ForgeRock®

Unlock the Power of Digital Identity in Manufacturing

Modernize the Connected Manufacturing Ecosystem, Drive Direct-to-Customer Relationships, and Secure Smart Manufacturing
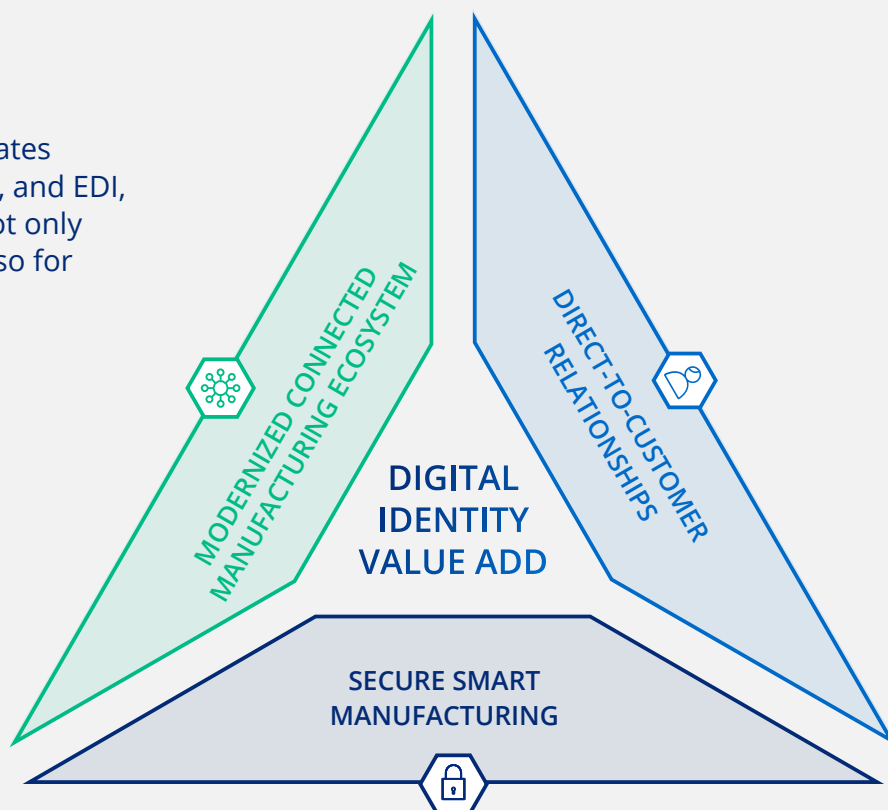
Introduction

As a manufacturing leader, you continue to seek sustainable solutions to the challenges posed by a rapidly changing supply chain, an unpredictable trading environment, and the market changes arising from the COVID-19 pandemic. You struggle to get the real-time insights into your fragmented supply and partner ecosystem needed to improve your business agility. Your investments in developing and deploying value-added services are falling short of creating customer experiences needed to drive new revenue streams. Your attempts at unleashing innovative technologies (Internet of Things (IoT), in particular) leave you exposed to the growing cybersecurity risks that threaten to cripple your operations and risk compromising customer trust. Standing still is no longer an option as your competitors continue to increase adoption of Industry 4.0 and Industry X.0 technologies.

ForgeRock unlocks the power of digital identity to help your customers, workforce, suppliers, partners, and 'things' safely and simply access the connected manufacturing ecosystem. Our capabilities and continuous track record of delivering value for our manufacturing customers places us in a unique position to help you:

- Modernize your connected manufacturing ecosystem.
- Drive direct-to-customer relationships.
- Secure smart manufacturing.

"ForgeRock is pivotal for our digital engagement platform. It authenticates customers across mobile, web, API, and EDI, so it is quite important to us. It's not only for customers and partners, but also for machine-to-machine traffic."

