
BUSINESS MODEL CANVAS

IOTPAY



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TABLE OF CONTENTS

1	INTRODUCTION	7
2	BUSINESS MODEL CANVAS	7
2.1	Synthesis	7
3	BUSINESS MODEL DESCRIPTION	8
3.1	Key Value Propositions	9
3.1.1	Decentralized Autonomous Payments	9
3.1.2	Feeless Transactions	9
3.1.3	Enhanced Security	9
3.1.4	Reduced Operational Costs	10
3.1.5	Improved Traceability	10
3.1.6	Easy Scalability	10
3.1.7	Real-Time Efficiency	10
3.2	Key Activities	11
3.2.1	Conduct competition benchmarks	11
3.2.2	Finalize a Minimum Viable Product (MVP)	11
3.2.3	Optimize the User Experience (UX)	12
3.2.4	Build Key Partnerships and Conduct Pilot Testing	12
3.2.5	Launch Commercially and Begin Marketing	13
3.3	Key Partners to Drive Competitive Advantage	14
3.3.1	IoT Device Manufacturers (Hardware & Software)	14
3.3.2	Smart City Operators	14
3.3.3	Energy & Utility Operators	14
3.3.4	IoT Device Fleet Operators	15
3.3.5	Mobility Operators	15
3.3.6	Logistics and Supply Chain Operators	15
3.3.7	Payment Service Operators	16

3.3.8 Existing Standards to consider	16
3.4 Customer Interaction Plan	17
3.4.1 Discussion Channels Building	18
3.4.2 Discussion Channels Building	18
3.4.3 Understanding the Customers	18
3.4.4 Use Cases Framing	18
3.4.5 User Needs Identification	19
3.4.6 User-Oriented UX Design	19
3.5 Channels - Customer Acquisition Strategy	19
3.6 Customer Segments	21
3.7 Revenue Model	22
3.7.1 Subscription services & Licensing fees	22
3.7.2 Transaction Fees	23
3.7.3 Data Services and API access	23
3.7.4 Expert development, Customization, Integration, Training and Support Services	23
3.7.5 Hardware Sales or Partnerships	24
3.8 General Cost Structure	24
3.8.1 Technical Costs	26
3.8.2 Human Resources Costs	27
3.8.3 Other Costs	29
3.9 Business Context	29
3.9.1 Total Accessible Market (TAM)	30
3.9.2 Seizable Accessible Market (SAM)	31
3.9.3 Seizable Opportunity Market (SOM)	32
3.10 Market segments and customer profiles	34
3.11 Acquisition Channels & Marketing Strategy	35
3.12 Possible Competitors or Partners	35
3.13 Perspectives	38

3.14 Business Protection _____ **40**



LIST OF FIGURES

Figure 1 – Possible indirect approach through system integrators.....	20
Figure 2 – Costs breakdown bar graph	26
Figure 3 – Autonomous IoT payments market growth (B\$)	31
Figure 4 – Market Assessment.....	33
Figure 5 – Autonomous IoT Payment market shares (value)	34
Figure 6 – Total Annual Turnover	40
Figure 7 – Gross Operating Profit.....	40

LIST OF TABLES

Table 1 – Business Model Canvas	8
Table 2 – Paragraph links.....	8
Table 3 – Costs breakdown	25
Table 4 – Human resources expenses (yearly)	27
Table 5 – Other costs (six years plan)	29
Table 6 – Revenue and cash-flow forecast.....	38

1 INTRODUCTION

The IOTPAY project is creating a decentralized public key infrastructure that allows connected devices to autonomously verify their identity and initiate payments, designed specifically for use cases centered on human-oriented services. This approach leverages blockchain technology to eliminate the need for traditional, centralized PKI elements, such as Certificate Authorities (CAs) and Registration Authorities (RAs), which typically manage trust through hierarchical structures.

Instead, IOTPAY replaces these third-party administrators with a feeless blockchain-based smart contract, offering a self-sufficient, trustless environment for identity verification and payment processes. The blockchain also acts as a certificate repository, enabling service providers to issue and manage revocable certificates and credentials directly on the ledger. This decentralized, lean architecture reduces both the operational complexity and costs associated with traditional PKI systems, making it exceptionally well-suited for IoT environments where secure, automated, and feeless transactions are essential.

This innovative model not only supports efficient IoT device payments without intermediary fees but also scales to a broad range of connected applications. The feeless design is particularly advantageous in IoT, where low-cost, high-frequency interactions are common. By providing a decentralized, automated infrastructure, IOTPAY enables IoT ecosystems to operate more flexibly and securely, while simplifying compliance and credential management for service providers across diverse industries.

2 BUSINESS MODEL CANVAS

2.1 SYNTHESIS



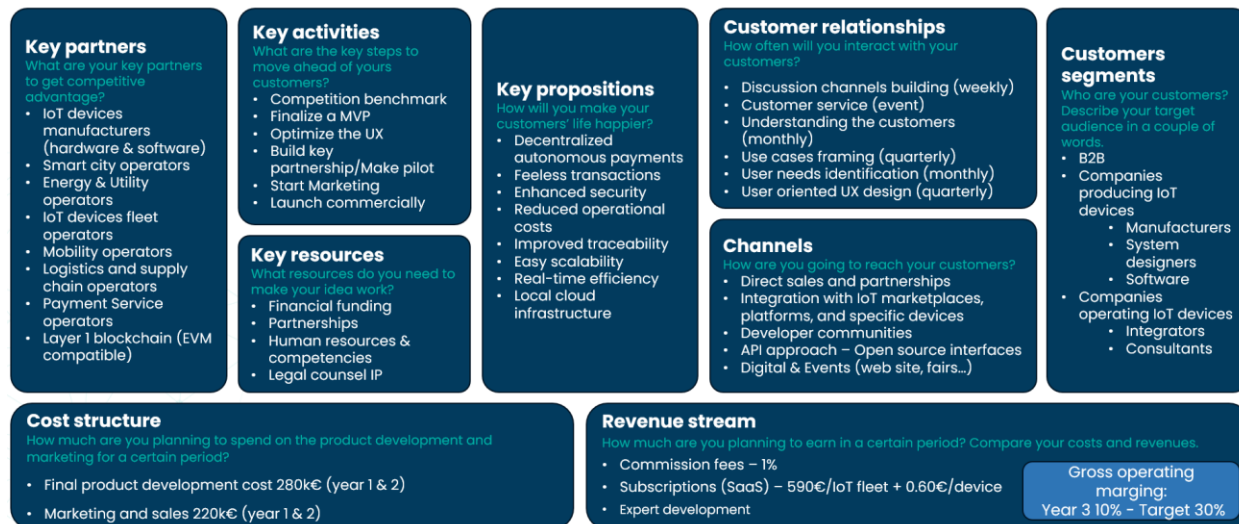


Table 1 – Business Model Canvas

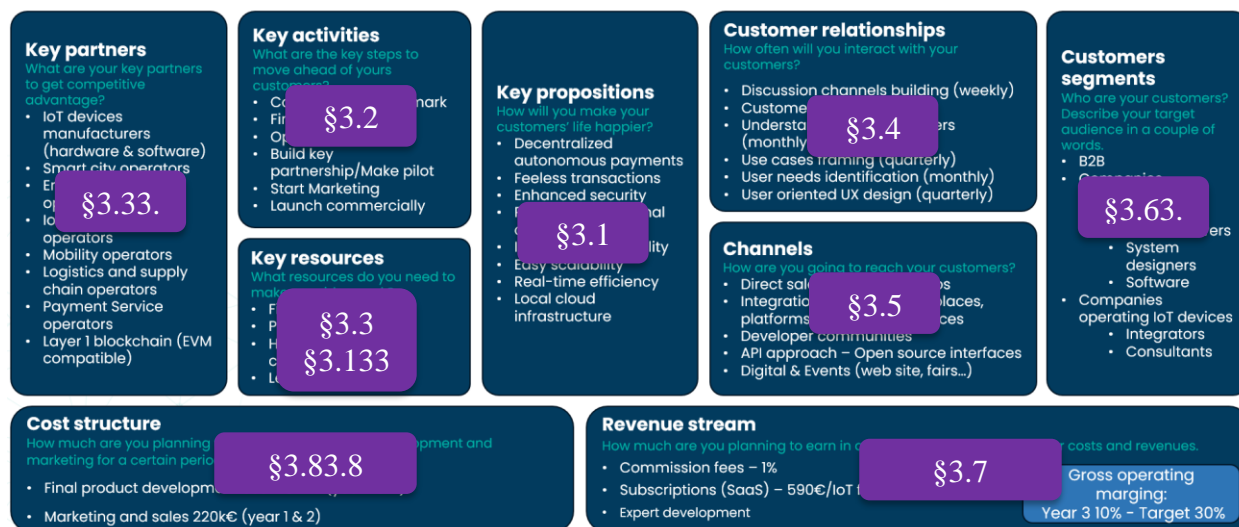


Table 2 – Paragraph links

3 BUSINESS MODEL DESCRIPTION

Werenode is a for-profit software company aiming to establish multiple revenue streams through the IOTPAY project. The business model for an automated IoT payment solution includes varied revenue sources and strategic approaches tailored to the unique demands of IoT ecosystems. This approach capitalizes on blockchain technology's secure, reliable, and scalable nature to support data transfers and revenue generation. Our diverse revenue model enhances financial stability and promotes widespread industry adoption by offering flexible engagement options tailored to the specific needs and capabilities of different users according to a business-to-business strategy.

