



IoT EXCELLENCE IN RETAIL | 2020

# **Sell with success using smart security cameras**

Trends and general overview  
of IoT devices in retail.

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**Guide for Security Camera  
Users and Integrators**

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GmbH 2020**  
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## INTRODUCTION

# Security and Safety: General Overview for Retail

The Internet of Things is growing all the time. Experts anticipate that globally more than twenty billion devices will be networked by the end of 2020<sup>1</sup>.

In the process, end devices are becoming increasingly smart and versatile. A security camera, which would previously only have been able to supply video data, is now able to analyze that data as well. This enables you to better understand the shopping habits of your customers and organize your product ranges in a more appealing way. In addition, the data from your security system can help you to optimize merchandise management to support your sales. Security cameras in the IoT are therefore far more than just a security tool.

Small wonder that 70% of retailers are planning to invest in the IoT in the next five years.<sup>2</sup> Nonetheless, a study carried out by Cisco determined that three out of every four projects would fail.<sup>3</sup> Many investments fall short of the mark, in our opinion, because IoT thinking is too onedimensional in the retail sector – although cameras are being networked, their potential remains untapped from a sales perspective. Our goal is therefore to help you get more out of your technology. The key to success lies in optimal synergy between end devices, platforms and software applications in the IoT – what we refer to as “IoT Excellence”

## SOURCES

<sup>1</sup> Gartner:  
[Leading the IoT](#)

<sup>2</sup> Zebra:  
[2017 Retail  
Vision Study](#)

<sup>3</sup> Cisco:  
[Cisco survey  
reveals close to  
three-fourths of IoT  
projects are failing](#)

<sup>4</sup> Zebra:  
[2017 Retail  
Vision Study](#)

## Why retailers are investing in the Internet of Things

1. To Improve the Customer Experience
2. To Generate More Sales
3. To Reduce Operating Costs
4. To Keep Pace with Competitors
5. To Optimize Warehousing

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HIDDEN POTENTIAL OF IOT

# The Hidden Potential of the Internet of Things in Retail

Security cameras in the Internet of Things can help you to gain a greater understanding of your customers.

This knowledge opens new opportunities to tailor your product ranges and merchandise management to the needs of your customers. This improves your sales and helps to lower costs. Coming up next are just a few examples of how the IoT can not only make your sales more secure, but also more successful.

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**Smart cameras will provide you with vast business data to optimize operations and maximize profits.**



# #1

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## Gain a better understanding of your customers' behavior

Until now, security cameras in retail spaces have primarily supplied video information. However, these devices are now able to analyze this video information as well, enabling you to recognize and steer movement trends or footfall patterns in your store – and therefore place your product ranges where your customers are going to be. You can also upvalue areas that are visited less often and guide your customers specifically toward them.

### Example of identifying movement trends in a retail space

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A heatmap is a data output that will show you which areas of your store are more popular with customers.



## #2

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# Capture the attention of shoppers and steer them with personalized offers

Security cameras are not just capable of recording movement trends — they can also recognize individuals in stores based on criteria such as age and gender.

For example, if a middleaged woman walks into your store, a camera can trigger a specific action, such as a display in the customer's vicinity showing an offer tailored to her.

This allows you to personalize your interaction with different groups of customers. On a technical level, this is made possible by powerful processors and intelligent software applications that expand the functionality of the cameras to include video analysis.

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You can create real-time personalized ads and offers based on the age and gender of your clients.



## #3

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# Optimize inventory in your store and warehouse

As a retailer, you have to keep one eye on your customers and one eye on your goods at all times if you want to create a perfect shopping experience in your store. Missing or misplaced goods curtail your sales. Security cameras can continuously analyze goods inventories in your store, notifying your staff and triggering appropriate measures whenever necessary. The data from your cameras supplements the data from your merchandise management, providing you with a real-time, 360° overview of your inventory.



“IoT applications for optimizing retailers’ sales make your smart cameras into the perfect analytical tools.”

