IDC VENDOR SPOTLIGHT
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The increasing adoption of digital business models has led to an increase in complexities and resulting security threats. Securing digital identities has become the topmost agenda for most organizations in India. This IDC Vendor Spotlight attempts to provide an overview on the need to establish digital trust, and why enterprises should consider eMudhra as their preferred partner in the digital trust journey.

The World of Digital-First: How Digital Trust is Becoming the Key Recipe for Success of Future Enterprises

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Introduction: Power of Digital

Digital Transformation gathered a whole new meaning in the last 1.5+ years and the accelerated pace at which enterprises started evaluating projects to transform their businesses has been truly applause worthy. As per IDC, the spending on Digital Transformation (DX) initiatives in India was estimated to be around US $30 billion during 2020, which contributed to approximately 52% of overall IT spend (DX and Non-DX). The DX spend is projected to grow at a CAGR of 18% over the next 4 years.

IDC believes that IT will no longer be just a function or an enabler but will shape the future enterprise and act as its backbone. IDC's framework of Future IT includes 5 key dimensions:

- **Leadership and governance:** Involve how IT is focused and managed
- **Trusted and secure enterprise:** Ecosystem management, privacy, security resource optimization, compliance, and cyber-risk management
- **Digital infrastructure:** Ubiquitous processing; automated control planes; app and data management; frontline, field, and operations technology; and ubiquitous connectivity
- **IT products and services:** Customer experience (CX), LOB relationship management, resilience, and agile human-machine workspaces
- **Innovation and intelligence:** Pervasive intelligence, emerging technology adoption, automation, software innovation

