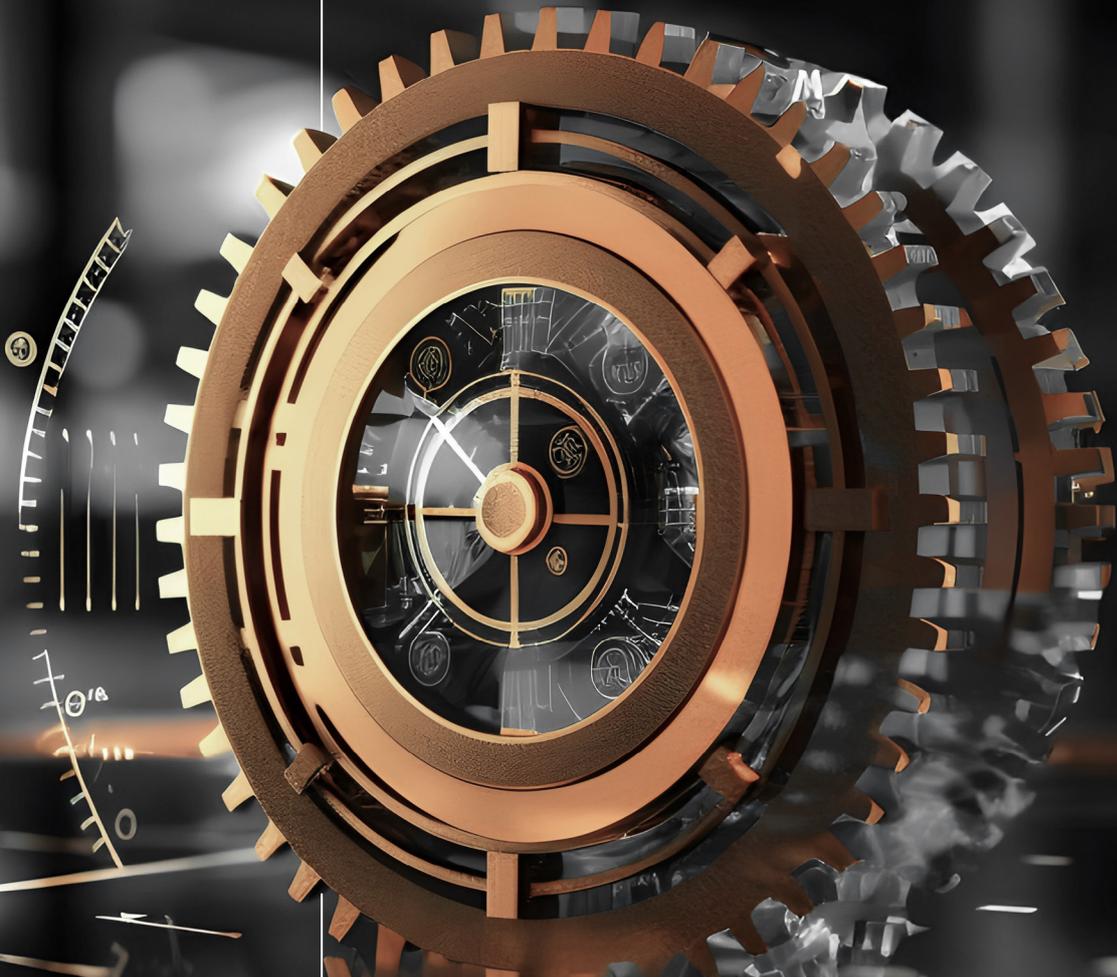


Leveraging blockchain in hyperautomation



Executive summary



Mario Smeets
Partner & Managing Director
Eraneos Automation
+49 173 990 80 32

mario.smeets@eraneos.com

Hyperautomation—the use of modern technology to automate tasks end-to-end—is radically changing different industries. Basically, hyperautomation describes a system that combines artificial intelligence (AI), robotic process automation (RPA), machine learning (ML), process mining (PM), and other technological approaches to streamline processes, lower costs, and improve decision-making.

