

Salesforce Einstein: Artificial Intelligence for Customer Success Platform

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Abstract – Salesforce Einstein is a set of advanced AI capabilities that help users get smarter insights from their data in order to deliver personalized customer experience, get proactive recommendations for the next best actions, and automate routine tasks. Einstein analyses our historical data against set parameters and creates data models that are further trained on huge data sets. When fresh data comes in, Einstein double-checks whether the previously created operational models are still accurate, and updates them in case they're outdated. This way, Einstein-based predictions and recommendations always stay up-to-date.

Keywords – Cloud environment; CRM; force.com platform; Einstein AI; PaaS; salesforce.com; SaaS.

I. INTRODUCTION

Salesforce Einstein is an artificial intelligence software used to process sales data. Information is processed to assist in the delivery of correct predictions and give suggestions that are suited to each businesses exclusive needs. Salesforce Einstein can automatically process data to provide a comprehensive study of its users so as to establish a deeper connection with them. Sales representatives become empowered when dealing with customers because of easy access to data science features that Salesforce Einstein provides. Included in Salesforce Einstein is my Einstein, a connected application where we can conceptualize and produce our own smart and prognostic applications to customize the solution to suit a business's unique needs.

This document provides a product overview of Salesforce Einstein, which was introduced with much fanfare at the company's October 2016 Dreamforce event. The introduction marked the company's official entry into the world of artificial intelligence (AI), but this "beginning" was the result of more than two years of behind-the-scenes data science work and at least nine AI-related acquisitions. With a solid data-management backbone in place and a rich trove of acquired AI assets to draw on, Salesforce brought 11 Einstein features to general availability within three months of the introduction in October.

Salesforce Einstein is not a "general AI" offering that attempts human-like perception, thinking and action. Rather, Einstein is an intelligence capability built into the Salesforce platform and

focused on delivering smarter customer relationship management (CRM). The features are designed to discover insights, predict outcomes, recommend actions and automate tasks.

This document explains the data-management underpinnings of the Einstein platform, details the list of available and features, explores Einstein strengths and weaknesses, and analyzes planned developments on Salesforce's roadmap.

II. WHAT MAKES EINSTEIN DIFFERENT?

1. Data in Salesforce

It all starts with the data we collect. The data you've been putting into Salesforce since the first time we logged in. But, Einstein also brings in email, calendar, social, IoT, and external data. This data becomes the fuel needed to train our AI models. Sounds complicated? It's not. Because the data already lives in Salesforce, we don't have to do anything to it. It's already structured so that Einstein can start learning.

2. Tailored Predictions

But every business's data in Salesforce is different. In fact, 80% of all records in Salesforce are custom objects. Salesforce customers each have their unique data conventions, meaning there is a trove of custom objects housed on the platform. For us to deliver AI to each customer with different use cases and data, we'd need an army of data scientists. And if we didn't and we wanted to build AI into our business's customer data, we'd need our own data scientists. Instead, we at Salesforce have created something pretty special under the hood of Einstein that can scale to all of our customers, across all of our use

cases, so neither of us needs armies of data scientists. We call it automated machine learning (AutoML).

3. It Lives On the Salesforce Platform

And finally, because Einstein is part of Salesforce’s trusted platform, all Einstein insights, predictions, recommendations, and actions are served up inside Salesforce—meaning we can take advantage of the same model management and monitoring tools we’ve come to know and love.

III. HOW EINSTEIN WORKS?



Fig .1. Einstein Working.

Einstein is already seamlessly integrated into the entire Salesforce platform and in the workflows and tools we’re already using everyday. To use it, we don’t have to do any data preparation or manage models. Einstein works with the flip of a switch inside Salesforce to automatically make us smarter and more predictive about our customers.

