



Syntheticus®

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# Revolutionizing Software Testing with Synthetic Data:

*The Adcubum Story*



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No matter the industry, data plays a critical role in decision-making. However, collecting and using high-quality data is challenging due to cost, sensitivity, and privacy concerns. This is where synthetic data comes in - a type of computer-generated data that replicates the characteristics and patterns of real-world data without compromising confidentiality or sensitivity.

In this customer success story, we will explore how Adcubum leverages Syntheticus® to overcome software testing challenges. We will discuss the benefits and limitations of synthetic data and how it is used to make informed decisions and tackle the challenges of using real-world data in the insurance industry.

## What Is Synthetic Data?

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At its core, synthetic data is a computer-generated representation of real-world data. But unlike real-world data, which is collected from various sources, synthetic data is created from scratch based on predefined rules or statistical models. This gives it some distinct advantages over traditional data sources, such as flexibility, scalability, and privacy.

Synthetic data aims to provide additional data points similar to real-world data, allowing for more comprehensive analysis and modeling. It supplements existing data sets or creates new ones, enabling a more detailed look at trends and patterns.



[Gartner](#) named "Synthetic Data" and "Differential Privacy" as one of its Top Strategic Technology Trends and estimates that 60% of large enterprises will be leveraging one or more of these techniques by 2025.



[Forbes](#) named 'Synthetic Data' as one of the Top 10 transformative CV Trends in 2024, further highlighting its growing importance.

Since synthetic data isn't considered "Personal Identifiable Information (PII)," according to privacy regulations such as GDPR, all the data can be safely used and collaborated on without worrying about privacy breaches or compliance.

