ROI for smart buildings: a closer look at digital car park management

In a nutshell

Digital car park management pays for itself within

8 months*

Building owners, facility and property managers are being faced with the challenge of

- using available spaces as efficiently as possible
- ensuring the buildings' occupants demands for utmost comfort are met
- finding more efficient ways to operate their buildings and its facilities.

The wider the range of possibilities to connect buildings using IoT-enabled sensors and technology, the more complex the task of working out the ROI of IoT solutions.
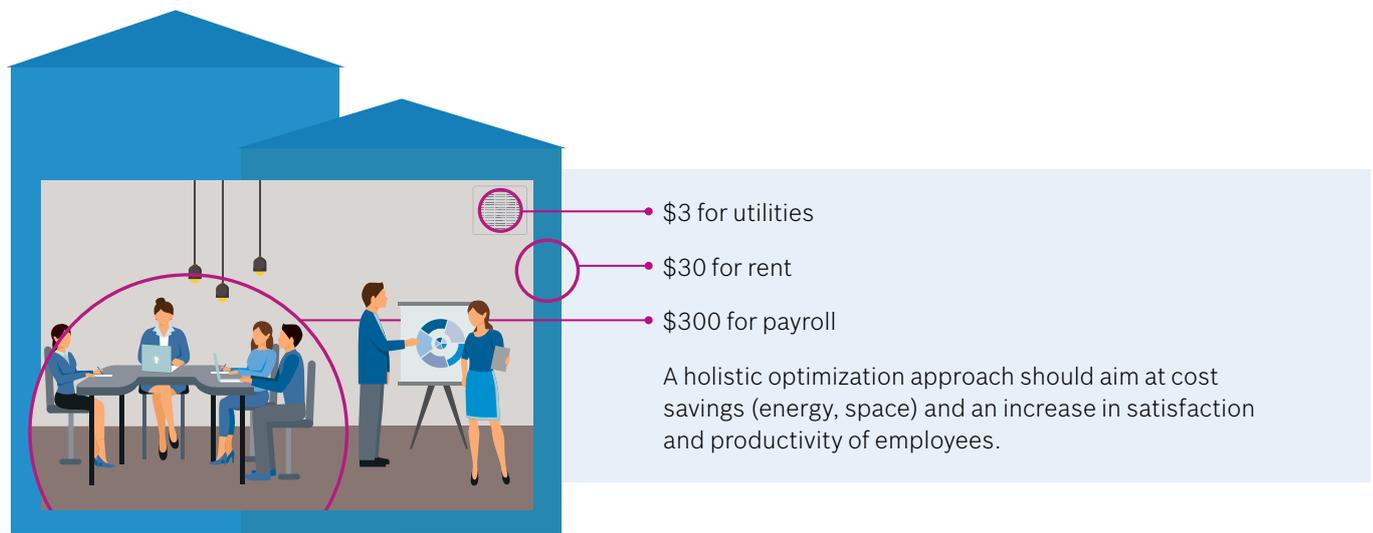
Just because something is technologically possible does not necessarily mean it is economically viable. The complexity involved in the connectivity of buildings makes evaluating the profitability of IoT solutions a sensible exercise.

A closer look at costs for **utilities**, **rent**, and **payroll**

Looking at the cost drivers for office buildings, a general distribution of cost blocks in the ratio of 1% for utilities, 9% for rent and 90% for payroll has largely prevailed. It goes back to a study by JLL.

