

RE-OPEN

BEST PRACTICES AND GUIDELINES

KONE Health and Wellbeing Solutions
KONE People Flow Planning And Consulting



INDEX

- 1 Supporting a safe return to the office
- 2 3 key considerations for safe repopulation
- 3 What does this mean in practice?
 - Restricting elevator capacity to meet physical distancing guidelines
 - How to start planning for an office building re-opening
- 4 Case examples: Option 1
- 5 Case examples: Option 2
- 6 Case examples: Option 3
- 7 Plan your building for safe re-opening
- 8 Keep your equipment running 24/7
- 9 Make your journey safe, hygienic and smooth
- 11 Stay safe with KONE



SUPPORTING A SAFE RETURN TO WORKPLACES

The workplace as we know it is being reinvented in real-time. The pandemic has transformed the way we work and do business. Working from home, remote meetings, physical distancing and restrictions on how people move around mean that office buildings will have to meet new expectations and they start to be repopulated.

To help our customers welcome employees back to their office buildings in a safe manner, KONE has put together this report summarising our recommendations and guidelines for safer People Flow.

This report has been prepared by the KONE People Flow Planning and Consulting experts as a part of KONE's Health and Wellbeing solutions.

For decades, KONE has developed and fine-tuned methods to plan and analyse the flows of people in buildings. Our teams of people flow experts are at your disposal to help determine the right approach for your building and its users.

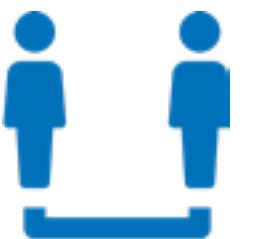


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THIS DOCUMENT PROVIDES INFORMATION AND GUIDELINES FOR:



How office buildings can be gradually repopulated in a safe and efficient manner



Supporting safe operations by making the physical distancing targets tangible in relation to vertical traffic parameters



Communicating global best practices and illustrating the concepts through a practical case example



KEY CONSIDERATIONS FOR SAFER PEOPLE FLOW

Crowd management measures



- Limiting the amount of persons allowed in elevator cars according to guidelines
- Staggering morning arrival, lunch break, and exit times
- Restricting the number of people in elevator lobbies

