



19 MAY 2023

# Response to Nestlé

Supply Risk Monitor Solution Request for Proposal



19th of May 2023

Nestlé S.A.  
Avenue Nestlé 55  
1800 Vevey  
Switzerland

Attn: Leonardo Paciotta

Re: Nestlé Supply Risk Monitor Solution Request for Proposal

Dear Leonardo,

Amazon Web Services (AWS) is pleased to submit the attached response to the Request for Proposal (RFP) – Supply Risk Monitor Solution. Our response provides considerable insight as to how AWS provides scalable, cost-efficient solution that will help Nestlé Group increase Supply Chain innovation, reduce operational costs, drive efficiencies, and meet objectives in supply crisis when there are significant risks to be managed.

All financial details requested in Ariba can be found in the [Investors Relations](#) page and specifically in the last [Quarterly Earnings report Q4 2022](#). Do note that we publish our earnings in US dollars.

We look forward to continuing the conversation with Nestlé about how AWS can help you accelerate handling external supply risk. Please do not hesitate to contact me at +41 79 934 5287 or [lemonjoh@amazon.ch](mailto:lemonjoh@amazon.ch).

Respectfully,

**John Lemon**  
Global Account Manager  
Amazon Web Services





## DISCOVER

# Build today. Reinvent tomorrow.

Supply Risk Monitor Solution Request for Proposal

### Submitted To:

Nestlé

Nestlé S.A.  
Avenue Nestlé 55  
1800 Vevey  
Switzerland

Leonardo Paciotta  
Global Procurement Manager – IT  
T. +41 21 924 21 11  
[leonardo.paciotta@Nestlé.com](mailto:leonardo.paciotta@Nestlé.com)

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### Submitted By:



Amazon Web Services EMEA SARL  
38 Avenue John F. Kennedy  
L-1855 Luxembourg  
DUNS Number: 370576036

John Lemon  
Global Account Manager  
+41 79 934 5287  
[lemonjoh@amazon.ch](mailto:lemonjoh@amazon.ch)



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## Disclaimer

This disclaimer applies to this document and all other documents, information, data, and responses (written or verbal) provided by Amazon Web Services, Inc. and/or its affiliates ("AWS") in connection with the Request for Proposal titled "Supply Risk Monitor Solution" issued by Nestlé (collectively, this "Response").

### 1. Informational Response.

This Response is (a) informational only and provided solely for assessment by Nestlé and for discussion purposes as of the date of issue of this document; (b) non-binding and not an offer to contract that can be accepted by any party, and (c) provided "as is" with no representations or warranties whatsoever, and may change at any time due to a variety of factors, such as changes to your requirements or changes to AWS's services. Submission of this Response does not create any warranties, representations, contractual commitments, conditions or assurances from AWS, its affiliates, suppliers or licensors, nor does it obligate either party to enter into a binding agreement for AWS to provide its services to Nestlé.

### 2. Agreement; Confidentiality.

All use of AWS's service offerings will be governed by the AWS Customer Agreement available at <http://aws.amazon.com/agreement/> (or other definitive written agreement as may be agreed between the parties governing the use of AWS's services) (as applicable, the "Agreement") and this document is not part of, nor does it modify, any agreement between AWS and its customers. Pricing information (if any) provided in this Response is subject to change in accordance with the Agreement. For current prices for AWS services, please refer to the AWS website at [www.aws.amazon.com](http://www.aws.amazon.com). Nothing in this Response will modify or supplement the terms of the Agreement or any Nondisclosure Agreement ("NDA") between AWS and Nestlé. No part of this Response may be disclosed without AWS's prior written consent. Where you are required to disclose document contents by law, you will provide AWS with written notice and an opportunity to seek redactions or otherwise prevent disclosure of the information to the maximum extent permitted by law.

### 3. Submission Terms.

On behalf of itself and its affiliates, AWS does not agree to and disclaims all terms, conditions, representations and warranties, whether express, implied, statutory or otherwise, purported to apply to this Response, whether set forth in a website, an online portal, or in another manner in the Request for Proposal.