$3 for utilities

$30 for rent

$300 for payroll

A holistic optimization approach should aim at cost savings (energy, space) and an increase in satisfaction and productivity of employees.
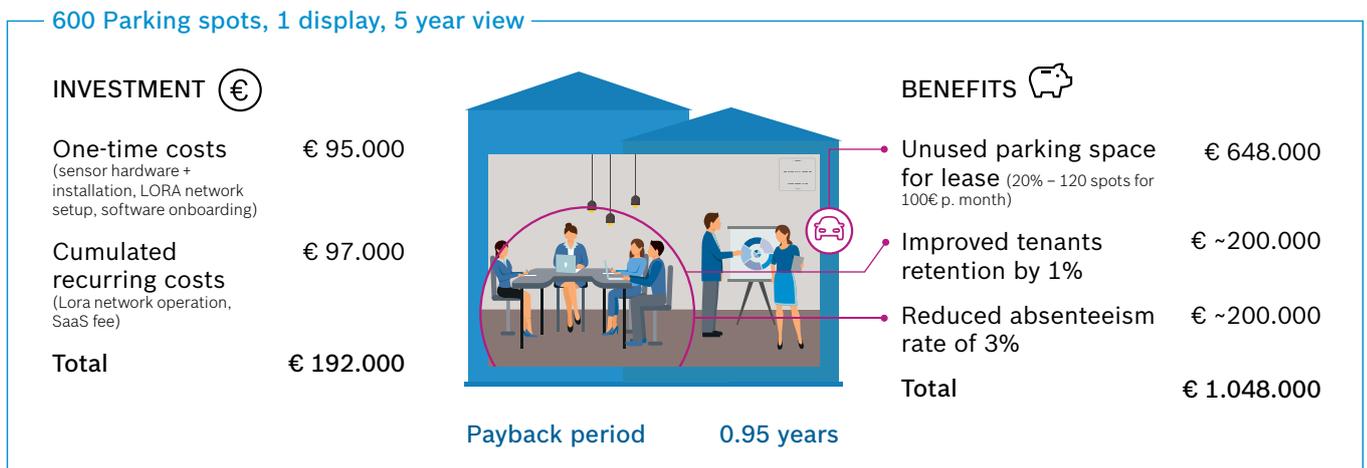
Even though the concrete figures vary from organization to organization, the average cost distribution gives a rough indication:

- a 10% increase in **energy** efficiency would yield $0.30 savings per square foot
- a 10% decrease in **rent** would save $3.00
- a 10% gain in **productivity** is worth $30

Calculating the ROI for a **sensor-based** car park management project

With the aim of achieving greater transparency regarding the exact utilization of individual parking areas and higher employee satisfaction, a project with parking sensors is a very suitable solution. Based on a concrete example of a car park with 600 parking spots, retrofit sensors and one display at the entrance, we can calculate the ROI of the project.

Taking a closer look at the investment and benefits of this project, we find that the project pays for itself in one year.

600 Parking spots, 1 display, 5 year view

INVESTMENT (€)

One-time costs (sensor hardware + installation, LORA network setup, software onboarding)	€ 95.000
Cumulated recurring costs (Lora network operation, SaaS fee)	€ 97.000
Total	€ 192.000

BENEFITS

Unused parking space for lease (20% – 120 spots for 100€ p. month)	€ 648.000
Improved tenants retention by 1%	€ ~200.000
Reduced absenteeism rate of 3%	€ ~200.000
Total	€ 1.048.000