Angel Donchev
Vice President, Platform Tech Lead
Maersk

DIGITAL IDENTITY VALUE ADD

MODERNIZED CONNECTED MANUFACTURING ECOSYSTEM

DIRECT-TO-CUSTOMER RELATIONSHIPS

SECURE SMART MANUFACTURING

Unlock the Power of Digital Identity in Manufacturing

ForgeRock prides itself in helping people safely and simply access the connected world. We strive to meet this mission by enabling exceptional digital experiences, no compromise security, and comprehensive functionality at any scale with simple and flexible implementations. But how can digital identity help you to meet the emergent threats and opportunities head on? Understanding this requires a deeper look at challenges facing the manufacturing sector.

Modernize the Connected Manufacturing Ecosystem: The Challenge

Your downstream supply chain ecosystem is in a state of flux. The rampant rise of economic nationalism further compounded by the onset of the COVID-19 pandemic has exposed supply chain vulnerabilities. This has led your manufacturing competitors to move toward both diversifying and de-globalizing their supply base. Gartner research shows that 33% of supply chain leaders intend to move their supply chain out of China by 2023. Your competitors are increasing their investments in digital transformation in a bid to develop agile supply chain capabilities that provide increased visibility needed to reduce costs and lower the risk of future demand- and supply-side shocks. According to research commissioned by IBM, 67% of decision-makers in the manufacturing sector have accelerated their digital projects in direct response to COVID-19. The success of your business in this new paradigm will be increasingly driven by your ability to securely and seamlessly onboard and offboard your suppliers, while maintaining real-time visibility of your supply chain ecosystem.

Your upstream partner ecosystem is rapidly expanding as you develop new value-added services on top of your products. This has led your manufacturing competitors to increase investments in both digital customer experiences (further explored in the next section) and strategic partnerships. According to the "Annual Manufacturing Report 2020" published by The Manufacturer, 81% of leaders in this sector believe that digital technology will enable access to new markets and customers.The "2021 Digital Transformation Assessment" report shows that the importance of supply chain and partner ecosystem visibility

94%

of Fortune 1000 companies experienced a supply chain disruption as a result of COVID-19.

Fortune.com

has increased from 60% before the onset of COVID-19 to 71% in late 2020. Research from the Ponemon Institute shows that 60% of manufacturers in the United Kingdom have faced some form of cybersecurity attack, with 38% of those attacks attributed to the credentials of negligent workers or contractors. The 2021 ForgeRock Consumer Identity Breach Report estimates that 43% of all breaches are attributable to unauthorized access. Building a secure and agile downstream and upstream ecosystem that can adapt to market changes and maintain your competitive edge while driving new revenue streams is largely a function of your ability to secure, streamline, and easily manage an extensive identity fabric while complying with stringent privacy regulations.