People density reduction



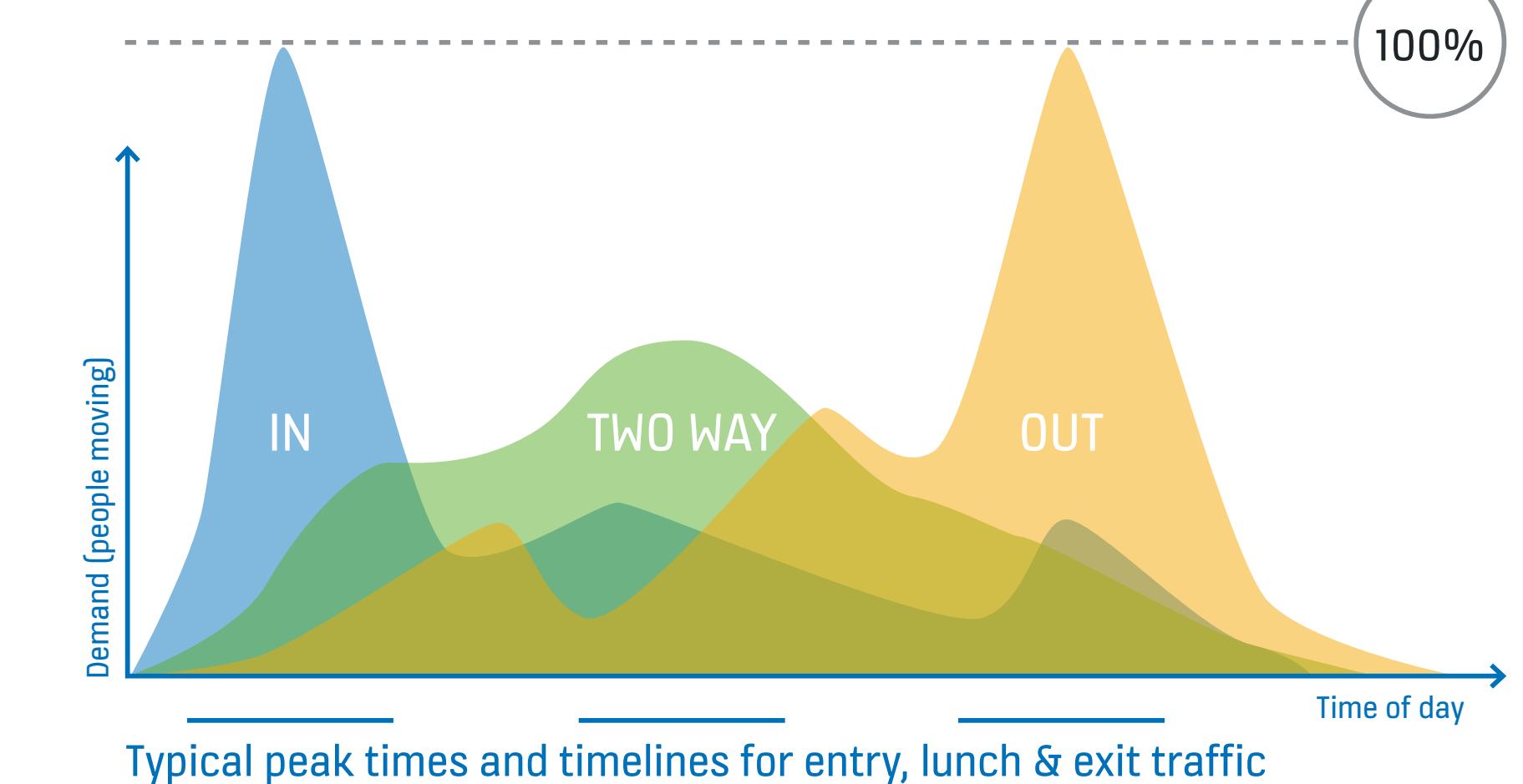
- Reducing the number of people in a building by, for example, 50%
- Implementing fortnightly team allocation and/or remote working options
- Encouraging one-way traffic in corridors, doors and stairs.