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# Executive Summary

## 1.0 Executive Summary for Supply Risk Monitor Solution Selection

Amazon Web Services (AWS) is pleased to participate in Nestlé's Supply Risk Monitor Solution RFP. Thank you for the opportunity. Our response details the experience, expertise, resources and cloud services AWS will bring to this initiative to ensure that it delivers against Nestlé's expected outcomes.

To address Nestlé's requirements as stated in this RFP, AWS proposes its Amazon Disruption Alerts (ADA) service. With ADA, AWS offers a unique supply chain risk mindset plus capabilities that will help Nestlé identify and reduce risk across its global supply chain. While ADA is agnostic to type of disruption, it will help manage risk related to extreme weather, port congestion, geopolitical situations, and quality.

Amazon.com, the leading global online retailer, runs one of the most advanced and sophisticated supply chains in the world, all on AWS. Amazon has used ADA for its own business since 2019 to ensure resilience across its global supply chain and meet its customer promise to fulfill, and avoid hundreds of millions of dollars of incremental cost and potential lost revenue. This includes ensuring resilience to Nestlé consumers for the \$3B of Nestlé products purchased on Amazon in 2022. It is another pillar why, since 2012, Gartner continues to rate Amazon as a "master" in its annual Global Supply Chain Top 25 report, meaning it has ranked top five in their global report for at least seven of the last ten years.

Amazon operates in many of Nestlé's biggest markets, and uses many of the same data sources that can help Nestlé manage and reduce risk. As a key differentiator, we can bring domain experts from Amazon into the conversation to provide learnings from years of real world supply risk experience and context to help Nestlé deliver maximum benefit to its

### **Amazon and Nestlé own a deep partnership across several areas of both companies.**

In the February 24, 2023 CEO top to top between Mark Schneider, Amazon CEO Andy Jassy, Amazon Retail CEO Doug Herrington, and AWS CEO Adam Selipsky, topics discussed included how to accelerate revenue growth through delivering differentiated consumer experiences, optimize Nestlé's end to end supply chain, collaborate on sustainability, and deliver business value for Nestlé's SAP S/4 HANA upgrade.

AWS sits uniquely capable to help Nestlé meet these objectives while driving cost out of its global operating environment to address UTOP goals of 17.5% - 18.5%, accelerating business innovation, and enabling revenue growth in the range of mid- to high-single digits.

customers and consumers.



AWS ADA will deliver Nestlé supply risk reduction as set forth in Your RFP. Our Cloud is compliant and meets Nestlé security and policy requirements and can be ready to support Your Supply risk processes within weeks. Our Cloud is compliant with all Nestlé policies and standards, including Nestlé security. Cloud hosting from AWS also enhances Your data security, facilitates Supply Chain collaboration, and provides a robust infrastructure for Nestlé Cloud journey. For this reason, Gartner has ranked AWS as the leader<sup>i</sup> in Cloud for the last 12 consecutive years. Overall, AWS innovations drive Nestlé agility, competitiveness, and cost-effectiveness positioning You as a forward-thinking industry leader in Supply Chain.

Two AWS services provide part of the ADA foundation: Amazon SageMaker and Amazon Data Exchange. SageMaker is our industry-leading AI service that Gartner ranks as the top AI tool among hyperscalers, in use at more than 100K companies. SageMaker scored 95 out of 100 in Core Criteria in the 2022 [Gartner](#) Solution Comparison for Cloud Data Science & [#MachineLearning](#) Platforms. AWS used SageMaker in a POC with Nestlé LATAM to improve sell out forecasting by 50%, significantly exceeding expectations.

AWS Data Exchange (ADX) is a data marketplace with more than 3,500 products from over 300 providers delivered through files, APIs, or Amazon Redshift queries directly to the data lakes, applications, analytics, and machine learning models that use it. ADX enables you to streamline all third-party data consumption, from existing subscriptions, which you can migrate at no additional cost to you or the provider, to future data subscriptions, in one place. As an AWS service, AWS Data Exchange is secure and compliant, integrated with AWS and third-party tools and services, and offers consolidated billing and subscription management.