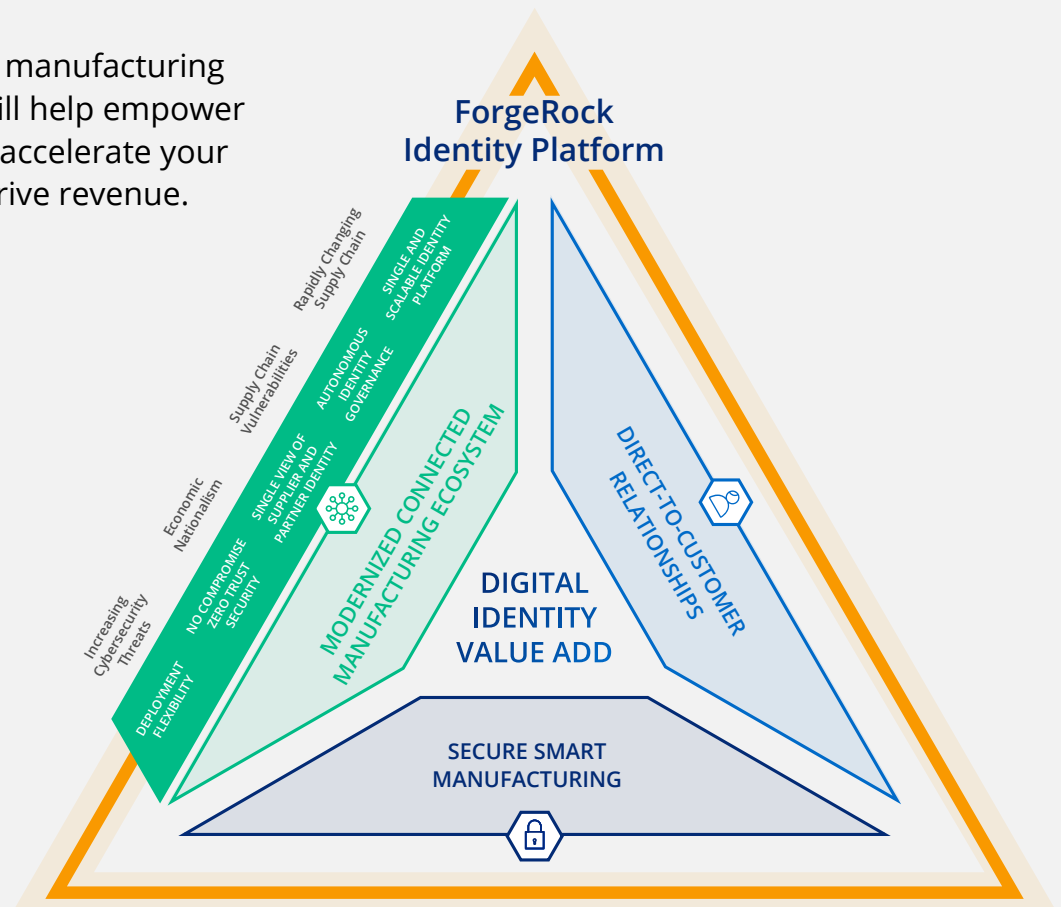# Modernize the Connected Manufacturing Ecosystem: The Solution

ForgeRock addresses these challenges by enabling digital identity to help you modernize your connected manufacturing ecosystem through:

1. **A Single and Scalable Identity Platform:** Harness the rich capabilities of the artificial intelligence (AI)-powered ForgeRock Identity Platform to securely and seamlessly manage supplier and partner identities, access requests, and entitlements.

2. **Autonomous Identity Governance:** Leverage AI-driven identity analytics to accelerate secure access, achieve regulatory compliance, mitigate risks, and reduce costs across your supplier and partner ecosystem. Automate high-confidence access approvals, recommend certification for low-risk accounts, and automate the removal of unnecessary roles to secure and optimize your digital identity governance.

3. **Single View of Suppliers and Partners:** Bring together multiple identity sources to create a consistent and single view of your suppliers and partners across your end-to-end supply, production, and distribution chain in order to increase your business agility.

4. **No Compromise Zero Trust Security:** Secure your supplier, partner, and operational data across organizational boundaries to mitigate the risk of breach and identity fraud while protecting your industrial intellectual property and sensitive data from emergent attack vectors.

5. **Deployment Flexibility:** Seamlessly deploy your supply chain, production, and distribution applications across self-managed, any cloud, as-a-service, or hybrid identity and access management (IAM) environments, reducing your time to value and your operational costs.

Modernizing your connected manufacturing ecosystem with ForgeRock will help empower your partners and suppliers, accelerate your digital transformation, and drive revenue.

> "ForgeRock is one of the thought leaders in the Access Management space, and is heavily involved in standardization efforts for new protocols."
>
> Gartner, Magic Quadrant for Access Management, 2020

Drive Direct-to-Customer Relationships:
The Challenge

The market for personalized manufactured goods is expected to grow to $39 billion by 2021. Your manufacturing competitors are investing in growing their direct-to-customer (D2C) capabilities in a bid to capture this market while further enhancing customer brand loyalty. Meanwhile, the COVID-19 pandemic has pushed customers away from traditional brick-and-mortar retailers to online channels. A study commissioned by IBM shows that 85% of manufacturing leaders are prioritizing new customer acquisition as a direct consequence of the pandemic. According to Deloitte, 36% of customers are more willing to buy products they can customize, with 20% of this population willing to spend more on these than they otherwise would have done. The explosion of IoT, non-human identities, and connected devices creates new opportunities for manufacturers seeking to build value-added services on top of consumer products. Delivering great omnichannel experiences and building up a single view of your customer needs has never been more important.