AT A GLANCE

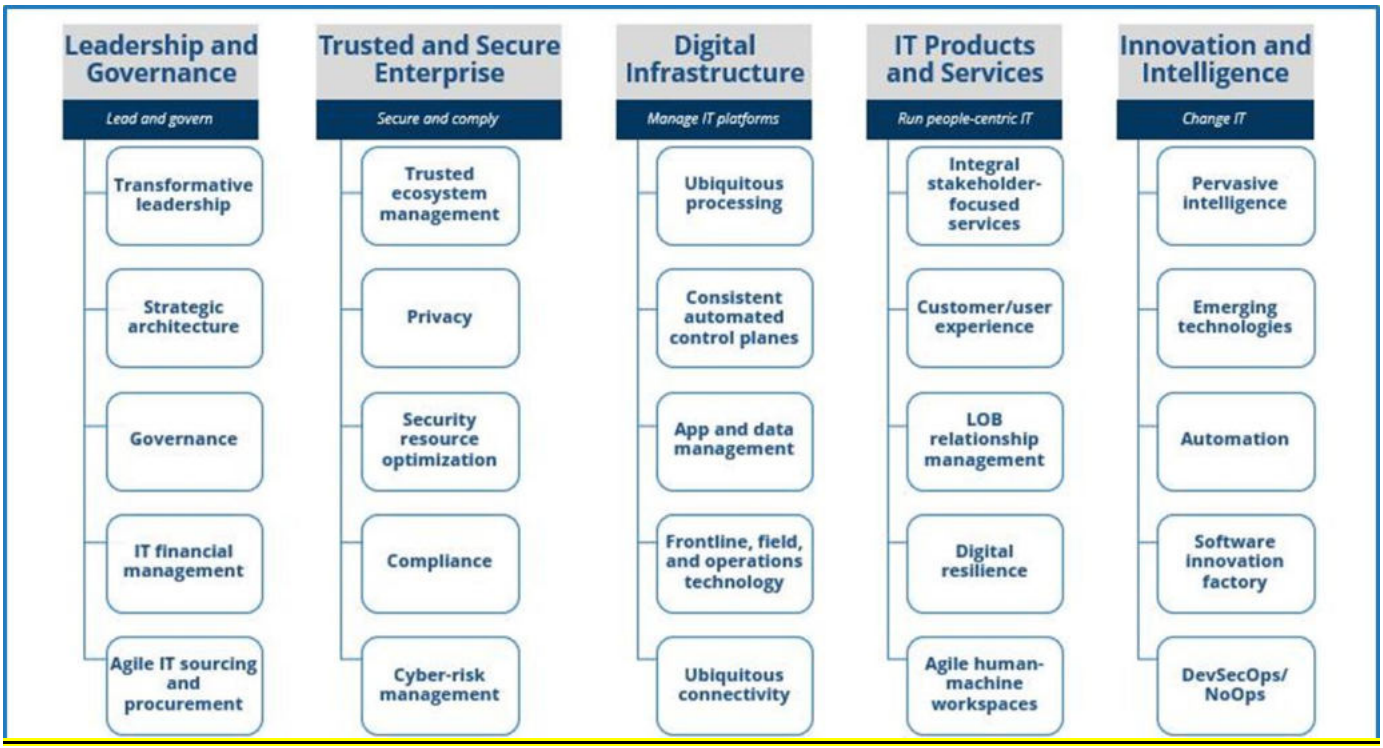
WHAT'S IMPORTANT

Digital trust is the foundation stone for successful DX transformation. Organizations that help users seamlessly identify, authenticate, and authorize or sign digital transactions to accelerate transition are deemed as future-ready enterprises.

KEY TAKEAWAYS

- ✓ *Embracing transition to paperless and automating processes, not only enhances customer experience but also ensures data compliance and security needs are met through the adoption of Public Key Infrastructure (PKI) based digital certificates*
- ✓ *Vendor solutions and capabilities that allow fluid integration of digital processes with trust and security as the core foundation will be the long-term service partners for enterprises.*

Figure 1: Dimensions and Subdimensions of Future IT 1.0



Source: IDC, 2021

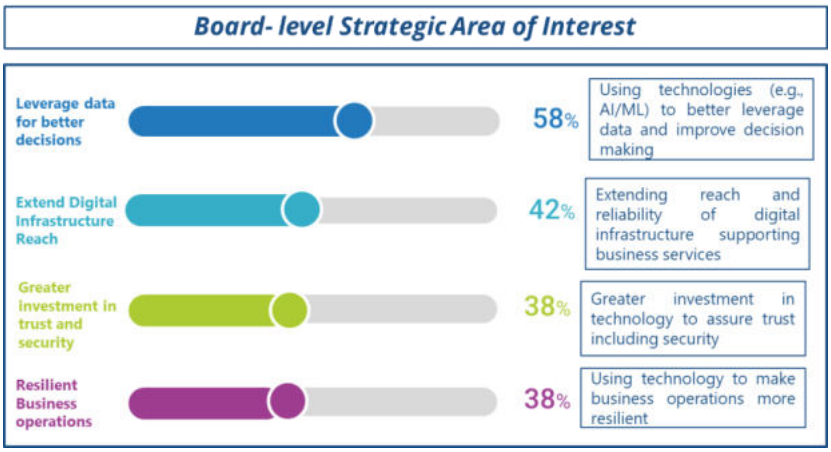
IDC predicts that by 2022, 50% of Asia/Pacific 2000 organizations will have accelerated the use of digital technologies, transforming existing business processes to drive customer engagement, employee productivity, and business resiliency. There will be a significant focus on technologies that enable organizations to enhance digital-first experiences (contactless engagement through eSignatures & workflow, AI-based customer service agents, mobile payments, etc.). Delivering superior digital experiences will become the de facto in the new normal.

However, as the pandemic forced organizations to adopt remote work models, it also opened a strong and dire need for paper-to-digital transition and automated processes, to support smooth workflows. IDC predicts print volumes to decline in the future due to a steady rise in the adoption of paperless formats to support digital transformation strategies. As per IDC's latest survey, Accounting and HR teams will be the top 2 departments to transform their processes to use more scanning/digital workflows. More than 60% of the organizations considered the adoption of solutions that allow eSignatures/digital signatures, as a part of transforming document processes from analog to digital. Considering the nature of data processed across accounting and HR teams, it is no surprise that solutions that enable encryption were much in demand. Identity and digital trust have become a cornerstone for any digital transformation initiatives in the above context.

The need for paperless transactions has further expanded the scope of identity and trust and the importance of synergistic value propositions has accelerated. Identity management and authentication tools such as digital signatures, commonly termed as eSignatures can ensure an additional layer of security that is needed in a paperless environment to derive strong benefits. Enterprises are increasingly evaluating globally accepted forms of identity assurance such as Public Key Infrastructure (PKI) that helps validate individual or entity identities with digital certificates through an authorized or licensed certifying authority (CA).

As per IDC's Future of Trust 2021 Predictions, 'By 2025, 80% of chief trust officers will demand vendors to incorporate security and risk capabilities to measure corporate trust including vendor relationships and employee reputation.