Payback period   0.95 years

On the investment side, we see a total cost of €192,000 over five years.
- One-time costs, which comprise hardware (sensors), installation, and software onboarding
- Monthly SaaS fees and network operation as recurring cumulated costs
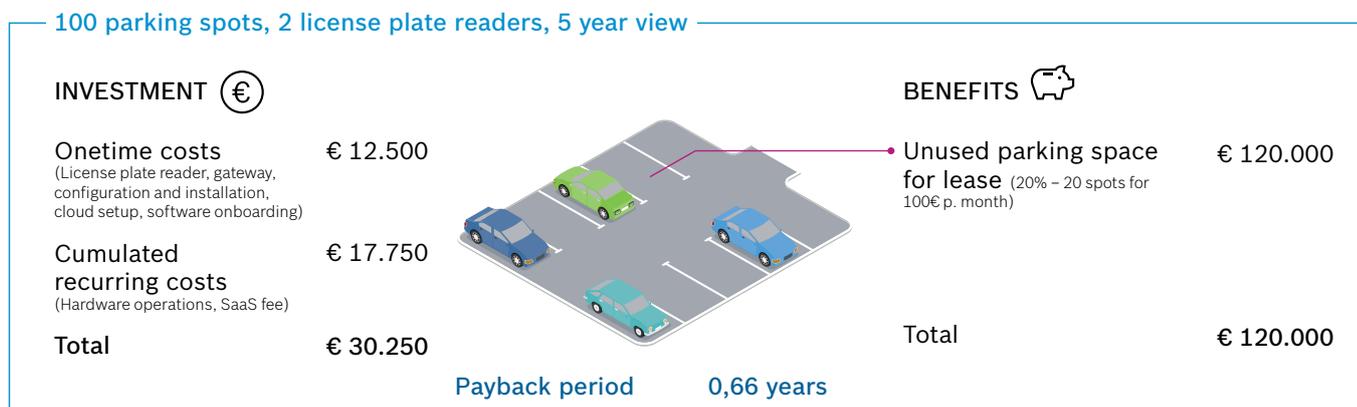
A project based on the use of sensors provides detailed transparency about the utilization of certain areas to save costs for unused space and increase employee satisfaction.
- **Utilities**: Managing parking spaces more efficiently has no impact on energy consumption or cost.
- **Spaces and rent**: Sensor-based solutions create precise transparency not only for the overall utilization, but also for the utilization of individual areas and make it possible to locate unused parking spaces. As a result, 20% of the 600 spots can be rented out for a monthly fee of €100 per spot. This results in a cumulative benefit of €648,000 over five years based on lease income for 120 parking spots. Taking these rent revenues and comparing it with the investment shows that the use case already pays off.
- **Payroll**: Based on the assumption that low search times for parking spots lead to satisfied employees and visitors, we consider two factors: employee loyalty and absence rate. We are taking a conservative approach with an improvement of 1% for the first, and 3% for the latter. Despite the conservative assumption in both cases, they achieve a cost reduction of €200,000 each.

ROI calculation for a **camera-based** system for managing parking*

Camera-based systems mounted at the entrance to commercial parking facilities make sense in several ways. For a start, they serve to detect unauthorized parkers or those exceeding the allotted parking duration. In addition, it enables operators to identify unused parking space and thereby maximize revenue by renting unused space during the night or as resident parking.

Evaluation of the project investment and the added value thereby generated shows that such a scheme will pay for itself within eight months.

100 parking spots, 2 license plate readers, 5 year view

INVESTMENT (€)		BENEFITS	
Onetime costs (License plate reader, gateway, configuration and installation, cloud setup, software onboarding)	€ 12.500	Unused parking space for lease (20% – 20 spots for 100€ p. month)	€ 120.000
Cumulated recurring costs (Hardware operations, SaaS fee)	€ 17.750		
Total	€ 30.250	Total	€ 120.000

Payback period **0,66 years**

Total investment amounts to €30,250 over a period of five years, consisting of:

- Onetime costs for hardware (camera with license plate recognition, gateway), installation, and software onboarding
- Monthly SaaS and network fees.

Installation of a camera-based system provides commercial parking operators with information on whether authorized parking duration is being exceeded and on the general level of utilization of parking.

- **Energy:** A camera-based system for managing parking has no impact on energy use or associated costs.
- **Parking space and leasing income:** Camera-based systems installed at the entrance to parking facilities provide information on the utilization of parking space and enable license plate recognition for vehicles entering and exiting. For municipal parking facilities or those operated by retail outlets, such systems monitor the length of time a vehicle spends in the parking facility and whether the authorized duration has been exceeded – after which countermeasures can be implemented. Our example shows that if 20% of 100 parking spaces can each be leased at €100 per month, this yields a return of €120,000 over five years. On the basis of the calculated investment costs you can see that the use case already pays off.
- **Wage costs:** A camera-based system to manage parking is mainly used to monitor parking authorization in commercial parking facilities and has no impact on wage costs.

To calculate the ROI for your facility, get in touch with our experts today:

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Disclaimer: ROI calculations depend on the precise project and other details. The calculations shown here are of an exemplary nature and, in the event of concrete interest, must be adapted to specific requirements.