AWS currently works with Nestlé in several areas, including as a champion with consumer IoT, with consumer ecommerce, and with digital contact centers. In all three instances, Nestlé chose AWS because it was not able to develop and implement products or services to address critical business requirements, and AWS was quickly able to implement services and solutions that met the requirements and could scale globally. This led to Nestlé building out the AWS landing zone for completion in May 2023 that will establish a direct relationship between AWS and Nestlé, and make AWS services available globally at Nestlé. AWS ADA uses the same self-service, pay-as-you-go hourly billing model as these services, only charging the actual consumption to Nestlé.

## 2.0 Why AWS is the right partner

[Insert opening sentence, introduction].



### **Experience with consumer goods and resiliency technologies**

AWS brother company Amazon Retail itself has developed an extensive knowledge of the consumer goods business having the major players of the market either having their products being sold directly to Amazon.com or through the marketplace platform. Amazon has also more than 80 private label brands ranging from clothing to vitamins. Amazon has been facing many of the resiliency challenges outlined by Nestlé in the RFP to ensure on time delivery and product quality, and has been overcoming these through the development of processes and technologies with AWS.



**Technologies such as ADA (subject of this RFP), as well as platforms to better exchange data with suppliers**, development of the fulfil to promise solution (F2P) that allows to automatically and dynamically select the origin for delivery and use of amazon forecast to accurately predict demand.



**AWS has been bringing cloud technology to the main players of the consumer goods industry** - such as Heineken, Kellogg's, Coca-Cola, Adidas, Nike - allowing them to excel in their Supply Chain.



**Heineken connected brewery:** All machines and people connected via a multi-source, single AWS-enabled data layer with the use of IoT and AI-ML technology to generate insights supporting operational decisions and execution of production-floor increasingly complex activities. The full connectivity of Heineken's operational activities unlocked clear benefits such as production & asset optimization, product quality improvement, workers safety, enhancement of sustainability metrics and new revenue streams from smart products.



### **Experience in Supply Chain**

AWS has been powering Amazon retail one of the world best performing Supply Chain which operates with a high level of complexity having to manage more than 480 million products across all types of transportation modes and throughout a network of more than 1000 fulfilment centers and delivery centers. Amazon together with AWS have launch several disruptive innovation thanks to high performing Supply Chain such as free shipping and same day delivery.



### **AWS and Amazon have been pioneering in the use of data for Supply Chain**

having worked for more than 15 years with machine learning and then deep learning on forecasting demand and building resiliency in the Supply Chain. AWS is uniquely positioned in the cloud in providing proofed Supply Chain solutions to the market that have either helped Amazon retail or its customers to





overcome their Supply Chain challenges. AWS has also more than 50 partners that can offer market solutions within the Supply Chain domain.

# Technical Offer

[Insert introduction paragraph]

## 1.0 Our understanding of Nestlé's Supply Chain challenges

Supplier risk management is a critical concern for businesses, such as Nestlé, that operate in today's entangled global economy. It refers to the potential disruption or interruption in the Supply Chain that can negatively impact a company's ability to procure and deliver goods and services. Understanding and acting upon identified risks is essential for Nestlé to develop robust strategies to mitigate promises made to customers. Our proposed solution, Amazon Disruption Alerts (ADA) is ready to do this and has a proven track record; ADA is a custom disruption management solution inspired by technology used by Amazon.com Supply Chain teams.

External risks are a critical consideration for businesses, as they encompass the uncontrollable disruptions and interruptions in the Supply Chain that can hinder a company's ability to procure and deliver goods and services to its customers. Four key examples of external risks are extreme weather events, port congestion, quality issues, and geopolitical situations. Understanding the business risks associated with these external factors is crucial for Nestlé to develop effective strategies to mitigate their potential impact.

