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IOT002

Monitoring defects in real time with Amazon Lookout For Vision at the edge

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Agenda

1. Quality management

2. Amazon Lookout for Vision

3. Demo explanation

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Computer vision for industrial use cases

Inspection point



Warehouse

Inspection point



In/Outbound logistics

Inspection point



Production

Inspection point



Assembly

Inspection point



Packaging

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Key manufacturing needs across common workloads

Computer vision applies to all workloads!



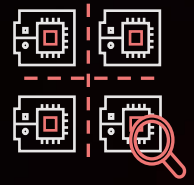
Engineering & design

- Accelerate time to market
- Lower infrastructure costs
- Improve collaboration



Production & asset optimization

- Lower costs (energy, machines, labor)
- Improve machine or asset productivity
- Reduce production downtime



Quality management

- Automate quality inspection
- Improve inspection accuracy; reduce scrap and warranty
- Reduce product defects; optimize yield
- Identify & resolve root cause



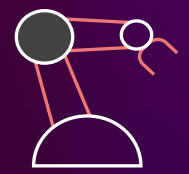
Worker safety & productivity

- Improve employee productivity
- Monitor safety
- Reduce worker injuries



Supply chain management

- Improve forecast accuracy
- Reduce inventory costs
- Improve capacity utilization



Smart products & machines

- Enhance user experiences
- Create new revenue streams
- Improve product or service quality

Source: McKinsey analysis

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Quality impacts the cost to operations and customers

> Many organizations will have true quality-related costs as high as 15–20% of sales revenue.
>
> Aberdeen



EXAMPLE: WARRANTY CLAIMS

In 2018, U.S.-based manufacturers paid an estimated $26 billion in total claims.

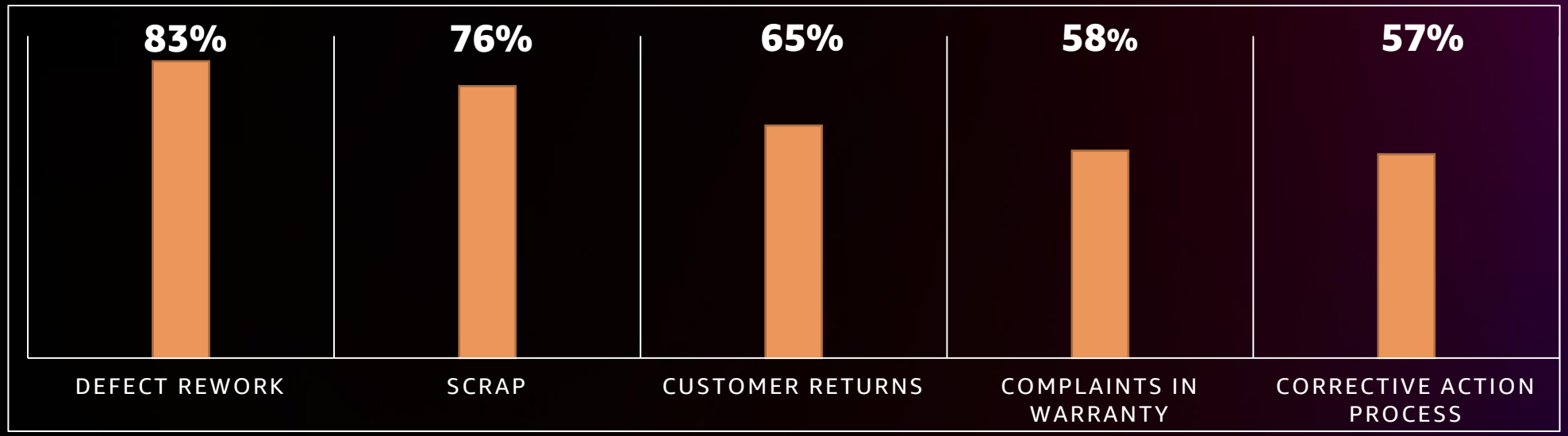
Warranty Week

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Cost of quality

Top five failure internal and external metrics included in cost of quality model*



*2019 Gartner Quality Cost of Benchmark results, Gartner, March 2020

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Amazon Lookout for Vision

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Computer vision at scale

Today's challenges:



- Create



- Run



- Maintain

Amazon Lookout for Vision

- Create custom machine learning model with as few as 30 images, without ML expertise



- Run custom ML models in the cloud using existing machine vision and lower resolution cameras



- Process engineer, quality manager, and operator provide feedback for ML models in real time