Figure 2: Strategic Focus Area for CXOs and Business Leaders



Source: IDC Future Enterprise Resiliency & Spending Survey, February 2021

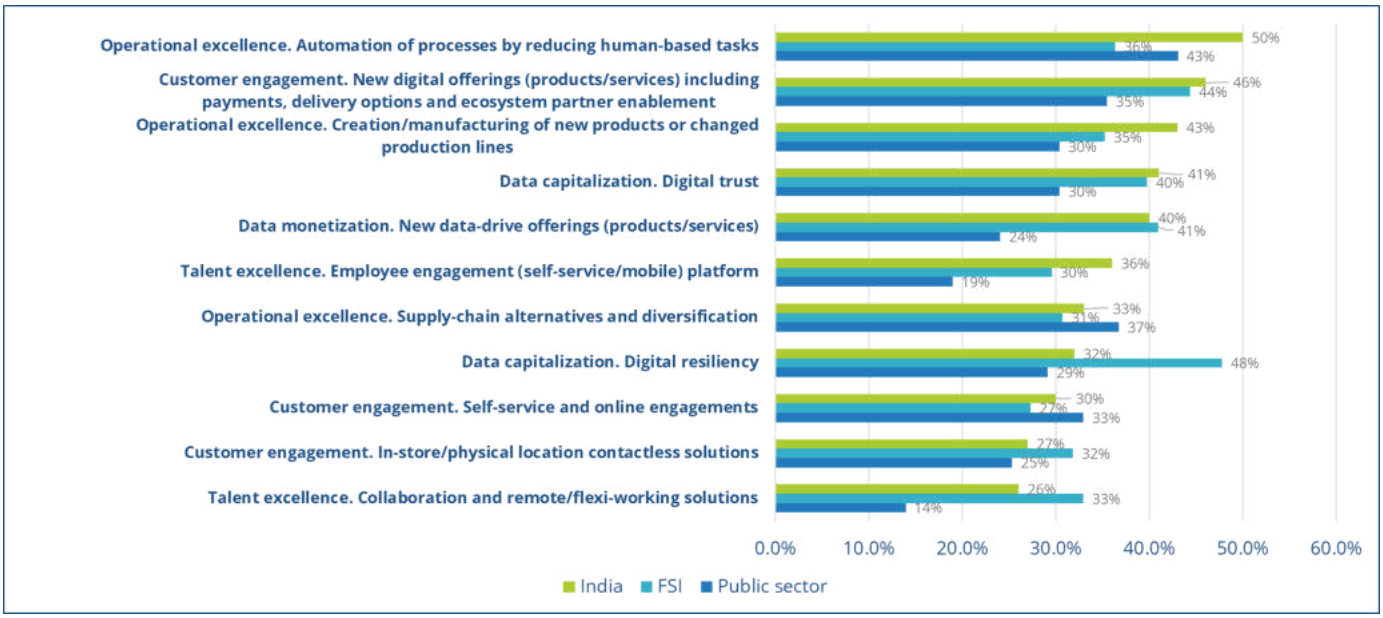
The CXOs and business leaders were compelled to re-evaluate their IT landscape and invest in solutions that helped them expand digital infrastructure, derive meaningful data insights, and put greater emphasis on building a trustworthy and secure environment to work in. The boardroom discussions have evolved, and security is no longer an afterthought, but well-structured and thought-out plan for every DX project implementation.

Therefore, organizations are no longer looking at securing data and assets alone, but the conversations have moved to a more cohesive environment which entails protecting every stakeholder in the value chain including employees, customers, and partners to increase business value through trust.

The Impact of the Pandemic on Digital Transformation and Rising Trends

In the wake of the recent pandemic, enterprises re-assessed their digital transformation (DX) initiatives and made great strides towards implementation. Organizations realized the importance of a long-term DX strategy and therefore prioritized investments in key areas.

Figure 3: Organizational Priorities Towards DX Vision and Roadmap



Source: IDC Asia/Pacific Business and Technology Leaders' Impact Survey 2021, N=513; India N=100

As per IDC's survey on Business and Technology Leaders' Impact, 50% of Indian organizations prioritized operational excellence, followed by 46% prioritizing customer engagement models and 41% favoring digital trust as a part of their DX vision, strategy, and roadmap. Improving customer and user experience requires technology and business

priorities to align together, which is where data analytics plays a crucial role. It empowers organizations to understand the customer journey and develop personalized campaigns and content at the backend using technology as the enabler and the cloud as the preferred mode of deployment. Going paperless not only ensures all the data getting stored digitally, but also enables better data analytics and insights on customer behavior thereby enhancing the overall experience.