According to Forbes, companies that align their digital transformation efforts with customer experience generate economic gains of between 20% and 50%. Creating great omnichannel experiences means understanding and connecting the "digital signals" across your customer's journey. From the moment they register with a social identity to the moment they engage with your brand online, your customers require consistency and personalization. Your D2C transformation agenda needs a well-anchored digital identity strategy that converts these "signals" into unified and personalized experiences, further solidifying your customers' brand loyalty.

82%

of manufacturers believe that selling directly to customers improved their relationships with them.

Forrester

Significantly, 76% of manufacturing decision-makers surveyed by Forrester believe that the D2C approach can further enhance such customer experience. Brand loyalty, in turn, is increasingly driven by your ability to build up a single view of your customer needs and engagement habits and utilize this to deliver personalized messaging and experiences across multiple digital channels. Successfully personalizing your products and customer experiences through a scalable D2C strategy to drive revenue and competitive advantage is a function of your ability to secure, streamline, and rapidly deploy a digital identity infrastructure built for tomorrow's needs.

Drive Direct-to-Customer Relationships:
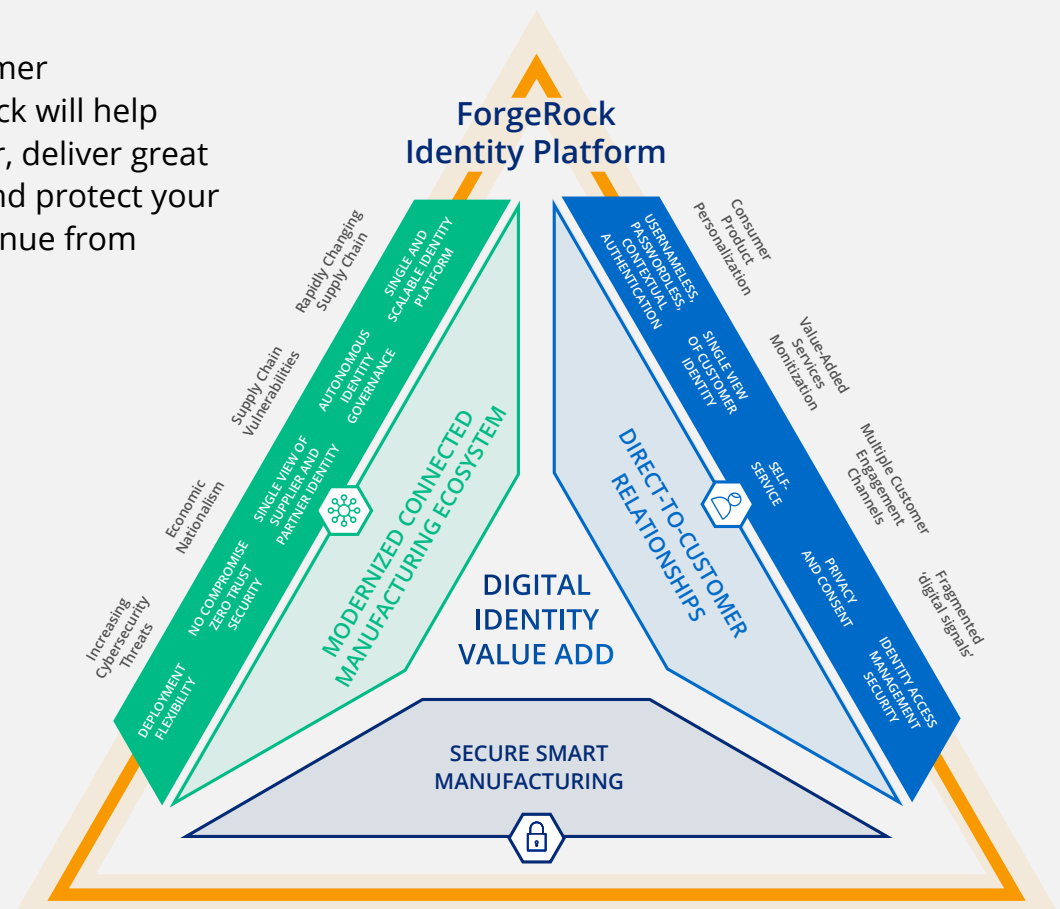## The Solution

