

Store Optimization

Reference Guide

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Introduction

Retailers are constantly looking for ways for improving and optimizing their merchandising and operations to maximize profit. They base their decisions on information retrieved from different systems, where network video in combination with various video analytics can be one of the most efficient tools to provide accurate data about customer activity, buying behavior and conversion rate of customers into buyers. This customer insight can help retailers plan long term for optimal store lay-out and demand as well as for short-term staff schedules, target demand and impact of marketing and promotional activities.

Axis has developed a broad solution offering for Store Optimization, based on a combination of network cameras, network audio solutions, video analytics and reporting tools. Axis offers a broad range of applications running embedded on the cameras called the AXIS Store Optimization Suite. The purpose of this reference guide is to provide a best practice guideline to obtain the best results from the AXIS Store Optimization Suite for system integrators. For more detailed information, please refer to the product pages of each of the applications at www.axis.com

2 AXIS People Counter and AXIS 3D People Counter

AXIS People Counter runs fully embedded on Axis ceiling-mounted network cameras and automatically counts in real time the number of people passing under the camera and in what direction. There are two types of people counter available: AXIS People Counter and AXIS 3D People Counter.

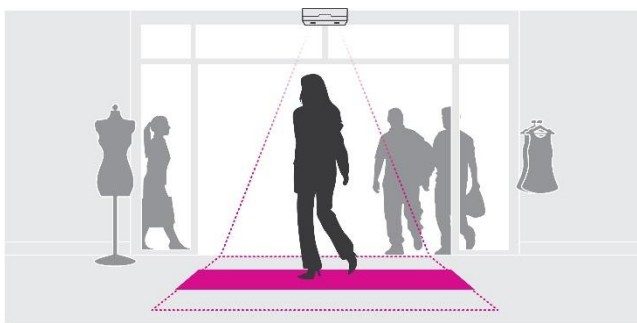


Figure 1: AXIS 3D People Counter

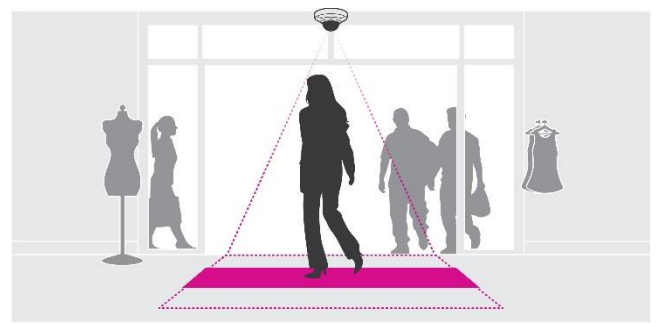


Figure 2: AXIS People Counter



Figure 2: Overview of AXIS People Counter

2.1 Examples

There are many different kinds of critical data required by a retailer to optimize their store performance such as:

1. Number of people visiting a store and insights
2. Sales conversion rate
3. Weather impact on visitor traffic
4. Optimal staffing

AXIS Store Reporter can be used to represent these key data obtained from the AXIS People Counter application as below.