Limiting movement within the building

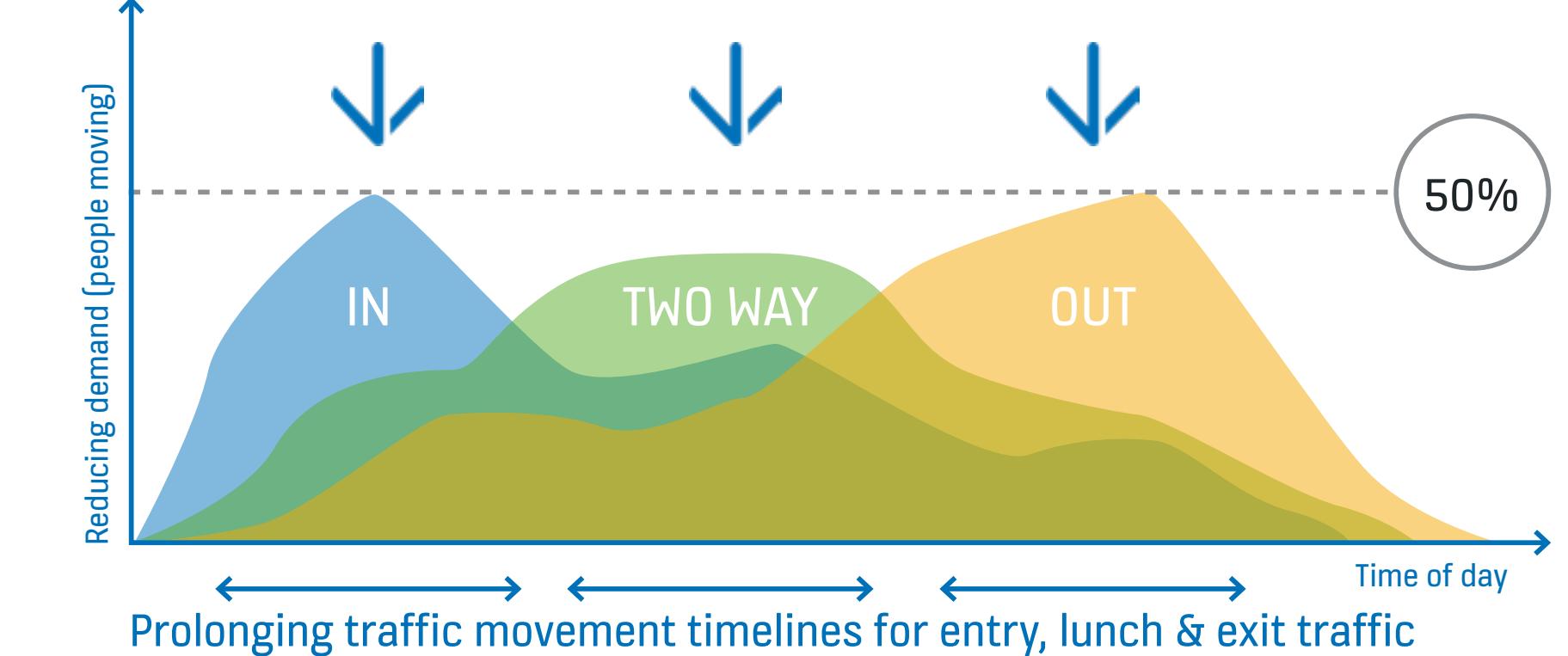


- Instituting measures to limit the need to move between office floors by limiting use of typically busy social areas, such as floors with restaurants or cafés
- Limiting access through some exit and entry floors
- Dedicating the use of stairs as part of a vertical transportation strategy – restricting or eliminating elevator use for short travel distances

TYPICAL OFFICE BUILDING ELEVATOR TRAFFIC - PRE COVID-19



PROPOSED OFFICE BUILDING ELEVATOR TRAFFIC - POST COVID-19



RESTRICTING ELEVATOR CAPACITY TO MEET THE PHYSICAL DISTANCING GUIDELINES

Quick reference for reducing the number of people in standard elevator cars with different physical distancing guidelines

Rated load [kg]	Car width [mm]	Car depth [mm]	Persons in elevator car per distance guideline			
			1.0m	1.5m	1.8m	2.0m
1000	1600	1400	1	1	1	1
1150	1600	1550	1	1	1	1
1250	2000	1400	2	1	1	1
1350	2000	1500	2	1	1	1
1600	2100	1600	2	1	1	1
1800	2350	1600	2	2	1	1
2000	2350	1700	3	2	1	1

NOTE:

Rated loads according to EN 81-20:2014 and raw-car dimensions according to ISO 8100-30:2019. The occupancy area of a passenger is taken as 0.21m² within the Fruin body ellipse (600mm in width and 450mm in depth).