Another aspect that was a compelling consideration was operational excellence. Since the pandemic hit, most enterprises struggled with operational bottlenecks. For instance, customer onboarding teams had to ensure the onboarding process, which involved paper-based forms, went uninterrupted despite lockdowns and disruptions. The new digital journey required the onboarding teams to engage customers digitally and utilize paperless environments to ensure resiliency and improve the overall customer experience while expediting the overall process, which created fresh new opportunities for the digital transformation of onboarding teams.

BFSI sector has been especially focused on strengthening digital resiliency through data capitalization along with new digital offerings to better engage with customers. BFSI is also enhancing the security and service delivery by utilizing digital signatures which provide multifactor authentication allowing for faster turnaround time and legal non-repudiation thereby reducing fraud. On the other hand, the public sector had to increase its focus on digital initiatives, especially around citizen services, IT modernization, and egovernance area. The sector was primarily centered around achieving operational efficiencies through task/ process automation, customer engagement through self-service portals, and online engagement.

The pandemic led to a strong focus on 'Future of Work', resulting in increased investments in areas such as Automation (Robotic Process Automation/ AI-based digital assistants) and collaboration and workflow management tools with IT security providing the backbone to the redefined infrastructure. In addition, organizations also prioritized improving operational efficiency through initiatives such as paperless transformation and the usage of digital ID. There is a strong need for solutions that can cater to the evolving requirements.

Enterprises have a strong preference for integrated suites, which is a move away from best-of-breed point solutions primarily due to the advantages it brings in for the enterprise: ease of sourcing, implementation and integration, management, support, and single point of contact for any troubleshooting. But what truly makes suite offerings stand apart is their capability to derive customer and operational insights from various applications by leveraging Artificial Intelligence (AI)/ Machine Learning (ML) and Analytics. This is increasingly becoming a key for organizations to differentiate themselves from their peers, derive better outcomes, and truly provide a world-class experience to their customers.

The COVID-19 pandemic has also exposed the vulnerabilities within an organization's security landscape and introduced new threats around data and user security, resulting in erosion of trust among partners, customers, and extended ecosystems. The most used techniques such as phishing, ransomware, malware, among others have caused significant disruption to businesses, not to mention reputational damage that follows along.

As a result, trust is no longer about securing data and assets, but it goes further to enhance business value, thereby becoming a competitive differentiator. According to IDC's Future Enterprise Resiliency & Spending Survey conducted in February 2021, 72% of the organizations considered Digital Trust programs to be the top/major priority technology investment over the next 2 years to ensure long-term resilience and success of the business.

One of the silver linings that came out of the pandemic was the greater awareness and inclination across the CXOs towards security adoption. As per IDC Wave surveys conducted throughout April 2020 to December 2020, close to 80% of the respondents interviewed in November 2020 displayed an intent to retain/increase security spending as against only 27% of respondents during April 2020. Furthermore, investment in Identity and Access Management solutions turned out to be among the top 3 priority areas to enable smooth workflow processes.

Challenges Associated with Enterprise-wide Transformation and the Road Ahead

Digital transformation initiatives tend to be a long and complex process depending on what stage of transformation the enterprise is at. Transitioning to digital formats requires a complete overhaul of the processes over time. For instance, some of the core processes in the insurance industry include marketing, product/proposition management, business acquisition, channel management, policy administration, customer service, claims management, and reinsurance management. However, the industry has majorly invested in the digitization of a few processes only such as customer service, claims management to name a few. There is a much broader scope for digitization of all the processes in an industry, to reap the benefits of a truly digital environment and improve digital experiences.

The pandemic made enterprises re-evaluate their entire IT ecosystem and find ways to transition from physical to digital and re-look at their data, applications, processes among others. With organizations spread across multi-geographies, various business units, and user bases, enterprises are struggling to find the right solution to manage these complexities without compromising on identity management and trust. A truly world-class digital experience cannot be achieved without ironing out these issues.