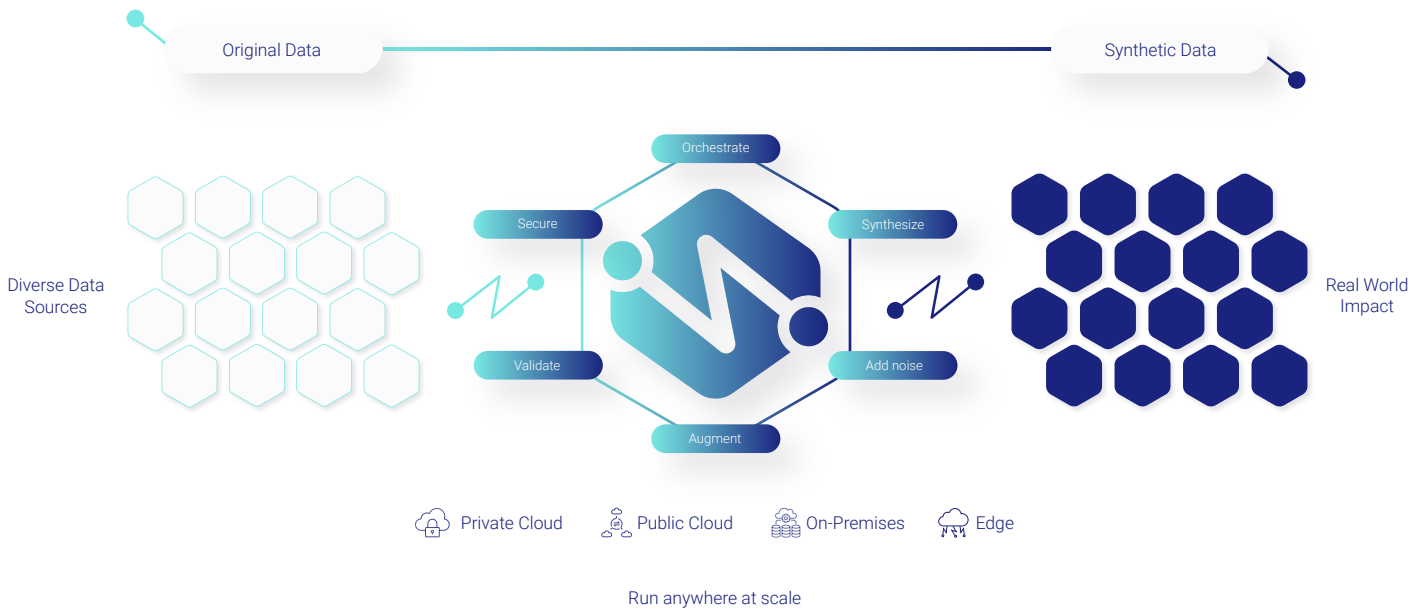


According to the [European Data Protection Supervisor \(EDPS\)](#), "Synthetic data is a technical solution to a legal problem," enhancing technology privacy, mitigating bias, and democratizing access to data. In their regularly published [TechSonar report](#) on emerging technologies, EDPS mentions synthetic data as one of the most promising technologies worth monitoring.

With growing cybersecurity concerns, increased legislative pressure, and restricted access to sensitive healthcare data, insurance companies face challenges in analyzing data for policy development, underwriting, and claims. Synthetic data addresses these challenges by providing insurers with a realistic, secure, and compliant alternative to their original data.

## How Is Synthetic Data Generated?

Synthetic data is created artificially using Generative AI techniques, such as Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs), in combination with Differential Privacy. These techniques create realistic data that mimics the original data while preserving privacy.



Once the original data is collected, the platform orchestrates the proprietary machine learning algorithms to synthesize, secure, validate, augment, and enrich it. This results in synthetic data that looks and behaves like the original one without revealing PII or risking compliance issues.

# How Synthetic Data Changes Software Testing

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The software testing and development world comes with its fair share of challenges. Data scarcity, concerns about data quality, and the ever-present need for security can significantly hold back organizations in their efforts to conduct thorough end-to-end testing, leading to system failures and prolonged debugging cycles.

To address these challenges, organizations are turning to synthetic data to elevate their software testing practices. Let's see why:

## Comprehensive Test Coverage

Leveraging synthetic data allows organizations to achieve comprehensive test coverage. By generating diverse and representative data sets, it becomes possible to conduct thorough end-to-end testing, thus reducing the likelihood of critical errors and system failures during production.

## Enhanced Data Privacy and Security

Organizations significantly improve data privacy and security in software testing by adopting synthetic data. This approach eliminates the need to use sensitive or personal information in testing, effectively reducing the risk of data exposure and ensuring compliance with data protection regulations like ISO 27001:2022 standards.

## Efficient Testing Cycles

The adoption of synthetic data accelerates testing cycles by eliminating the need for manual collection or creation of real-world test data. This results in more frequent and efficient testing, significantly reducing the time and effort required for software development.

## Cost Savings in Data Storage

Storing and managing extensive volumes of real-world data for testing purposes is often costly. Synthetic data removes the need for expensive storage solutions and frequent updates to datasets, offering significant cost savings while delivering high-quality testing data.

### Mitigated Risk in Collaboration with 3rd Parties

Synthetic data provides a secure foundation for vendor sourcing, testing, and collaboration with third-party partners. This approach not only mitigates data security risks but also fosters productive and compliant partnerships.

### Eliminating Data Scarcity Constraints

Synthetic data liberates organizations from data scarcity constraints that often hinder software testing. It empowers organizations to generate large amounts of high-quality, representative data, enabling comprehensive and consistent end-to-end testing.

## Customer Success Story: Deep Dive into the Adcubum Use Case

### Meet

Adcubum is a renowned software manufacturer catering to the global insurance industry. Adcubum Sirius, their flagship product, is a cloud-based, flexible, and modular system designed for health, property, and casualty insurers. Adcubum partners with their clients to provide reliable and innovative solutions for the evolving insurance market. They offer training programs through their Adcubum Academy to internal and external experts to enhance their proficiency in using Adcubum Sirius.