ForgeRock addresses these challenges by enabling digital identity to help drive your direct-to-consumer relationships through:

1. **Usernameless, Passwordless, and Contextual Authentication:** Give your customers the choice of using device-based authentication, and/or strong authentication to ensure authentication flows that fit with your customers' shopping habits and preferences and avoid friction that might drive them away from your brand.

2. **Single View of Customers:** Bring together multiple identity sources, including insights generated by consumer IoT, to create a single view of your customer needs, preferences, engagement behaviours, and leverage these to personalize D2C offerings, monetize IoT, and drive revenue from value-added offerings.

3. **Self-Service:** Give your customers the ability to seamlessly manage their authentication credentials (including password resets) and preferences (including

marketing options, security, and privacy settings), and eliminate the need to contact customer service, thereby reducing your overhead costs.

4. **Privacy and Consent:** Give your customers the ability to control who and what gets access to their personal identifiable information, for how long, and under what circumstances. This builds and maintains a trusted digital relationship while aligning with GDPR compliance requirements.

5. **Comprehensive Identity and Access Management Security:** Secure digital identities across multiple web applications, application programming interfaces (APIs), and microservices with a single identity gateway solution to keep your infrastructure responsive to emerging cybersecurity threats.

Accelerating direct-to-consumer manufacturing with ForgeRock will help you acquire customers faster, deliver great omnichannel experiences, and protect your customers while driving revenue from smart manufactured goods.

> "ForgeRock is an innovative product for enterprise solutions."
>
> Stephanus Rieger
> Group IT, Infrastructure and
> Technology Management
> BMW Group

ForgeRock Identity Platform

MODERNIZED CONNECTED MANUFACTURING ECOSYSTEM

DIRECT-TO-CUSTOMER RELATIONSHIPS

DIGITAL IDENTITY VALUE ADD

SECURE SMART MANUFACTURING

Secure Smart Manufacturing:
The Challenge

The Fourth Industrial Revolution, or "Industry 4.0," as it is called, has ushered in a wave of technologically driven transformation across the manufacturing sector. Continued investments in harnessing innovative technologies to drive optimization, automation, and connectivity between operational technologies (OT) and information technologies (IT) have moved business forward but not at the pace hoped for. The advent of ultra-fast connectivity, the move to cloud, and edge computing, as well as the emergence of disruptive technologies such as IoT, artificial intelligence (AI), machine learning (ML), and machine-to-machine communication (M2M), have led many manufacturers to invest in nascent Industry X.0 capabilities in hopes of gaining a competitive edge.

The explosion of both industrial and consumer IoT is a case in point, with Forbes estimating a growth in smart devices rising from 35 billion in 2021 to 75 billion by 2025. Momentum aside, the ROI on your Industry 4.0/X.0 investment remains uncertain and unpredictable. Research from Accenture shows that the average maturity of end-to-end manufacturing transformation operations is a meager 39%, with the oil/gas and aerospace/defense industries taking the lead. Increasing the adoption, maturity, and value of your Industry 4.0/Industry X.0 technologies depends on being able to secure, effectively manage, and scale your non-human digital identity infrastructure.