In the 2023 World Economic Forum report, Supply Chain disruptions are cited as an elevated critical concern that will have widespread impact if not handled at the offset. In summary, the recommendation is for Supply Chain leaders to make plans for "the new normal". The World Economic Forum Global Risks Report 2023 18th edition calls out the following: "The analysis focuses on a potential "polycrisis", relating to shortages in natural resources such as food, water, and metals and minerals, illustrating the associated socioeconomic and environmental fall-out through a set of potential futures. ... Supply-chain crises of recent years have highlighted the need for resilience in traditional strategic sectors. Reliable and cheap access to the most basic of necessities – food, water and energy – underpins the critical functioning of societies. Early data suggests that current crises are driving a worrying reversal of recent progress."

How do such external events impact Supply Chain?

- Extreme weather events, such as hurricanes, floods, icing, and wildfires are growing as the world climate changes. They will continue to cause significant Supply Chain disruptions. Infrastructure damage, transportation network interruptions, and production halts in affected regions can result in delayed shipments and inventory shortages. Businesses that rely on suppliers from these areas will experience increased costs and customer churn. Mitigating this risk involves diversifying the supplier base geographically, investing in disaster recovery plans, considering stock level increases, and establishing alternative logistics routes.

- Port congestion is another external factor that can cause disruptions in the Supply Chain. Congestion due to labor strikes, inadequate infrastructure, or increased trade volumes can lead to delayed shipments and increased lead times. These delays can have a ripple effect throughout the Supply Chain, impacting production schedules, inventory levels, and customer satisfaction. Based upon Amazon's ADA system, Nestlé can mitigate this risk by working closely with logistics partners to optimize transportation routes, exploring alternative ports, and implementing advanced tracking and monitoring systems.
- Quality issues (food or material) present significant business risks, particularly for Nestlé, that is operating in the food, beverage and medical industry. Contamination, spoilage, or outbreaks of foodborne illnesses can lead to product recalls, damage to brand reputation, and potential legal liabilities. External factors such as poor agricultural practices, contamination during transportation, or inadequate storage facilities can contribute to these risks. To mitigate this risk, businesses should implement early warning supplier risk processes, and based upon this, conduct early inspections of suppliers and facilities, and establish effective recall procedures. Early warnings from the ADA system can help trigger plans to seek alternative supply options for affected components.
- Geopolitical situations, including political instability, trade disputes, and changes in import/export regulations, can introduce significant supply risks. Such external factors can disrupt established Supply Chains, increase costs, and create uncertainties. Companies need to stay informed about political developments, engage early in contingency planning, diversify suppliers across different countries/regions, and explore local sourcing options to reduce dependence on imports. Additionally, lobbying efforts and strategic partnerships can help influence policy decisions and mitigate potential disruptions.

In conclusion, supply risks associated with external factors pose significant challenges for Nestlé businesses. Extreme weather events, port congestion, used goods (e.g., food) quality issues, political and regulatory changes, and technological disruptions will in the "new normal supply chain" all have a profound impact. To mitigate these risks, organizations should adopt proactive measures with supplier risk management to take measurements as soon as identified in ADA. The outcome of the early warning could be to take actions, such as diversifying suppliers, investing in disaster recovery plans, implementing quality control measures, monitoring political developments, and embracing technological advancements to bypass the identified risks. By identifying, quantifying and managing these risks effectively, Nestlé's businesses can enhance their resilience, maintain operational continuity, and safeguard their competitive position in the market to deliver on promises to its customers.

## 2.0 Solution Overview

ADA is an AWS cloud-native Supply Chain Disruption Management offering. The solution is based on the same disruption management solution used at Amazon.com, tried and tested across billions of customer shipments in North America and Europe, saving Amazon hundreds of millions of dollars in supply chain costs since 2019.