Founded in 1997 in St. Gallen, Switzerland, Adcubum has gained a reputation as an innovation leader in the insurance industry. Their strong customer base, primarily in German-speaking countries, attests to their exceptional service. Adcubum's management and owner are committed to a long-term focus on robust corporate development, and their success is attributed to the expertise of their 400+ highly qualified employees located across Düsseldorf, Hamburg, Lucerne, St. Gallen, Stuttgart, Solothurn, Zagreb, and Zürich-Wallisellen.

## The Challenge

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Adcubum, like many companies struggling with software testing, faces challenges that hinder its productivity. Many entities in the industry can't properly test their software before it enters production due to limited access to relevant data and data scarcity, leading to systemic software issues within production environments.

Moreover, organizations struggling with software testing encounter significant challenges of time and costs. The time required to prepare and make test data available is often too long, turning into lengthy release cycles. The downtime of test instances is high, making it challenging to test software efficiently. Additionally, manual copying and pasting test data is too common, which increases data storage costs and generally costs a lot of resources due to manual work.

In addition to these challenges, Adcubum balanced two scenarios: either too little test data or using production-like test data and running high risks. To mitigate this issue, many entities use production data in test environments, giving more people access to test data than production data.

However, this approach has a significant risk of data leakage, privacy fines, and reputation damage. Additionally, data protection regulations require that data in lower environments should also be protected and deleted upon request, making it challenging for entities to access and use data effectively for testing purposes.

The current scenario created the following challenges for Adcubum:

- 1 Limited access to relevant data for testing software before it enters into production.
- 2 Use of production data in test environments, leading to a high risk of data leakage, privacy fines, and reputation damages.
- 3 Difficulty in protecting and deleting data in lower environments as required by data protection regulations.

For Adcubum and similar companies, this results in a lack of confidence in software quality, limited ability to identify and mitigate potential issues before they occur, and, ultimately, challenges in delivering high-quality insurance services to their customers. To address these challenges, companies require a solution that can provide access to realistic, secure, and compliant alternative data for testing purposes.

## Syntheticus® Benefits Adcubum and Other Companies Struggling with Software Testing

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To overcome the challenge of limited and inadequate data access, Adcubum joined forces with Syntheticus®, a leading synthetic data company that leverages advanced Privacy-Enhancing Technologies to generate realistic and accurate synthetic data.

Here are some of the key benefits synthetic data offers them:

### ● Improved Data Quality and Diversity

Synthetic data is generated to represent a wide range of scenarios and events, allowing organizations to create more diverse and representative datasets than those available from traditional sources. This diversity improves the accuracy of models and enables better predictions and risk assessments. With synthetic data, companies can generate diverse datasets that more closely reflect reality, leading to better model performance and more accurate predictions.

### ● Enhanced Scalability

Real-world data is often limited in scope and volume, making it difficult to scale up models and predictions. With synthetic data, however, organizations are able to generate as much data as they need to support their ML algorithms, allowing them to expand their operations without constraints. This scalability improves model accuracy and enables more accurate predictions, leading to better decision-making.

### ● Improved Access to Critical Data

Companies depend on accurate data to make critical business decisions. However, silos and compliance barriers often prevent them from accessing the data they need to gain valuable insights, resulting in missed opportunities and revenue loss. Synthetic data provides a secure solution for accessing critical data, enabling organizations to increase their competitive edge and generate new revenue streams.

### ● Enhanced Collaboration and Knowledge Sharing

Digital products with personalized services, such as claims management or customer relationship management software, require data sharing with third parties. Due to its privacy-preserving capabilities, synthetic data is easily shared and distributed within and between organizations, enabling better collaboration between departments and teams.



## ◆ Better Innovation and Experimentation

Synthetic data allows organizations to experiment with new products, services, and business models without risking real-world assets. This means companies can experiment more freely and get creative with their ideas, knowing they can test and validate them in a safe and time-effective way.