The exponential rise of non-human identities (including physical and virtual 'things') in the manufacturing sector, coupled with the increasing scope, scale, and sophistication of advanced persistent threat groups (APTG) seen during the COVID-19 pandemic, points to the fragility of IoT security. The 2020 Nokia Threat Intelligence report claims that IoT identities alone represent over 32% of cyber attacks in 2020 across mobile networks, as compared to 16% in 2019. Cybersecurity risks have moved up your competitors' agenda, with 92% of surveyed manufacturing leaders prioritizing threat mitigation capabilities in 2020, as compared to 82% a year prior.

This helps explain the increased spending on non-human identities, and IoT in particular, across the manufacturing sector, which IDC estimates will reach $119 billion by 2022. Your return on investments in non-human identities will also be driven by your ability to harvest, analyze, and enable

$263 billion

Industrial IoT (IIoT) is set to become a $263 billion industry by 2027.

Forbes

data generated by these to drive actionable and predictive insights to help automate and optimize your product life-cycle management (PLM) and manufacturing operations management (MOM), while streamlining and personalizing your IoT-driven D2C value-added services.

According to Gartner "hype cycle," IoT alone, is yet to peak and reach mainstream adoption, leading your competitors to accelerate their investments in securing, deploying, and scaling these technologies across globally dispersed hybrid cloud infrastructures. Being able to fully harness and exploit the value of emergent smart manufacturing technologies to automate and optimize MOM and drive revenue from new markets is a function of your ability to create trusted relationships between devices, systems, data, and people through a scalable and easy-to-deploy digital identity infrastructure.
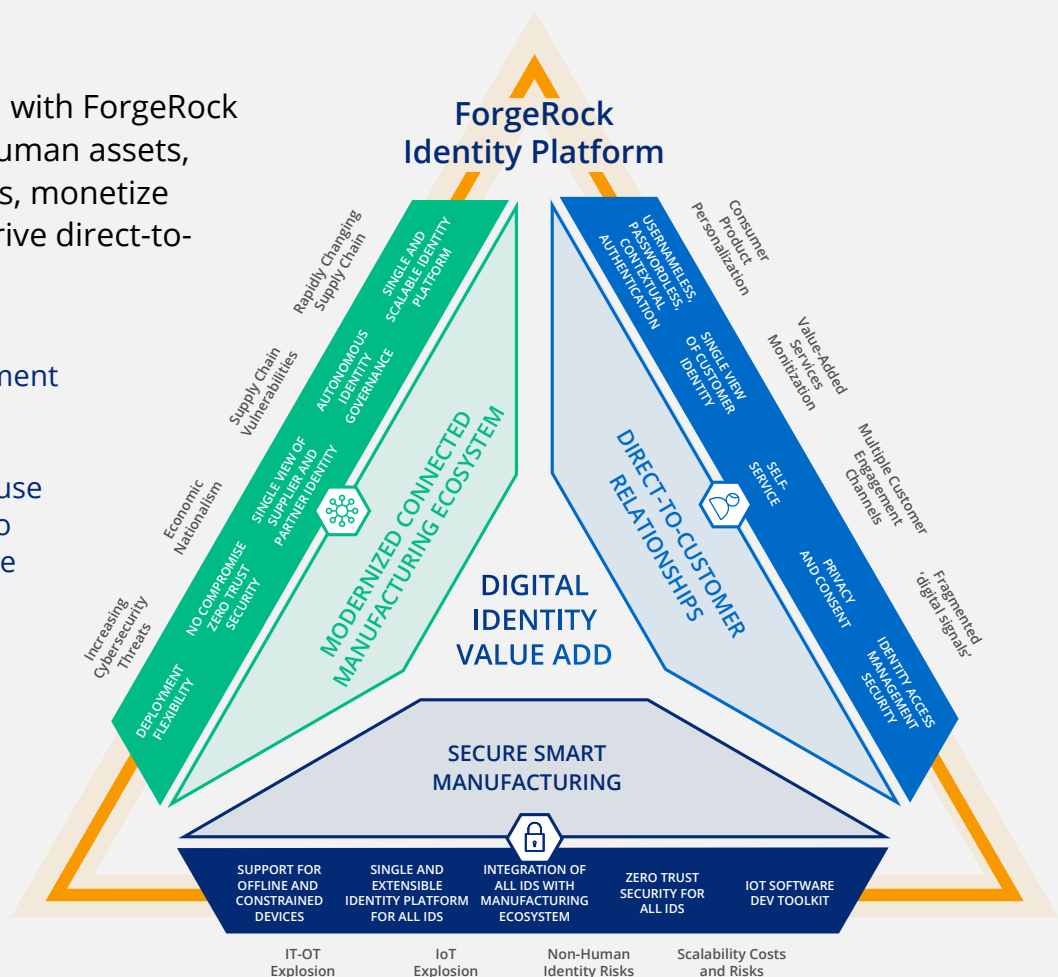
Secure Smart Manufacturing:
The Solution