The solution periodically consumes forecasts through a variety of external data sources (e.g. 3rd party weather data), assesses the data against a rule engine, and then publishes alerts so users can take intervening actions. Users can provide feedback or rule updates to ADA's optimizer, which then refreshes the rule engine based on new configurations

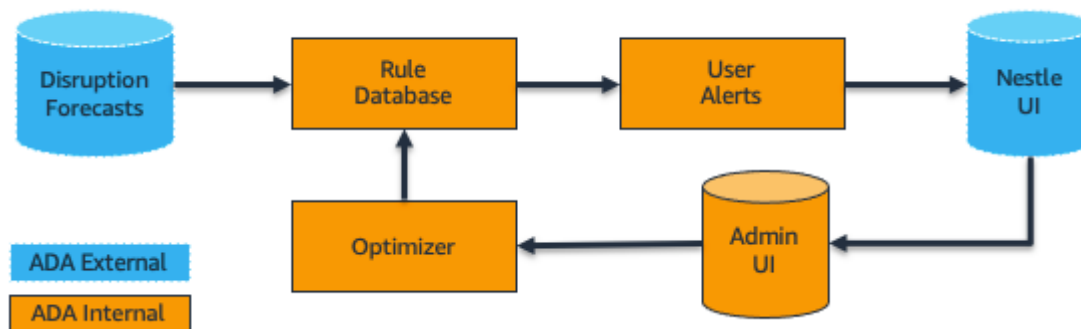


Figure 1 ADA Process Flow

## 2.1 Forecast

ADA will first source disruption data from external sources for potential crisis triggers for Extreme Weather, Port Congestion, Geopolitical Events, and Quality Issues. It will do this by aggregating data from different sources, depending on the crisis type and the geography in scope for alerts. The sources and licensing arrangements for these data sources will need to be agreed between Nestlé and AWS once the full scope of the ADA solution has been confirmed by Nestlé. Examples of source data that AWS could incorporate into the ADA solution framework for Nestlé are:

- *Extreme weather:* In Europe, [Kepler51 Analytics](#) is a company that helps combine past, present, and forecast weather data at user-defined granularity and time intervals. Amazon transportation uses Kepler51 analytics for extreme weather data sources across their European operations.
- *Port Congestion:* [Gatehouse Maritime](#) is an AWS partner that provides port intelligence data. This service provides an accurate view of current and potential future congestions across any container port globally.
- *Geopolitical:* [Dun & Bradstreet](#) is an AWS partner that provides risk analytics for supplier intelligence.
- *Quality:* TBC

## 2.2 Rule Database

After ADA receives disruption forecasts, it will feed these data points into the Rule Database, which will initially be composed of a baseline of hard-coded disruption thresholds. These are rules which can be applied for specific event types (e.g. snow storm, port congestion) to a specific geography up to the highest level of postcode granularity (e.g. W14XYZ), along with the suppliers in monitoring scope, the event severity threshold (e.g. 1 to 5), and the associated insight to be communicated to the user via an alert. Admin users from Nestlé would be able to set-up and configure the baseline rule set. They would also have the ability to filter out suppliers from scope based on Nestlé's own data (such as spend category, vendor name, location, product/SKU etc.).

Over time, AWS could support Nestle with the introduction of Machine Learning (ML) capability for a more dynamic rule management process. For example, Amazon SageMaker can be used to build, train and deploy ML for this use case. Data from Nestle's internal systems, external data and environmental data can be inputted into a model and trained on past risk identification assessments as ground truth. Feature importance enables additional insights on the risk causes that can facilitate supply chain improvements. Applying a SageMaker architecture can also constitute the basis for additional future ML capabilities such as Estimated Time of Arrival Forecasts and Route Optimisation.