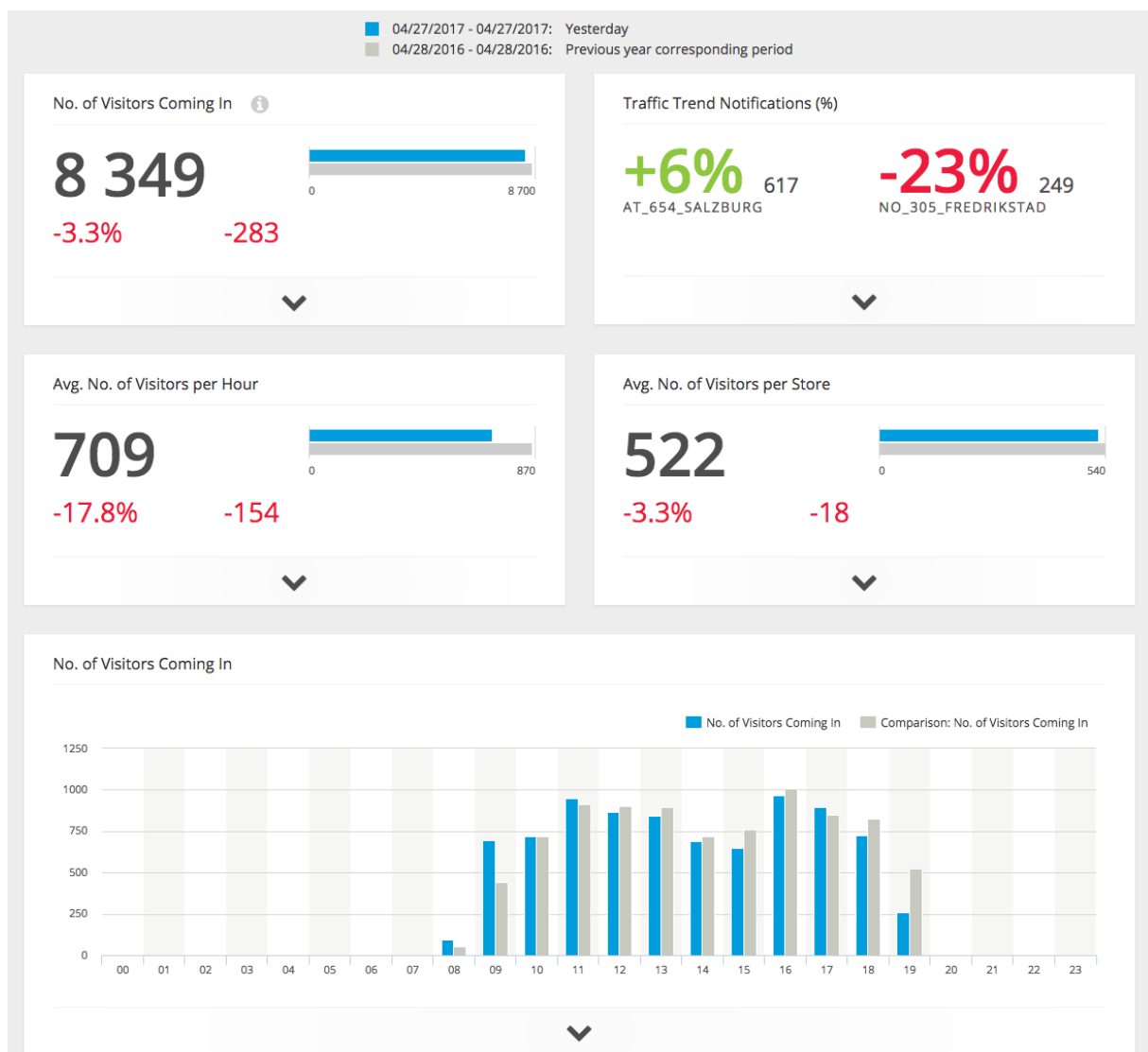


Figure 3: Graphical Reporting in AXIS Store Reporter, data from AXIS People Counter

3 AXIS Occupancy Estimator

AXIS Occupancy Estimator application provides estimation of building occupancy levels. Enabling retailers to get analytics about a physical locations' occupancy and utilization – it is growing in importance towards understanding the flow of people within a building, as well as occupancy and other facility trends.