Einstein leverages all the data in Salesforce—customer data; activity data from Chatter, email, calendars and ecommerce; social data streams such as tweets and images; and even IoT signals—to train predictive models and figure out what has and hasn’t worked in the past. From there Einstein can make recommendations on what we should do more and less of. Salesforce Einstein is powered by Deep Learning, predictive analytics, natural language processing, Machine Learning, and smart data discovery. Models of Einstein are customized for each customer. The model learns, self-tunes, and gets prudent with every interaction and data. This intelligence component of Einstein is now embedded into the business context by predicting future behaviour, discovering relevant insights, and even automating tasks. Therefore, Einstein works smarter in less time, it thinks like the humans and gives appropriate predictive results. It uses machine learning language which has algorithms written to make predictions.

IV. EINSTEIN ASSISTS HUMANS RATHER THAN REPLACES THEM

Salesforce stresses that its goal with Einstein is to help people focus on what matters, not to replace them. The

idea is to uncover insights, predict outcomes, recommend next-best actions and automate routine, manual tasks that keep people from being more productive. The Predictive Lead Scoring Einstein feature, for example, helps salespeople focus on the most promising leads. Automated Activity Capture, a Sales Cloud Einstein feature automatically log sales calls, email exchanges and chat interactions so salespeople don’t face the drudgery of keeping customer interaction records up to date.

V. REQUIREMENTS FOR AI SUCCESS

The four core capabilities and assets as being essential to developing powerful AI skills (see Figure 1):



Fig.2. Four Requirements for Developing Artificial Intelligence Capabilities.

1. Data

A large corpus of data is the first requirement. It’s not the case that he who has the most data wins; the goal is to build the largest graph that maps the connections to data. More data should improve the precision of insights and allow for more patterns to emerge. Data is used to test and train algorithms and models, but the data has to be connected in some way to detect patterns and behaviors and then provide accurate recommendations and suggested or automated actions.

2. Computing capability

Massive computing capacity is the second requirement, and it’s closely tied to the ability to ingest, store and quickly analyze data at scale. Public clouds have changed the scale and economics of computing, making it possible to tap vast computing capacity on demand. Winners will have access to or own vast computing power.

3. Data Science

Data science refers to intellectual property (IP), skill and experience. The discovery of patterns, creation of new algorithms and the ability to apply human intuition to computing requires great math talent. The skills range from the basics of data management, data cleansing, integration and transformation to the ability to mine data and apply advanced statistical methods as well as machine and deep learning to any amount of data. IP includes algorithms, models and related proprietary capabilities.

4. Time

Time is the fourth requirement, and it boils down to the people-years that can be poured into research and development. There is no substitute for time. Early adopters gain an advantage of time. Algorithms need time to improve. Companies can try to buy time by hiring more people or acquiring firms that have already sunk years into research and development. But successful

delivery of capabilities depends on time spent generating and learning from data, understanding computing requirements, and iteratively advancing the math and data science behind AI-based systems and applications.

Other emerging and differentiating requirements of AI include:

Industry-specific expertise to improve the relevance of specialized AI systems
Natural user interfaces to take advantage of human voice, visual and gestural interaction.
Robust recommendation engines that take the output of AI and present choices that accelerate decision making.

VI. THE ROADMAP

Einstein capabilities are designed to complement and enhance existing Salesforce SaaS applications in that they are or will be built into the Analytics, App, Commerce, Community, IoT, Marketing, Sales and Service clouds.

In Sales Cloud, the main feature to look forward to is Predictive Lead Scoring. Lead Generators often guess or use gut feels to decide which leads are likeliest to convert. Predictive Scoring gives data-driven insights that help them make better decisions. This makes the platform not just a data storage center, but a revenue generator. Leads are scored from 1-99 based on a number of factors. For example, a lead with an invalid phone number is less likely to convert. Better lead scoring means better conversion, and ultimately a better bottom line for the organization.

Einstein sends Automated Reminders to follow up with unresponsive customers. It can be hard predicting how long to re-message someone who is unresponsive. However, Einstein has been trained across many records to optimize the waiting times for sending reminders. These reminders are also available in Salesforce1, so our agents can respond on the go. Agents no longer have to take a chunk of time out their day to manage their contacts, meaning more time is actually nurturing leads and accounts.

