Electronic Signature — the Gateway to Digitization

An IDC Case Study

Sponsored by certSIGN

November 2019

Authors: Tobias Kleu, Senior Consultant

Răzvan Savu, Senior Consultant

Electronic Signature — the Gateway to Digitization

An IDC White Paper, sponsored by certSIGN

IDC Opinion

The rise of 3rd Platform technologies (cloud, mobility, big data, and social media) and innovation accelerators such as the Internet of Things (IoT), artificial intelligence (AI), and robotics continues to have a fundamental impact on how people and organizations work with information. According to IDC data, almost 70% of Romanian companies surveyed declared that their management is aware of how technology will change their respective industries, and more than 60% report fair or solid progress toward their digital transformation (DX) objectives. These organizations know that, to improve efficiency and remain competitive, they must leverage modern digital instruments.

As they try to seize the market opportunities engendered in new ways of working with information, organizations are quickly learning that becoming digital requires not only the implementation of new technologies, but also taking a closer look at the building blocks of the enterprise, particularly those with the potential to slow transformation.

Processes are becoming increasingly reliant on structured and unstructured data amassed from a myriad of digital channels, prompting organizations to look for improvements in paper-based activities.

One salient example of these potentially limiting building blocks is the conventional storage of information in documents, as all enterprise processes previously required (and, in many cases, still do) the collation of paper-based data, which could be approved or amended as steps progress. These structures have proven to be inadequate for the modern enterprise, with processes becoming increasingly reliant on other structured and unstructured data not contained in documents, from a myriad of digital channels.

Ways exist, however, to effectively manage changes to existing document infrastructures through technologies that mimic the behavior of their "analog" counterparts, while providing much richer digital capabilities. For example, electronic signature solutions strive to replicate the security and reliability of face-to-face agreement and signing processes. Solving the problem of legally binding contract execution using computer-based systems is more complex than might be expected, as it requires the coordinated operation of multiple independent systems and components, and the failure of any included system or component can invalidate the entire process.

Unsurprisingly, as companies progressively embed electronic signature solutions into their ecosystems, they witness the general effects digital tools have on their business — reduced process cycle times, improved employee productivity, and shorter time to market — but these tools also provide specific solutions to current challenges related to information security, data protection, and data privacy.

In This White Paper

This IDC White Paper examines the evolution of electronic signature solutions and how organizations can, through their application, kickstart or optimize the digitalization of their processes. The document presents the most important electronic-signature-solution use cases as a starting point for exploring the capabilities digital transformation can offer within the modern enterprise. The final part of the document provides an overview of certSIGN's portfolio for electronic signature solutions, as aligned with the trends and concepts described herein.

Table of Contents

Digital Transformation in Romania

Status and IT Trends

In Romania, more and more organizations are transforming their businesses in light of the boom in digital technologies. While the adoption rate was initially slow, evidence is strong that an increasing number of cloud-based, mobile, and analytics-driven technologies are finding their way into the Romanian business environment, as solution sellers and buyers are aligning with a digitally managed vision.

Clearly, DX is not just hype: It sits at the core of business strategies for companies of all sizes and across all industries. According to IDC data, almost **two-thirds of medium-sized and large organizations** in Romania are developing digital transformation strategies and initiatives, even if they call it something else. Small businesses are more likely to embrace new ways of working when they arise, as small organizations tend to be more flexible and less process-focused than their larger peers. And putting a strategy in place plays an important role in meeting a company's objectives: Romanian enterprises are **81% more likely** to be advanced in the use of digital competencies when they have digital strategies in place, as compared with those that do not.

However, the embrace of digital technology among Romanian businesses ranks among the lowest in Europe. Romanian enterprises **rank 24th (out of 28)** for electronic information sharing and use of e-invoices, **26th** for deployment of cloud technologies, and **27th** for the proportion of SMEs that sell online. It is important to note that larger enterprises tend to be well ahead of the curve and have more in common with larger enterprises abroad than with SMEs in Romania.

The gap between low technology adoption and the importance given to this topic by Romanian organizations shows the transformation potential still to be tapped by all players selling or investing in technology.