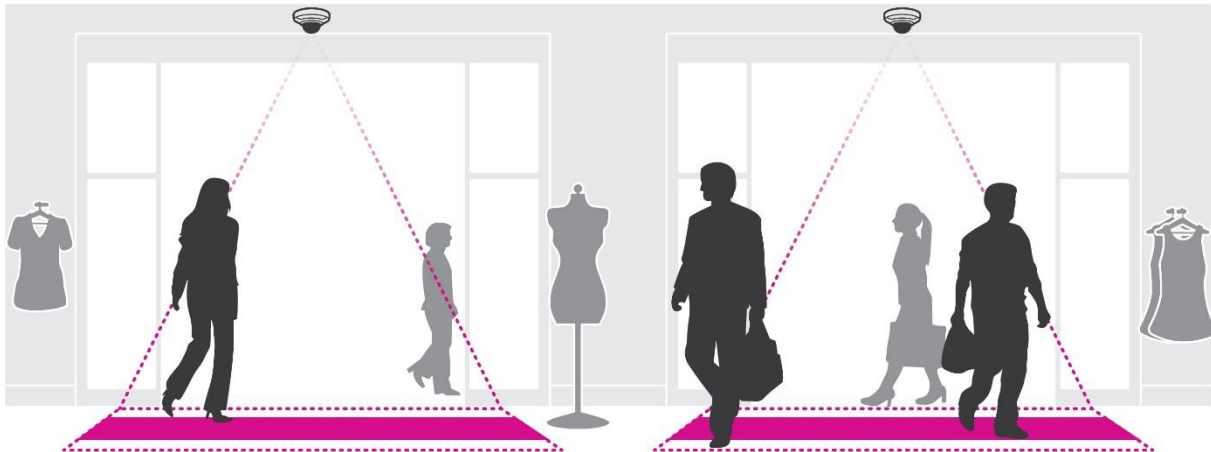


Figure 1: Pictorial representation of AXIS Occupancy Estimator

For an entertainment venue, convention centre, high street retail shops, and shopping malls, occupancy is an indicator of the revenue opportunity. For transportation centres and healthcare centres, it is a measure of demand and important for service planning.



Figure 2: Overview of AXIS Occupancy Estimator

3.1 Examples

It's very important for a retailer to get information on the occupancy levels of their store since visitors can become irritated if there is a congestion in the moving part of the retail space. The key information available from AXIS Occupancy Estimator is as follows:

1. Average visit time
2. Average occupancy
3. Weather impact on occupancy

AXIS Store Reporter can be used to represent this key information obtained from the AXIS Occupancy Estimator application as below.

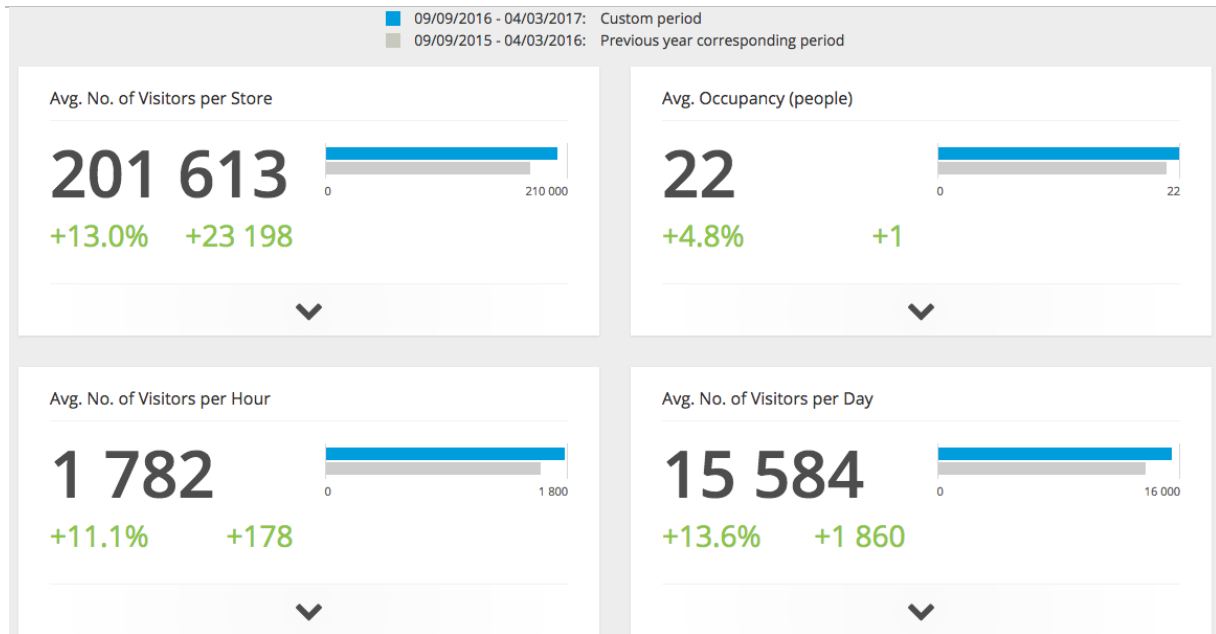


Figure 3: Graphical Reporting in AXIS Store Reporter, data from AXIS Occupancy Estimator

4 Best practices for AXIS People Counting and Occupancy Estimator applications

AXIS People Counter and AXIS Occupancy Estimator are applications which run on Axis network cameras. They are accurate and efficient tools to improve store operations and customer service. AXIS People Counter application is a fully embedded software module for Axis IP cameras, intended for shops and other environments where you need to count people.

