



# Capgemini's Cognitive Document Processing

A new platform harnesses cognitive capabilities such as artificial intelligence and machine learning to ease the burden of processing documents and extracting data from them. It can reduce costs, improve customer experience, and help to ensure regulatory compliance.

## Perform AI

Artificial Intelligence.  
Real World Solutions.



Over the past few years, the financial services industry has experienced a steep rise in the volume of digital documents it has to deal with. These include a wide range of items spanning application or claim forms, checks, passports, bills, and many others, and can be in a range of formats such as JPG, PNG, PDF, and HTML.

Processing these items and extracting data from them is labor intensive and costly. It involves complex operations that can easily go wrong, with the risk of damage to the business of the financial institution (FI) and its customers. Problems with document processing, such as lost documents and missing signatures, can also lead to regulatory breaches, which can bring hefty fines.

## Our solution

Capgemini's Cognitive Document Processing (CDP) platform reduces the cost, effort, and risk by leveraging cognitive capabilities including artificial intelligence (AI) and machine learning (ML) in order to automate tasks such as document categorization and data extraction. These capabilities are used not just to perform the tasks but to improve the way they are performed over time, so that you can become increasingly confident that you're getting and retaining the right information.

Key capabilities include:

- Analysis of structured, semi-structured, and unstructured documents.
- Retrieval of useful information from these types of document using techniques such as key phrase extraction, natural language processing (NLP), and topic modeling.
- Processing of scanned text (including handwritten text) using optical character recognition (OCR) or its more advanced counterpart, intelligent character recognition (ICR).
- Auto-filling of forms and online documents using data extracted from other digital documents to automate the repetitive process of manual form-filling.
- Creating summaries of input texts or financial reports using natural language generation.

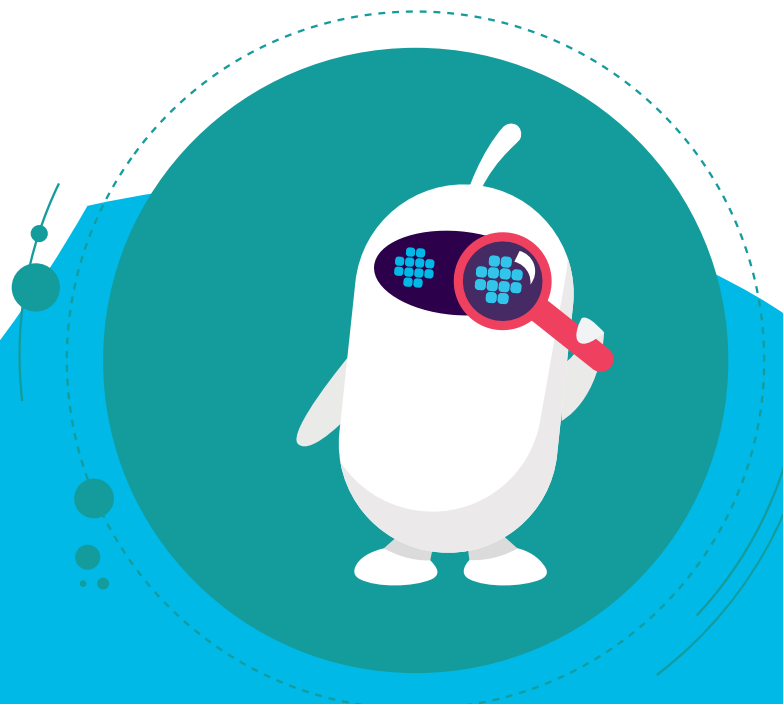
The solution is targeted both at FIs and at business process outsourcing providers (BPOs) handling document processing on behalf of FIs.