This relatively low usage of technology-enabled capabilities contrasts with the importance afforded to DX strategies among Romanian enterprises — a contrast that highlights the potential for business transformation in the country, as well as the broad range of areas in which such capabilities can bring transformative value. Indeed, it is now widely understood among Romanian organizations that DX is an opportunity to optimize operating efficiency through automation (**94% of respondents** chose this goal for their DX vision), expand to new markets with innovative digital products and/or services beyond traditional product portfolios (**88% of respondents**), and redefine the customer experience (**73% of respondents**).

IDC observes that this development is but the beginning of a new era of IT investment. Investments related to DX will constitute most of the growth in the Romanian ICT market over the next five years — not only investments into infrastructure and the modernization of applications, but also into business innovation.

Document Digitization

Paper-to-Digital Transformation

To become "digital," Romanian organizations have emphasized the digitalization of their processes, seen as a necessary step toward more advanced DX outcomes.

One could argue that the digitization of documents — paper-to-digital transformation — stands at the forefront of digital transformation; at the least, it is the most visible part of DX. In a knowledge-based society, we are all working with information and visualize, process, and communicate this information via documents, be they electronic in the forms of email and chat, or on paper as letters, reports, purchase orders, and contracts.

According to an IDC survey on printing and digitization trends in the office, on average, almost 60% of processes were paper based in 2018, while the same organizations expected to have almost 50% of processes in electronic form in 2019. This is not to say that paper will disappear completely (as this trend might indicate), but the direction of travel clearly indicates that electronic documents will supplant paper ones as the main format. Indeed, in 2018, more than 95% of organizations were in the process of digitizing their processes (i.e., organizations had already digitized functional areas, such as marketing, HR, and finance, or were planning to do so in the following 12–24 months).

To this effect, many businesses have added capture technology to the frontend of document-intensive workflows to convert paper documents to digital, addressing the beginning of the workflow and making it 3rd Platform ready. Mobile technology is used to expand capture capabilities to locations beyond the office environment, and cloud solutions enable access to data from enterprise mobile apps, as well as encompassing cloud-based store-and-share services.

Benefits of Digital Documents and Processes

According to the local perspective, the benefits that digital documents and processes enable lie in cost advantages, process efficiency, customer experience, and ability to innovate.

Organizations benefit from digital documents and processes in many ways, and the reasons relate not only to cost savings, as stated by 47% of Romanian organizations in an IDC survey[1].

Indeed, the most important benefit was seen in improved employee productivity through faster information access and less manual/redundant work (as stated by 55% of respondents), faster processes and improved operational efficiency (54% of respondents), and improved customer experience due to faster response time and multi-channel communication (47% of respondents).

[1] Source: *Central and Eastern Europe Printing and Digitization Trends in the Office, 2018*, IDC #CEMA43728818

The other benefits cited by survey respondents were increased innovation due to new product and service development and IT-driven operating models (41%) and taking advantage of new laws and regulations related to electronic identification and trust services for electronic transactions (39%).

Challenges and Solutions

For document digitization to spark true innovation or contribute to improving the customer experience, organizations must consider the ways in which they collate and use digital information internally. If an organization converts paper to digital without automating classification, validation, and data extraction, it is merely replacing a set of labor-intensive paper-based processes with equally labor-intensive digital ones, with all the inefficiencies and potential for errors that it entails.

A one-to-one translation of paper management to digital management is insufficient for most organizations' needs in a digital environment. The true power of automating processes lies in the improved capabilities of the whole organization.

From a workflow perspective, the challenge for organizations is to securely enable the integration of paper-based or other legacy workflows within increasingly digital ecosystems. So, the above-mentioned benefits can only be realized if these documents are embedded in an automated process and thus make the document and the information it contains "intelligent" for the organization.

It is this integration of documents and processes that can overcome the challenges throttling the transition to digital among Romanian companies, such as inefficiencies of information silos and disconnected processes, unclear vision for disruptive products and services, and a lack of proper IT/technical skills.

