

Unleashing AI for impact across the insurance value chain

Whitepaper



SPARK  BEYOND

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Executive summary

The insurance industry is currently undergoing an important evolution. **Over the next 5 years, artificial intelligence will affect the whole value chain** from marketing and distribution, underwriting and pricing, to claims management – driving new customer experiences, products, and operating models.

Due to the advantages of being able to deploy sizable compute power and best talent at sizable datasets, **large incumbents can turn AI to their advantage to counter the disruptive digital-native innovators.**

This paper explores the **6 major opportunities in the market today for players to harness AI** to delight their customers and boost profits:

1. **Delighting customers with slick digital experiences** served by AI engines – such as personalised communications including frequency, timing, format, content and channel
2. **Automating insurance products** through agile underwriting and automated claims management – such as Lemonade's app-based claims that ensure reimbursements within days
3. **Behaviour-based dynamic underwriting leveraging more datasets** – such as using non-traditional demographic, behavioural, attitudinal, psychographic, telemetry datasets
4. **Proactive and pre-emptive life coaching** – such as using wearable tech as well as non-traditional datasets to help customers manage their risk and make better life decisions
5. **Bundling products into a holistic, personalised and cost-effective offering** to address an individual's overall risk – such as using the individual's opted-in health data gathered for their health insurance to better price and package their car insurance
6. **Rethinking products to drive new profits in seemingly commoditised markets** – such as usage-based insurance for the 'as-a-service' markets like car insurance with Uber, home insurance with AirBnB

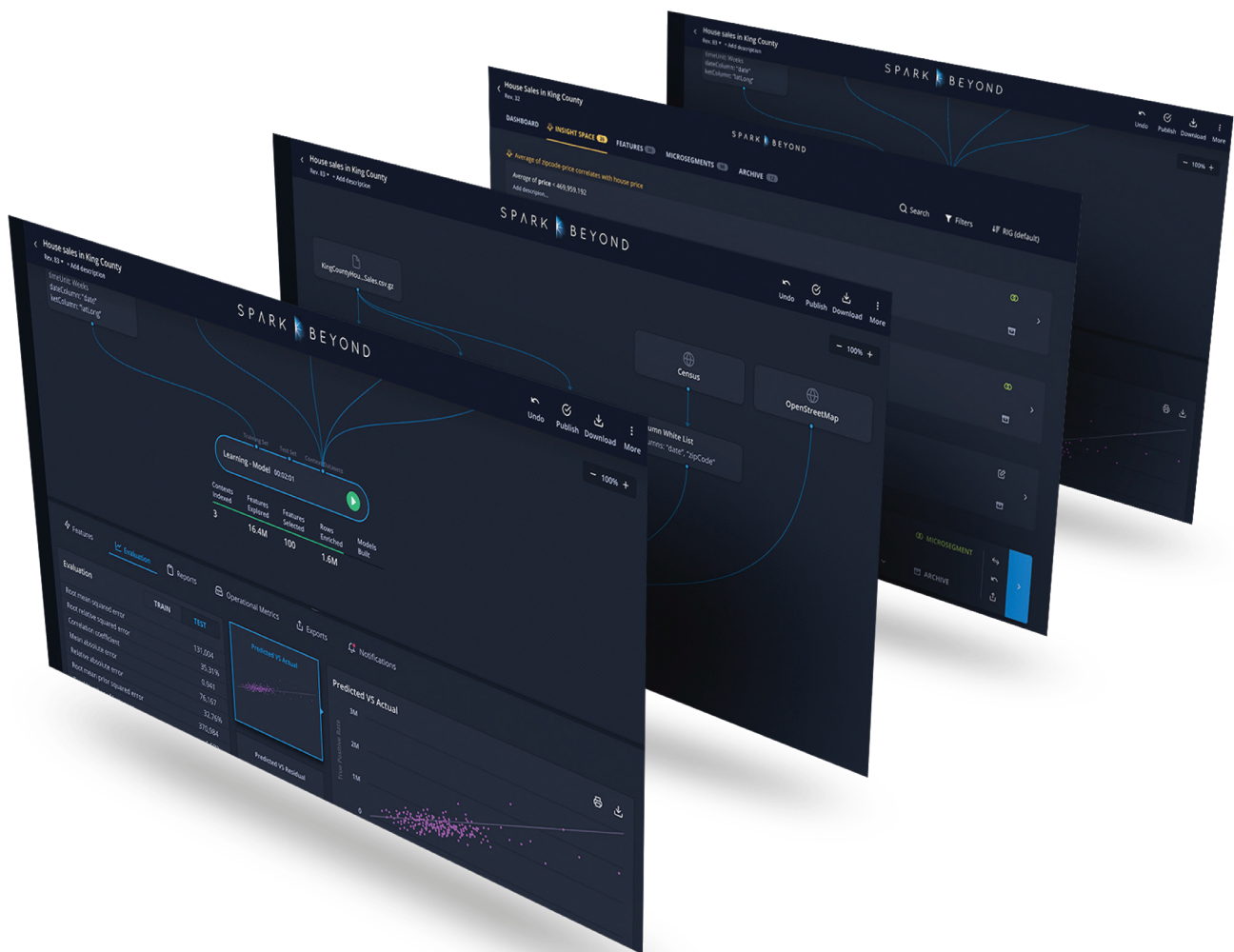
We analyse the **5 attributes of success** for deploying AI within an insurance company:

1. **Technical teams are empowered to become citizen data scientists** – democratising the value of AI
2. **Strong and active sponsorship from forward-leaning executives** in your business – unlocking the blockers to progress across your organisation
3. **Stable and dedicated cross-functional teams working in an agile way** are empowered to test and learn – and fail too sometimes
4. **Non-traditional data sourced and integrated** – such as telematics and IoT
5. **Inter-business unit and cross-sector collaboration** where possible

Finally, we take a deep dive into the **practical use cases** an Insurance executive should consider today where early adopters of AI have already blazed a trail:

1. **Take tactical actions to drive the core business of today** – from value-based prospecting to optimising agents; from individualised risk assessments to automated underwriting; from claims steering to subrogation potential
2. **Get ahead of the competition by creating the conditions for success tomorrow** – such as building data partnerships, or testing new products such as parametric insurance
3. **Take a new look at good business decisions that will also drive positive social impact** – from health & wellness to natural catastrophe mitigation and planning

The changes in the next ten years will be as profound as the effects of the digital revolution of the 1990s and 2000s. This whitepaper seeks to frame the opportunities and risks that AI poses to the insurance industry – executives, take note.



PART I

Strategies to harness the transformation

The insurance industry is next amidst a span of consumer services adopting AI to drive better customer experiences, optimise operations, empower its employees and enhance its product offerings. As an industry, it has been historically slower to adopt AI¹, largely due to a number of structural barriers, ranging from third-party agents masking customer interactions to annual renewals lowering the impetus for a digital customer relationship. These barriers are being overcome with new insurance models, changing customer expectations, and systems that allow companies to drive impact via digital assets based on behavioral data and derived from extensive external datasets.

The following key strategies are empowering forward-leaning insurers to disrupt the value chain with AI.

1 Delighting customer in the digital age

The majority of insurance processes are two or three decades' old. As the industry transitions from providing a product to providing a service, new applications that focus on customer experience are emerging. Digital communication channels, like chatbots, create a new medium to engage with customers. Embedding AI ensures that customers are engaged with the right message at the right time, creating a personal and intuitive customer experience.

2 Automated insurance: low-touch, low-friction products

The digital disruption has led to customers increasingly expecting low-touch, low-friction products; i.e. underwriting and claims-handling that's instant and non-intrusive. New entrants, such as home and renters insurer Lemonade, offer a specialised service – its straightforward app-based claims process reimburses users within days and underwriting occurs within minutes. In order to compete, existing insurance companies must develop new processes that use analytics to support agile underwriting, claims handling and customer interaction.

3 From pre-set pricing to dynamic underwriting

Actuaries use static population averages to determine risk, which means individuals fall into one of relatively few price bands. What's more, manually analysing complex medical data to evaluate risk is a long, manual, and deeply imperfect process. AI helps break away from actuarial tables and draws upon additional data sources such as census or events pertaining to one individual in order to provide underwriting decisions and pricing that reflects the specificity, nuance, and diversity in human life.