3.1 KEY VALUE PROPOSITIONS

3.1.1 DECENTRALIZED AUTONOMOUS PAYMENTS

IOTPAY enables payments to be processed autonomously and without a central authority, empowering secure, peer-to-peer transactions across IoT devices. Our solution is built on a public layer 1 blockchain EVM compatible (Ethereum Virtual Machine). A layer 2 could be considered also, depending on the performance and the transaction costs. This blockchain infrastructure won't be dedicated to our project and is an external resource that we will utilize.

3.1.2 FEELESS TRANSACTIONS

By reducing transaction fees, IOTPAY significantly reduces the cost burden on users and businesses, making IoT payments accessible and economical for high-frequency, low-value transactions. The full “feeless” feature means that the cost of the transaction – however low - is delegated to another entity (e.g. the IoT fleet manager) to avoid a classical blockchain issue related to gas management.

3.1.3 ENHANCED SECURITY



Built on blockchain and decentralized technologies, IOTPAY ensures a high level of data encryption and transaction security, protecting against fraud and cyber threats common in IoT ecosystems.

3.1.4 REDUCED OPERATIONAL COSTS

Autonomous processing and decentralized infrastructure reduce dependency on costly intermediaries and operational processes, thereby minimizing expenses for service providers and end users alike. The payment medium can be any digital asset (cryptocurrency or fiat) whether stable or not, provided it is adapted to the specific use-case.

3.1.5 IMPROVED TRACEABILITY

With blockchain's immutable ledger, IOTPAY offers transparent and verifiable transaction records, allowing for better tracking and accountability in IoT transactions.

3.1.6 EASY SCALABILITY

Designed for integration with a wide range of IoT devices, IOTPAY's decentralized structure allows for seamless scaling across new devices and applications without the need for extensive reconfiguration.

3.1.7 REAL-TIME EFFICIENCY

Leveraging the efficiency of decentralized networks, IOTPAY enables instant transaction processing, which is essential for real-time IoT applications where delays could impact functionality.



3.2 KEY ACTIVITIES

3.2.1 CONDUCT COMPETITION BENCHMARKS

Goal: To evaluate and refine IOTPAY by benchmarking against existing digital payment systems, ensuring high performance, interoperability, and user satisfaction.

Key Actions: Analyze current systems in IoT platforms, assess transaction speed, security, scalability, and user interfaces, and evaluate regulatory compliance and cross-border compatibility.

Outcome: Develop an optimized, competitive IOT-enabled payment solution aligned with industry standards and user expectations.

3.2.2 FINALIZE A MINIMUM VIABLE PRODUCT (MVP)

Goal: Develop a core, functional version of IOTPAY that demonstrates its decentralized autonomous payments, feeless transactions, enhanced security, and real-time efficiency.

Key Actions:

- Identify and prioritize essential features, such as secure, automated transactions and traceability, to showcase the primary value of IOTPAY.
- Run initial tests to ensure the platform's stability, security, and performance in a live environment.
- Collect feedback from early testers or select pilot users to refine functionality and address any bugs or limitations.
- Choose a relevant layer 1 or 2 for the priority use-case(s). The main constraint is that it should be EVM compatible.

Outcome: A stable MVP that provides a practical demonstration of IOTPAY's capabilities and serves as a basis for further user experience (UX) and feature optimizations.

3.2.3 OPTIMIZE THE USER EXPERIENCE (UX)

Goal: Design a user-friendly interface and intuitive experience that makes it easy for customers to adopt and use IOTPAY.

Key Actions:

- Conduct user research to understand the specific needs and pain points of target users, such as businesses and IoT device managers.
- Streamline the onboarding process to reduce friction and make IOTPAY's benefits immediately accessible.
- Implement features like clear transaction flows, simple reporting tools for traceability, and robust help resources.
- Continuously test the platform with users, iterating based on feedback to create a seamless experience.

Outcome: A polished, user-centered platform that enhances customer satisfaction and adoption rates by simplifying the interaction with IOTPAY's autonomous payment system.

3.2.4 BUILD KEY PARTNERSHIPS AND CONDUCT PILOT TESTING

Goal: Establish strategic partnerships and test IOTPAY in real-world scenarios to validate its business model and technology.

Key Actions:

- Identify and partner with key industry players, such as IoT hardware manufacturers, technology providers, and payment processors, to create a strong network of support.
- Launch pilot projects with selected partners to demonstrate the platform's effectiveness in live IoT environments, such as smart cities, retail, or



manufacturing.

- Gather detailed metrics from pilot testing, such as transaction speed, reliability, and scalability, to validate IOTPAY's real-world functionality and identify areas for improvement.
- Use pilot projects to build case studies and testimonials that highlight IOTPAY's unique value proposition and establish credibility in the market.

Outcome: Validated technology with strong partner support, demonstrating IOTPAY's viability and building trust with potential customers and investors.

3.2.5 LAUNCH COMMERCIALY AND BEGIN MARKETING

Goal: Introduce IOTPAY to the market with a comprehensive launch and targeted marketing strategy to drive adoption.

Key Actions:

- Develop a go-to-market strategy that identifies target customer segments, messaging, and channels to maximize visibility and engagement.
- The choice of blockchain infrastructure should also play a role in this go-to-market strategy. Indeed, some blockchain layers are more adapted (technically or businesswise) for IoT projects. The use-case vertical can also be a strategic axis for this blockchain infrastructure partnership approach (e.g. IOTA is well known for its IoT ambition, but Hedera is a dynamic project around energy).
- Leverage pilot project results, case studies, and partnerships in marketing materials to showcase proven success and reliability.
- Launch a digital marketing campaign focusing on the key benefits of IOTPAY: feeless transactions, real-time efficiency, and enhanced security.
- Implement sales and customer support teams with ready-made demos to facilitate a smooth onboarding process for new customers, providing guidance on IOTPAY's functionality and use cases.
- Monitor adoption metrics, customer feedback, and industry trends to refine marketing and adjust positioning as necessary.



Outcome: A strong commercial launch with an effective marketing and sales strategy, setting IOTPAY up for growth, customer retention, and market leadership.

3.3 KEY PARTNERS TO DRIVE COMPETITIVE ADVANTAGE

3.3.1 IOT DEVICE MANUFACTURERS (HARDWARE & SOFTWARE)

Value: Partnering with IoT device manufacturers allows IOTPAY to integrate its decentralized payment solution directly into IoT hardware and software at the design level. This integration enhances compatibility and functionality across a wide range of devices.

Advantage: Early-stage partnerships with IoT hardware and software providers facilitate seamless, feeless transactions across diverse devices, making IOTPAY adaptable and accessible to multiple industries.

3.3.2 SMART CITY OPERATORS

Value: As smart cities expand, there is a growing need for efficient, autonomous transaction systems for services like tolling, parking, and public transportation. IOTPAY can collaborate with smart city operators to support these functions.

Advantage: Collaborations with smart city operators position IOTPAY as a foundational payment layer for automated services in urban environments, creating a scalable and trusted presence in the smart city ecosystem.

3.3.3 ENERGY & UTILITY OPERATORS



Value: By partnering with energy and utility operators, IOTPAY can enable feeless transactions for services like electric vehicle (EV) charging stations, energy trading, and smart grid services.

Advantage: These partnerships allow IOTPAY to capture a share of the fast-growing energy market, providing secure and efficient payment solutions for distributed energy resources (DER) and utility payments in the IoT space.

3.3.4 IoT DEVICE FLEET OPERATORS

Value: Fleet operators require efficient ways to manage and monitor large numbers of IoT devices. By integrating IOTPAY's decentralized payment solution, fleet operators can handle device-related transactions autonomously, reducing operational costs and enhancing transparency.

Advantage: A partnership with fleet operators gives IOTPAY access to high-volume transactions across fleets, making it a reliable, cost-effective solution for large-scale IoT deployments.

3.3.5 MOBILITY OPERATORS

Value: Mobility services, including car rentals, shared mobility, and public transportation, are ideal use cases for IOTPAY's autonomous payment model. These operators can leverage IOTPAY for seamless, feeless transactions between users and devices (e.g., paying for rides, rentals, or tolls).

Advantage: Partnering with mobility operators helps IOTPAY establish itself in the transportation industry, supporting autonomous payments for a smoother user experience and improved operational efficiency.