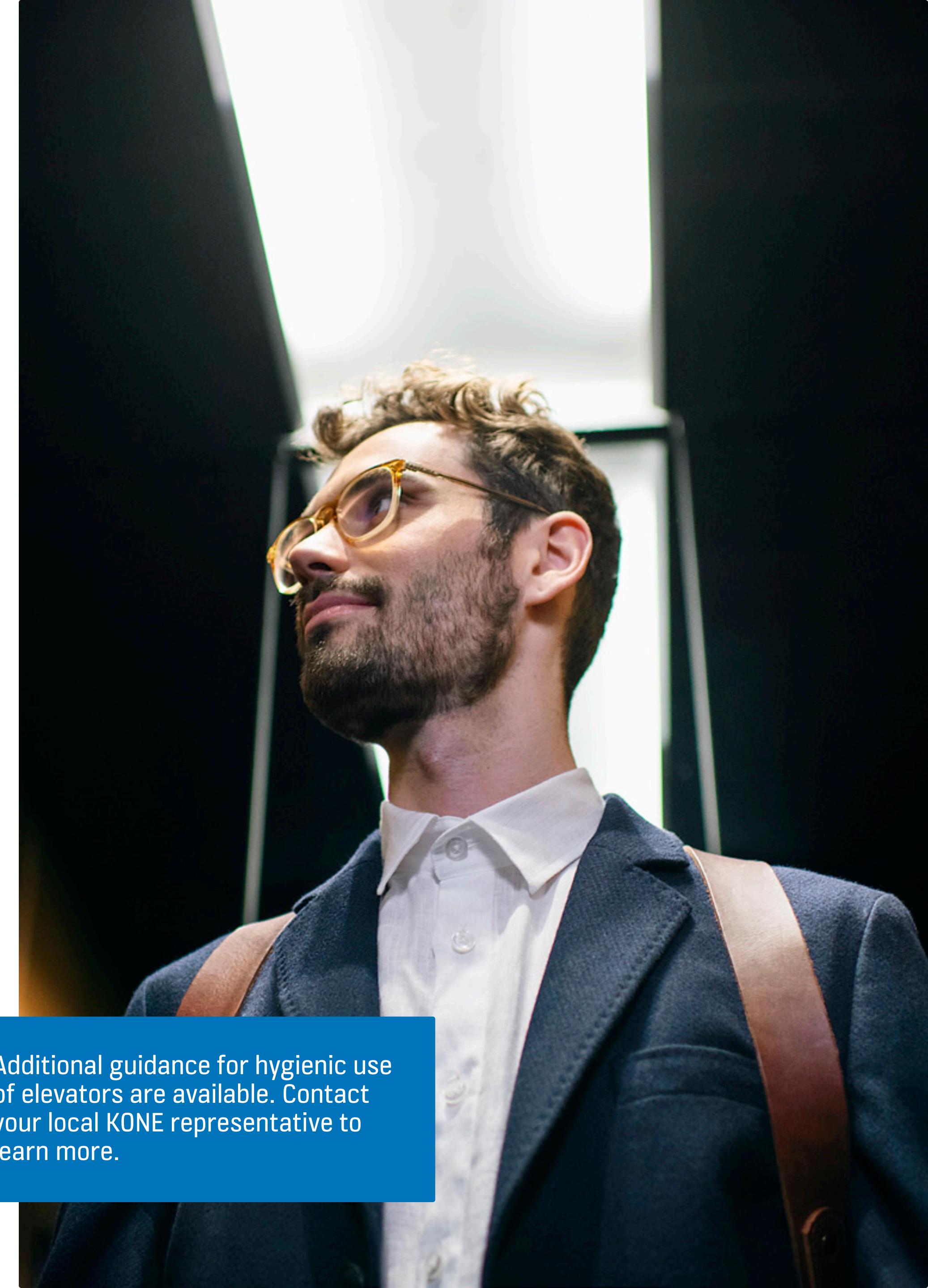
NOTE:

'Persons in the car' represents the maximum number of persons that fits in the car with the given social distance. If dividers are used in the car, an additional person may also fit. It is also recommended to check the number of persons with the actual car dimensions.

NOTE:

Some regulatory requirements for social distancing vary:
AUS – 1.5m
WHO – 1m
The Netherlands – 1.5m
UK and Ireland – 2m

Additional guidance for hygienic use of elevators are available. Contact your local KONE representative to learn more.