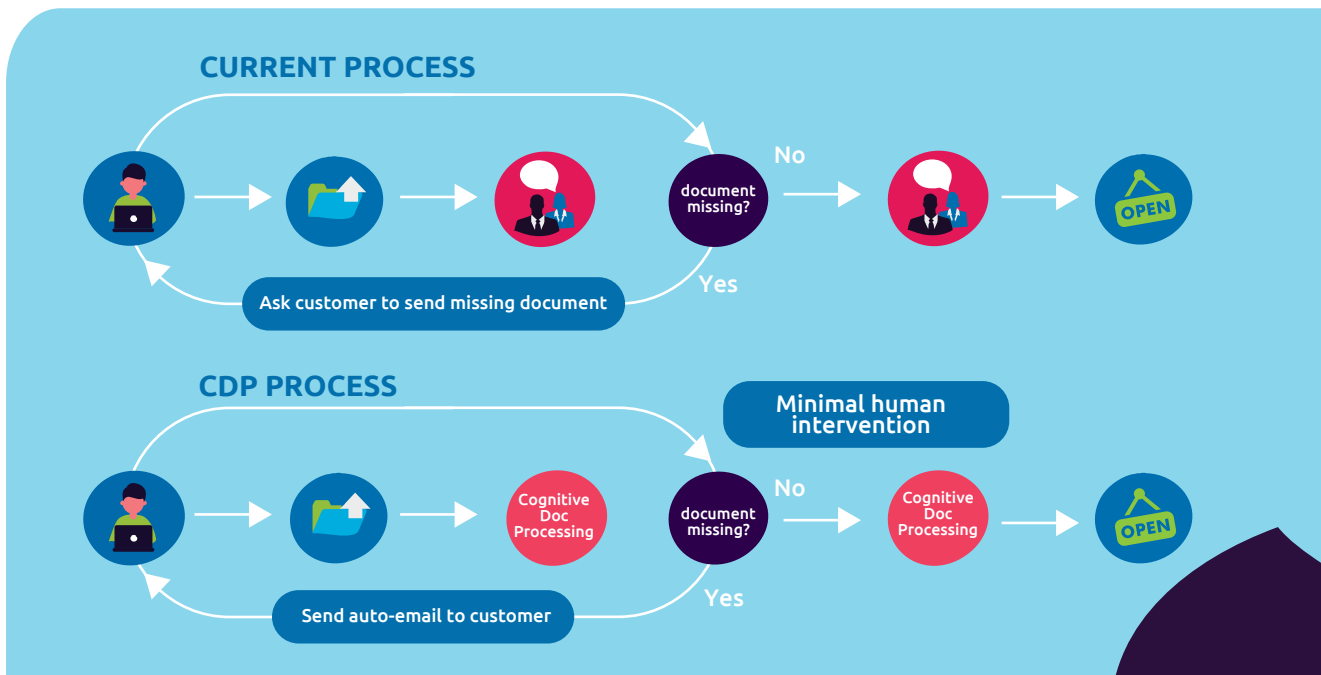
## How the solution works

Let's consider a typical scenario. The bank sends scanned or handwritten documents to the platform; these may have been uploaded by customers themselves. At this point, the solution executes OCR or ICR services on the documents to extract information in text format. OCR is used to transform scanned images into machine-encoded text; ICR performs similar functions, typically where handwritten documents need to be identified – for example, to carry out signature recognition or validation. Facial detection is used to extract ID photos if these are included (for example, in a passport); the photos can then be used for profile verification. Language detection and translation is performed so that all text is in a single language.

Once this preliminary processing is performed, the next step is to obtain information from the documents. A variety of techniques are used, including machine learning algorithms that extract key phrases, topics, and other important entities. This information can also be cross-validated, for example by web-crawling public-domain sources such as government websites. The documents are then classified into categories – for instance, balance sheets, tax forms, or driving licenses – using document recognition techniques and deep learning algorithms.

When a document has been analyzed, validated, and classified, the resultant information can be used in a variety of ways, including generating emails or filling in forms automatically. Further analysis can also be carried out. For example, sentiment analysis can be used to understand any opinions expressed, and to determine whether a customer's attitude towards a particular topic, product, etc. is positive, negative, or neutral.





## Use cases

A few practical examples from financial services show the platform's versatility.

**Customer onboarding.** CDP can process know your customer (KYC) documents in order to extract relevant information and then use it to auto-fill forms. The forms can then be validated, and incorrect or missing information highlighted. Customers are then prompted to correct the problem: for instance, to send any missing documents via email.

**Mortgage processing.** CDP scans and categorizes application documents, extracting key information. It then automatically assesses the applicant's creditworthiness.

**Contract intelligence.** CDP can process contract documents and extract the information that is needed, then use that information to automatically evaluate contract terms, highlight the main terms, and recommend suitable actions.

**Check fraud prevention.** CDP recognizes and encodes handwritten text, validating and verifying signatures, before triggering payment processing.

**BPO process automation.** With CPD, a BPO can automate many aspects of document processing, making its staff more efficient and responsive. Checks, vouchers, and invoices can all be processed automatically using business and logical rules. Robotic process automation (RPA) can be used for interaction with other applications.

**Claims processing.** CDP automatically captures useful data from written and printed text on scanned claims, as shown in the figure.

## Benefits

CDP brings the following benefits:

- Increased speed – automation means documents can be processed at high speed, which is particularly valuable where there are large volumes of similar documents, such as insurance claims.
- Cost savings – manual effort is slashed, enabling staff to be redeployed in other areas.
- Better decisions – automation removes bias and ensures consistency. In addition, because human experts can focus on just the more problematic documents and cases, they are less likely to make mistakes.
- Reduced risk of regulatory breaches – automation eliminates many errors so that documents are less likely to be lost or misfiled, or accepted with missing signatures, for example.

## Why Capgemini?

Capgemini's Insights & Data Global Business Line combines technology excellence, data science, and business and industry expertise to help organizations drive valuable and actionable insights from internal and external data.

Please contact us to find out more about how CDP can benefit your business.



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Artificial Intelligence.  
Real World Solutions.

People matter, results count.

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With more than 190,000 people, Capgemini is present in over 40 countries and celebrates its 50<sup>th</sup> Anniversary year in 2017. A global leader in consulting, technology and outsourcing services, the Group reported 2016 global revenues of EUR 12.5 billion. Together with its clients, Capgemini creates and delivers business, technology and digital solutions that fit their needs, enabling them to achieve innovation and competitiveness. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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