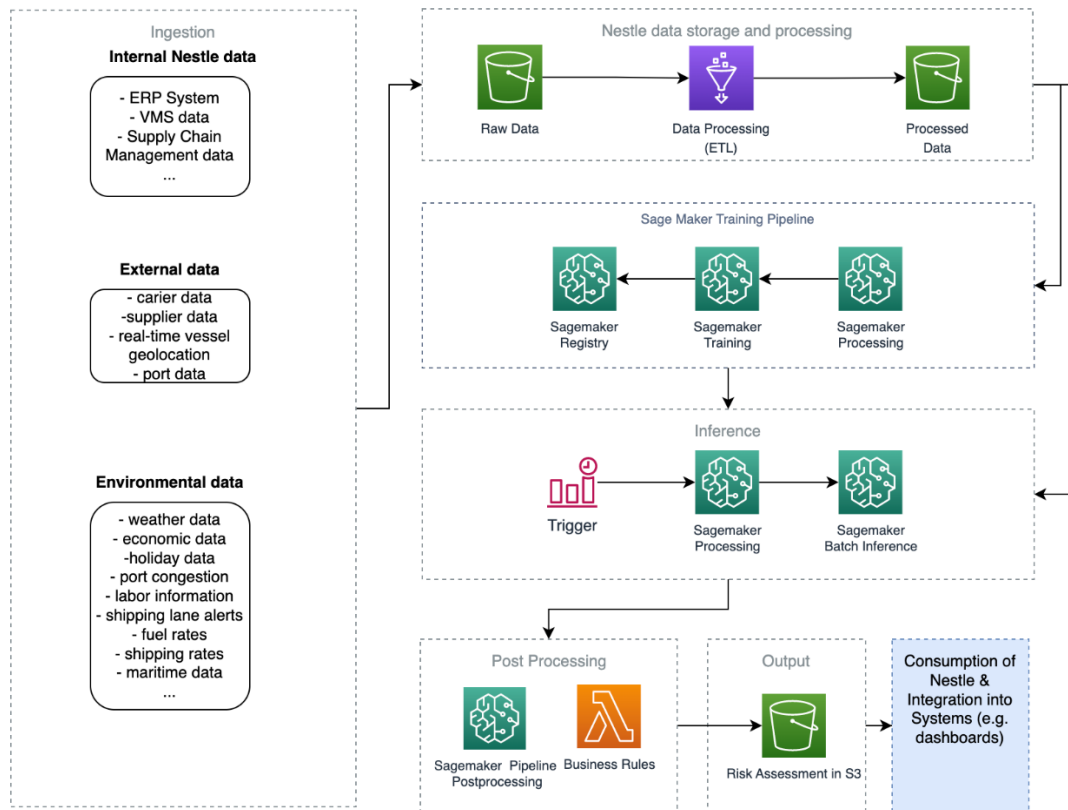


Figure 2: xxxx

## 2.3 User Alerts

Once a rule is triggered in the Rule Database, ADA will send an alert, to be consumed by Nestlé's in-house UI (Risk & Crisis Dashboard). The alerts will range from highlighting impacted vendor geographies, specific sites, or infrastructure-specific warnings (e.g. traffic at ports).

## 2.4 Admin UI & Optimizer

Users will then be able to provide quick feedback (e.g. useful or not useful) on the alert provided, which then feeds back to the ADA optimizer, providing feedback future changes and improvements to the disruption threshold rules. Additionally, Nestlé admin users (through Admin UI) will be able to configure new rules and edit existing ones to augment the Rule Database. AWS would support Nestle in adapting this feedback process to an ML-driven process in the future.

## 2.5 Implementation Model & Timelines

[Insert Introduction paragraph]

### AWS Support Options

AWS can assist Nestlé in supporting their use cases and programs in the following ways:

**AWS ML Solutions Lab:** This team will partner with organisations to solve the most cutting-edge ML use cases through fully-funded, time-boxed Proof of Concepts that explore the feasibility of ML to solve the highest return-on-investment business problems.

**AWS Professional Services:** This team has experts in big data, ingestion and processing, full stack deployment as well as data visualisation capabilities. This team provides skill augmentation for POCs and program delivery, custom development and modelling, application and services integration, and hands-on technical workshops. AWS recommends that the customer source agile management tooling for the engagement team to run AWS ProServe's Engagement Delivery Framework (EDF) playbooks that enable best practices execution of Scrum combined with project management practices to ensure accountability and transparency in engagement delivery.

**AWS Partner Network (optional):** This is set of technology specialists that deliver and support cloud solutions. They also provide advisory services, ML solution architecture and development, and custom modelling and services integration.