With the proliferation of the internet and eCommerce, society is deeply interconnected. The volume and velocity of electronic trade and transactions have increased exponentially because of this improved availability and connectivity. But, unlike physical commerce, the proliferation of trade through electronic transactions often results in transactions between parties who have no pre-existing relationship. This has resulted in cybersecurity risks such as identity theft and fraud. The lack of a defined trust infrastructure prevents governments and enterprises from going completely digital in global trade where the identity of parties needs to be ascertained securely and their authorizations or signatures captured be legally compliant.

This also brings in the added element of establishing digital identities and verifying the same to truly support digital strategies. With the evolving digital world, the elements that constitute digital identity are also evolving, for example, eSignatures—integral to implement paperless initiatives—are considered as digital identity as well. Many countries have established their digital ID assurance frameworks, guidelines, and standards to ensure all the protocols are identified and met. National Institute of Standards and Technology (NIST) digital ID assurance frameworks, Electronic Identification, Authentication and Trust Services (eIDAS), Trusted Digital Identity Framework (TDIF) are some of the well-established frameworks in the U.S., Europe, and Australia that outlines clear guidelines on the use of digital ID systems to verify customer/ user identification and follow due diligence processes.

While enterprises do realize the need for greater investment in identity management solutions, there are still some glaring concerns and challenges that they face in terms of adoption. Some of the major challenges include:

- Authentication and access controls for partners and contractors.
- Balancing security requirements and user experience for both customers and employees.
- Employees struggle with too many passwords.

- Users retaining access to critical systems after leaving the company.
- Still using legacy solutions and perimeter-based architecture to secure users.
- Standard solutions are not enough to meet the enterprise's requirements/objectives.
- Lack of MFA to control access to critical systems.

So Where is the Market Headed?

As per IDC's Digital Transformation Spending Guide, the overall DX spending for India, Middle East & Africa, Latin America, and Europe was estimated at US$237.1 billion during 2020 which contributed to 53% of the total IT investments (Hardware/ Software/ Services). The impact of the COVID-19 pandemic over businesses, such as the overnight shift to remote working, accelerated adoption of digital business model, adoption of cloud solutions, and increase in cyberattacks, all have been the growth enablers for the market. The DX spending is expected to grow at a CAGR of 16.2% during the period 2020-2024.

So, what is the real need of the hour? While enterprises endeavor to move to digital, the starting point for the same is to go paperless and deliver services and experiences through a truly digital medium. This is followed by organizing documents, automating some of the business processes using digital forms, gathering insights collected through the various digital channels, and leveraging analytics for meaningful and actionable insights. A lot of government departments have already gone paperless a few years back and set a new trend for other industries to follow.

The benefits of going paperless are many:

- **Customer Experience.** Improves entire customer journey and experience including customer onboarding, interactions, and entire lifecycle management.
- **Cost optimization.** Saves time, money, and space.
- **Risk and Governance Framework.** Centralized system for all your paper document trails, helps you to create transparency and governance framework.
- **Easy access to information.** As information is ubiquitous, it becomes imperative to have easy access to speed up delivery and services.
- **Single source of truth.** In large organizations with multiple signatories, there is a lot of legal liability on the organizations to validate and verify the signatures, which becomes complex to manage. An eSignature system can centralize the signatures, bring appropriate compliance and traceability thereby simplifying the entire process without compromising on the security aspect.
- **Better digital collaboration.** Due to information available anywhere, it enhances employee productivity through better collaboration.
- **Security.** Paperless approach offers higher security for sensitive data, as they are encrypted, and user access can be restricted.
- **Compliance and Regulation.** Multiple jurisdictions follow different data compliance and privacy regulations. For instance, Health Insurance Portability and Accountability Act (HIPAA), General Data Protection Regulation (GDPR), Payment Card Industry Data Security Standard (PCI-DSS), ISO 27001 / ISO 27018 are some of the laws

and regulations put in place by various governments and industry bodies which help safeguard customer data and trust. Electronic paper trails are easier to secure and enable full compliance, reduces risks associated with cyber security, data protection, and privacy. Also, digitization empowers businesses to effectively leverage data analytics and business intelligence tools to improve processes.

Introducing eMudhra: An end-to-end Solution Provider in the Digital Trust Space

eMudhra is the leading technology vendor in India, focusing on enabling secure digital transformation for an integrated digital society through their solutions that have been built based on providing digital identity and trust. With more than 12 years under its belt in the business of digital identity and transaction management, it has a global development center (GDC) with more than 200,000 square feet of space in Bangalore, and a global presence across the United States, Europe, Asia/Pacific, Middle East, Africa, Latin America, and India through more than 200 enterprise partners.