3.3.6 LOGISTICS AND SUPPLY CHAIN OPERATORS

Value: Logistics and supply chain operations rely on IoT devices for tracking, monitoring, and managing inventory. IOTPAY can streamline and automate payments within this ecosystem, from warehouse fees to shipment tracking.



Advantage: By collaborating with logistics operators, IOTPAY can help automate payments in supply chains, reducing costs and enhancing traceability, which is critical for both transparency and accountability in logistics.

3.3.7 PAYMENT SERVICE OPERATORS

Value: Payment service providers bring essential expertise in transaction processing, regulatory compliance, and payment technology. A partnership with established payment operators will allow IOTPAY to leverage this experience while maintaining its decentralized, feeless model.

Advantage: These partnerships support regulatory adherence and technical compatibility, increasing trust among users and enhancing IOTPAY's scalability and security across diverse applications.

3.3.8 EXISTING STANDARDS TO CONSIDER

IOTPAY will consider some of the following key standards to ensure its solution is interoperable, secure, and compliant. The final implementation will take into account a relevant selection of these standards.

Payment Industry Standards:

- PCI DSS (Payment Card Industry Data Security Standard): Ensures secure handling of cardholder data.
- EMV (Europay, Mastercard, Visa): Facilitates secure and globally interoperable payment cards and terminals.
- ISO 20022: Standardizes financial messaging for efficient and consistent payment processing.

Cybersecurity Standards:

- ISO/IEC 27001: Best practices for information security management.
- NIST Cybersecurity Framework: Guidelines for securing digital infrastructure



and IoT devices.

- OWASP IoT Top Ten: Addressing common vulnerabilities in IoT systems.

Interoperability or Use-case specific Standards:

- OCPP (Open Charge Point Protocol): Ensures compatibility with EV charging infrastructure.
- MQTT (Message Queuing Telemetry Transport): A lightweight messaging protocol for IoT devices.
- ISO 15118: Supports plug& charge and vehicle-to-grid (V2G) communication in EV charging systems.
- W3C Verifiable Credentials: For secure, standardized digital identity management. This standard is already take into account in the existing IOTPAY mock-up.

Regulatory and Compliance Standards:

- GDPR (General Data Protection Regulation): Ensures data privacy and protection for users in the EU.
- PSD2 (Payment Services Directive 2): Enables secure and open digital payments within the EU.
- eIDAS (Electronic Identification and Trust Services): For secure cross-border electronic transactions.

Sustainability Standards:

ISO 14001: Focus on environmental management systems.

Energy Star/Green ICT Standards: Ensures energy efficiency in digital infrastructure.

3.4 CUSTOMER INTERACTION PLAN

3.4.1 DISCUSSION CHANNELS BUILDING

Frequency: Ongoing – Event/Ticket triggered

Purpose: Establish dedicated communication channels (e.g., forums, chat groups, dedicated email support, and webinars) to provide a space for customers to share feedback, ask questions, and stay informed about IOTPAY's updates.

Outcome: Continuous, real-time engagement where customers feel supported and heard, building a strong community around IOTPAY.

3.4.2 DISCUSSION CHANNELS BUILDING

Frequency: Ongoing

Purpose: Implement a multi-channel customer service system, including live chat, and email support, to address customer inquiries promptly and effectively. Eventually, provide multilingual support to accommodate a global user base.

Outcome: A responsive and user-friendly support system that enhances customer satisfaction, resolves issues efficiently, and builds trust, positioning IOTPAY as a reliable and customer-focused solution.

3.4.3 UNDERSTANDING THE CUSTOMERS

Frequency: Monthly Check-Ins and Quarterly Surveys

Purpose: Regular check-ins with customers through meetings and surveys allow us to gain insights into their experiences and challenges with the platform.

Outcome: A deeper understanding of customer needs and pain points, enabling us to refine IOTPAY features and functionalities.

3.4.4 USE CASES FRAMING

Frequency: Biannual Workshops

Purpose: Host workshops every six months to frame and discuss specific use cases based on customer feedback and industry trends. This helps in adapting IOTPAY to evolving customer requirements and real-world applications.

Outcome: Well-defined use cases that align with customers' operational contexts, enhancing the platform's relevance and value.

User Needs Identification

3.4.5 USER NEEDS IDENTIFICATION

Frequency: Quarterly Interviews and Focus Groups

Purpose: Conduct interviews and focus groups with a sample of customers to identify evolving needs, preferences, and potential new features that could improve their experience.

Outcome: Clear insights into user needs, guiding the development of features and functionalities that will drive higher customer satisfaction and engagement.

3.4.6 USER-ORIENTED UX DESIGN

Frequency: Continuous Iterative Testing

Purpose: UX design improvements will be ongoing, with regular A/B testing and user testing sessions to refine the interface and improve usability based on customer feedback.

Outcome: A user-centered platform that provides a seamless experience, tailored to the specific needs and preferences of IOTPAY customers.

3.5 CHANNELS - CUSTOMER ACQUISITION STRATEGY

To effectively reach customers, IOTPAY will employ a multi-faceted approach that targets different points of engagement across the IoT ecosystem, including an indirect approach targeting solution designers rather than final users:



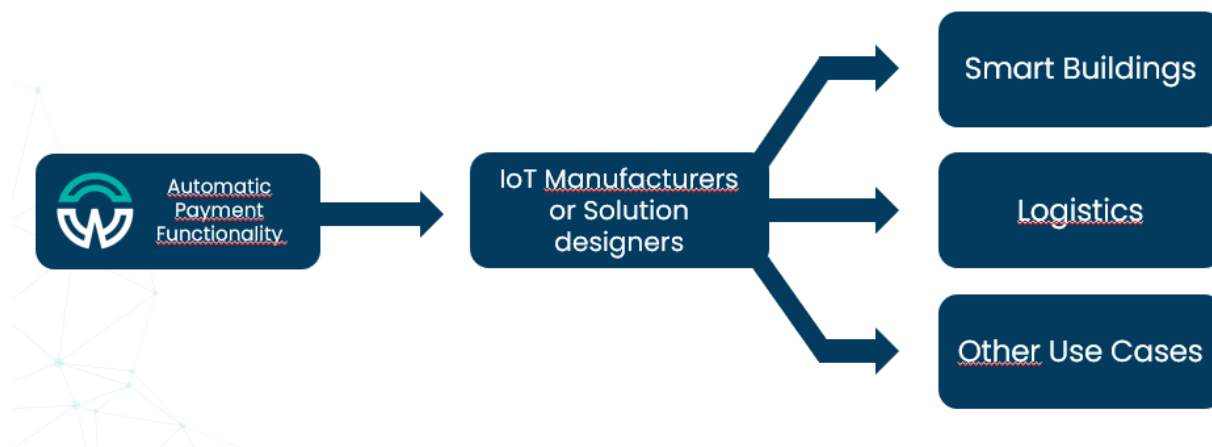


Figure 1 – Possible indirect approach through system integrators

Direct Sales and Partnerships involve engaging directly with enterprise clients such as IoT device manufacturers, smart city operators, and logistics companies through targeted outreach and dedicated sales teams. Building strategic partnerships with key industry players also helps expand IOTPAY's reach, driving early adoption and establishing it as a trusted solution within high-value sectors like energy, mobility, and supply chain.

Integration with IoT Marketplaces, Platforms, and Specific Devices allows IOTPAY to be accessible within established IoT ecosystems. By collaborating with IoT marketplaces and platform providers, as well as ensuring compatibility with widely used IoT devices, IOTPAY can position itself as a preferred payment solution. This integration strategy increases visibility and makes it easier for customers to adopt IOTPAY within their existing systems.

Developer Communities play a crucial role in driving grassroots adoption, with IOTPAY engaging these communities by offering resources, tutorials, and technical support. Hosting webinars, participating in developer forums, and attending tech conferences enable IOTPAY to reach developers directly, encouraging them to integrate and advocate for the platform in their own IoT projects.

API Approach with Open-Source Interfaces allows IOTPAY to offer flexible, open-source APIs that developers and businesses can easily integrate into their systems. This approach reduces barriers to adoption and fosters innovation, empowering customers to tailor IOTPAY's decentralized payment capabilities to meet specific needs. Open-source APIs encourage wider usage across various IoT applications, making IOTPAY a versatile solution in the IoT payment space.

This strategy ensures that IOTPAY reaches potential customers through direct enterprise engagement, technical partnerships, developer-driven channels, and open-source accessibility, ultimately broadening its impact across the IoT landscape.

3.6 CUSTOMER SEGMENTS

For IOTPAY, the target customers consists of a diverse range of companies and professionals involved in the IoT ecosystem:

IoT Device Producers are companies that manufacture IoT devices with a focus on hardware and embedded systems. They are interested in integrating decentralized autonomous payment solutions directly into their devices, enabling seamless transactions that add value for end users looking for secure, efficient payment capabilities within their IoT devices.

Manufacturers include industrial firms seeking to streamline payments for IoT-enabled machines and connected products. By adopting IOTPAY's autonomous payment solution, these manufacturers can improve operational efficiency and gain enhanced traceability through automated machine-to-machine transactions, reducing the need for manual processing and oversight.