4 Insurers become virtual life coaches

The role of the insurance company is shifting from reactive claims handling in the aftermath of an event, towards preemptive, continuous and proactive life-decision support.

While change facilitates more meaningful interactions with customers, it stems from the increasing breadth of data streams – from medical data to wearable tech. These insights derived from this data make for better risk assessment. Just imagine insurer integration into Alexa to guide consumers away from risky behaviour, and rewards for positive or low-risk actions.

5 Bundling & cross-selling to lower the individual's overall risk

Consolidating data from different business lines in the organisation allows insurers to apply AI systems to derive holistic insight and recommendations. By creating a holistic view of the customer, insurers can offer more customized products at a better cost. For example, a person that takes medication on time – an insight gathered based on prescription data – may be a more careful driver. This insight can improve the quality of motor underwriting because the insurer can better assess the risk of the individual, thereby creating impact for both consumers and insurers.

¹AI, for the purposes of this paper, refers to 'algorithms that learn from data without relying on rules-based programming in order to draw conclusions or direct an action' (McKinsey, 2017)



AI will change the very nature of insurance itself. Not only will life and health insurance be more affordable, but it will be packaged with personalised advice to help our customers navigate life together.

Peter Johnson
SVP, MetLife



MetLife

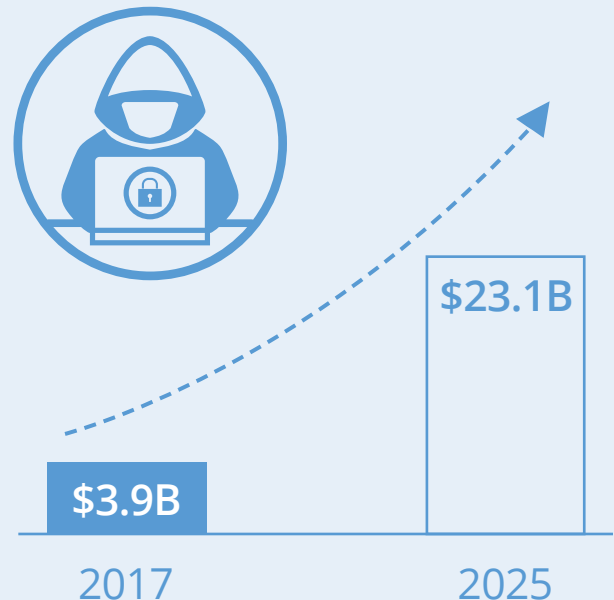
6 AI as a muscle to capture profits in new product offerings

While AI is a key tool in the race to compete in increasingly commoditized traditional motor, life and health insurance lines of business, AI is even more important for capturing the profits in newly emerging offerings. Significant profits await in new lines of business where a dynamic data-driven approach is essential to cover and price new risk.

- **Usage-based insurance** – The gig economy created a market for time-limited, single unit, on-demand coverage (called 'usage-based insurance'). Uber, WeWork, AirBnb, and other players driving the 'as-a-service' business model revolution are well poised to capture profits within the new usage-based insurance value chain. AI applied to measuring risk, pricing and underwriting policies, can serve as a muscle for incumbents to compete against digital and AI native horizontal entrants.
- **Cybersecurity insurance** – Cybercrime is expected to cost the world \$6 trillion per year by 2021. In keeping with this, cybersecurity insurance is predicted to grow from \$3.9bn in premiums in 2017 to \$23.15bn in 2025. A dynamic data-driven risk analytics approach is essential as threats are constantly changing and protocols and security measures to handle them evolve by the day.
- **Parametric insurance** – Consumers find parametric insurance popular given its simplicity where pre-fixed terms confirmed by publicly available information avoids a claims process. Parametric insurance is

Capture emerging markets: cybersecurity

Leverage AI across your insurance value chain – marketing and sales, risk, underwriting and pricing, fraud and claims handling – to capture the \$23.1B cybersecurity market.



Sources: ADROIT Market Research;
Cybersecurity Ventures

also a win for insurance companies where eliminating the claims process is one example of reduced complexity. AI is the muscle allowing an insurance company to decipher and quantify risk correlations to rapidly build, test, and scale products matching consumer demand.