As the largest public Certifying Authority and the first Aadhaar eSign provider in India, eMudhra has played a pivotal role in enabling digital transformation in the country, envisioned under the Digital India initiative. Pivoting on its success in India, eMudhra went global and currently has a presence in more than 25 countries with a significant presence in the Middle East, Africa, United States, Europe, etc., becoming a Trust Service Provider in various global markets.

eMudhra is actively contributing to driving global identity standards as a member of several international bodies. eMudhra is a CAB Forum member with WebTrust accredited PKI operations, an Executive member, at Cloud Signature Consortium, and Chairperson of Asia PKI Forum. eMudhra is CMMI Level 5 certified and ISO 9001, 27001, and 20000-1 accredited.

eMudhra's business is built on the principle of delivering digital trust by helping users seamlessly and securely identify, authenticate, and authorize or sign digital transactions thus accelerating the transition to a presence-less and paperless way of doing business. Through this principle, eMudhra has been able to be a part of the digital transformation initiatives across various industry verticals, such as customer onboarding in BSFI, office transformation in government, ediplomas in education. eMudhra is the only Indian Certificate Authority to have undergone WebTrust audits with its roots trusted by Browsers (Chrome, Safari, etc.) and PDF reader applications (Adobe).

Figure 4: Worldwide Identity Software Forecast

Source: IDC Worldwide Identity Forecast, 2021–2025: Improving Identity Hygiene — It's Time for a Second Shot

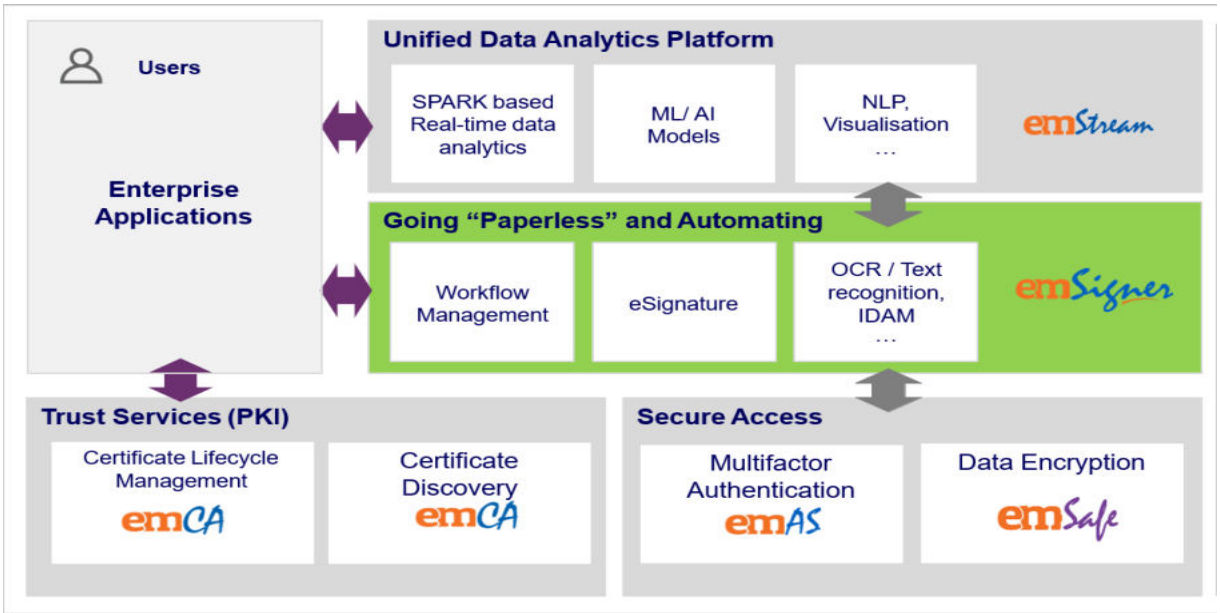
According to IDC, the focus segment for eMudhra which is the Identity and Digital Trust (IDT) market, is growing rapidly greatly accelerated by the pandemic. IDT market had overall revenue of $11.1 billion in 2020 and is expected to grow to $19.2 billion by 2025 with a CAGR of 11.6%.

eMudhra's Solutions Portfolio:

To leverage the market opportunities mentioned above and to ensure its principle is powering digital

transformation, eMudhra offers a range of solutions: Paperless document processing, Public Key Infrastructure Suite, Secure Identity Access, and Unified Data Analytics.