## AWS account team for Nestlé

For Nestlé, Amazon Web Services (AWS) have a dedicated account team that is already delivering cloud Business Value to You. A dedicated account team is a key driver of trust, innovation, customer obsession and business outcomes for Nestlé. By having a dedicated team assigned, Nestlé gains a sense of reliability and personalized attention. The AWS team are intimately familiar with Nestlé's business objectives, challenges, and policies. Which allows us to provide tailored cloud solutions that deliver strong business impact. More details can be found in section X.XX (link to Amazon Web Services Account Team for Nestlé below).

Amazon Web Services (AWS) have a dedicated account team that is delivering cloud Business Value to Nestlé. A dedicated account team is a key driver of trust, innovation, customer obsession and business outcomes for Nestlé. By having a dedicated team assigned, Nestlé gains a sense of reliability and personalized attention. The AWS team are intimately familiar with Nestlé's business objectives, challenges, and policies. Which allows us to provide tailored cloud solutions that deliver strong business impact.

This trust fosters open communication (customer obsession), enabling us to collaborate effectively with Nestlé to understand Your unique business needs , and deliver exceptional Cloud transformation. Moreover, the dedicated account team is well-positioned to proactively



identify joint business opportunities for Cloud innovation, leveraging our deep industry knowledge of Nestlé's business to introduce cutting-edge cloud solutions and Supply Chain strategies. This partnership approach drives continuous improvement, positioning Nestlé as a leader in Your industry and enhancing the competitive edge through AWS Cloud Services and Solutions.

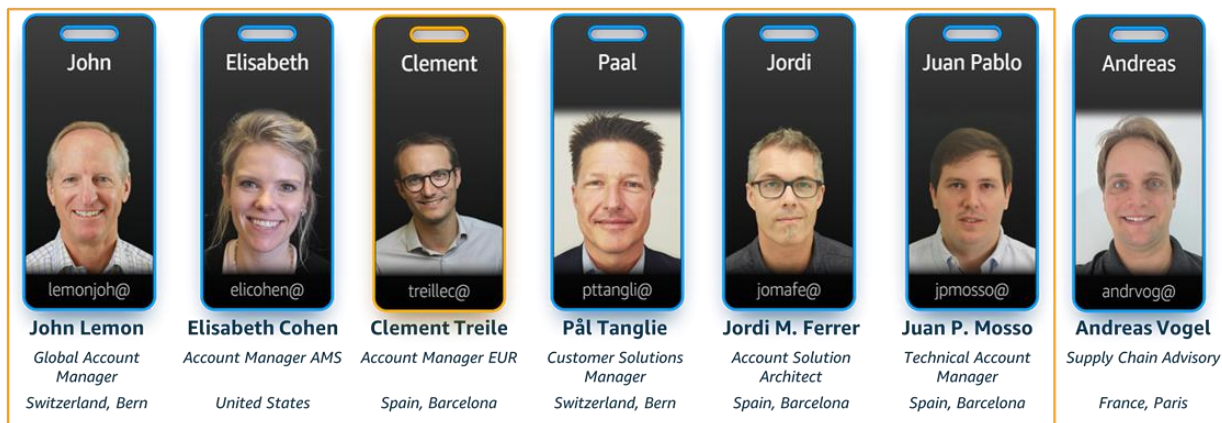


Figure 3 XXXXXXXXXXXX

The dedicated account team (Orange box) is lead by John Lemon (Switzerland), Your Global Account manager supported by Elisabeth Cohen (AMS region) and Clement Treille (EUR region). Architecture support and innovation is delivered by Jordi Marcia Ferrer (Barcelona) with Enterprise Support by Marius Iacob (Barcelona). The cloud journey and business value is driven by the Customer Solutions Manager Pål Tanglie (Switzerland). Andreas Vogel is the Supply Chain Advisory specialist for Nestlé.

Nestlé benefits from a range of existing AWS Cloud Services that deliver exceptional business value. AWS is the partner for Nestlé Journey to Cloud Native, which has already accelerated time to market, boosted business innovation whilst at the same time reduce operational cost.