In the future, the scope of business workflow automation initiatives will go beyond the management and optimization of the workflow. Increasingly, a greater emphasis is being placed on automating revenue-generating workflows, particularly around customer engagement and experience. Business analytics, for example, is becoming an integral part of the workflow, conducting prospects and client trend analysis and providing businesses with better insight into their clients' buying behavior in a rapidly expanding digital business environment. Also, as mobility expands within businesses and purchase decisions and transactions are increasingly executed on mobile devices, the digitization of documents and workflows is resulting in new service capabilities and revenue opportunities.

Electronic Signature

Signatures are vital in business and, like documents, are a key component in business processes. Indeed, almost all major interactions in our lives rely on this form of individual responsibility and traceability — from birth certificates to purchase orders for funerals — and thousands of forms, documents, and contracts will be signed by each and every one of us. In business life, applications, contracts, orders, bills, HR forms, and deliveries all require a signature. Indeed, it is hard to

think of a business document (particularly involving third parties) that does not need to be signed.

In the past, one would "wet" a document to sign it — either with ink or, in more medieval times, with an inked fingerprint or a wax seal (with the latter still seen on some of today's deeds). More recently, electronic means have enabled the validation of digital documents with unique digital signatures.

Electronic signatures are not only a means to ensure one-to-one mapping of conventional paper-based processes; they are also a way to deliver innovative digital capabilities to the enterprise.

Electronic signatures have been around since the late 1990s. Romania Law No. 455, issued in 2001, structured the way in which digital signature providers could be recognized by the Romanian state. In 2014, this was superseded by EU Regulation No. 910/2014, which widened the scope of signature services and enforced a unitary approach to electronic and digital signatures throughout the European Union.

The EU's Electronic Identification and Trust Services Regulation (eIDAS) was a major milestone for the recognition of the importance of this fundamental business element, as reflected in the type of law used by the European Parliament on this matter. In effect, EU regulations are enforceable as laws in all member states uniformly, without the need for local legislation. The importance of trust services (including electronic signatures) to the European economy can be inferred from them being governed by the EU via regulation rather than directive, as is the case with food, labor, and data privacy.

While the "electronic signature" and "digital signature" terms are often used interchangeably and sometimes other attributes such as "simple" or "advanced" appear to complicate matters, the chart below attempts to shed some light on specific terminology in this field. Please note that these definitions can be applied uniformly across all EU member states, as they are based on eIDAS.

Electronic signature type	Short description	Provides an audit trail — who signed what, when, and where	Safeguards against changes to the document, once signed	Legally binding across the EU
Simple electronic signature *(also known as electronic signature or esignature)*	Data attached to a document — used by a signatory to sign a document (the equivalent of a hand signature)	✓	✗	✗
Advanced electronic signature *(also known as digital signature)*	Data attached to a document — used by others to identify who signed it and whether any changes were made to the document	✓	✓	✗
Qualified electronic signature *(also known as extended electronic signature or digital signature)*	Data attached to a document by means of a trusted device through a trusted environment — used by others to identify who signed the document and whether any changes were made	✓	✓	✓

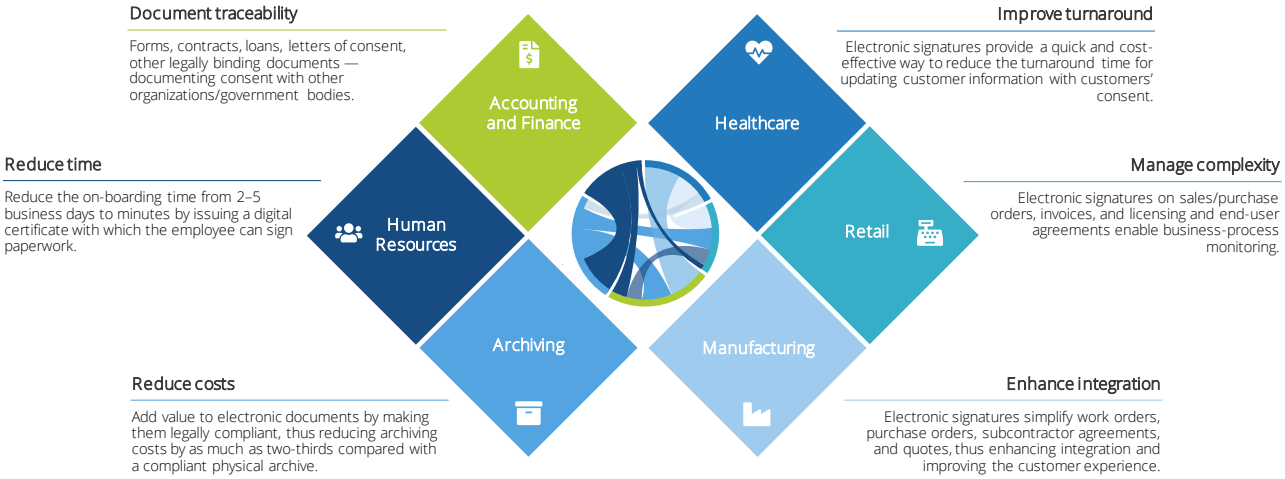
Electronic signature types, according to EIDAS. IDC, 2019.