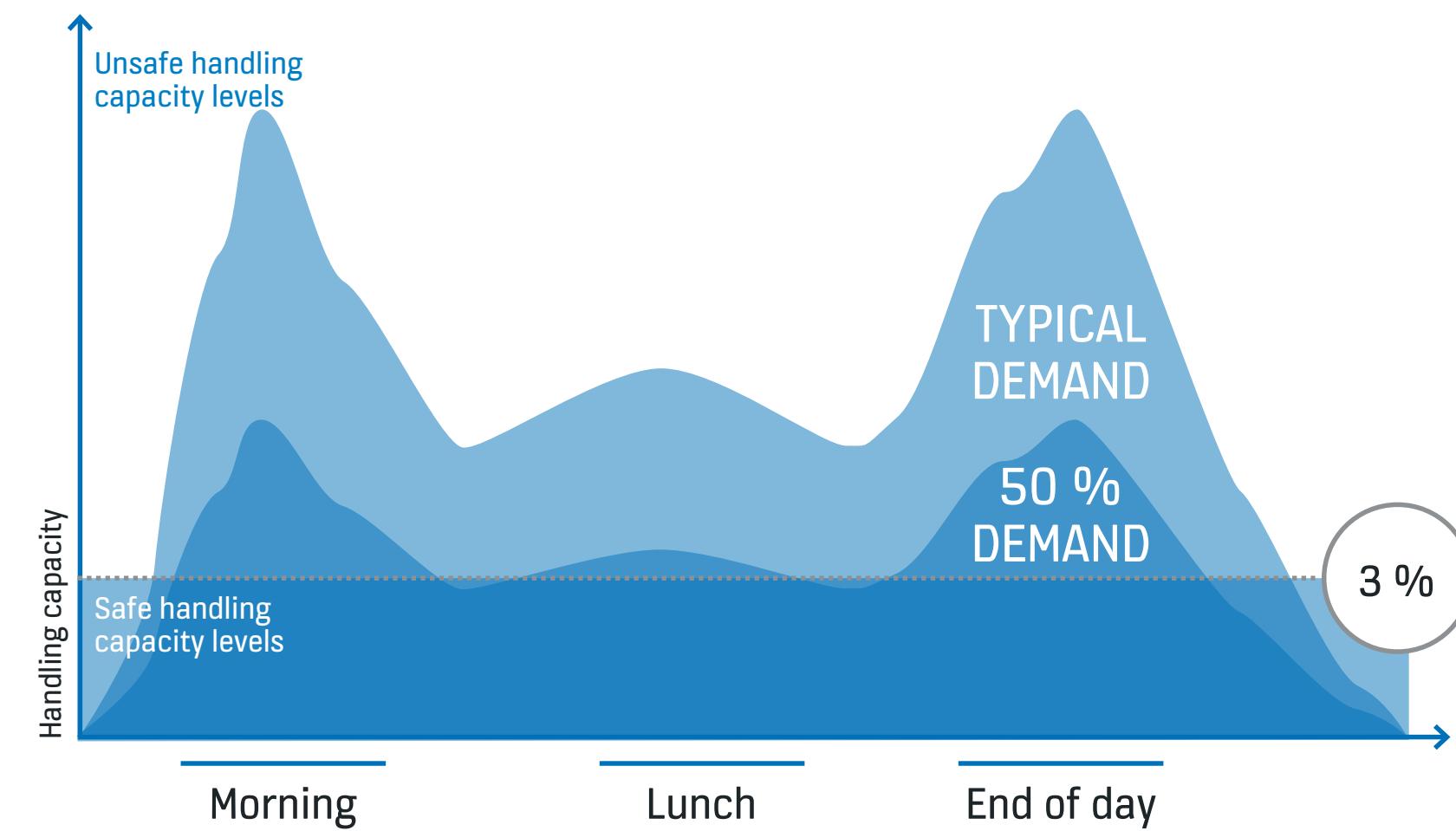


PLANNING FOR AN OFFICE BUILDING RE-OPENING

Reducing demand alone may not be enough to reach safe guideline targets, or to maintain reasonable building user experiences.

See below, the morning incoming traffic and lunch traffic amount still rise above the 3% handling capacity guideline without implementing any additional crowd management measures.

MULTI-TENANT VERTICAL TRAFFIC MOVEMENT WITH 50% REDUCTION



- Establish the amount of people allowed in the elevator cars.
- What is a safe person limit in the elevator cars?
- What is the demand for elevator traffic in the building? Can the population be reduced? What other movement limits might be needed?
- How many people use the building?
- Can traffic between floors be reduced? How?
- Can staggered timelines for entry and exit be allocated?
- How should lunch time & social floor traffic be limited?
- What is a reasonable building entry process time?
- How can the building staircases be best utilised with the safe traffic planning?
- To make impact of the changes concrete, we have prepared an example building case study with three different re-open setups on the following pages.

OPTION 1: MID-RISE OFFICE BUILDING

Reduced occupancy

Staggered arrival

Managed entry process

THE SETTING

A mid-rise office building that is considering to open up for business with the following measures:

	Opt. 1	Opt. 2	Opt. 3
Limiting the amount of people in elevators to 2	✓	✓	✓
Limiting persons in the elevator lobby to 4	✓	✓	✓
Reducing the population to 50% of the pre COVID-19 levels	✓	✓	✓
Stipulating 1.5 m physical distancing	✓	✓	✓
Reduced occupancy	✓	✓	✓
Physical distancing	✓	✓	✓
Staggered arrival		✓	✓
Managed entry process			✓