Still, maintaining data integrity, security, and openness across automated systems presents a significant barrier as well as a chance to progress process automation. At Eraneos, we believe that in the years to come the combination of blockchain technology with process automation offers a promising strategy worth examining and using. Because of its distributed, tamper-proof, open qualities, blockchain offers a unique answer to these organizational challenges.

By including blockchain into hyperautomation strategies, companies can raise process auditability, increase process trustworthiness, and encourage ecosystem based cooperation.

This whitepaper explores the synergies between blockchain and hyperautomation, therefore giving businesses practical insights aimed at leveraging the transforming power of this technology-mix.

We kindly encourage our distinguished readers, to travel with us on this exciting journey.

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The promise of blockchain in hyperautomation

What is hyperautomation?

Hyperautomation transcends conventional automation by amalgamating diverse systems and employing advanced analytics and artificial intelligence to perpetually enhance processes.

Essential elements comprise:

- **Robotic Process Automation (RPA):** Automating monotonous activities.
- **Artificial Intelligence and Machine Learning:** Facilitating predictive and prescriptive analytics.
- **Process Mining:** Evaluating workflows for inefficiencies.
- **Integration Tools:** Facilitating uninterrupted connectivity among systems.

The role of blockchain

Blockchain technology offers a decentralized ledger system that guarantees data permanence, security, and consensus-based verification. These attributes are essential for establishing trust and efficiency in hyperautomated settings. Essential blockchain attributes pertinent to hyperautomation encompass:

- **Data Integrity:** Immutable records guarantee reliable inputs for automated operations.
- **Decentralization:** Eliminates single points of failure and enhances system resilience.
- **Smart Contracts:** Automated, self-enforcing agreements optimize workflows.
- **Transparency and Auditability:** Guarantees adherence to regulations and facilitates the auditing process.



How blockchain helps to automate processes

Blockchain technology offers a safe, open, distributed platform for managing workflows, hence improving process automation. Its primary features, such as immutability, consensus systems, and programmability through smart contracts, directly facilitate automation in numerous ways:

01. Smart contracts for autonomous execution

Smart Contracts Programmable agreements called smart contracts automatically carry out pre-defined actions when particular circumstances are satisfied. Operating on the blockchain, these contracts provide tamperproof, self-enforcing logic. This capacity removes the need for middlemen or hand inspection, so facilitating complete automation of jobs, including:

- Invoice payments begin with the acquisition of goods or services.
- Regulatory Compliance: Managers automatically flag and control infractions.
- Workflow orchestration involves automating exchanges among systems or companies.

Example: In a supply chain, for instance, a smart contract might pay a provider when IoT devices verify delivery and quality standards.

02. Data integrity and real-time access

Blockchain generates unchangeable transaction records, therefore guaranteeing data integrity. Blockchain serves as a trustworthy data source in hyperautomation systems, because decisions depend on precise and consistent data:

- **RPA Validation:** Before moving on with automated activities, bots can check data validity against blockchain records.
- **Machine Learning:** For training and predictions, artificial intelligence/machine learning models can use verified and safe blockchain data.

03. Cross-organizational automation

By establishing a single source of truth, blockchain allows smooth cooperation and automation throughout companies. In ecosystems including several players, such as supply chains or finance, this is very helpful:

- **Data Sharing:** Automated data exchange between companies free from middlemen is known as data sharing.
- **Event- Driven Actions:** Starting downstream operations in affiliated companies upon particular blockchain events.

04. Enhanced auditing and compliance

Frequent audits of automated systems are required to guarantee traceability and compliance. Blockchain simplifies this by:

- Making tamper-proof logs allows auditors to quickly follow the background of automated decisions and transactions.
- Automated systems can cross records against blockchain-stored regulatory criteria, therefore streamlining compliance checks.