This IDC White Paper exclusively refers to qualified electronic signatures created with a qualified certificate and a qualified signature-creation device that cryptographically encrypts and signs a document from a sender, transports it via a secure communication channel, presents it to one or more signatories, records the signatories' actions on it, and returns it to the originator via a secure communication channel, with all actions being conducted by trusted parties.

The cost advantage of an electronic signature over a paper signature can be as high as 15% in direct costs, without considering indirect savings such as faster processing times. That alone can be a solid reason for adopting electronic signatures. But, as DX is pressuring organizations to implement new customer-centric technologies, the ability of electronic signatures to verify interactions between government bodies, consumers, and businesses ensures its future ubiquity. Faced with changes in government, competitive, and consumer environments, trust and identity services are receiving attention from legislators and businesses alike and are continuing to standardize and expand the use of electronic signatures.

Electronic signatures further allow full visibility of workflows, from the initial generation of a document to its transit between the provider of the document and its signatory and, if necessary, back again. This workflow visibility ensures that processes are completed in a timely manner, without error, and ensures the highest security for the information in transit.

Sample Use Cases for Electronic Signature in Romania



Electronic signature sample use cases by department and vertical — IDC, 2019.

certSIGN Solution to Speed the Adoption of Electronic Signature

certSIGN Introduction

According to IDC data, certSIGN is one of Romania's leading providers of electronic signature solutions, covering a broad range of requirements, from simple electronic signature verification and creation applications to the more complex qualified digital certificates and software certified at the EU level as a qualified electronic signature creation device (QSCD).

As electronic signature providers interact in a network of trust with other stakeholders to properly identify and securely authorize the signature of documents, acting effectively as digital notaries, their solutions and processes are under frequent scrutiny. This raises the barrier to entry for companies in this service domain, but with good reason: Breaking that circle of trust has effects outside the digital world — on money, companies, and people.

With a team with over 20 years of experience in delivering public key infrastructure and cryptography solutions (which constitute the foundational technology layer for electronic signatures), certSIGN has achieved the status of a qualified trust services provider. Apart from being present in the NATO and Romanian Security Clearance software catalogue with its electronic signature solutions, its trust services have achieved eIDAS certification, which means that the level of service certSIGN provides is consistent with European Union standards and that certSIGN is an EU-certified provider for all companies operating in EU member states.