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**Fabio Marti**

Head of Marketing at Security & Safety Things

The challenge for you as a retailer is to create the necessary environment for the use of the IoT within your company. Our aim is to introduce you to the technological aspects that are important for the success of the IoT in your company.

# IoT Excellence in the Retail Sector

## SOURCES

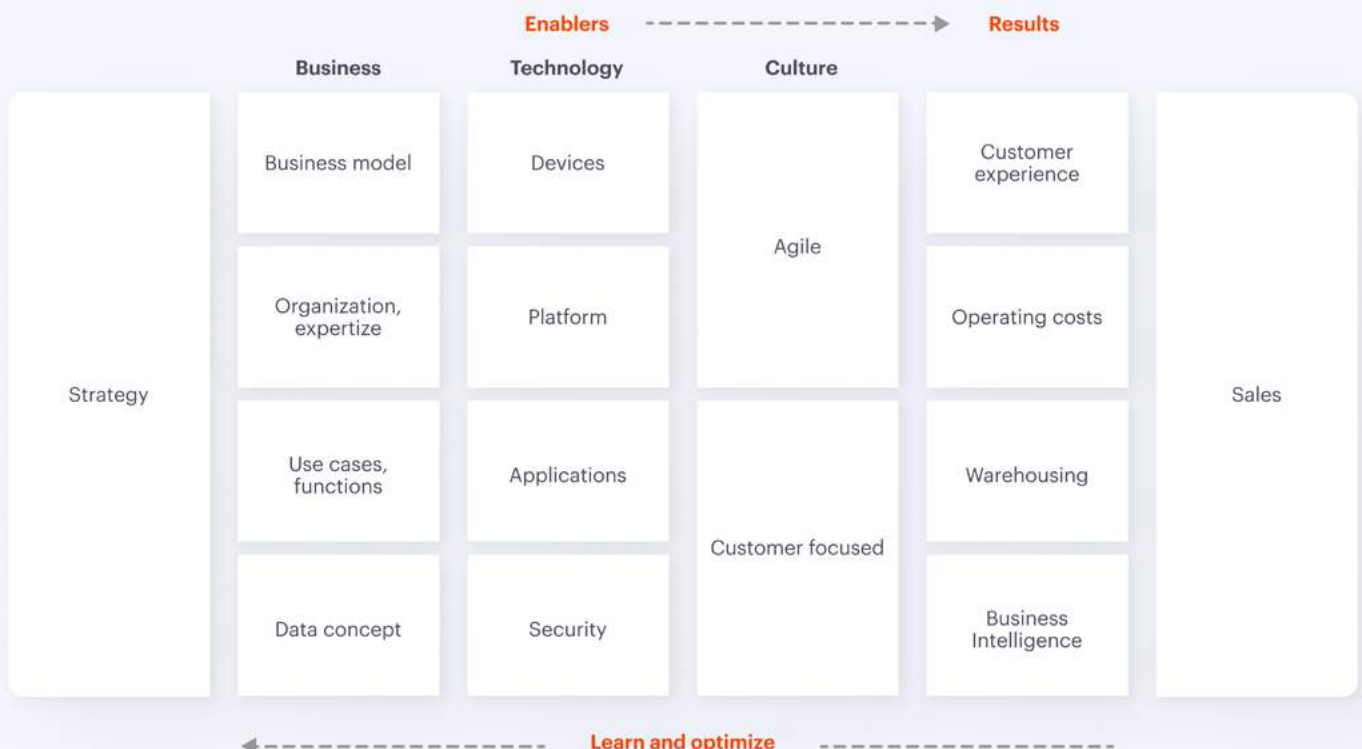
<sup>5</sup> EFQM:  
[www.efqm.de/efqm-modell.html](http://www.efqm.de/efqm-modell.html)

<sup>6</sup> Tresmo:  
<https://www.tresmo.de/iot-industrie-4-0>

If networked security cameras are to provide the best possible support for your commercial success, they must be planned and implemented so that they take other factors within your company into account. For example, the following image shows the factors that enable you as a retailer to use the IoT to secure above average results for your business – what we call “IoT Excellence”.