The Microsoft & SparkBeyond partnership

SparkBeyond has partnered with Microsoft, given their aligned visions of adopting data and AI via a digital transformation is a must-have in today's increasingly competitive environment with increasingly demanding customer expectations. A successful digital transformation couples investments with new capabilities that drive both business and social impact.

SparkBeyond's Problem Solving Platform discovers the root causes of client's

top pain points; empowering business users to draw powerful insights buried in complex data, and data scientists to feature automated feature engineering. Such driver discovery automatically adapts to the dynamic business environment as it incorporates new trends emerging in live data. Once integrated into a client's decision support systems, these insights empower clients with actionable intelligence that drives impact.



SparkBeyond in action



Life insurance underwriting

Background

A leading US life insurer was looking to reimagine **underwriting practices by reducing reliance on invasive medical information.** The majority of the client's customers were required to submit invasive medical information, such as lab tests, or in **93% of cases, a physician's statement, which was off-putting for customers and reducing conversion rate.** Therefore the client was seeking **other indicators** from which it might **accurately predict risk.**

Approach

The solution was a dataset that combined **internal customer data** (behavioural, financial and non-invasive self-reported

medical data) with **external datasets** (consumer information such as online footprint and financial data such as credit health). The **client's data was augmented with 11 new data sources** by SparkBeyond. The combined data was used to identify risk predictors and tested in historical underwriting decisions.

Impact

The result was a new predictive model that used multiple non-invasive features to underwrite risk in life insurance. Powered by SparkBeyond, the client **increased non-invasive risk classification tenfold – from 7% to 70% of cases** – and approximately half of the non-invasive cases could be processed automatically without manual intervention.

10x

non-invasive risk
classification

50%

of the non-invasive cases
processed automatically

PART II

Adopting data and AI: what we're seeing successful companies do

The take-up of AI has become a key feature in driving business changes across the insurance journey lifecycle. Early adopters use it to obtain better lead scoring, higher conversion rates, more effective cross-sell and upsell, increased retention and personalised AI-powered customer experience throughout. The following are features of organisations that are successfully adopting data and AI in order to foster change:

1 Empowering actuaries to become citizen data scientists

Pioneers in the space are moving away from the crude averages that still provide the basis for many actuarial and underwriting models. New AI approaches allow companies to accurately depict multifaceted individual behaviour and build optimal risk profiles specific to an individual or event. By automating and democratising formerly technical elements of data science, SparkBeyond lowers the bar and provides the tools for actuaries to build and use sophisticated AI models.

2 Forward-leaning executive championing data & AI

The first six to twelve months of adopting AI is usually decentralised with three to four use cases across one to two business lines. As use cases develop into solutions spanning departments and geographies, ownership centralises under data-literate and progressive business leaders, or 'forward leaning executives', who are given the capacity and authority to drive digital transformation.

While the 'forward-leaning executive' role often falls under the CDO or COO, one owner we found surprising yet impactful was the CFO – a position who naturally counsels the CEO with privileged business KPIs and a need to reinvent, as reporting-heavy responsibilities become automated.

3 Cross-functional teams

Analytics cannot and should not be conducted separately from the business context; tangible business actions can be elicited from data in order to change the processes to reduce risk and increase profitability. Multi-disciplinary teams that are diverse in function and capability embed data science into business strategy. The new wave

of AI technologies serve a cross-functional team and are better equipped to drive business impact.

4 New data: wearables, telematics and the 'Internet of Things'

Connected devices outnumbered people in 2008 and the data from these new devices is now giving insurance companies better insight into customer behaviour. It's even going so far as to positively influence behaviour. The high-frequency data gathered from devices such as smartwatches is carefully analysed to identify sophisticated patterns in time or space that are associated with safe and unsafe behaviours.

5 Collaborate to reduce risk

There is great potential for institutions to collaborate by sharing datasets that pertain to mutual features, such as improving outdated and inefficient operational processes, which often cross multiple business lines and product categories. This would give institutions flexibility and increased capacity to execute differentiating factors such as strategy. This is achieved through SparkBeyond's 'blindfolded analytics' process, where an institution can share a set of insights instead of the actual raw data that is so often disallowed by regulators.