System Designers are companies and engineers responsible for creating IoT systems and ecosystems, and they look to embed IOTPAY's payment solution within their architectures to support decentralized, secure transactions across connected devices. This integration provides a robust payment layer that enhances the functionality and reliability of the systems they design.

Software Companies developing management platforms and applications for IoT networks see value in integrating IOTPAY's payment APIs. This allows them to offer automated, feeless transactions as part of their software solutions, enhancing the attractiveness of their platforms to clients who need seamless financial operations in



their IoT networks.

IoT Device Operators, including logistics providers, utility companies, and smart city operators, manage fleets of connected devices and need efficient, scalable payment systems. By leveraging IOTPAY, these operators can automate secure payments across large networks of IoT devices, significantly improving transaction efficiency and reducing operational costs.

Integrators are businesses that implement and tailor IoT solutions for end clients, and they see IOTPAY as a valuable component in their service offerings. By including autonomous payment capabilities, integrators can provide clients with a comprehensive solution that simplifies financial interactions between devices, adding a critical advantage to their IoT deployments.

Consultants advising on IoT strategy and deployment recommend IOTPAY's decentralized payment solution as a forward-thinking financial tool. For clients looking to adopt advanced IoT technology, consultants view IOTPAY as a key enabler of secure, automated transactions, contributing to more efficient and cost-effective IoT operations.

3.7 REVENUE MODEL

3.7.1 SUBSCRIPTION SERVICES & LICENSING FEES

Model: IoT device manufacturers and service providers pay a recurring fee to access IOTPAY's decentralized payment infrastructure. This fee is charged monthly for each IoT device conducting transactions through the platform, fitting seamlessly into a Software as a Service (SaaS) model. Additionally, we charge an annual licensing fee for the entire solution, covering the use of our proprietary software or firmware that integrates secure, automated payment capabilities directly into IoT devices.

Benefits: This model provides a steady revenue stream that supports continuous access to the network, including maintenance, updates, and customer support. It generates upfront revenue, encouraging long-term client commitment to the platform. This approach also aids in recovering development costs and provides funding for ongoing innovation and enhancements.



3.7.2 TRANSACTION FEES

Model: While IOTPAY's architecture primarily supports feeless transactions for end-users, it may incorporate minimal fees for high-volume transactions or access to advanced features. In certain use cases, such as logistics, we anticipate the potential to charge a small commission for actions like certificate issuance, revocation, or specific transaction types. This fee structure is under consideration for various large-scale applications of IOTPAY.

Benefits: Implementing transaction fees supports the sustainability of the blockchain infrastructure by helping cover operational costs associated with handling large volumes of transactions. This revenue stream aids in maintaining and scaling the system.

3.7.3 DATA SERVICES AND API ACCESS

Model: we provide data analytics and verification services that leverage blockchain's secure and traceable characteristics, adding value to the data exchanged within the network. In a later phase, we will also offer APIs, allowing third-party developers to create applications that integrate with the automated payment network.

Benefits: This approach enhances data insights and integrity for businesses, creating a value-added service that supports premium pricing. The API model builds an ecosystem around the technology, aligning with our strategy to foster adoption and generate additional revenue through API usage.

3.7.4 EXPERT DEVELOPMENT, CUSTOMIZATION, INTEGRATION, TRAINING AND SUPPORT SERVICES

Model: Charge for consulting and customization services to integrate the automatic payment system into existing IT landscapes. Offer training for developers, IT staff, and end-users, as well as ongoing technical support. This expert implementation and integration service relies on the fact that as designers of the IOTPAY solution, we expect to be able to provide expert services for the integration and implementation of the solution.

Benefits: This offers high-margin revenue and helps clients maximize the value of their investment in the platform. Furthermore, training and support not only provide



additional revenue streams but also ensure smooth operation and customer satisfaction, fostering long-term client relationships.

3.7.5 HARDWARE SALES OR PARTNERSHIPS

Model: We plan to sell our solution or collaborate with specialized hardware providers optimized for IoT environments open to decentralized solutions. We are exploring the IOTPAY solution to implement a smart electricity meter, enabling home energy management applications integrated with our current EV charging solution and our Decentralized Energy Communities (DECO) project with OP Mobility. This is one of many potential use cases where IOTPAY can drive economic traction through hardware solutions and partnerships.

Benefits: This approach allows us to offer a complete solution encompassing both software and hardware, enhancing the overall system's performance and security.

3.8 GENERAL COST STRUCTURE

Implementing the IOTPAY solution entails a range of expenses across several cost categories:

Development Costs: These encompass the initial and ongoing costs associated with creating the blockchain-based solution. This includes developing the core functionality of the IOTPAY system, building and integrating security measures to safeguard data and ensure user identity protection, and possibly hiring external consultants to provide specialized expertise. These consulting fees may be crucial for complex areas such as blockchain architecture, cybersecurity, and regulatory compliance. This includes:

- **Internal IT:** Covers ongoing costs for IT development and maintenance, increasing over the years, reaching nearly €2 million by 2030.
- **Outsourced IT:** Likely includes external development services, with an increase from €2,500 in 2025 to €553,000 in 2030.
- **Business Development:** with steady increases, reaching €119,101 by 2030.

Infrastructure Costs: Operating the IOTPAY system requires substantial infrastructure investments to support blockchain network operations. These include transaction fees, like gas fees on the Ethereum network, which can vary depending on transaction volume and network activity. Additional infrastructure expenses may involve the costs associated with running full blockchain nodes, which are essential for maintaining the network's stability and decentralization. There are also storage requirements for managing larger datasets, especially for IoT devices generating continuous data streams. In such cases, decentralized storage solutions, like IPFS, may be used to store and retrieve data in a secure and scalable manner. This includes:

- **Internal IT:** Also covers infrastructure-related IT operations needed to support IOTPAY, scaling as the system grows.
- **Blockchain:** Expenses related to running and scaling the blockchain network (e.g., transaction fees and possibly node operations, significantly increasing from €1,260 in 2025 to approximately €4.7 million by 2030)
- **Outsourced IT:** includes infrastructure support from third-party providers to ensure system scalability and resilience.

Blockchain and Legal Expenses: Alongside operational costs, there are specific blockchain-related fees and legal expenses. These include costs for licenses, regulatory compliance, and documentation needed to operate the IOTPAY system within legal frameworks. Legal costs ensure the system adheres to local and international standards, covering areas like data privacy, financial transactions, and identity management.

Costs (inc. HR)	2025	2026	2027	2028	2029	2030
Marketing	1%	19%	28%	32%	29%	25%
Internal IT	62%	35%	14%	6%	7%	9%
Sales	1%	13%	21%	27%	25%	20%
Customer Support	1%	5%	8%	8%	8%	8%
Blockchain	1%	6%	12%	14%	18%	22%
Outsourced IT	1%	2%	1%	0%	1%	3%
Admin	0%	3%	1%	1%	1%	1%
Business Development	0%	0%	5%	1%	1%	1%
Other	33%	17%	10%	10%	10%	11%
Total	100%	100%	100%	100%	100%	100%

Table 3 – Costs breakdown

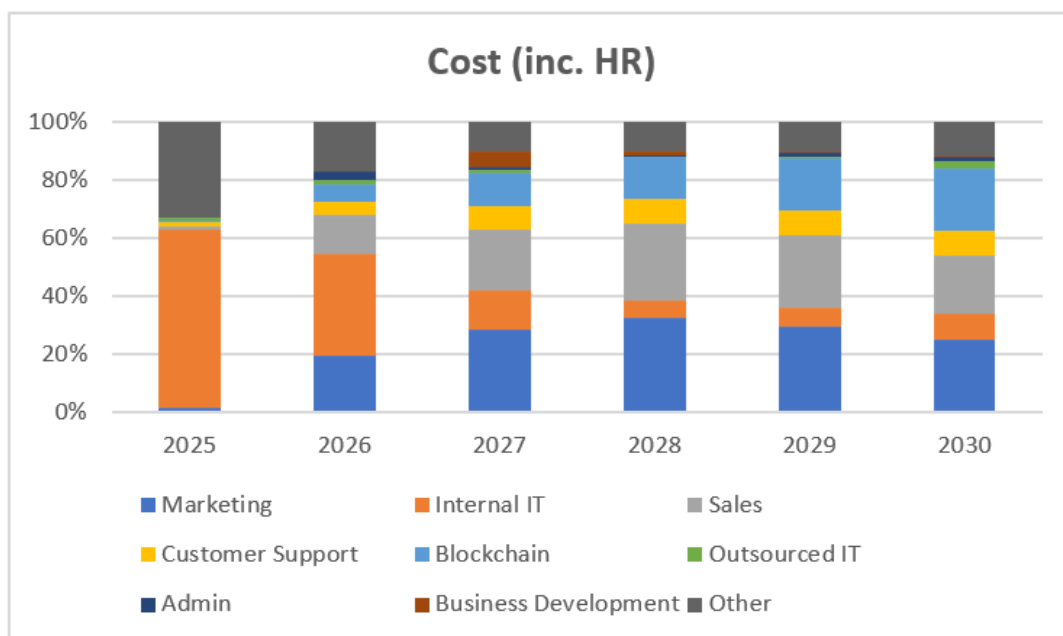


Figure 2 – Costs breakdown bar graph

3.8.1 TECHNICAL COSTS

The technical development of IOTPAY's blockchain-based solution in IoT environments requires managing several categories of costs to ensure seamless compatibility, sustained operation, and compliance. Here's a breakdown of each category:

Integration Costs: These costs encompass the necessary modifications and updates to IoT devices, enabling them to support blockchain functionalities. This may involve adapting hardware or software components to ensure compatibility with blockchain protocols and integrating blockchain capabilities into the existing IT infrastructure. Integration costs also cover the technical work needed to align blockchain operations with current systems, such as databases and data flow processes, ensuring smooth data exchange and operational efficiency between the blockchain and conventional IT systems.