Figure 5: eMudhra Portfolio Offering End-to-End Services



Source: eMudhra, 2021

» **emSigner — Paperless Office Solution:**

emSigner is an AI-enabled document processing automation system with support for global eSignatures and capabilities for complete workflow automation. emSigner is a web-based application that is offered on the cloud and on-premises and is designed for large-scale enablement of paperless workflows through the usage of both qualified (CA-issued), Advanced, and Simple eSignatures.

This easy to deploy solution is containerized and comes with a set of features that allows organizations to manage their interactions with customers, vendors, and employees in a completely paperless manner. emSigner is also pre-integrated with leading enterprise resource planning (ERP) and customer relationship management (CRM) systems, such as Salesforce, SAP, Microsoft, and Google, and it offers an easy way to eliminate documents that require wet signatures to digitally signed documents.

» **emAS (eMudhra Authentication Server) and emSafe —Secure Identity Access:**

eMudhra Authentication Server (emAS) an on-premises authentication and access management solution along with data encryption provided by emSafe module allows seamless access management and support for multifactor authentication which can be leveraged by various industries, such as BSFI, government agencies, retail, etc. The solution can provide the following functionalities:

- Utilizes machine learning to provide adaptive authentication, application integration.
- It has 15 modes of in-built authentication with Single Sign-On capabilities.
- Policy, severity, and risk profile management for defining access control.

- **emCA — Public Key Infrastructure Management Suite:**

  emCA is a web-based solution and comprises modules such as emCA Certificate Manager (that helps in the creation of Root CA, Issuing CA, Policies, CRLs), RA/CA portal, timestamping, and OCSP client and responder. This suite supports encrypted communication, SCEP, CMP, connection with multiple HSMs, Multiple CA management, RSA & ECC algorithms, and is compliant with most of the standards, including EAL, RFC, and OWASP.

  This solution allows organizations and government departments to issue and manage the life cycle of digital certificates across a wide range of use cases and enables the deployment of Root, Public, and Private Certifying Authority for secure identity and transaction management. emCA has EAL 4+ & CC PP 1.5 Certifications. Further, emCA can issue up to 8192-bit keys and provides a robust RA module for effective life-cycle management of multiple certificate types. emCA supports certificate issuance for TSP's, IoT ecosystems, network-level access, and many other such use cases.

- **emStream — Unified Data Analytics:**

  Built on a big data layer using open-source Apache Spark, Hadoop Distributed File System (HDFS), and MongoDB (with R), emStream is used in sentiment, fraud, and risk analytics. With an in-house natural language processing engine matured over several years, eMudhra's emStream can easily uncover complex patterns across vast amounts of data.

  Business users can easily identify correlations, automate the machine learning process, and effectively apply the same from a large volume of data customer experience or risk mitigation initiatives without having to write a single line of code. emStream has been enhanced to support Image analytics for use cases in surveillance and establish identities in Images to be used for analytics purposes.

eMudhra's Distinctive Capabilities

- **Market leadership and brand reputation.** According to IDC software tracker 2021H1, eMudhra is ranked No.1 in Identity & Digital Trust Market in India. eMudhra's clients include the top 10 banks, national defence organizations, several states, and central government entities, and reputed clients across multiple industries. Their solutions and components are used by leading government agencies like the Goods & Service Tax Network, Income Tax Department, and Ministry of Corporate Affairs. They have also issued over 50 million digital certificates as a Certificate Authority with a growing presence across regions.

- **End-to-End Solution Provider.** The product portfolio of eMudhra encompasses the entirety of elements within the digital trust space and thereby eMudhra can provide an end-to-end portfolio around trust-driven transformation (Root, PKI, Identity Access Management, eSignature, etc.). This allows eMudhra's customers to leverage a more comprehensive stack to have better Return on Investment (ROI), easier implementation, and an overall better customer experience.

- **Flexible deployment model.** eMudhra's entire product portfolio is available in both On-Premises and cloud, allowing it to ensure that organizations across all revenue sizes, locations, and unique requirements (regarding compliance, internal control, and so forth) can benefit from their solution.