Therefore, blockchain can add to the discussion around governance and audit-proof process automation.

Use cases: Blockchain in hyperautomation

The following use cases serve as a comprehensive overview of various areas of application of the integration of blockchain within the context of hyperautomation.

01. Supply chain optimization

In hyperautomated supply chains, blockchain ensures real-time data sharing and verification across stakeholders, including suppliers, logistics providers, and retailers.

How It Works: Smart contracts trigger payments upon delivery confirmation. Blockchain ensures the authenticity of delivery records.

Benefits: Reduced fraud, enhanced visibility, and faster dispute resolution.

02. Financial services

Blockchain enhances hyperautomated financial operations such as claims processing, loan approvals, and trade settlements.

How It Works: Automated workflows use blockchain to verify transactions and execute smart contracts for settlements.

Benefits: Reduced operational costs, improved accuracy, and faster processing.

03. Healthcare

In hyperautomated healthcare systems, blockchain ensures the secure exchange of patient data between providers, insurers, and patients.

How It Works: RPA processes patient data while blockchain provides a secure, immutable record of data sharing.

Benefits: Enhanced data privacy, streamlined processes, and regulatory compliance.

04. Human resources

Blockchain supports hyperautomation in HR processes such as talent acquisition and payroll management.

How It Works: Blockchain verifies credentials and tracks automated processes, while smart contracts manage payroll.

Benefits: Improved candidate verification, error free payroll, and faster onboarding.

These use cases are intended to serve as examples and food for thought. In the coming years, the aim is to create robust pilots and productive automated processes.

Key advantages of blockchain in hyperautomation



The following use cases serve as an exemplary overview of areas of application of the integration of blockchain within the context of hyperautomation.

01. Enhanced trust and transparency blockchain's role:

- Blockchain's decentralized and immutable ledger creates a so called "single source of truth" for all participants in an automated ecosystem.
- Every transaction or process step is recorded and time-stamped, ensuring visibility for participants in the blockchain and relevant stakeholders without altering data.

Benefits:

- **Auditability:** All transactions and process workflows are easily auditable, reducing time spent on compliance and dispute resolution (be aware, mind shift needed regarding auditing and audit departments).
- **Stakeholder Confidence:** Decentralization ensures that no single entity controls the data, fostering trust among business partners (be aware again, an increase of trust requires an accompanying change management).

Example: In a hyperautomated supply chain, blockchain allows all stakeholders (suppliers, manufacturers, and retailers) to access real time updates about product movement, ensuring transparency and minimizing disputes or reconciliation requirements.

02. Improved data security and integrity

Blockchain's Role:

- Data on the blockchain is encrypted and distributed across nodes, making it virtually tamper-proof.
- Consensus mechanisms prevent unauthorized modifications, ensuring data integrity throughout automated processes.

Benefits:

- **Protection Against Fraud:** Immutable records prevent data tampering, fraud, and unauthorized changes.
- **Secure Data Sharing:** Automated processes involving multiple organizations can share sensitive data securely without intermediaries.

Example: In healthcare, patient records processed by RPA and AI systems can be securely stored and accessed via blockchain, ensuring data privacy and compliance with regulations like GDPR or HIPAA.

03. Streamlined interoperability

Blockchain's Role:

- Blockchain facilitates interoperability by creating a unified platform for communication and data exchange between disparate or decentralized systems and organizations.
- Smart contracts ensure consistency and enforce prior defined process rules among all participants.

Benefits:

- **Seamless Ecosystem Collaboration:** Different automated systems, such as RPA bots or AI modules, can interact via blockchain, eliminating data silos. Today this is still done manually or via separate Workflow-tools.
- **Reduced Reconciliation Time:** Automated workflows can reconcile discrepancies in real time using blockchain's consistent data.