Operational Costs: Once the system is up and running, ongoing operational expenses must be addressed to maintain blockchain network functionality. These include

regular maintenance of the blockchain infrastructure to ensure high availability, security, and performance. Additionally, operational costs include dedicated support for troubleshooting and assistance for users and employees, along with ongoing training programs to help staff stay updated on new features, system updates, and best practices for blockchain usage. This support and training are essential for maximizing the effectiveness of the solution and for fostering user adoption.

Regulatory and Compliance Costs: Operating a blockchain solution in an IoT setting requires adherence to strict regulatory and compliance standards. To meet data protection regulations, such as GDPR, and to obtain necessary industry certifications, compliance costs cover legal reviews, documentation, and system adjustments that safeguard data privacy and integrity. These expenses are critical for ensuring that the blockchain solution aligns with global standards for data security and trustworthiness, thus building confidence among users and stakeholders.

Miscellaneous Costs: Additional expenses arise from areas essential to the solution's long-term success. For example, marketing costs are required to drive user adoption, inform potential customers of the technology's benefits, and establish a strong brand presence. Continuous research and development (R&D) investments are also vital to keep the technology competitive and up-to-date, ensuring that the solution evolves alongside technological advancements and market needs. R&D efforts may include refining the blockchain protocols, enhancing security features, or exploring innovative applications.

3.8.2 HUMAN RESOURCES COSTS

Team scenario (FTE)						
CEO	1,00	1,00	1,00	1,00	1,00	1,00
CTO	1,00	1,00	1,00	1,00	1,00	1,00
COO/CMO	0,00	0,00	1,00	1,00	1,00	1,00
CFO	0,00	0,00	0,00	1,00	1,00	1,00
Development & IT / smart contracts	1,00	2,00	2,00	4,00	10,00	20,00
Marketing, sales, administration	0,00	1,00	1,00	2,00	8,00	14,00
Total	3	5	6	10	22	38
HR full cost (/FTE/y)						
CEO	55 000	55 000	55 000	84 615	89 692	95 074
CxO	55 000	55 000	76 923	81 538	86 431	91 617
Confirmed Engineer	61 538	65 231	69 145	73 293	77 691	82 352
Development & IT / smart contracts	53 846	57 077	60 502	64 132	67 980	72 058
Marketing, sales, administration	38 462	40 769	43 215	45 808	48 557	51 470
Total (without company social taxes)	163 846	264 923	373 065	677 374	1 417 234	2 531 673

Table 4 – Human resources expenses (yearly)

Creating an automatic payment solution for a Secure Automatic Data Sharing (SADS) system in an IoT environment, powered by blockchain, demands a highly skilled and multidisciplinary team to bring together the technical, operational, and commercial aspects of the project. Each team member brings unique expertise that contributes to the seamless integration, security, and market viability of the solution.

Blockchain Developers: At the heart of the system's technical foundation, blockchain developers are responsible for designing and building the blockchain architecture that powers the automatic payment mechanism. These developers are skilled in crafting secure, efficient, and scalable smart contracts, which are the backbone of the payment automation. They also handle interoperability challenges, ensuring that the blockchain communicates effectively with various IoT devices. Blockchain developers rigorously test these smart contracts to prevent vulnerabilities and verify that they function as intended in a decentralized network. Their role also involves optimizing the blockchain's performance to handle the high transaction volumes typically associated with IoT systems, thereby enhancing both speed and scalability.

IoT Engineers: These specialists are critical for bridging the digital world of blockchain with the physical realm of IoT devices. IoT engineers work on adapting and customizing firmware on IoT devices to facilitate secure data sharing and automatic payment functionalities, integrating these devices seamlessly with the blockchain system. Their role includes ensuring that IoT devices can send and receive data through the blockchain network in real-time without compromising security or efficiency. This involves developing secure data transmission protocols and managing data flows, often across a large number of devices, to ensure real-time responsiveness and data integrity. Additionally, IoT engineers are responsible for implementing measures to protect devices against cyber threats, ensuring that each device is secure and reliable within the network.

Support and Training Staff: Once the system is deployed, dedicated support and training staff become essential to the ongoing success of the project. These individuals provide assistance and troubleshooting to users, addressing technical issues and ensuring smooth system operations. They also play a vital role in training end-users, administrators, and any technical personnel who may need to interact with the system. Effective training programs cover everything from system navigation to advanced troubleshooting, enabling users to fully leverage the solution's capabilities. This team also gathers feedback to identify areas for improvement, helping to refine and enhance the solution based on real-world user experiences, which is key for continuous improvement.

Marketing and Business Development Managers: For the solution to reach its full potential, marketing and business development managers work to promote it within the IoT ecosystem and beyond. Marketing professionals develop strategies to raise awareness, educate potential users on the benefits of the blockchain-based SADS

system, and drive adoption through targeted campaigns. Business development managers focus on identifying strategic partnerships, such as alliances with IoT manufacturers or service providers, which can broaden the solution's reach and enhance its utility. They work to uncover and pursue business opportunities, negotiate deals, and position the solution as a valuable tool for secure, automated payments and data sharing within the IoT space. Together, these roles are essential for establishing a strong market presence, building credibility, and fostering a network of stakeholders who can support the project's growth and adoption.

3.8.3 OTHER COSTS

Total expenses (equipment and services)	17 064	280 400	1 389 000	6 369 600	12 443 424	18 216 942
Equipment purchases	3 000	13 500	17 000	25 000	45 000	72 000
Servers	1 500	6 000	8 000	10 000	12 000	15 000
Miscellaneous material	500	2 500	3 000	5 000	11 000	19 000
IT equipment	1 000	5 000	6 000	10 000	22 000	38 000
...						
Operational and external expenses	3 300	78 500	199 600	683 000	1 642 200	3 812 800
Legal fees for shareholding management	0	1 000	5 000	5 000	5 000	5 000
Other legal fees / contracts	1 000	5 000	10 000	20 000	25 000	30 000
Accounting	1 000	1 000	2 000	15 000	20 000	50 000
Renting	0	5 000	5 000	10 000	20 000	60 000
Insurances	0	1 000	1 000	2 000	4 000	12 000
IT developments	0	0	5 000	10 000	100 000	500 000
Patents						
Telephone	300	500	600	1 000	2 200	3 800
Digital marketing	0	50 000	150 000	500 000	1 000 000	2 000 000
Sales incentives	0	10 000	15 000	100 000	400 000	1 000 000
Supply chain						
Travels	1 000	5 000	6 000	20 000	66 000	152 000
...						
Operational variable costs	10 764	188 400	1 172 400	5 661 600	10 756 224	14 332 142
Blockchain transaction costs	1 260	36 000	216 000	1 044 000	2 540 160	4 665 816
Additional CPA (cost per acquisition) 50% sales 50% marketing	6 000	108 000	720 000	3 600 000	6 000 000	6 000 000
Customer Support	3 000	30 000	150 000	600 000	1 200 000	1 800 000
Other transaction costs (API, ...)	504	14 400	86 400	417 600	1 016 064	1 866 326
...						

Table 5 – Other costs (six years plan)

3.9 BUSINESS CONTEXT

The Internet of Things (IoT) is rapidly becoming a massive market globally, with forecasts indicating for example that nearly half of the world's data will soon originate from IoT devices. The IoT sector encompasses a wide array of industries and technologies and already implement a significant market for payment solutions. And this market is still expected to increase substantially due to the widespread adoption

of mobile and IoT technologies and the pressing demand for efficient and secure payment mechanisms. The market for automated IoT-based payment solutions, such as IOTPAY, is experiencing a notable surge, driven by growing interest and investment in automation and seamless payment solutions.

The anticipated expansion of the IoT payments market aligns with a broader shift in which IoT technologies are revolutionizing industries by enabling faster, more secure, and more efficient operations. Integrating IoT devices with advanced data analytics. Machine learning transforms vast amounts of data into actionable insights that drive innovation and efficiency across various IoT sectors, including smart homes, industrial IoT, healthcare, automotive, manufacturing, and urban development.