The aim of IoT Excellence is for you to get the most out of the IoT for your sales. The criteria that play an important role here can be divided into three areas: Business, technology and culture. Each criterion has to be constantly assessed and optimized in order to continually increase its contribution to your overall success. The key performance indicators (KPI) for measuring success should be based on the objectives that you seek to achieve as a retailer: Improving the customer experience, lowering operating costs, optimizing warehousing, improving business intelligence in your company, etc.

**The Excellence model  
for the IoT in the retail  
sector (based on EFQM<sup>5</sup>  
and Tresmo<sup>6</sup>)**





# Requirements for IoT Technology

Explaining all of the criteria necessary to make the IoT a success in your business would exceed the scope of this white paper. We therefore intend to focus on the area of technology, and in particular networked security cameras, and to provide a number of suggestions for planning and implementing your own systems.

## #1

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## Devices

Security camera manufacturers are increasingly equipping their products with AI functionality. This is made possible by a new generation of powerful microprocessors – known as neural chipsets – installed in the devices. As a result, highquality cameras are already providing sufficient processing power for complex applications, such as video analysis within the camera itself. These technical opportunities entail specific requirements for any hardware that you intend to use.

### Requirements for IoT cameras in the retail sector

**Processing power:** Powerful microprocessors enable complex video analysis applications to be operated in the camera itself.

**Functionality:** Software applications can be installed and updated without the camera having to be replaced.

**Data protection:** Data is analyzed and interpreted in real time, which means that anonymized analytical results can be processed exclusively, instead of video data.

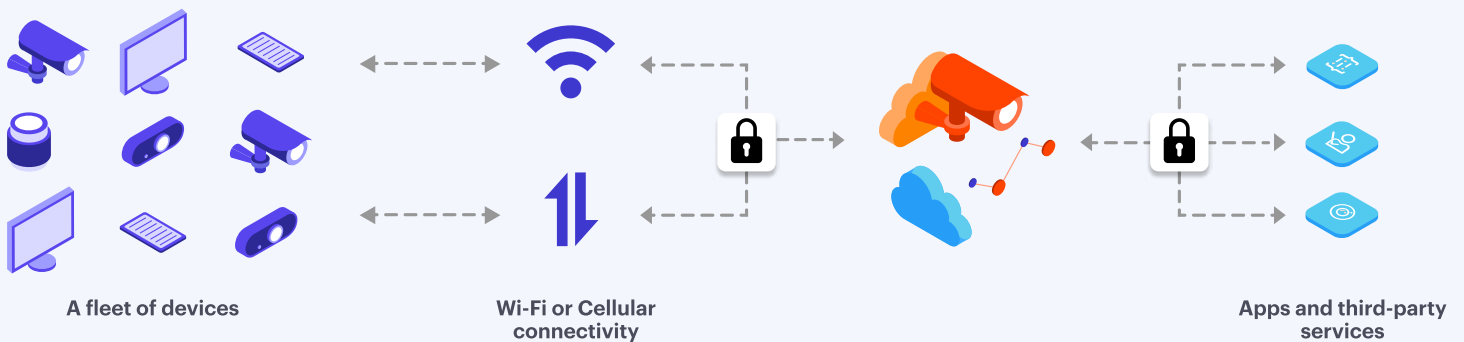
REQUIREMENTS FOR IOT TECHNOLOGY

# #2 Platforms

IoT platforms are the link between networked devices and systems that store, process and analyze data. Moreover, platforms provide basic functions for IoT application management and reporting. The challenge for you as a retailer is to find the right platform for your needs. Today, more than 450 IoT platforms are available, but not all are suitable for every requirement in the retail sector.

IOT EXCELLENCE EXEMPLIFIED

## A Simplified Structure of an IoT Platform



“We have developed a platform that gives retailers precisely the right infrastructure they need for their IoT.”

**Hartmut Schaper**  
CEO of Security and Safety Things

## Requirements for an IoT Platform in the Retail Sector

**Data Analysis** The platform provides analytical tools and AI applications in order to extract the greatest benefit from IoT data.