Example: In financial services, blockchain allows different institutions to settle transactions automatically without relying on intermediaries, ensuring consistency across automated systems and increasing the time spent on reconciliation.

04. Reduced operational costs

Blockchain's Role:

- By removing intermediaries, automating processes with smart contracts and eliminating manual reconciliations, blockchain reduces the overall long-term cost of operations (but: take one-time efforts for set-up into account).
- Decentralized validation minimizes the need for central oversight and redundant systems.

Benefits:

- **Cost-Effective Automation:** Hyperautomation systems backed by blockchain reduce administrative overhead and transaction fees.
- **Faster ROI:** Streamlined workflows and secure settlements translate into quicker returns on automation investments (be aware of the initial one-time efforts, see above).

Example: In cross-border trade, blockchain eliminates the need for third-party escrow services by automating payment and delivery verification through smart contracts.

05. Faster and more reliable settlements

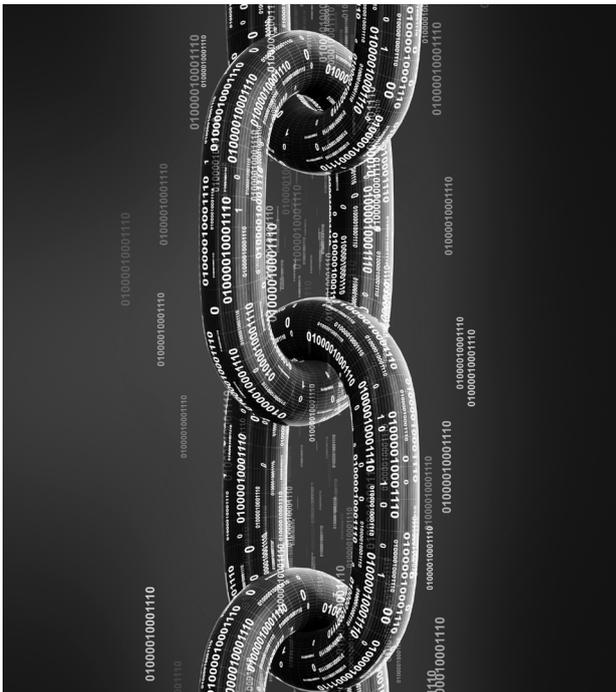
Blockchain's Role:

- Smart contracts automate settlement processes, such as financial transactions or compliance verifications, reducing delays.
- Blockchain eliminates reliance on intermediaries, enabling real-time processing (this is also one of the major benefits of the “Digital Euro” that is often forgotten).

Benefits:

- **Instantaneous Execution:** Automated workflows execute tasks faster, improving process efficiency.
- **Error Reduction:** Blockchain's accurate and immutable records minimize settlement errors.

Example: In trade finance, blockchain automates the “delivery vs. payment” (DvP) process, ensuring goods are delivered and payments are released simultaneously, cutting down settlement time.



06. Enhanced compliance and governance

Blockchain's Role:

- Automated systems can use blockchain to store and verify compliance rules and requirements securely.
- Blockchain provides traceability and accountability, ensuring adherence to regulations.

Benefits:

- **Simplified Auditing:** Immutable records streamline regulatory audits by providing accurate and transparent logs of all actions.
- **Proactive Compliance:** Smart contracts enforce compliance in real time, preventing violations before they occur.

Example: In pharmaceuticals, blockchain ensures that all hyperautomated processes for drug production and distribution meet regulatory standards by maintaining traceable records. Here, again, substantial one-time efforts for setting things up should be expected and taken into account when it comes to ROI discussions).

07. Resilience and reliability

Blockchain's Role:

- Decentralized architecture ensures that the system remains operational even if some nodes or systems fail.
- Automated systems relying on blockchain are less prone to single points of failure.

Benefits:

- **Business Continuity:** Blockchain ensures process continuity even in the face of infrastructure outages or cyberattacks.
- **Increased System Robustness:** Hyperautomated workflows on blockchain are inherently more resilient to disruptions.