The use of blockchain technology in IoT payments adds an extra layer of security and reliability. Blockchain provides a tamper-proof system, enhancing transparency and security in processes such as supply chain management, asset tracking, and regulatory compliance. This secure framework is essential for creating trust in automated IoT payment systems, making them more attractive to industries where data integrity and reliability are paramount.

As IoT technologies continue to evolve, the potential for innovative applications and business models is vast. Companies that successfully leverage IoT capabilities, like IOTPAY, are well-positioned to gain a significant competitive edge in the digital economy. This is especially true for solutions that integrate seamless payment flow with robust security measures, enabling more reliable and secure payments.

3.9.1 TOTAL ACCESSIBLE MARKET (TAM)

The TAM for autonomous IoT payments is projected at \$740 billion by 2032, growing from \$37 billion in 2023 with a CAGR of over 40% from 2024 to 2032 (~\$350B by 2030).

This projection considers the entire global potential for autonomous IoT payments across all regions, industries, and IoT payment types, including B2B, B2C, P2P, and M2M payments.

The TAM reflects the broad scope of IoT payment applications, such as consumer electronics, retail, automotive, healthcare, and smart cities, where payments can be automated across various devices and platforms.

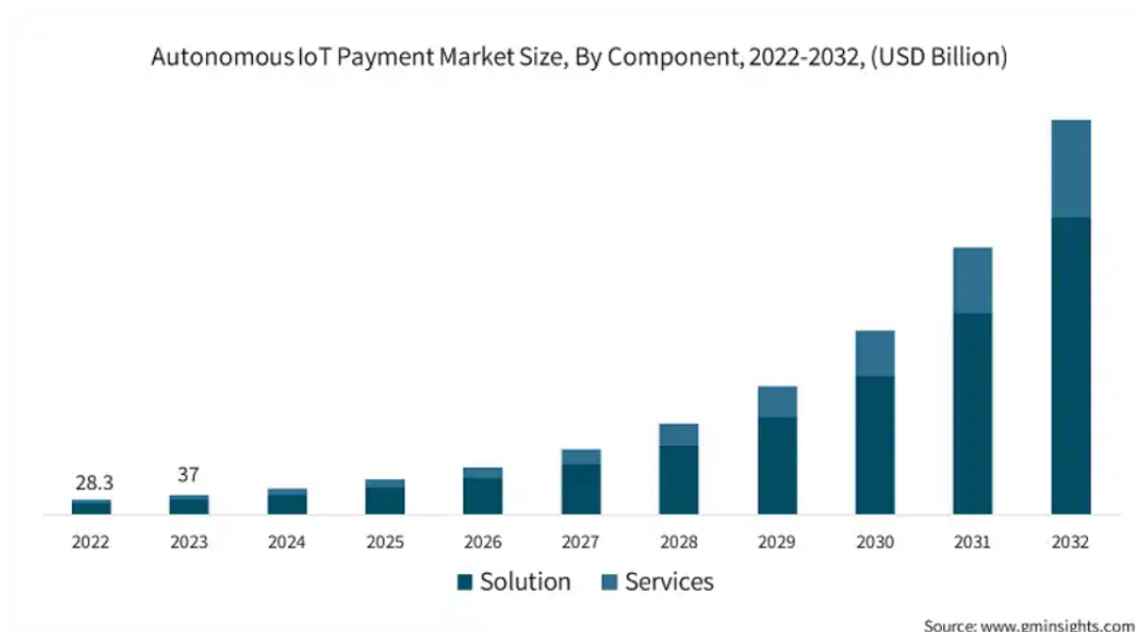


Figure 3 – Autonomous IoT payments market growth (B\$)

3.9.2 SEIZABLE ACCESSIBLE MARKET (SAM)

The SAM represents the market within TAM that our company can realistically target given our current technological capabilities, infrastructure and commercial reach. For us, it would be the European market.

Given that North America and Asia-Pacific are key regions, contributing to over 38% and 30% of the market respectively in 2023, we can assume that around 60-70% of TAM will be targeted by established IoT infrastructures in these regions. Nevertheless, given Europe's focus on data security, consumer protection, and regulatory frameworks (e.g., GDPR), Europe could represent a significant portion of the autonomous IoT payments market, particularly in sectors like smart cities, automotive, retail, and logistics. With a TAM projected at \$740 billion globally by 2032, and with the European market being a major component due to high digital transformation and IoT adoption rates in regions like Germany, the UK, and France, it can be estimated that Europe could capture approximately 20-25% of TAM, translating to a SAM for Europe of around \$150 billion by 2032 (~\$80B by 2030).

3.9.3 SEIZABLE OPPORTUNITY MARKET (SOM)

The SOM within SAM further focuses on the most feasible segment for initial market penetration and is heavily influenced by established players with strong IoT payment platforms.

Key players such as Visa, Mastercard, PayPal, and Amazon Web Services (AWS) currently hold over 20% market share. The SOM would likely focus on high-frequency, secure microtransactions and specific M2M applications in sectors like automotive, retail, smart cities, and logistics.

Assuming these companies can capture around 20-25% of SAM by 2032, SOM would approximate between \$89 billion to \$111 billion by 2032, focusing on mature IoT markets with strong digital payment infrastructures, likely in North America, Europe, and parts of Asia-Pacific.

This analysis by Global Market Insights shows that the autonomous IoT payments market is positioned for significant growth (above 40% CAGR), with SOM capturing opportunities in sectors with established IoT ecosystems and regulatory backing for secure, frictionless payments.

With strong emphasis on regulatory compliance and digital transformation in Europe, our project could particularly focus on IoT applications in smart cities, automotive (connected vehicles), retail (automated checkout), logistics (automated transportation fees or customs taxes) and other B2B IoT payments.

By leveraging expertise in these sectors and targeting regions with robust IoT infrastructures and regulatory support, IOTPAY could ideally envision around a SOM of 15-20% of the SAM within Europe. This capture rate would yield an SOM of approximately \$25 billion by 2032.

A Europe-Based Market Penetration strategy could be focuses on:

Smart Cities: European smart city initiatives provide opportunities for IoT-enabled payments in public transit, parking, tolls, and municipal services.

Automotive: With high adoption of connected vehicles and EVs, Europe's automotive sector is ripe for IoT payments in tolling, fuel, parking, and vehicle-to-infrastructure (V2I) payments.

Retail: Automated checkout and seamless IoT payments align well with the European retail sector's focus on reducing friction and enhancing the in-store experience.

B2B Transactions: Industries such as logistics, manufacturing, and supply chain management have high potential for IoT-enabled, autonomous B2B payments, especially for tracking and verification.

Focusing on these sectors in Europe allows IOTPAY to maximize its competitive advantage in the continent's IoT payments landscape, with opportunities grounded in our security, regulatory competitive advantage, and customer-centric innovation. More specifically we selected Smart Buildings and Logistics as our very first targets.

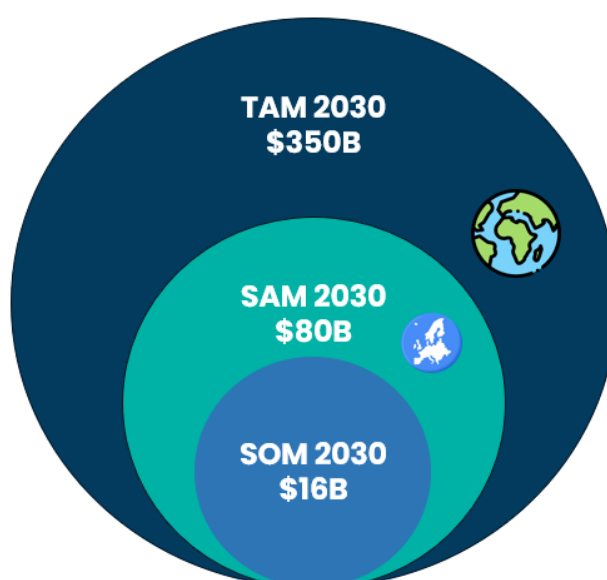


Figure 4 – Market Assessment

Built for scalability, IOTPAY is designed to be deployed globally with ease. As the solution matures, premium features and add-ons can be introduced to enhance its market value, catering to evolving industry demands and maximizing revenue potential.