Eliminating manual data entry has also been a goal for Salesforce. Many sales reps report the need to focus on the customer and less on recording every detail of the interactions. Einstein automatically captures activities and sends notifications to the reps' email and calendar.

Opportunity Insights are another huge area where Einstein adds value. Einstein creates predictions based on customer sentiment, prospect engagement, and competitor involvement throughout our customer interaction. For example, a history of service issues would decrease the probability an opportunity would close. News about corporate budget cuts and increases also factor into Einstein's algorithms, and can be displayed in our sidebar.

Einstein scans the news for us to deliver Account Insights so our agents don't have to do it manually. When we view an Account on Salesforce with Einstein,

important insights from the news will automatically pop up. For example, Apple may have lots of Mergers & Acquisition related activity, indicating that it is expanding and will have more budget to spend. We can use this data to drive better decision-making.

In Marketing Cloud, Machine Learning helps give better overall insight into customers using data on past behavior. This translates into recommendation into how to structure campaigns, deliver the right message, and how to allocate our time to engage with customers.

Predictive Scoring in Marketing Cloud give us the right analytics to determine who, what and when we run our campaigns. Predictive Scoring insights can recommend which products to put on our email campaigns. You can also see predictions of which audiences would be best to target. And based on the data, we can automate email deliveries to the subscribers who seem likeliest to engage.

Service Cloud will also integrate Einstein's Machine Learning. For example, we will be able to recommend a case classification. This means cases are automatically defined based on user history and trends. Cases related to a product's known defects are automatically routed to agents with instructions on how to handle the issue. This improves agent productivity and efficiency, providing faster, more efficient customer services. Ultimately, the goal is to raise customer satisfaction scores such as customer satisfaction ratings (CSAT), Net Promoter Scores (NPS) and Customer Effort Scores (CES).

1. Sales Cloud Einstein

It helps us sell our products in a smart way by making prudent predictions and recommendations about our products. Sales can have three levels and most of the Sales companies are focused on level one. Sales teams in this regard follow scripts, and campaigns are broadcast to their prospects without much regard for individualized preferences. To personalize their sales and marketing efforts, these companies use signals from their buyers. They interact with the customers and use it to develop product blueprints.

Productivity is increased and predictive capabilities are enhanced across all they do as AI gives teams more intelligence. Sales personnel can forge a lasting relationship with their clients through this.

2. Service Cloud Einstein

Contact centers can get customer insights in real time to give excellent customer service experience.

Einstein Supervisor: By combining prudent data discovery and operational insights in real time, managers are empowered by Salesforce Einstein Supervisor with real-time data like queues and wait times and agent availability which enables them to pursue smarter actions. It can also predict the satisfaction of customers and make

particular recommendations to enhance customer experience.

Einstein Case Management: Cases will be escalated and classified when they come, using Machine Learning. Knowledge articles or informative videos which are required to solve cases are made available to agents saving valuable time.

Intelligent Mobile Service: With a service app on Android and iOS mobile, employees of a company can deliver personalized service to customers. The app uses sophisticated algorithms to optimize routing and scheduling and makes entire CRM data available to mobile employees in real time.

3. Marketing Cloud Einstein

It is used to create market journeys that can be predicted. It delivers relevant content on the appropriate channel to the right audience at the required time. Marketers can make use of:

Predictive Scores: This process enables to estimate how a customer engages with an email or makes a web purchase. Marketing firms can get to know what the factor is for true engagement which can lead to better anticipation of customer needs.

Predictive Audiences: Marketers can build audience groups which show common behavior. This is helpful in effective engagement of customers. Again, Salesforce predictive intelligence is based on AI technology.

Automated Send Time Optimization: Marketers using this feature are able to optimally increase their return on investment in email marketing by delivering the message in the exact time at which the customers are most likely to engage with it.