ForgeRock addresses these challenges by securing and enabling your non-human digital identities through:

1. **A Single and Extensible Identity Platform for All Identities:** Extend the rich capabilities of the ForgeRock Identity Platform to the edge to create secure and seamless management of your IoT, OT, and other non-human identities, creating relationships between human users and IoT devices that can be used to establish ownership, liability, personalization, or audit trails.

2. **No-Compromise Zero Trust Security for Non-Human Identities:** Deploy a standards-based approach for authenticating and authorizing non-human identities, providing an automated, dynamic, and scalable method for registering and securing devices that does not require human intervention.

3. **Support for Offline and Constrained Devices:** Manage devices in your manufacturing environment that reside in remote, hard-to-reach locations, yet are critical to secure and run properly to support business operations.

4. **IoT Software Development Toolkit (SDK):** Integrate IoT authentication flows into your business applications, allowing you to securely and automatically onboard things into manufacturing technology stacks, giving you real-time device visibility across your supply, production, and distribution ecosystems.

5. **Integration with the Manufacturing Ecosystem:** Incorporate IoT identities with the wider IoT ecosystem, including leading platforms, such as Amazon Web Services (AWS) IoT, Microsoft Azure IoT, and Google IoT to reduce your time to value and implementation costs.

Unleashing digital innovation with ForgeRock helps you secure your non-human assets, reduce your operational costs, monetize your edge technology, and drive direct-to-consumer revenue.

"ForgeRock Access Management enables us to deliver a real world 'Internet of Things' experience – allowing us to use the car itself as an identity to provide authentication to the services platform."

Kostas Ghirkizas
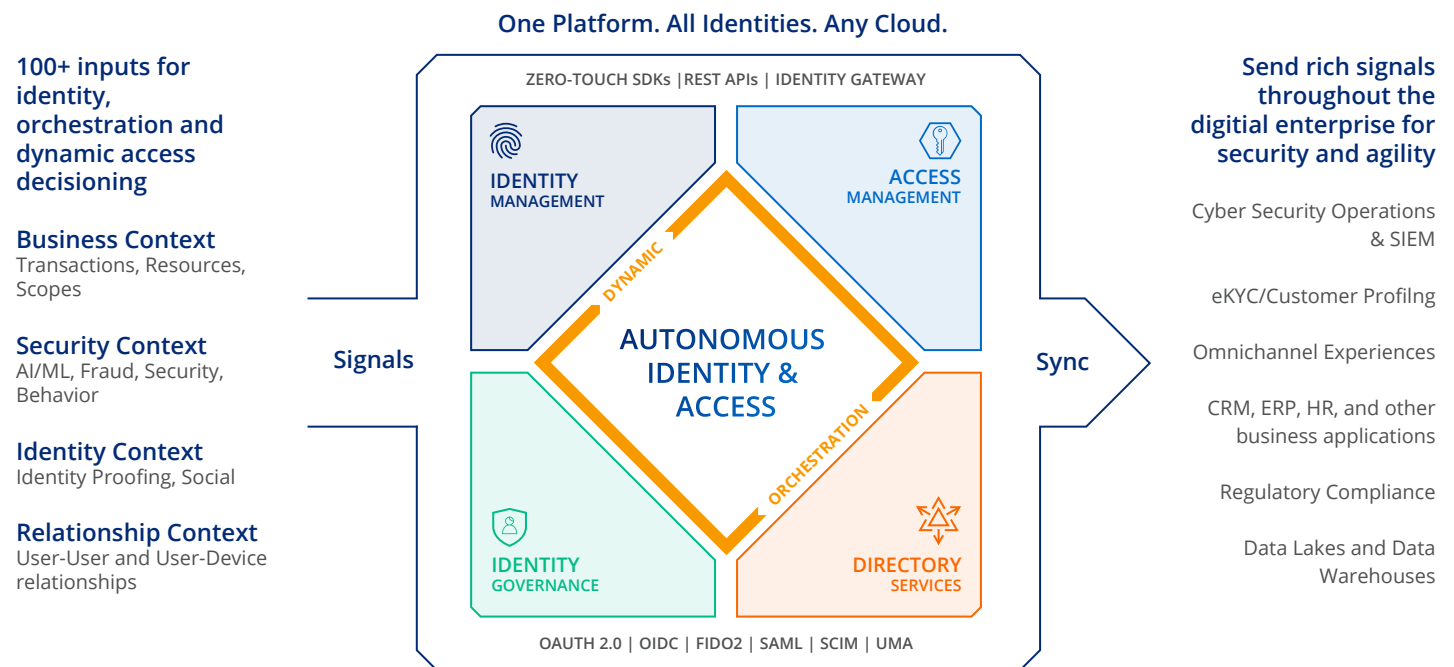Senior Project Manager
Toyota Motor Europe