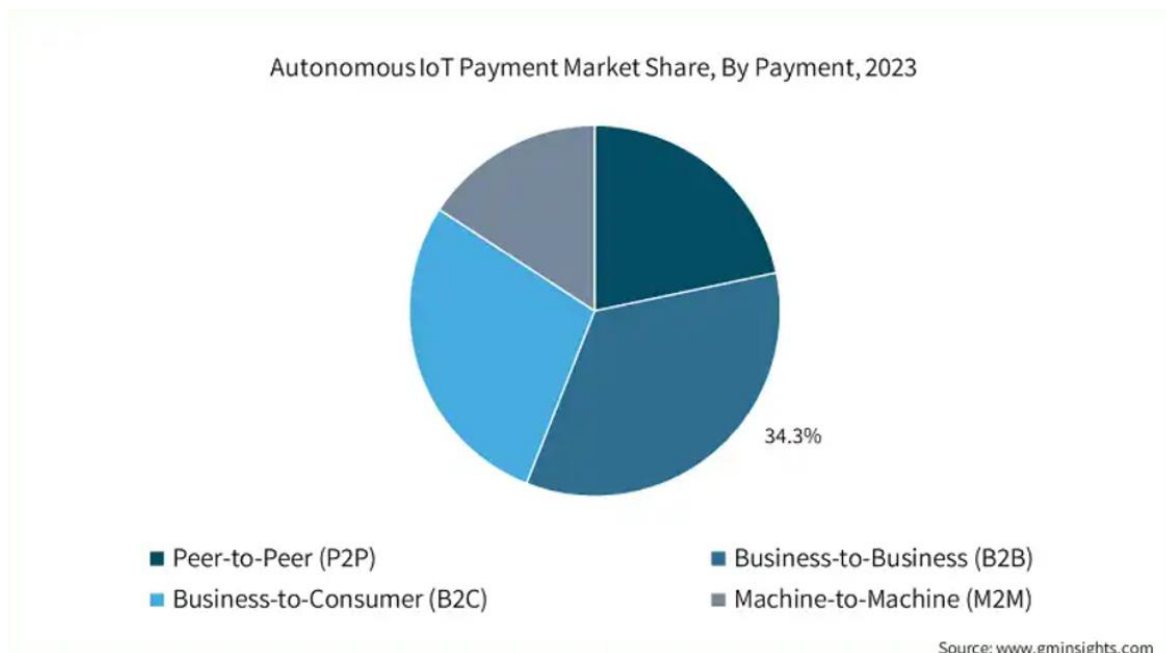


Figure 5 – Autonomous IoT Payment market shares (value)

3.10 MARKET SEGMENTS AND CUSTOMER PROFILES

IOTPAY, as automatic payment (DID) blockchain-based solution for an IoT Secure Automatic Data Sharing (SADS) system targets several key market segments, each with unique needs and opportunities for integration. First the segment of Smart Home Devices includes IoT devices used in residential settings, such as smart thermostats, security systems, and home assistants. A DID system enhances privacy and security in data sharing between devices and service platforms, allowing homeowners to control who accesses their data.

Nevertheless, our business priority is industrial IoT (IIoT). Indeed, factories and industrial setups use IoT for predictive maintenance, operational efficiency, and safety enhancements. DIDs ensure secure, tamper-proof communication between machines and management systems, facilitating trust and data integrity in environments that often involve sensitive or proprietary information. This is a critical market as the ESG pressure on the industry is currently huge and implies to deploy emergency action to be able to analyze, monitor and improve many key indicators that utilize IoT sensors. This is especially true in the automotive industry where additionally, connected cars and autonomous vehicles use IoT systems for navigation, safety, and entertainment

features. IOTPAY can manage identities and permissions for data sharing between vehicles and infrastructure, improving security and personalization.

This shouldn't cancel any interest for the huge market for healthcare. IoT devices in healthcare, such as wearable health monitors and connected medical devices, benefit significantly from DID solutions by safeguarding patient data and supporting compliance with strict regulatory standards for data protection and privacy.

However, supply Chain and Logistics use extensively IoT for tracking and managing goods. IOTPAY keeps a keen eye on this segment to provide a solution to verify device data across the supply chain, enhancing transparency and reducing fraud.

Finally, IoT devices in smart cities manage everything from traffic control to pollution monitoring. IOTPAY can help secure the vast amounts of data these devices generate, ensuring that city managers and authorized entities can leverage this data for planning and public safety without compromising privacy. These diversified market segments demonstrate the broad applicability of DID blockchain solutions across various industries, emphasizing their role in enhancing security, privacy, and efficiency in the IoT ecosystem.

Concerning customer profiles, we have first feedbacks that would lead us to believe that our first customers will probably be SME which are trying to innovate with new efficient solutions for smart buildings or factories.

3.11 ACQUISITION CHANNELS & MARKETING STRATEGY

We partner with Greendoy, a company that is specialized in realizing carbon footprint assessment of small companies. They provide reports and analysis of the carbon impact of these companies, which then position this company ideally to propose action plans for such carbon footprint reduction. IOTPAY then takes its full place as a candidate component to build a dynamic capacity for monitoring the carbon footprint of the company.

3.12 POSSIBLE COMPETITORS OR PARTNERS

The companies listed hereafter are major players on the market of autonomous IoT payment solution. IOTPAY would consider these huge companies as partners rather than competitors, or even possibly as customers.



Amazon Web Services (AWS) – AWS supports autonomous IoT payments through its comprehensive cloud infrastructure, offering IoT services like AWS IoT Core and AWS Lambda. These enable real-time data processing, device management, and secure transactions for connected devices in various industries.

Apple (Apple Pay) – Apple leverages Apple Pay as an embedded payment system for IoT devices, with a focus on user experience and security. Apple's focus on NFC and biometric security facilitates seamless, contactless payments that can be used across a range of IoT applications, including wearables and smart home devices.

Cisco Systems – Cisco integrates IoT payments into its networking and security solutions, emphasizing secure transactions across connected networks. Cisco's IoT Control Center and IoT cybersecurity offerings ensure safe, scalable transaction management for autonomous devices across sectors like retail and logistics.

First Data (now part of Fiserv) – Fiserv, through its acquisition of First Data, provides digital payment processing for IoT devices. With a focus on secure payment gateways and merchant services, Fiserv enables streamlined, secure transactions for IoT ecosystems, especially in retail and financial sectors.

Gemalto (Thales Group) – As part of Thales, Gemalto offers secure IoT payment solutions with an emphasis on SIM and eSIM technology for mobile devices. Thales also provides embedded hardware security modules (HSMs) and encryption, essential for securing autonomous payment transactions in connected devices.

Google (Google Pay) – Google Pay extends its payment services to IoT through contactless transactions and secure APIs. By integrating with Google Cloud's IoT infrastructure, Google enables secure, fast payments for devices in transportation, smart home, and consumer applications.

Honeywell – Honeywell supports IoT payments through its industrial IoT platforms, especially in sectors like transportation and logistics. Its connected devices and software solutions offer secure, autonomous transactions, facilitating payments for services like tolls and parking in smart cities.



IBM – IBM provides blockchain-based IoT payment solutions that emphasize trust and transparency in autonomous transactions. IBM Watson IoT and IBM Blockchain can be combined to support secure, autonomous payments, making IBM popular among enterprises for smart contracts and transaction tracking.

Intel – Intel focuses on hardware security for IoT payments, incorporating secure transaction processing within its IoT platforms. Through its Trusted Platform Module (TPM) and Intel Secure Device Onboarding (SDO), Intel facilitates secure payments across IoT-enabled devices in manufacturing and retail.

Mastercard – Mastercard supports IoT payments through its digital payment network and tokenization technology. Its IoT-specific solutions like Mastercard Pay by Self offer secure, autonomous transactions for devices across connected commerce, transportation, and consumer electronics.

Visa – Visa's IoT payment solutions enable secure, tokenized transactions for a variety of IoT devices. Through partnerships and solutions like Visa Token Service, Visa supports autonomous payments in wearables, connected vehicles, and smart appliances, enhancing both security and convenience.

Kalima – Kalima's interesting IoT payment solutions leverage blockchain technology to enable secure, decentralized transactions across diverse IoT devices. With a focus on industries such as smart cities, energy, and industrial IoT, Kalima's platform supports autonomous, feeless payments that enhance security, traceability, and operational efficiency. By utilizing a private blockchain architecture, Kalima provides a scalable, tamper-proof system for IoT payments, allowing connected devices to execute transactions in real-time while maintaining robust data integrity and privacy standards.

Nexus Group – Though Nexus does not specifically provide an IoT payment solution, they focus primarily on secure identity solutions for enterprises, including Public Key Infrastructure (PKI), digital identities, and authentication for IoT devices. Their offerings are tailored to enhance security within IoT ecosystems by managing identities and ensuring secure communication between devices, rather than directly facilitating payments. However, if Nexus Group expands to offer IoT payment capabilities in the



future, they could likely leverage their strong identity management expertise to create a secure framework for device-based transactions.

3.13 PERSPECTIVES

Our primary focus for promoting the IOTPAY project lies in leveraging digital communication channels, particularly within communities that are receptive to and supportive of Web3.0 developments. By concentrating on these platforms, we aim to reach audiences who are not only knowledgeable about emerging blockchain technologies but are also enthusiastic about the future of decentralized applications and digital innovation. This approach allows us to build brand awareness, engage potential early adopters, and establish a presence within communities that are likely to influence broader adoption as the technology matures.

Building on this foundation, we have outlined a six-year development plan for the IOTPAY project, which is structured to drive rapid growth and scalability.