Example: In logistics, blockchain-powered hyperautomation ensures real-time updates and process continuity even during regional system failures.

08. Frictionless dispute resolution

Blockchain's Role:

- Blockchain provides an immutable and transparent record of all transactions and interactions.
- Smart contracts enable automated resolution of predefined disputes.

Benefits:

- **Faster Dispute Resolution:** Clear, tamper-proof records reduce the time spent on resolving disputes.
- **Reduced Legal Costs:** Transparent workflows and smart contracts decrease the need for litigation or arbitration.

Example: In the insurance sector, automated claims processed on blockchain reduce disputes between insurers and claimants by providing clear records and predefined settlement criteria. A frictionless dispute resolution based on blockchain information still seems to lie far in the future, as it requires a lot of mind shift and even changes within legislation and interpretation.

09. Scalable ecosystem automation

Blockchain's Role:

- Blockchain scales with the addition of new participants or nodes in the ecosystem.

Hyperautomation systems integrated with blockchain can support expanding workflows without losing efficiency.

Benefits:

- **Future-Proof Systems:** Blockchain-enabled hyperautomation accommodates growth and new participants effortlessly.
- **Global Collaboration:** Blockchain's global accessibility facilitates cross-border partnerships.

Example: A multinational enterprise can expand its blockchain-backed automated procurement system to include new suppliers across geographies without additional integration costs. Thus, blockchain expands the existing ecosystems with components like RPA, AI or Process Mining.

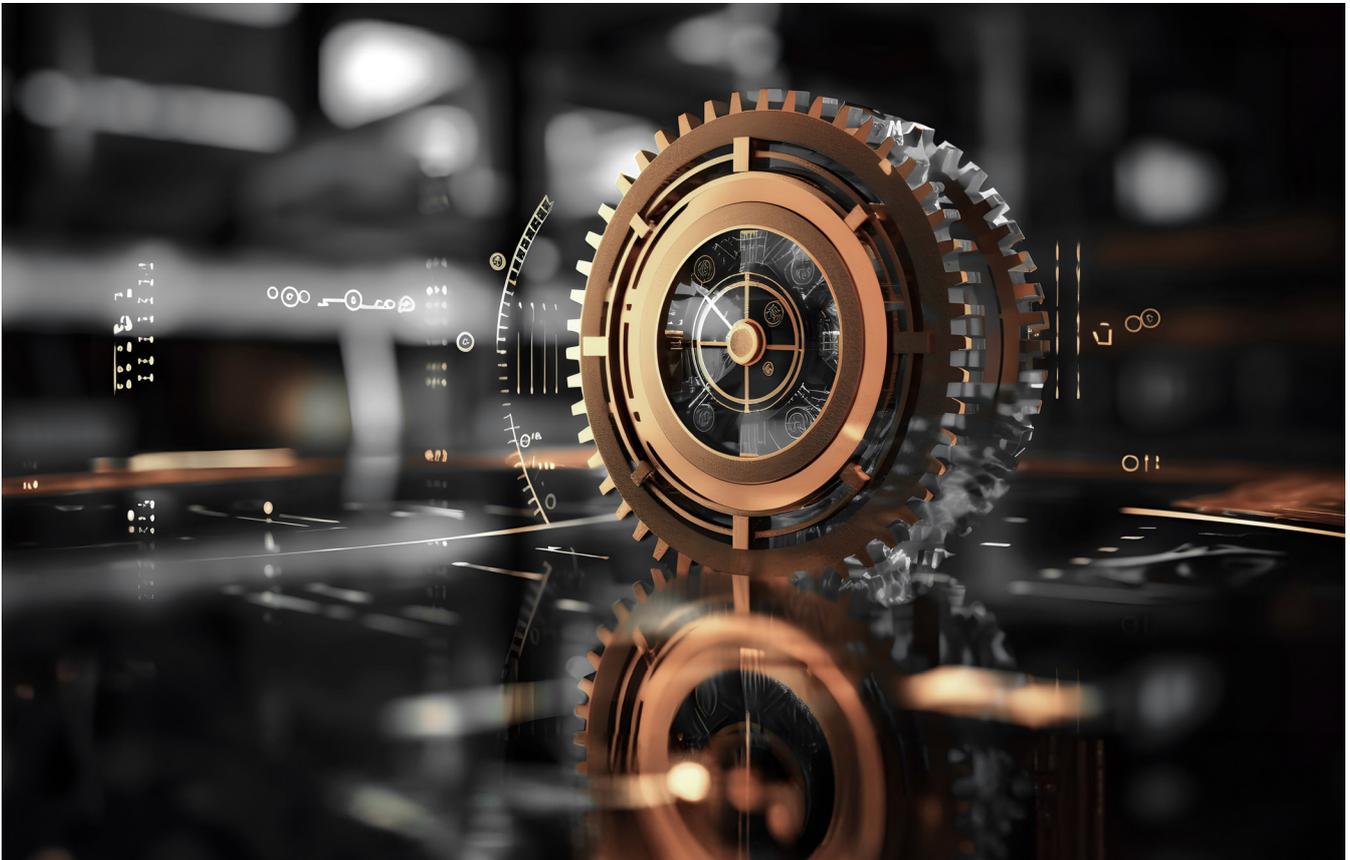
To sum it up: Why blockchain is a game-changer for hyperautomation