The application is designed for retail scenarios where it counts objects with the characteristics of an adult pedestrian. The exact height limitation of the object depends on camera model, camera lens, and the selected counter sensitivity.

Best practices

In addition to the instructions in the camera's Installation guide, there are some important steps to follow for the application to behave in the expected way:

Parameters	AXIS People Counter	AXIS 3D People Counter
Minimum installable height	2.7 meters	2.4 meters
Maximum installable height	10 meters	4 meters
Wide entrances (≥ 2.54 m)	Recommended	Not recommended
Shadows, strong sunlight, glare & strong reflections	Not recommended	Recommended
Minimum counting height of people	People below 1.1 meters are not counted	People below 1.3 meters are not counted
Minimum Illumination	80 LUX	Not available
Internet	Internet connection not required	Internet connection required only during installation of the application on the camera.

Table 1: Comparison of AXIS People Counter and AXIS 3D People Counter

Ceiling height (cm)	Counting zone width (cm)
Min: 240	172
260	203
280	234
300	266
320	297
340	328
360	360
380	385
Max: 400	363

Table 2: Height and width considerations for AXIS 3D People Counter

Please refer to <https://www.axis.com/global/en/tools/camera-selector-for-retail-analytics> for AXIS People Counter height and width recommendations for camera installation.

- The camera should be mounted straight down above the point where people should be counted in a vertical fashion and should be facing 90° straight down.

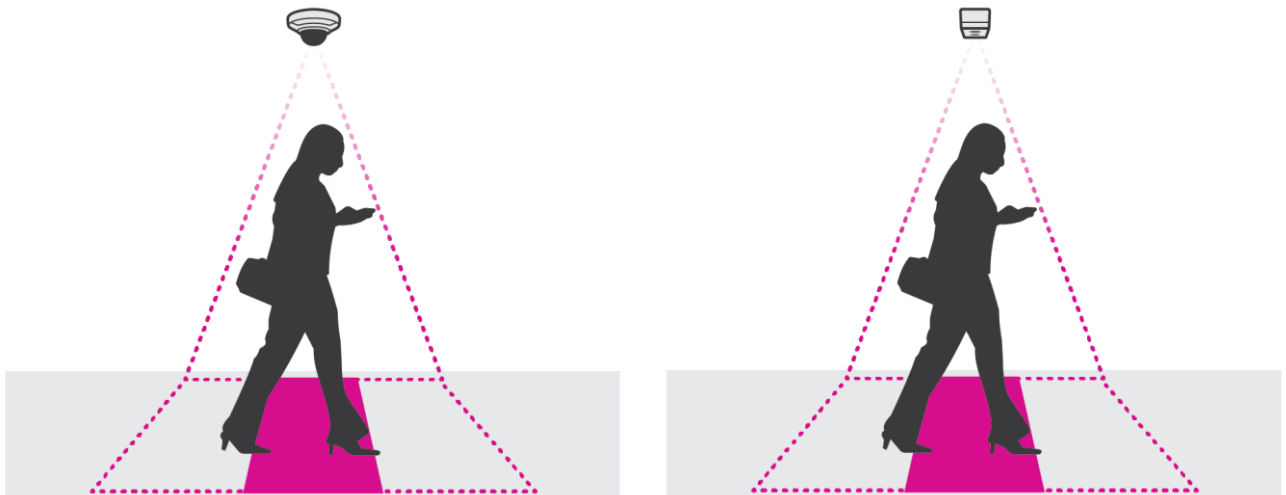


Figure 2: Mount the camera facing straight down at a 90° angle and not tilted

- As a rule-of-thumb, the camera covers an area as wide as the camera's mounting height. For details about a specific camera model, see the **camera selector for retail analytics tool** available at <https://www.axis.com/global/en/tools/camera-selector-for-retail-analytics>
- After installation, the covered area can be increased depending on the camera's zoom setting.
- If you need to cover a wide entrance with several counters, you can configure them under the Neighbour counters tab. In order to determine how many counters are needed to cover the entire width of the entrance, use the Camera selector for retail analytics tool: <https://www.axis.com/global/en/tools/camera-selector-for-retail-analytics>