4. Community Cloud Einstein

Finding of resource members is easy with this feature as there are automatic suggestions of groups, needs, relevant experts, and behavior from social activities. By finding out and promoting popular content, members are kept engaged in the community. Certified experts can be found by the community members who can answer their questions faster. For every customer, an optimal community can be created by Salesforce Einstein. If customers need urgent attention, then Salesforce Einstein creates a case on Service Cloud. To boost results, community managers can train Einstein with keywords. Customers get those content which they are looking for, and this is a unique feature of Salesforce Einstein. By highlighting the most relevant content for a topic, useful information is delivered to each user. When 'Top Questions' are generated by Salesforce Einstein, it usually lists them into what's most important to each subject like the relevance of likes, comments, and views.

5. Analytics Cloud Einstein

This is used to find hidden data insights. The best sales, marketing, or service activities can be derived by finding patterns in your data. Insights are derived by analyzing all

variable combinations from huge data, unlike the hypothesis-driven analysis.

6. App Cloud Einstein

In every stage of the building process of an app, we can embed intelligence. This has given rise to create predictive apps for both employees and customers. We can rapidly build AI-powered apps which possess the feature of image recognition. Suitable for various use cases, these apps use pre-trained classifiers, or we can train our own classifiers.

Salesforce Einstein has enabled businesses to build AI-first apps. It has essentially converged data science, data management, and modern app development into sets of platform services through which anyone can build the next-generation apps backed by AI. Let's see how enterprise apps can be developed by App Cloud Einstein.

7. Commerce Cloud Einstein

If we want to make customer shopping personal and more predictive, then this feature is for us. Get time-saving automation of tasks, predictive insights, and tools to give unique recommendations to every customer who is shopping in your store. By visualizing customer interaction, you can offer the best and most relevant products and deals. In every email, we can personalize recommendations of products. Across mobile and desktop devices, we can form unique customer experiences and thereby increase revenue per site visitor. Handling a vast amount of interactions requires sophisticated expertise of AI algorithms which Salesforce Einstein provides very aptly.

8. IoT Cloud Einstein

Needless to say how connected devices are pervading everywhere, there is now the need for developments in IoT technology more than ever. Soon, our homes will be getting smart and connected through IoT. This is already happening, and the large-scale adoption of IoT technology in making smart homes a reality is imminent. Salesforce unveiled IoT Cloud Einstein where their customers are able to track innovation for IoT by merging their IoT data with Salesforce's Artificial Intelligence platform. IoT Cloud Einstein offers:

PredictionIO: The IoT cloud, along with PredictionIO, runs on open-source Apache frameworks like Spark, Storm, and Kafka. These two services, when combined, will enable developers to build intelligent applications that can connect with IoT data and logic.

Predictive Scoring: One can stream data to AI algorithms when services like PredictionIO and IoT cloud come together. These algorithms can be trained to provide scoring data that indicates the way a connected device works.

Recommending the Next Best Action: As IoT cloud is connected directly with Salesforce CRM products, it doesn't just specify as to how to ingest IoT data. It also

specifies the scenarios where connected device data requires actions for employees or customers. This setup can, therefore, recommend the next best action. This may be realized when a representative is routed with a type of call which he/she has handled before.

Optimizing IoT Device Journeys: Suggestive corrective action is good from IoT, but Salesforce Einstein helps customers optimize the journeys which they have built for their devices. Updating the rules that govern the IoT device interactions based on desired states can be automated by feeding the data about device journey into IoT cloud. Customers can, therefore, get to business value faster and iterate on use cases.

VI. EINSTEIN PRODUCTS

Users often get confused about the nature of Einstein. It's difficult to tell whether it's essentially a platform (because it's embedded into Salesforce solutions) or a set of products (because there are about 30 Einstein-based products, such as analytics, chatbots, object detection tools, etc.) Well, it's actually both. Einstein AI can be treated as a platform because it is at the core of each product. So, when customers buy a Salesforce solution, they get Einstein as a part of the system.

However, while using Salesforce, we will see a number of Einstein apps that serve as add-ons and need to be connected or even customized. The Einstein products mainly consist of the following buckets and these are:-



Fig. 3. Einstein Products.