Blockchain's ability to ensure security, efficiency, and trust across automated systems establishes a robust foundation for hyperautomation. The unique advantages of decentralization, immutability, and the capacity for smart contract design significantly enhance the effectiveness of hyperautomation technologies, including robotic process automation (RPA), artificial intelligence, and machine learning.

Integrating blockchain technology into hyperautomation systems enables businesses to create automated processes that are not only robust but also scalable and efficient:

- Fostering an environment of trust and collaboration within ecosystems.
- Optimize operational expenditures while enhancing overall return on investment.

Given these advantages, blockchain technology serves as a crucial element in the evolution of next-generation automated systems, while also presenting itself as a valuable enhancement option.



Implementation roadmap and outlook

Basically, a 4-step-approach can be suggested. This approach is high-level and quite generic and needs to be individualized and extended.

Step 1: Assess feasibility

- Conduct a readiness assessment to evaluate existing automation systems and identify potential blockchain use cases.
- Align blockchain initiatives with business objectives.



Step 2: Design the solution

- Define the scope of blockchain integration within hyperautomation workflows.
- Select the appropriate blockchain platform (e.g., Ethereum, Hyperledger, Corda) based on business requirements.

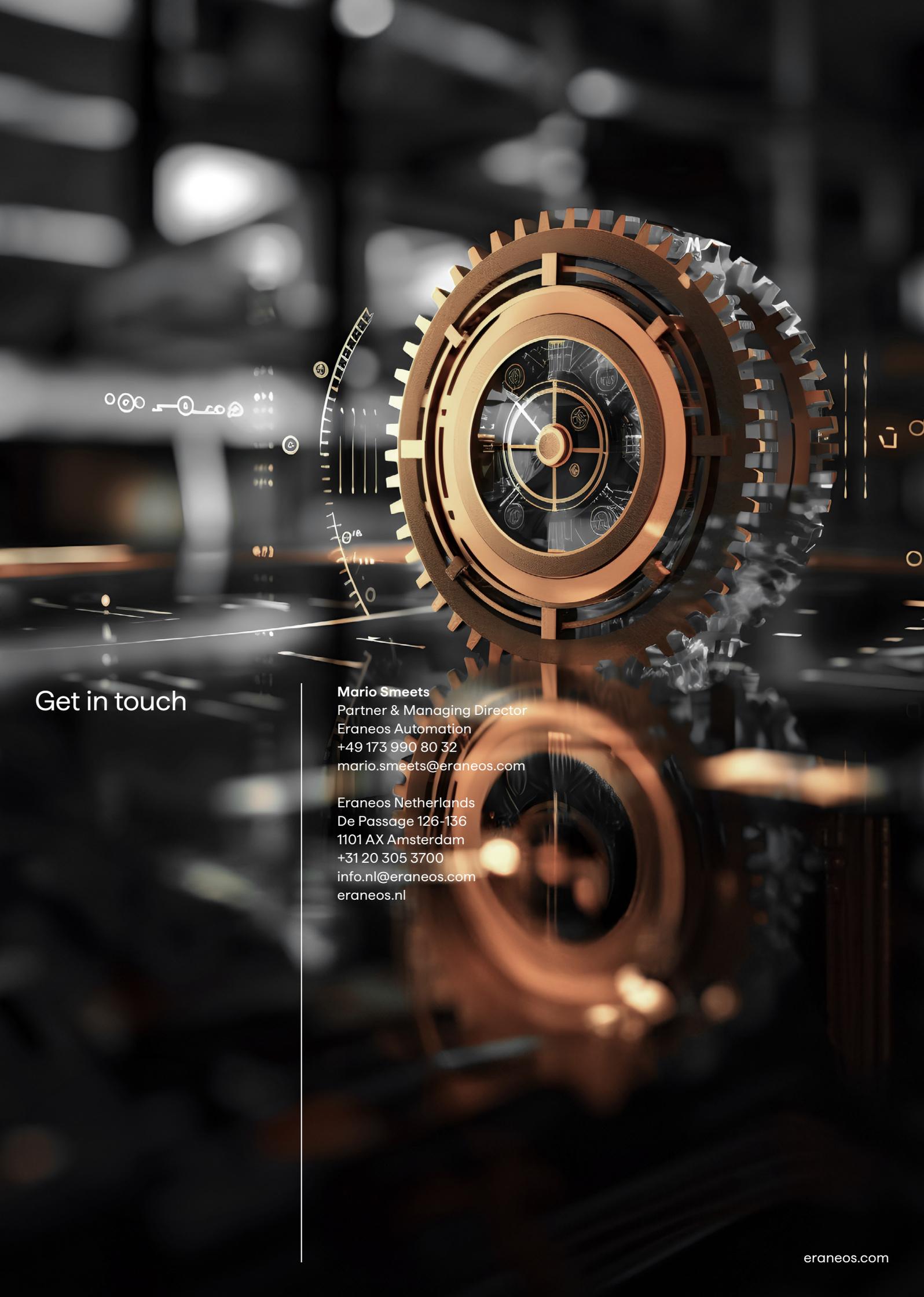
Step 3: Develop and pilot

- Develop smart contracts and integrate blockchain with existing automation tools.
- Test the system in a controlled environment to validate functionality.

Step 4: Scale and optimize

- Roll out the solution across the organization or ecosystem.
- Continuously monitor performance and refine processes using data-driven insights.

Blockchain technology is a revolutionary enabler that enhances trust, security, and efficiency throughout all processes, hence enabling hyperautomation. When organizations combine the immutable records, distributed validation, and smart contracts blockchain technology offers, they can automate processes with more certainty, simplify settlements, and build flawless ecosystem collaboration. As hyperautomation keeps growing on its own, blockchain technology will become a necessary basis for durable, scalable, and future-proof automation projects. Companies who welcome this synergy will be able to establish themselves as leaders in the fast expanding digital economy.



Get in touch

Mario Smeets
Partner & Managing Director
Eraneos Automation
+49 173 990 80 32
mario.smeets@eraneos.com

Eraneos Netherlands
De Passage 126-136
1101 AX Amsterdam
+31 20 305 3700
info.nl@eraneos.com
eraneos.nl