AI is the muscle allowing an insurance company to decipher and quantify risk correlations to rapidly build, test, and scale products matching consumer demand. This requires careful prioritisation and implementation of AI-driven insights across the insurance value chain.

Łukasz Kosicki
Managing Director,
Ergo Hestia

ERGO
HESTIA®

SparkBeyond in action



Group retirement surrenders

Background

A global direct insurer was **losing \$2.6bn due to early life insurance policy termination**. It was looking for a predictive model that would rank participants by their likelihood of individual surrender, in a bid to prioritise retention efforts by advisors.

Approach

1.2 million predictors of individual withdrawn funds were evaluated by the SparkBeyond platform to establish which customers will churn. The **top 150 predictors included strong signals from demographic, financial, and behavioral**

data, such as customer interactions with the call centre, their payment transactions and their website activity. Having a detailed understanding of the customer journey across each of the insurer's digital assets was key to grasping surrenders.

Impact

Powered by SparkBeyond, the **client identified 10% more surrenders**, which translated to an estimated **additional \$26 million in annual retention**. These analytics in turn generated business actions that allowed the cross-functional team to design strategic initiatives to retain customers.

+10%

surrenders identified

+\$26M

in annual retention

PART III

Generate business and social impact by introducing data and AI to your organisation

Sustainable transformations are driven by short-term tactical use cases within the context of a broader audacious vision for the future. Quick wins and rapid iterations complement a wider mission to reinvent the insurance value chain with data and AI in a bid to capture market share and margin. SparkBeyond's clients have been successful in starting their journey combining a sizable impact of at least \$3M (a specific use case in specific line of business in a specific geography) with a forward-leaning executive (who can scale the impact and become an early champion or change agent within an organisation). Below is a suite of use cases that generate impact across the insurance value chain:

1 Tactical: transform the core business of today

Introduce data and AI to the daily running of a business, with changes that can be made at a departmental level, in order to maximise ROI on existing products and services.

I. Distribution, sales and marketing

1. **Retention management (churn):** understand patterns behind customer churn or lapse in order to enable proactive retention and predict individual churn.
2. **Value-based prospecting (lead scoring):** characterise high-worth clients for new business prospecting and incorporate patterns to score propensity of a new lead.
3. **Cross-sell and up-sell:** build a lead generation engine for cross-sell or up-sell.
4. **Value-based marketing:** optimise digital marketing spend by connecting predictive lapse, lifetime, and margin scores of new and existing customers.
5. **Optimising agents:** improve promotions, direct the right leads to the right agency and promote lower cannibalisation between agencies.

II. Underwriting and pricing

6. **Individualised risk assessment:** leverage AI to assign risk by responding to the unique profile and properties of each individual (instead of assigning them to a group based on crude averages).
7. **Automated underwriting:** eliminate the need for manual follow-up (e.g., invasive medical tests in life policies) by better synthesising patterns in self-reported information.
8. **Customer onboarding and third-party data:** improve underwriting efficiency and operations by prioritising data sources to use based on availability and cost.

III. Claims excellence

- 9. Claims automation:** automate severity modelling given only initial or partial information available when a claim is submitted.
- 10. Claims steering:** leverage value estimations and patterns from past behaviour of similar consumers in steering towards a win-win resolution.
- 11. Fraud:** deepen understanding of fraudulent claims to identify cases where the claim damage request far exceeds the actual damage.
- 12. Subrogation potential:** Identify instances of uncollected damages from third-party involvement in claims.

2 Strategic: become the insurer of tomorrow

Keep up with the pace of change by building on initial data and AI foundations to capture a larger segment of the customer value chain and further enhance margin and market share going forward.

I. Data partnerships and ecosystems

- 13. Connected device partnerships:** introducing telematic data into AI systems provides stronger risk assessment and drives more valuable dynamic pricing.
- 14. Cross-sell partner services to add customer value:** deepen existing customer touch points and create new revenue streams by cross-selling services or products from partner organisations that add value. E.g. offering tour packages for customers purchasing travel insurance.



The future of 'digital insurance' is increasingly positive IF existing insurers can capitalise on the role of Data and Artificial Intelligence in all aspects of their business: distribution, pricing and underwriting, fraud detection and prevention, claims and product range.