- **Innovative Framework.** eMudhra's product journey which began as a Certification provider in India and its current product portfolio indicates the innate innovation & development framework that eMudhra has with a clear idea of future market needs. eMudhra is researching & developing its solutions along the lines of IoT,

Blockchain & Quantum computing as these technologies are anticipated to have a very varied impact. It has already seen commercial use cases for IoT devices for various smart city initiatives and connected vehicles.

- **Partnerships.** It has partnerships with several application and technology providers across the world, such as IBM, Oracle, Thales, Microsoft, Google, etc. to facilitate secure digital transformations. In addition, it has partnerships with various international bodies that allow eMudhra to understand the future trends of the market.

Challenges in Powering a Trust-driven Paperless Ecosystem

- Moving to paperless requires a strong mindset and cultural shift. The pandemic pushed enterprises to look at digital models and moving to paperless was the first step towards the same. However, a lot of workflows across multiple industries still have strong dependencies on paper-based setup. The gradual shift to digital processes requires a dedicated plan and strategy to implement a paperless approach. This is where solution providers can showcase the long-term benefits of moving to a truly digital environment.
- Identity compromise is one of the most common security breaches in the world. With eSignature applications being completely new, the risk of compromise is on the higher side due to a lack of understanding in the developing world and requires attention to identity assurance in the eSignature process.
- With the ever-changing policies and regulatory landscape across various government bodies related to identity protection, data residency and eSignature legal compliance, enterprises struggle to keep up with the latest laws/ regulations around the same. Partnering with vendors that has a multi-geographic presence and is up to speed on legislation across these geographies will ease out the transformation journey.

Recommendation for Technology Buyers and Decision Makers

As an increasing number of organizations expand their digital footprint, they will need to take concrete steps to align IT/Business goals and ensure a smooth transition. IDC recommends the following for the IT/DX leaders within organizations:

- **Examine.** Create a detailed assessment plan of your organizations' digital roadmap. Identify your business objectives and evaluate your current technology investments to support your business goals in a digital world. Once they are identified, prioritize investments and distribute them across immediate, short-term, and long-term investments. This will provide clarity on actionable activities for effective outcomes.
- **Stakeholder Buy-In.** Business leadership must be completely on board and support DX initiatives. Technology investments result in new solutions and approaches, which fail half the time if business leaders don't support them. An integrated approach that encompasses an organizations' core functions requires solid backing from the leadership on all fronts. This also helps in identifying loopholes during the transition and do course corrections without delay.
- **Digitize by going paperless.** This is the starting point for any successful digital transformation. However, to go paperless as per Electronic Transactions Act/ UN Model law, countries need a combination of the trust service provider as well as a solution provider who can showcase capabilities and robust use cases around trust services and application capabilities.
- **Choose flexible solutions.** Flexibility plays a huge role in vendor selection as achieving enterprise-wide transformation cannot be done with commoditized offerings and require vendor and solution flexibility.

Vendors who have a strong and comprehensive stack of offerings that are easy to implement, can be deployed on-premises or on the cloud, improve ROI, and enhance customer experience will be the preferred partners of the future.

- **Innovation as a part of the vendor's DNA.** Partner with vendors who have an innovative mindset and think way ahead in the future, and have significant investments made on next-generation technology such as blockchain, IoT, quantum crypto, among others to advance capabilities in the digital trust space.

MESSAGE FROM THE SPONSOR

With proliferation of internet and eCommerce, society is deeply interconnected. The volume and velocity of electronic trade and transactions has increased exponentially because of improved availability and connectivity. But, unlike with physical commerce, the proliferation of trade through electronic transactions often results in transactions between parties that have no pre-existing relationship. This has resulted in cybersecurity risks such as identity theft and fraud.

The lack of a defined trust infrastructure prevents governments and enterprises from going completely digital in global trade where the identity of parties needs to be ascertained securely and their authorizations or signatures captured be legally compliant.

eMudhra's business is built on the principle of delivering digital trust by helping users seamlessly identify, authenticate, and authorize or sign digital transactions thus accelerating the transition to a presences-less and paperless way of doing business. To learn more about how we contribute towards enabling a Digital Society, click here

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Shweta Baidya is a senior research manager and leads the India practice on the software and IT services market. She is responsible for delivering syndicated, custom research reports and consulting projects on various categories under emerging and disruptive technologies. She has established a strong vendor network in the IT community and has significant exposure toward strategies adopted by leading players in the space. Her role involves closely collaborating with technology vendors and providing advisory services in the fields of software, security, and IT services.

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IDC Custom Solutions

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