6 years plan (€)		2025	2026	2027	2028	2029	2030
Smart Building Use Case	Number of target buildings in the accessible markets	40 000	48 000	57 600	69 120	82 944	99 533
	Number of customer buildings	10	100	500	2 000	4 000	6 000
	Number of IoT devices / building	50	100	130	169	220	286
	Monthly service fee / IoT device	0,60	0,62	0,64	0,66	0,68	0,70
	Annual licence fee / building	590,00	650,00	690,00	690,00	690,00	690,00
	Average cost / IoT device	0,45	0,41	0,37	0,33	0,29	0,25
	Average solution cost / solution / year	500,0	450,0	400,0	380,0	360,0	360,0
	SaaS gross margin	25,0%	33,7%	41,9%	49,7%	57,1%	64,1%
	Full solution gross margin	15,3%	30,8%	42,0%	44,9%	47,8%	47,8%
	Use case turnover	9 500	139 160	841 501	4 039 260	9 881 499	18 443 532
Logistics Use Case	Number of target supply chain companies	100 000	120 000	144 000	172 800	207 360	248 832
	Number of customers	20	200	1 000	4 000	8 000	12 000
	Number of IoT devices customer	10	50	55	61	67	73
	Monthly service fee / IoT device	0,60	0,62	0,64	0,66	0,68	0,70
	Annual licence fee / fleet	590,00	650,00	690,00	690,00	690,00	690,00
	Average cost / IoT device	0,45	0,41	0,37	0,33	0,29	0,25
	Average solution cost / solution / year	500,0	450,0	400,0	380,0	360,0	360,0
	SaaS gross margin	25,0%	33,7%	41,9%	49,7%	57,1%	64,1%
	Full solution gross margin	15,3%	30,8%	42,0%	44,9%	47,8%	47,8%
	Use case turnover	13 240	204 160	1 110 116	4 663 968	9 834 390	15 612 307
Total Annual Turnover		22 740	343 320	1 951 618	8 703 228	19 715 890	34 055 838
CAGR		-	1410%	468%	346%	127%	73%
EBITDA		-136 574	-171 530	206 286	1 672 784	5 928 108	13 544 030
Free Cash Flow		-207 324	-281 480	26 062	1 034 846	3 948 034	9 161 714
Fund raising		500 000	0	0	0	0	0
Cash at the end of fiscal year		292 676	11 196	37 258	1 072 104	5 020 138	14 181 852

Table 6 – Revenue and cash-flow forecast

A core component of this plan involves forming strategic partnerships with key industry players. Our objective is to expedite the implementation of the IOTPAY concept by collaborating with established companies that already have a strong foothold in sectors aligned with our goals. Specifically, we are targeting partnerships with companies in the energy management space, including those involved in smart

building technologies, electric vehicle (EV) charging infrastructure, and solar panel installations.

These companies are ideal partners because they operate in areas where the benefits of a secure, automatic, and decentralized payment system for IoT devices are immediately clear. By integrating IOTPAY into their offerings, such as energy management systems for smart buildings or renewable energy installations, these partners can enhance the value of their own solutions while promoting the use of IOTPAY. This symbiotic relationship not only facilitates the distribution and adoption of our solution but also strengthens its credibility and appeal within the energy and IoT sectors.

Through this targeted partnership strategy, we aim to position IOTPAY as a fundamental component in the infrastructure of smart energy management. Over the next six years, we envision IOTPAY becoming widely adopted within this ecosystem, recognized for its ability to streamline payments, increase operational efficiency, and support the broader transition to decentralized, IoT-integrated solutions. This collaborative approach ensures that the project can grow sustainably, harnessing the resources and market reach of established companies while cementing IOTPAY's reputation as a cutting-edge solution for secure IoT transactions in energy management and beyond.

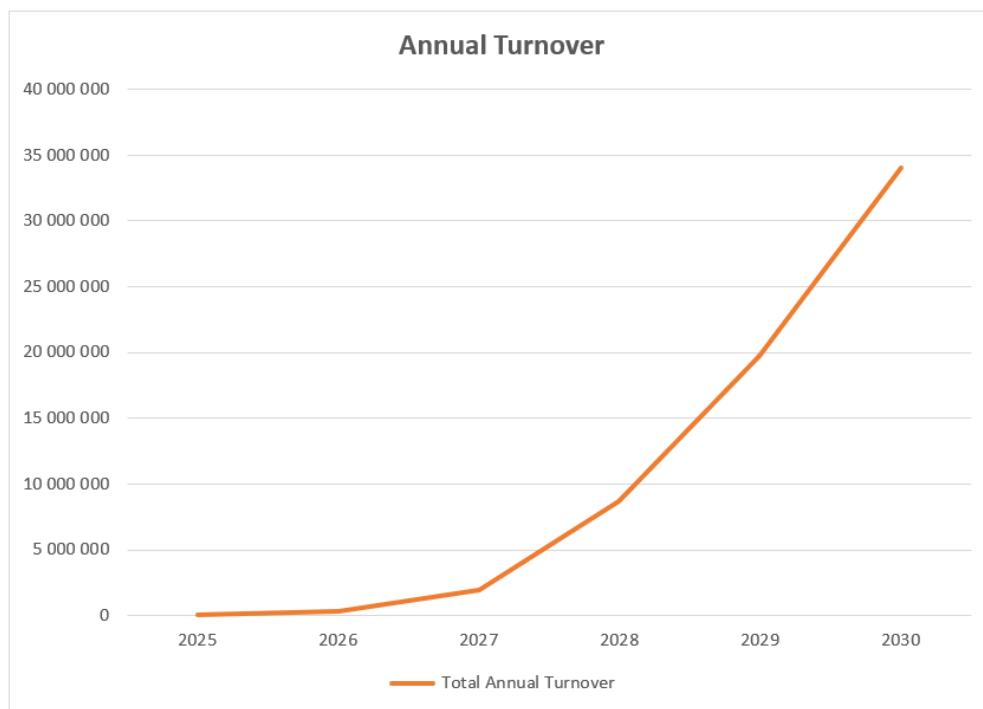


Figure 6 – Total Annual Turnover

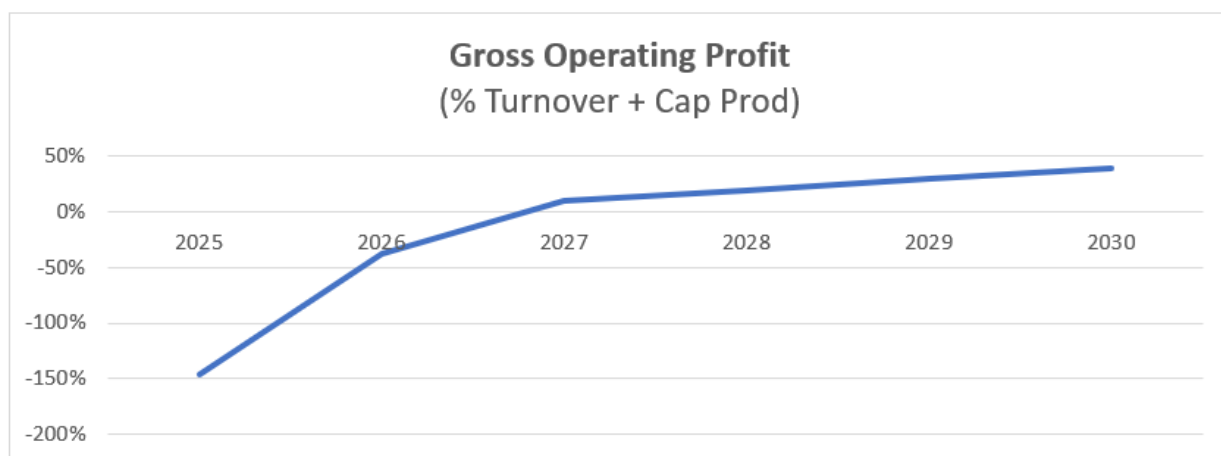


Figure 7 – Gross Operating Profit

As a NGI Sargasso project, IOTPAY is part of a global framework program, so it will leverage all the marketing and efforts of promotion of the NGI initiative to push forward the project. Hence the economic impact should be greater than if IOTPAY was a standalone solution. Indeed, consistently with NGI, our vision is resolutely oriented towards the new frontier of the digital economy. Web3.0 is very concretely built on the decentralization of infrastructures as well as the decentralization of the value chain that irrigates them and we firmly believe in the intrinsic value of Web3.0 technologies for a better and more efficient, human-centric economy.

Our solution is natively international and can be easily deployed everywhere, both in developed and developing countries.

3.14 BUSINESS PROTECTION

To prevent someone from cloning our contract and setting up slightly cheaper transaction fees, we ensure our product offers a comprehensive suite of features beyond just smart contracts. This includes an intuitive dashboard, robust security measures, and continuous updates. These additional components and the seamless user experience they provide create a significant value proposition that isn't easily replicated by simply lowering transaction fees.

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