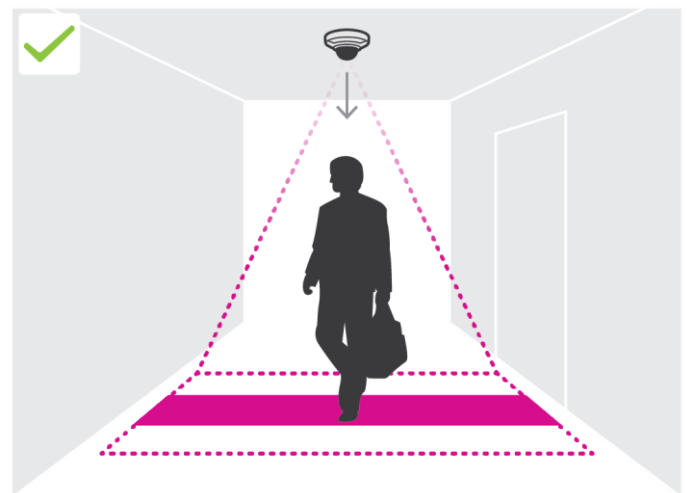
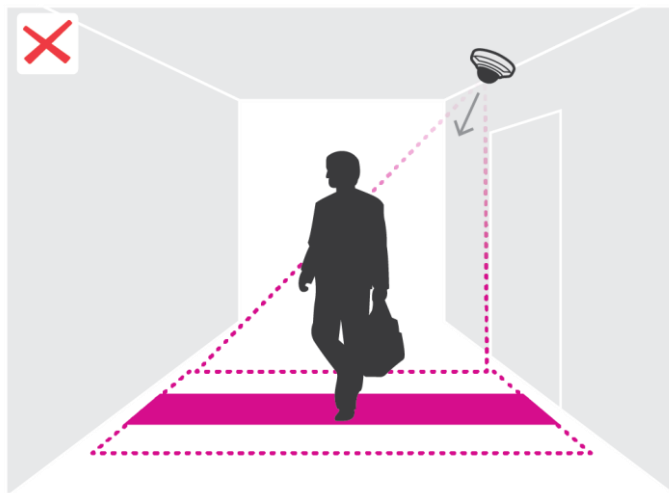


Figure 2: Place the camera straight over the area where people are walking.

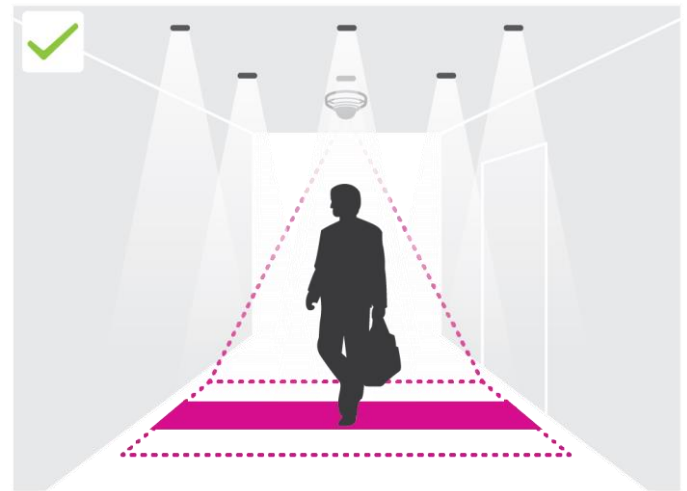
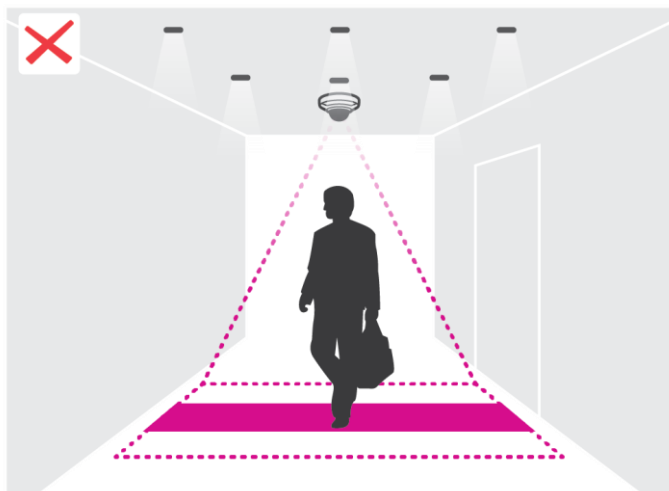