Paperless — a Remote Signature Solution

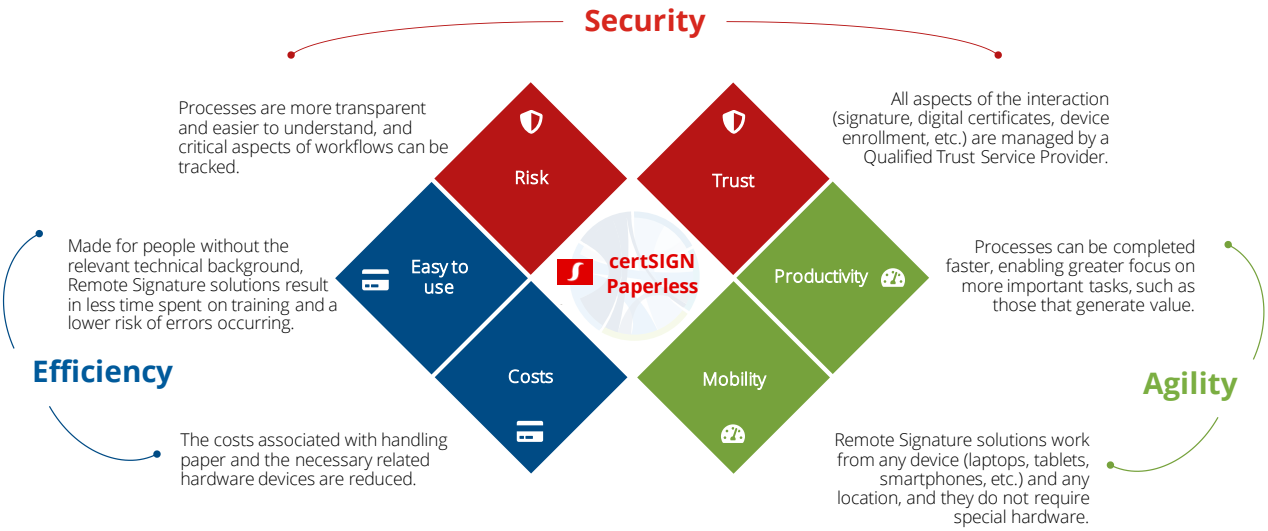
Conventional electronic signature solutions involved a wide array of software, hardware, and services working together to provide a simple outcome — a document with an identifiable signatory that is legally binding and which cannot be changed after being signed. For example, users of such systems would rely on individual USB tokens that contained their identification information, but these devices were prone to loss and could only connect via specific interfaces.

Remote signature takes a more modern approach — one that is standard in eIDAS and is thus treated uniformly across the EU, simplifying matters for both providers and buyers of related solutions. This type of solution allows any document to be signed from any trusted devices, requiring only an Internet connection to the Qualified Trusted Services Provider system.

certSIGN's Paperless is an eIDAS-certified qualified signature-creation device that can catalyze the adoption of electronic signatures throughout any organization, driving the transformation of processes from paper to digital and ultimately improving digital capabilities — the cornerstone of competition in today's economy.

As a remote signature solution, Paperless allows an organization to enroll users in the system, relying on certSIGN to issue and store the digital certificates instead of the organization individually managing tokens with qualified digital certificates for each employee. When an employee needs to sign something (in her/his own name or, if needed, using the identity of the company), the user accesses the system through her/his credentials, sends the document to be signed by the certSIGN server, and receives a complete signed copy containing the appropriate qualified digital certificate. Everything happens transparently, efficiently, and securely, without the need for the management of the device with which the signatory wants to start the process.

Paperless Benefits for Digitization



The Benefits of Digitization and Remote Signature Solutions — IDC, 2019

IDC Recommendation

For companies offering business-to-business and/or business-to-consumer services, electronic signatures are becoming a staple of the modern digital experience. Their role in automating existing paper-based processes and in exploring new ways of interaction based on digital capabilities in pursuit of an improved customer experience should place them among the priority targets for new technology investments.

As eIDAS has come into effect, uniform legislation for using electronic signatures is in place across all EU member states. The European Commission has placed such trust services at the heart of digital growth toward a digital single market, emphasizing the foundational role they have in conducting business in the EU. Companies pursuing a larger market should consider that these consistent EU regulations help lower barriers to entering new markets.

Electronic signatures will become part of everyday lives for businesses and citizens, as they are the mechanism that ensures a transaction is valid and identifiable, providing a deeply needed layer of protection in the digital environment.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

IDC Romania

Atlantis Business Center, 5 Gheorghe Manu Street, 5th Floor, District 1, 010442 Bucharest

Romania Twitter: @IDC
idc-community.com
www.idc.com

Copyright Notice: External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC vice president or country manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason. Copyright 2018 IDC. Reproduction without written permission is completely forbidden.