pilot providers).

Third, they scale up the effort by setting up a digital factory (as described above) and start to rotate people in and out of the effort. In addition, they begin transforming payer processes one by one (perhaps by starting with claims, then moving on to invoicing). In this way, the new technology and organizational structure of all paper-based processes at the companies are transformed.

Fourth, the companies not only use a digital factory but also undertake a dedicated change management effort to implement the digital document processing system. Employees who are used to paper-based processes and often have considerable control over process decisions typically need help in adapting to the new digital processes. The change management effort is crucial to ensure the transformation is carried out to the end because the last 20 percent of paper-based processes are usually the hardest to eliminate. Attention to change management helps give employees at all levels of the organization the ambition to fully eliminate paper.

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Case study: digital document ingestion

A large German payer enabled a large-scale digital transformation by optimizing digital document ingestion. Several factors had led this payer to believe that paper would remain a major channel for several years or more. For example, many of the providers and government agencies it dealt with were behind the curve in digital adoption and regulatory issues (including data privacy concerns) were making it difficult for the payer to move consumers to digital channels. The payer therefore decided to incorporate paper-based communication into its overall omnichannel strategy but also created a road map to help it move toward omitting paper from its internal processes.

The payer started by optimizing its methods for scanning and OCR of all paper documents and then entering the digital files into a document management system. In this way, the payer was able to avoid storing additional documents in physical archives and reduced the time that many work items were in transit. These changes made it easier for employees to work from home by providing digital access to all documents and improved the company's performance management capabilities.

The payer's second step was to create a shared-services center that would be responsible for data transfer from paper documents into the company's core IT systems; the business units would take over once the data was in the core systems. As a result, the business units increased their efficiency through labor arbitrage and more straight-through processing. Because of the momentum generated on the business side, the payer then established a central output management system for printing and letter finalization, which allowed the business units to achieve higher quality and even greater efficiency. No letters had to be handled manually by an employee.

Finally, automated data extraction was introduced to manage the transfer of data from documents into the core systems. As a result, the shared-services center gained efficiency, which freed up valuable time so that employees could focus on more consumer-centric processes, such as personalized communication.

A payer needs to build the required technologies and establish the necessary organizational foundation.

Conclusion

Payers, like many other companies, are finding it difficult to realize their vision of fully digital processes. However, they can gain immediate benefits by improving their approach to digital document processing—especially digital document ingestion. This approach acknowledges that paper documents will remain a reality for some years to come but enables payers to move along the path to a fully digital future.

To be effective, digital document processes must consider the full range of inputs (both paper and digital) and cover the end-to-end workflow. To make this possible, a payer typically needs to build or acquire the required technologies and establish the necessary organizational foundation.

Payers that cannot get digital document processing right will put their other digitization efforts—and their ambitious digital goals—at risk.

Digital document ingestion across industries





















In all industries, digital document processing in general, and digital document ingestion in particular, are important for core back-office functions. However, their relevance for corporate functions varies across industries (Exhibit 4). Similarly, the typical level of digital document processing maturity also varies across (and within) industries and regions. Payers and most of the stakeholders they work with lag behind most other industries in their level of maturity and thus face high switching costs if they want to move to fully digital processes.

Effective processing of paper remains critical for payers

- New digital journeys for consumers can succeed only if they can be seamlessly integrated with paper-based processes and all required information (including claims status) is available.
- Analytical modeling (e.g., for fraud detection and automated claims handling) needs to be built on comprehensive data sets.
- IT architecture transformations require a comprehensive view of all digital processes and are unlikely to succeed if manual work-arounds based on poorly handled paper-based processes are present.
- Unnecessarily heavy reliance on paper is expensive. Reducing the use of paper should be an integral part of any cost-cutting initiative.
- Consumer service improvements are of limited use if communication based on physical mail is not handled properly.
- Omnichannel implementation requires a 360-degree view of all consumer interactions, including the role played by paper-based communications.

Exhibit 4

Digital document ingestion is relevant for all industries, but adoption rates vary

	Importance for corporate functions	Level of maturity
Advanced industries		
Banking		
Consumer		
Global energy and materials		
Healthcare		
High tech, media, and telecom		
Insurance		
Pharmaceuticals and medical products		
Public and social sectors		
Travel, transport, and logistics		

Health insurance

Patient communications rely on paper, in part because regulatory concerns (e.g., data privacy issues) have hindered the use of digital channels

Optical character recognition is typically used but only properly works for a small fraction of all incoming documents

At a medium-sized German payer, about 3 million invoices for therapeutic appliances are manually checked for correct signatures each year

Seven things to get right when establishing digital document processing

1. Do not assume that all communications can be rapidly moved to digital channels, making paper superfluous. This will take time.
2. Build IT architecture that can cope with all aspects of document processing. Digitizing the last 20 percent of documents is particularly challenging.
3. Involve the business units as early as possible and pursue a clear minimum-viable-product logic to achieve some early successes.
4. Establish consistent key performance indicators to monitor success and steer toward maximum value. Refrain from overinvesting in the wrong areas.
5. Be cautious about building custom solutions. Available commercial solutions are highly advanced.
6. Do not underestimate the effort that redesigning internal IT workflows requires.
7. Do not overlook basic analytics capabilities—they are often more valuable than artificial intelligence (AI) approaches. However, digital document processing can create a great playing field for building AI knowledge and skills.

Content contributors

Mathis Friesdorf (Mathis_Friesdorf@mckinsey.com) is an engagement manager in McKinsey's Berlin office.

Markus Hedwig (Markus_Hedwig@mckinsey.com) is an associate partner in the McKinsey's Cologne office.

Florian Niedermann (Florian_Niedermann@mckinsey.com) is a partner in the McKinsey's Stuttgart office.

Florian Schaudel (Florian_Schaudel@mckinsey.com) is a partner in the McKinsey's Frankfurt office.

Editing and layout

Ellen Rosen is the global manager of publications in McKinsey's New York office.

Diana Seeger is a senior media designer in McKinsey's Berlin office.

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