1. Out-of-the-box apps

It come as pre-built and can be added by users or Salesforce admins. These are apps that exist for each and every type of Salesforce Cloud. These are pre-built solutions - to be turned on by the Salesforce admin - in the Org.

Examples: lead and opportunity scoring, product recommendations, email auto-segmentation, etc.

2. Point-click solutions

It require model creation and training, but can be configured by a Salesforce admin. This is a solution that is fully configurable by the System admin but as a prerequisite requires some model creation and training. It incorporates Prediction Builder.

Examples: analytics, chatbots, custom predictions, etc.

3. Programmatic AI services

It require extensive model creation and ML training using APIs to source unstructured data from integrated apps. In the programmatic services, are those what can be termed as super geeky in nature This is where the neural network products and deep learning come into play. This has unstructured data – in the form of voice, image and languages.

Examples: object detection, intent analysis, image classification, etc.

VII. EINSTEIN AI CHALLENGES

Salesforce Einstein is a sophisticated algorithm that needs continuous learning. To make this learning efficient, we need to ensure two conditions. First, we need to feed it with huge amounts of data and, second, give its learning the right direction. These two prerequisites are usually the major challenges that may hamper successful Salesforce AI adoption. Let's look closer at these challenges.

1. Data challenge

Salesforce Einstein needs considerable amounts of data for it to be able to look for patterns and trends, make accurate recommendations, and eliminate guesswork. When our company doesn't hit the required data minimum, even when using out-of-the-box apps, Einstein probably won't be of any use to us. How would we know that we have the right amount of data? Salesforce has a few tools that can evaluate our company's readiness to use this or that Salesforce functionality.

2. Salesforce Optimizer Report

Creates a personalized report with recommendations on how to improve our implementation. The report can be run prior to installing new apps.

3. Lightning Experience Readiness Check

Analyses our company's readiness for the transition to the Salesforce Lightning Experience edition.

4. Einstein Readiness Assessor

Evaluates our company and creates a report with the recommendations on what to fix in order to use Einstein efficiently. It's available only in Sales Cloud.

There's also the challenge of data quality. Though Salesforce Einstein cleans, prepares, and analyses data once it's imported, we still need to import clean data. Einstein is smart, but it's not a magician. It can't transform rubbish into accurate insights. That's why, prior to feeding any data into Salesforce, we need to make sure it's free from duplicates, gaps, and errors.

5. Use case challenge

Einstein AI is not a one-size-fits-all solution. Each Salesforce product will deliver specific insights.

Consequently, prior to acquiring a Salesforce solution to use it along with Einstein AI, companies need to define viable use cases and collect data to support them.

2016, https://trailhead.salesforce.com/trails/get_smart_einstein/modules/get_smart_einstein_feat/units/get_smart_einstein_feat_tour

VIII. CONCLUSION

Apple's Siri analyses thousands of movie showings and surfaces recommendations for the best times and theatre based on my location within seconds. Spotify knows our music preferences and curates personalized playlists for me. Facebook instantly recognizes my friends in photos and suggests tags with nearly 98 percent accuracy. All of this is made possible by artificial intelligence (AI)–complex and highly technical solutions such as natural language processing, deep learning and machine learning that when applied to everyday actions in our personal lives make us smarter and more productive. Therefore, Salesforce has delivered Salesforce Einstein–artificial intelligence for everyone.

For many companies, the technical expertise, infrastructure and other resources required to deliver AI solutions is too significant to leverage in their enterprise applications.. Salesforce Einstein is a set of best-in-class platform services that bring advanced AI capabilities into the core of the Customer Success Platform, making Salesforce the world's smartest CRM.

Powered by advanced machine learning, deep learning, predictive analytics, natural language processing and smart data discovery, Einstein's models will be automatically customized for every single customer, and it will learn, self-tune, and get smarter with every interaction and additional piece of data. Most importantly, Einstein's intelligence will be embedded within the context of business, automatically discovering relevant insights, predicting future behaviour, proactively recommending best next actions and even automating tasks.

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