Figure 3: Make sure there is enough light.

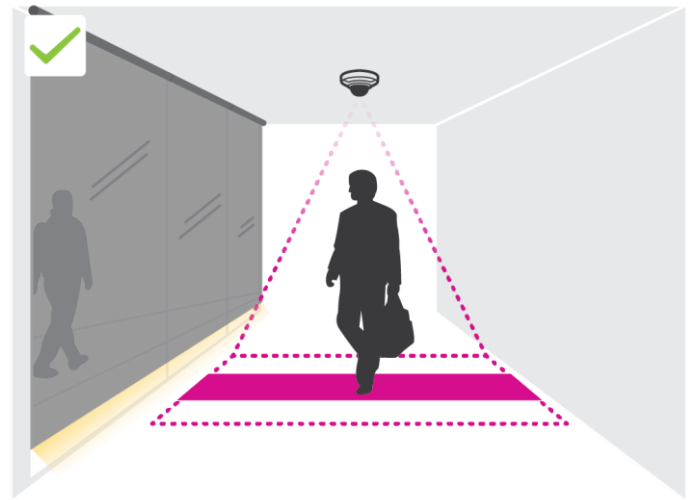
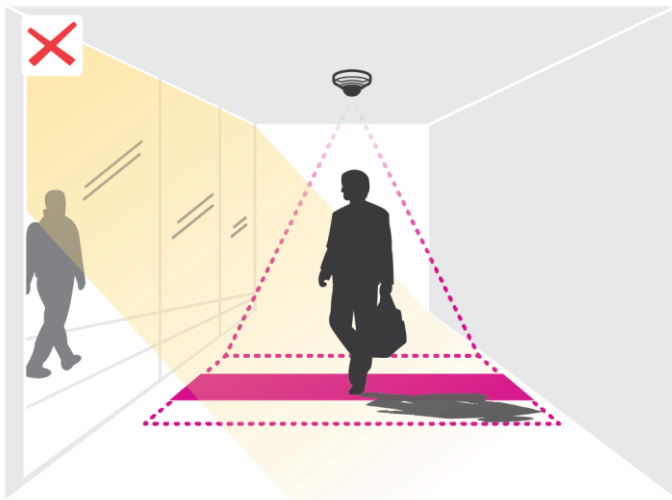


Figure 4: Avoid having direct sunlight into the counting zone.