In conclusion, Nestlé's dedicated AWS account team drives trust, innovation, and business value by providing personalized attention, fostering open communication, and identifying opportunities for business growth.

### 3.0 Existing AWS services delivered to Nestlé

Amazon Web Services (AWS) is an existing partner to Nestlé. Today we deliver business value and strong business impact to You. Nestle AWS landing zone is completed in May 2023 and will deliver a direct relationship between Nestle and AWS, and make all AWS services A couple of examples are listed in the following paragraphs:

**AWS IoT capabilities** enable Nestlé to harness the power of 2 million+ connected devices (with a growth plan to 5 millions by 2025) in segments B2C and B2B, gathering valuable data





and insights for informed decision-making. This not only enhances operational efficiency but also unlocks new revenue streams and customer experiences in the coffee segment.

Nestlé building out the AWS landing zone for completion in May 2023 that will establish a direct relationship between AWS and Nestlé, and make AWS services available globally at Nestlé.

Secondly, Nestlé's **B2C Webshops** is delivered from AWS Cloud. Which has enhanced B2C consumer experience through a resilient, scalable (example Black Friday 2020 we could reduce page load times to 300ms). This has ensured consumer satisfaction and driving sales (e.g. 300% Year-on-Year growth for Dolce Gusto). Nestlé's biggest B2C eCommerce in Japan (10M customer profiles) also runs on AWS Cloud.

Additionally, Nestlé's **call centers** (Currently 21 Countries ) uses AWS Connect as a Global solution that enabled call automation and voice technologies which streamlined customer interactions, reducing wait times, and improving service quality based upon advanced Cloud AI/ML solutions which is integrated with Salesforce.

In **Supply Chain** we are advising Nestlé USA on optimizing Yard management and truck fleet optimization.

With Nestlé Purina we are hosting their **Consumer Apps** (myPurina, Petfinder, Petivity etc.) with millions of user interactions.

**Our Cloud is compliant and meets Nestlé security and policy requirements** and can be ready to support your Supply Chain quickly with Amazon Disruption Alerts (ADA). We have a track record with Nestlé of fast Cloud solution projects; for example we implemented our Call center Voice solution to Nestlé within one week. AWS Cloud solution allows Nestlé to access scalable, compliant and flexible cloud resources, enabling You to adapt quickly to changing business events. Cloud hosting from AWS also enhances data security, facilitates collaboration, and provides a robust infrastructure for Nestlé Cloud journey. Overall, AWS innovations drive Nestlé agility, competitiveness, and cost-effectiveness positioning You as a forward-thinking industry leader in Supply Chain.

# Appendices

## Appendix A.1 – Response Matrix

Your request	Our response
1) Provide data based on potential crisis triggers under the following categories:	From page XXX until page XXX
• Extreme weather: Highlighting extreme weather & highlight potential vendor sites impacted Table Bullet 1	Xxxx
• Port congestion: Indicate port closures or heavy traffic in ports	Xxxx
• Geopolitical: Highlight border control issues, changes of policies that could impact supply chain of goods	
• Quality: Highlight potential food fraud/degradation issues or changes in Quality standard.	
Your solution should either: already host the data, or must aggregate the data from different sources, and/or have web scrapping capabilities to identify the risks based on public sources.	
2) Ensure unreliable data/noise data are filtered out before being pushed to Nestlé solution. Expectation is to receive data via interface, so it will be consumed in our in-house application (Risk & Crisis Dashboard), and not on your own UI.	
3) Ability to filter out and identify proper risk trigger based on a set of parameters coming from Nestlé data, such as: Spend Category, GLN/GTIN code, Material/Specification Name, Vendor Name, Vendor Location).	
4) Provide link/reference to original information/source of data.	
5) Ability to receive user feedback of the assigned potential crisis trigger whether the information was useful or not & use the user evaluation to improve the algorithm of assigning potential crisis flag.	

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<sup>i</sup> URL to Gartner has ranked AWS as the leader in Cloud for the last 12 consecutive years.