## ◆ Improved Regulatory Compliance

With strict data privacy laws in place, a rise in data breaches, and growing cybersecurity concerns, synthetic data provides a safe and compliant alternative to using original data. It helps companies comply with strict data privacy and security regulations, allowing them to train their models without risking sensitive data.

By leveraging synthetic data, companies in various industries overcome the challenges of data scarcity and data access, improving their risk management strategies, enhancing the scalability and accuracy of their models, and ultimately driving business value and innovation.

# The Proof of Value

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## Syntheticus and Adcubum

Adcubum's solution, "Syrius," is a highly regarded software in the Swiss insurance market known for its efficient data management capabilities. Syrius employs specific database layers that adhere to a peculiar bitemporal framework, which perfectly aligns with Syntheticus®' data synthesis capabilities.

The goal of this project is to demonstrate Syntheticus®' ability to synthesize coherent Syrius databases that respect referential integrity and specific data dependencies while adhering to the defined metrics. This capability enables insurance entities that use Syrius to generate test data that is compliant with regulations, ensuring data security while facilitating the execution of complex acceptance, regression, and other tests.

## The Results

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The collaboration between Syntheticus® and Adcubum yields impressive results. The project's key goals were successfully met, with the Sirius database being synthesized coherently while maintaining full compliance with GDPR and CH-DSGVO regulations.

For Adcubum, the partnership leads to a range of benefits, including the ability to provide representative synthetic test data to customers. Adcubum is also able to generate synthetic test data for its internal software development needs, accelerating time-to-data and mitigating privacy risks.

Thanks to the collaboration with Syntheticus®, Sirius customers enjoy better test quality, faster development and release cycles, higher scalability, and increased overall data literacy, resulting in greater efficiency and better business outcomes. This means a sustainable reduction of costs in test management with a simultaneous increase in quality.

Furthermore, using synthetic test data helps reduce the risk of data leakage and potential reputation damage while mitigating the risk of costly privacy fines. This leads to ensuring the compliance requirement in test management and training environments.

Overall, the Syntheticus®-Adcubum partnership proves to be a highly successful endeavor, resulting in tangible benefits for both Adcubum and its customers.



*"We've partnered with Syntheticus® because the joint value proposition for our customers is clear: a holistic improvement in the entire test management process while reducing costs and mitigating compliance risks."*

*Antonio Kümin, AI Architect @ Adcubum*



**Successfully synthesized  
Syrius database while  
complying with GDPR and  
CH-DSGVO regulations.**



**Adcubum gains  
representative synthetic  
test data, accelerating  
time-to-data and  
mitigating privacy risks.**



**Syrius customers benefit  
from improved test  
quality, faster  
development cycles,  
higher scalability, and  
increased data literacy.**



**Synthetic data usage  
reduces the risk of data  
leakage, reputation  
damage, and privacy  
fines, ensuring  
compliance.**

## Conclusion

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In conclusion, synthetic data is rapidly emerging as a valuable tool for software testing in various industries, providing companies with a secure and compliant alternative to handling sensitive data. Organizations leveraging synthetic data solutions improve their risk modeling, fraud detection, and customer segmentation capabilities while adhering to privacy regulations. Additionally, with synthetic data, companies simulate a wide range of scenarios, enabling them to thoroughly test their systems and applications without risking sensitive data.

As synthetic data continues to evolve and expand, the possibilities for its application are virtually limitless. It is a technology that holds great promise for the future, and early adopters stand to gain a significant advantage. With careful planning, a focus on ethics, and an eye toward innovation, companies can harness the power of synthetic data to create a more data-driven and successful future.



Syntheticus<sup>®</sup>

Ready to explore the power  
of **synthetic data** for your  
software testing needs?

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and learn how Syntheticus<sup>®</sup> advances  
your data-driven projects while protecting  
customer privacy.

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