**Edge Functions:** These are an important component of decentralized data processing, enabling networked devices to analyze data onsite.

**Data Exchange:** Data can be exchanged with other systems via standard interfaces.

**Development Environment for Apps:** The platform provides development tools and standards for prototyping, reporting and access management.

**Marketplace for IoT Applications:** Apps for a wide range of functions are very straightforward to install and test on networked devices.

**Device Management:** Functions and software on IoT devices from different manufacturers can be centrally managed and maintained using a standard operating system.

**Connectivity:** Various protocols and data formats are merged in a common software interface to enable the flow of data between the networked devices.

## #3 Applications (apps)

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There are already numerous IoT applications for security cameras available for you to choose from, the majority of which are operated in the devices directly. Although in the past this would have meant high installation and maintenance costs, applications are now simple to install and update – much like the apps for your smartphone found in app stores.

The operating systems that these applications run on are also very similar to those on smartphones, and some are even based on Android or iOS, for example.

## Requirements for IoT Apps

**Standards:** Quality standards for app development and a standard operating system in the app store ensure high quality and compatibility for the apps.

**Installation & Updates:** Installing and updating via an app store simplifies the testing process for applications while minimizing risk.

**Parallel Operation:** Multiple apps can be used in parallel on a single security camera.

# #4

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## Security

In order to protect IoT systems in your company against attacks and manipulation by third parties, applications must meet high security standards. You should therefore only source apps from developers who comply with these standards. Furthermore, the IoT platform that you use should guarantee a secure flow of data between the devices and applications.

### Requirements for IoT Apps for Security

**Data protection:** Data is analyzed and interpreted within the cameras immediately, which means that anonymized analytical results can be processed exclusively, instead of video data.

**Data transfer:** The flow of data within the IoT platform should have end-to-end security against outside access and manipulation.

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Ensuring security for smart platforms is vital to create excellence in the use of IoT.



# The First Steps Toward IoT Excellence

Many IoT projects fail because retailers aim to achieve too much all at once.

It is best to plan and implement your projects in small, predictable stages – especially if you are new to using the IoT with security cameras. Start with projects that deliver success quickly and with low risk. This approach allows you to gather initial experience and continue to develop your IoT. The technology strategy you employ for your IoT must take into account and document all business, technical and operational requirements and limitations. In addition, your strategy should take into account not just current but also future business requirements and adapt to business and technological changes. The following overview outlines the phases, tasks and activities involved in implementation.

## Simple Steps Towards Implementing IoT



LOOKING AHEAD

# Outlook: Impressive market potential and good opportunities for IoT applications in the image processing sector

Deloitte forecasts that the German market for IoT applications alone in the B2B sector will reach a volume of around 50 billion euros by 2020. And although there are no concrete figures for the safety and security sector or even for the subset of camera-supported security applications, one thing is clear:

We find a market here that promises extremely interesting sales potential and opens up immense opportunities thanks to an app platform to be created.

The processing of visual data can create great added value for security applications, for example in retail, in industry 4.0 in smart cities and in public spaces.

Security and Safety Things is building a software-based, globally available ecosystem for the development of IoT applications in the booming field of security cameras. The S&ST operating system went live in 2020 and is still expanding, being framed by a platform that offers a secure and scalable marketplace for security and safety apps, also being used for “beyond security” scenarios / Business Intelligence use-cases.



## About us

At Security & Safety Things, we connect camera manufacturers, SoC providers, application developers, VMS providers, and systems integrators through a game-changing platform. Our goal is to accelerate the speed of innovation for security cameras and applications that make use of AI and computer vision.

Security & Safety Things is a fully owned but independent Bosch start-up head-quartered in Munich, founded in September 2018.

## Our Platform

We have designed a global platform for security camera applications.

Today, we offer a free and open operating system for security cameras, a development tool kit for app developers and an Application Store for integrators as well as a device management portal.

For more detailed information on S&ST, please visit:  
**[www.securityandsafetythings.com](http://www.securityandsafetythings.com)**

## Imprint

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