Leon Fretz
Insurance Sector Director,
Microsoft UK



II. New products and revenue lines

15. Usage-based insurance: leverage data and AI as a muscle to accelerate sharing-economy specific product lines, such as insuring private cars when in use as taxis (in the case of Uber) or homes when in use for the purpose of hospitality (like AirBnb).

16. Long-tail markets: build new insurance products that can protect individual items or events.

15. Parametric insurance: with data and AI as an accelerator, insurance companies can build new products that offer immediate compensation based on public data no longer needing a claim.



3 Social impact: doing well while doing good

If 'data is the new oil' where humanity's daily life is increasingly captured in 1s and 0s, then isn't the responsibility of Global 2000 companies who own most of that data to shape a better tomorrow? Yet while customers increasingly expect social impact from the world's most recognised brands, this doesn't have to mean 'pro-bono' or charitable. In fact there is enormous potential growth to be had by organisations that find the business case in addressing social issues.

I. Individual

18. Health and wellness: insurance companies have aligned incentives with consumers to promote beneficial behaviour and, in-turn, mitigate risk. Creating consumer value in wellness requires targeted recommendations, which use a rich layer of AI allowing for partnerships with connected devices.

19. Public health safety: insurance companies collect and analyse diverse data sources that are providing additional angles to the underwriting process, but in turn can also create social benefit. One such example would be hyper-local weather information. Preemptive targeting and alerts for customers who are sensitive to severe temperature changes or air pollutants may reduce risk for the insurer while improving quality of life for its customers.

II. Ecosystem-wide

20. Public policy and standards: patterns within claims can increase impact and inform standards e.g. motor insurance claims can point to improved road safety or health insurance claims can steer lobbyists towards more nutritious school lunches.

21. Natural catastrophe mitigation and relief: property and casualty insurers are privy to nuanced and extensive insight on natural disasters that can accelerate relief efforts and build future resilience by informing policy and recommending preventative measures.



AI solutions can improve the safety, security, and wellbeing of our customers. Strategic integration of new types of services based on AI makes a difference in the quality of life, generating new value for our partners and customers alike.

Shachar Hefetz
Sompo Digital Labs



SOMPO Digital Lab

SparkBeyond in action



Car insurance lapses applied to digital marketing

Background

A leading European car insurer was looking to create a lapse propensity model that would provide insights into value-based prospecting as well as digital marketing. Its aims were to include considerations such as the **likelihood of a customer lapsing and the predicted lifetime value of a customer.**

Approach

Millions of predictors were explored, and SparkBeyond worked with the client to identify 200 top signals that would predict lapse within a three-month horizon. Using **datasets that included external sources**, such as second-hand car sales data,

detailed lapse prediction scores generated in order to steer digital marketing. Scores included existing policies, together with an algorithm to estimate lifetime value for new policies and quotes.

Impact

The cross-functional team used this information to develop a strategy that **cut out media spend entirely for 20-30% of the customer base**, as well as an **increase in conversion rate**. The media budget could then be dedicated to high-margin, high-lapse propensity customers and high-lifetime prospects, for targeting and retargeting efforts.

200

top signals predicting
lapse within a three
month horizon

~ 25%

of customers cut out
from media spend

Acknowledgements

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About SparkBeyond

At SparkBeyond we unleash AI for Business and Social impact, while harnessing humanity's collective intelligence to drive disruptive business impact. SparkBeyond is a platform for the Business Decision Maker and their analyst team or Data Scientists, who can take it to a whole new level. We augment the hardest part of what a Data Scientist does, and can test millions of questions on data in seconds/minutes (instead of days, weeks and months) to find thousands of actionable, explainable insights (features) behind key business problems. The platform also enables a client to harness external data sets to

compliment their own so giving a full view of the world to find further hidden insights.

SparkBeyond is committed to doing well while doing good, from cancer research to fighting human trafficking, while generating >\$1b in impact across 20+ industries with Fortune 500 and Global 1,000 companies and is the global AI platform for a global strategic consultancy and one of the largest insurance names globally. Insurance clients have deployed SparkBeyond as a core solution for underwriting, churn, cross-sell/up-sell, claims processing, etc.

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