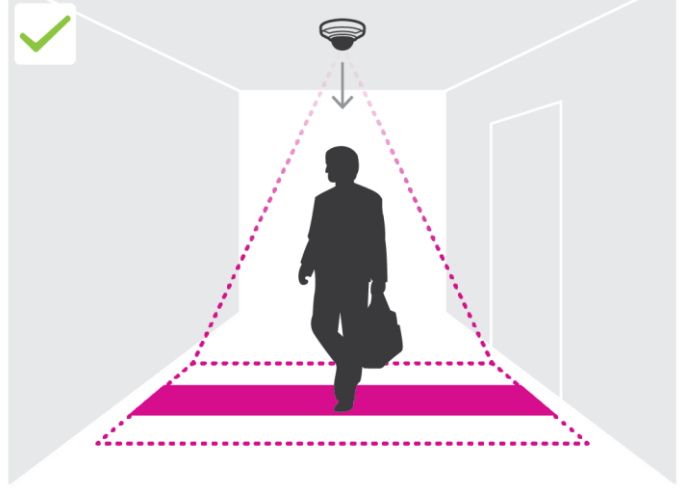
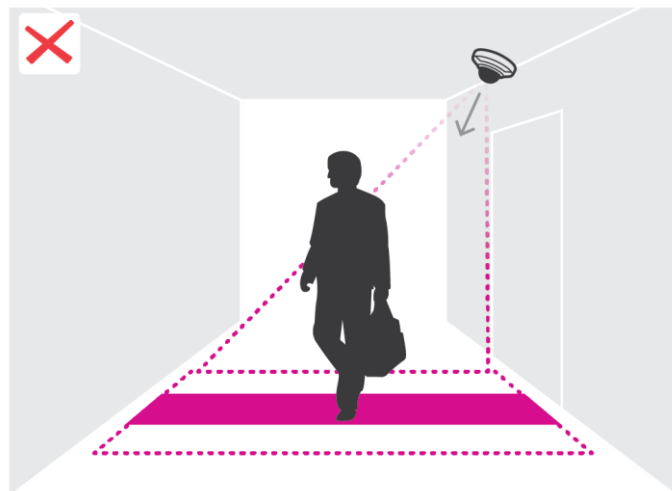
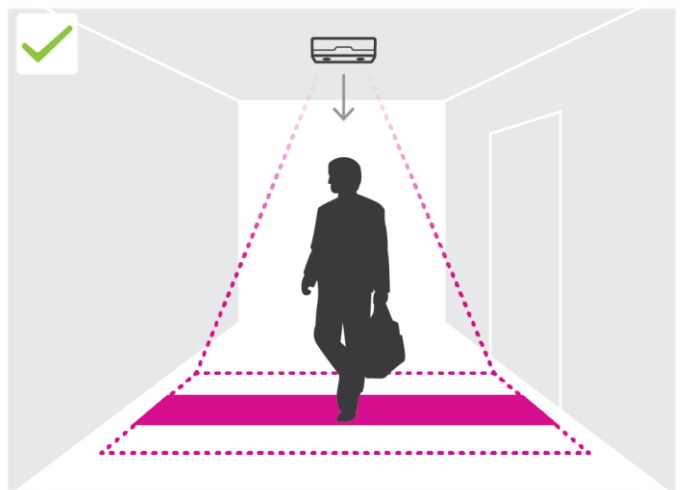
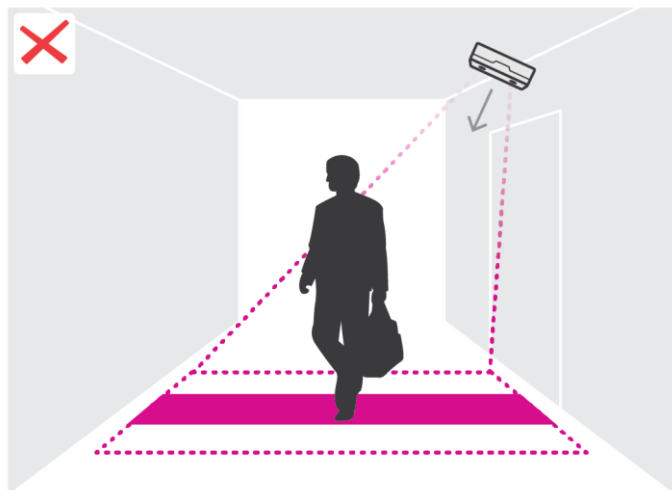


Figure 5: Make sure that the camera is looking straight down and is not tilted.