Summary

A rapidly shifting supply chain, an unpredictable international trading environment, and the rising prevalence and scale of market distortions mean that business agility is no longer a nice-to-have in your quest to maintain competitive advantage. Anchoring a comprehensive digital identity strategy at the heart of your digital transformation can help you modernize your connected manufacturing ecosystem, drive direct-to-consumer relationships, and secure smart manufacturing.

ForgeRock helps unlock the power of digital identity to help your customers, workforce, partners, suppliers, and non-human identities safely and simply access the connected manufacturing ecosystem. We deliver truly transformational, exceptional, secure, and trusted user experiences. Taking advantage of the industry-leading

ForgeRock Identity Platform and ForgeRock Hybrid Identity and Access Management can help you accelerate your digital transformation, drive revenue, deliver great omnichannel experiences, secure your manufacturing ecosystem, and monetize your non-human identities. ForgeRock is recognized as a leader in Customer Identity and Access Management (CIAM) by the 2020 Forrester Wave, the 2020 KuppingerCole Leadership Compass for CIAM, the 2020 Gartner Magic Quadrant for Access Management, and is an an overall leader in the 2021 KuppingerCole Leadership Compass for Identity Fabrics. It is uniquely positioned to help manufacturing customers fully harness a return on their digital transformation investments.

Get ahead of your competition by leveraging digital identity to its maximum potential with ForgeRock.

The AI-Powered ForgeRock Identity Platform

One Platform. All Identities. Any Cloud.

100+ inputs for identity, orchestration and dynamic access decisioning

Business Context
Transactions, Resources, Scopes

Security Context
AI/ML, Fraud, Security, Behavior

Identity Context
Identity Proofing, Social

Relationship Context
User-User and User-Device relationships

ZERO-TOUCH SDKs | REST APIs | IDENTITY GATEWAY

IDENTITY MANAGEMENT

ACCESS MANAGEMENT

DYNAMIC

AUTONOMOUS IDENTITY & ACCESS

ORCHESTRATION

IDENTITY GOVERNANCE

DIRECTORY SERVICES

OAUTH 2.0 | OIDC | FIDO2 | SAML | SCIM | UMA

Signals

Sync

Send rich signals throughout the digitial enterprise for security and agility

Cyber Security Operations & SIEM

eKYC/Customer Profilng

Omnichannel Experiences

CRM, ERP, HR, and other business applications

Regulatory Compliance

Data Lakes and Data Warehouses