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PRODUCT QUALITY AND OPERATIONAL EFFICIENCY

Improve quality and production processes

Reduce operational costs

Increase agility

Amazon Lookout for Vision



SPEED OF DEPLOYMENT

Deploy models with no prior ML experience

Identify defects in diverse conditions

Improve accuracy continuously

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Customer journey with AWS Lookout for Vision



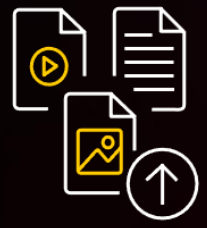
Input

Capture, process, and load training images into Amazon Lookout for Vision



Amazon Lookout for Vision

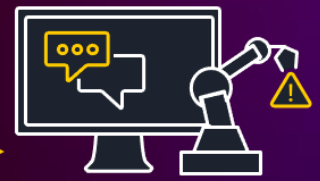
Identify product defects using computer vision to automate quality inspection



Label images to create, train, and tune your defect detection model



Use the dashboard to monitor defects and improve processes



Automate

Find defects, automate inspection, and receive notifications

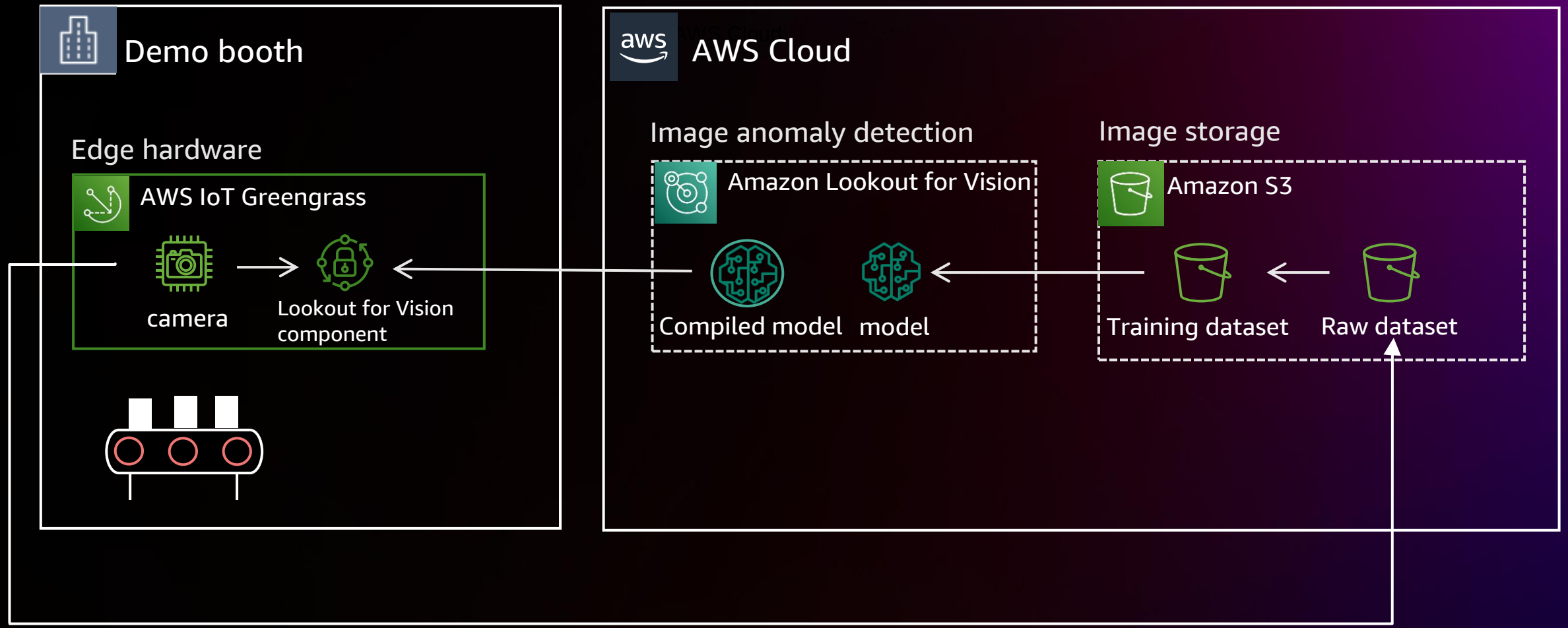


Continuous improvement

Verify model predictions and make continuous improvements with the Amazon Lookout for Vision console or with Amazon A2I

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Architecture



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Thank you!

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