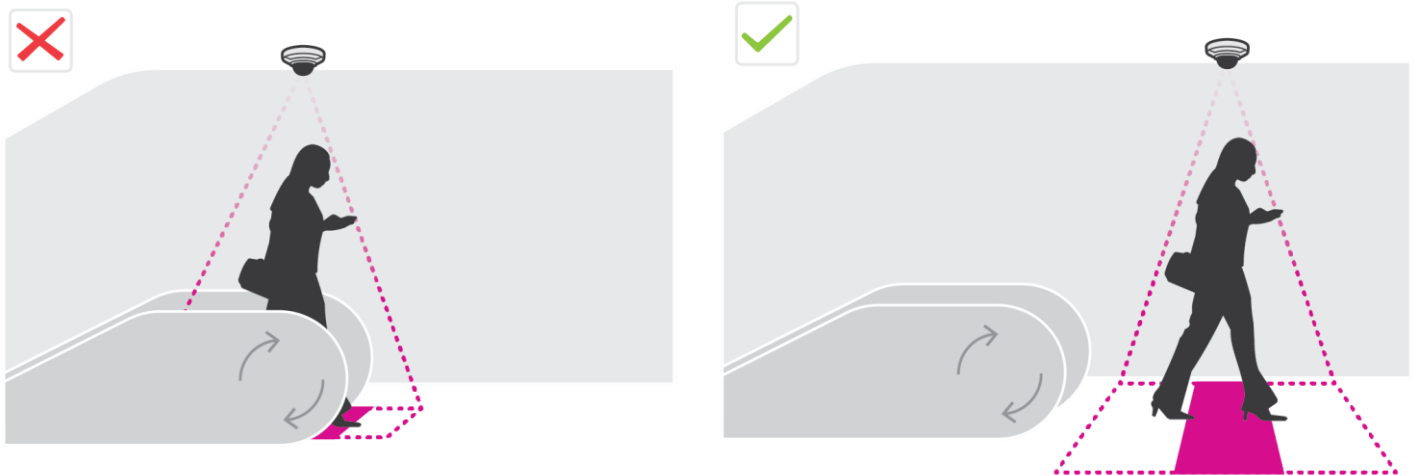


Figure 6: Ensure that there are not any moving objects like the escalator steps on the people counter zone

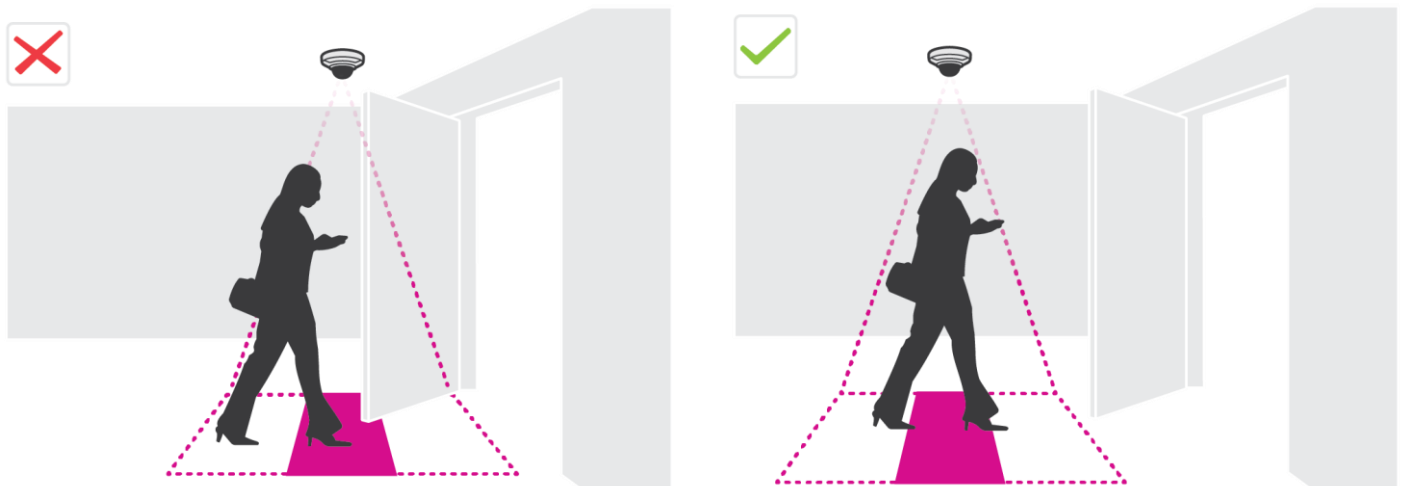


Figure 7: Make sure that doors are not opened into the counting zone.