Main building parameters

Office space ratio	1 person / 11 m ²
Amount of elevators	4
Floor levels	16
Elevator size	1500 kg (20 persons)
Building population	850
Reduced occupancy	425
Physical distancing	1.5m

 2 Person limit in the elevator	 4 Person limit in the elevator lobby	How to interpret the results: Adhering to the physical distancing guidelines, the building owner limits the building population to 50% by assigning bi-weekly teams. At the same time, number of people in each elevator is limited to 2, and in the elevator lobby to 4.
 30-35 People arriving at a time during the busiest 5 min slot capacity	NOTE: This is 1/3 of the normal amount due to reduced elevator capacity	How to interpret the results: The combined reduction of building population and elevator capacity means in this case that the elevators can serve only up to 30-35 people per 5 minutes during busy morning up-peak time.
 64 min Filling time	NOTE: This is 1.5X the amount of time needed compared to a normal capacity situation	How to interpret the results: Limiting the amount of people in elevators reduces the elevator transportation capacity, thus increasing the time that is needed to transport all building users to their floors. Stairs could also be utilised for users to reach - for example, the first 5 floor levels.
 50 sec Average elevator lobby dwell time		How to interpret the results: The average time people spend in the elevator lobby is longer than with normal capacity, but remains mainly at reasonable service level. This does not, however, take into account the time needed to reach the elevator lobby safely after arriving to the building.
 4-5 Average amount of people in the elevator lobby	17 Amount of persons in elevator lobby at most crowded moment	How to interpret the results: Also the average number of people in the elevator lobby is in line with the building owner's guidelines, but the safe physical distancing threshold is momentarily exceeded and the lobby could get very crowded.

OPTION 2: MID-RISE OFFICE BUILDING

Reduced occupancy

Staggered arrival

Managed entry process

THE SETTING

A mid-rise office building that is considering to open up for business with the following measures:

	Opt. 1	Opt. 2	Opt. 3
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Limiting the amount of people in elevators to 2	✓	✓	✓
Limiting persons in the elevator lobby to 4	✓	✓	✓
Reducing the population to 50% of the pre COVID-19 levels	✓	✓	✓
Stipulating 1.5 m physical distancing	✓	✓	✓
Reduced occupancy	✓	✓	✓
Physical distancing	✓	✓	✓
Staggered arrival		✓	✓
Managed entry process			✓

Main building parameters

Office space ratio	1 person / 11 m ²
Amount of elevators	4
Floor levels	16
Elevator size	1500 kg (20 persons)
Building population	850
Reduced occupancy	425
Physical distancing	1.5m

 2 Person limit in the elevator	 4 Person limit in the elevator lobby	How to interpret the results: In this scenario, the building owner's guidelines regarding the building population and # of people in elevators and elevator lobby remain unchanged compared to Option 1.
 30-35 People arriving at a time during the busiest 5 min slot capacity	NOTE: This is 1/3 of the normal amount due to reduced elevator capacity	How to interpret the results: The transportation capacity remains the same as in Option 1.
 105 min Filling time	NOTE: This is 2.5X the amount of time needed compared to a normal capacity situation	How to interpret the results: In this option the building owner also implements a staggered arrival process in order to reduce potential crowding. This is planned as 30 min slots with 15 min breaks between each time bin.
 26 sec Average elevator lobby dwell time	NOTE: This result is at a good service level according to KONE service level standards	How to interpret the results: The elevator demand expands across a longer time period, which helps reduce dwell times to good service levels.
 2 Average amount of people in the elevator lobby	13 Amount of persons in elevator lobby at most crowded moment	How to interpret the results: The elevator lobby occupancy remains predominantly within the "safe zone" threshold (max 4). However, due to a non-managed entry process, the elevator lobby crowding can momentarily rise above safe distancing levels.

OPTION 3: MID-RISE OFFICE BUILDING

- Reduced occupancy
- Staggered arrival
- Managed entry process

THE SETTING

A mid-rise office building that is considering to open up for business with the following measures:

	Opt. 1	Opt. 2	Opt. 3
Limiting the amount of people in elevators to 2	✓	✓	✓
Limiting persons in the elevator lobby to 4	✓	✓	✓
Reducing the population to 50% of the pre COVID-19 levels	✓	✓	✓
Stipulating 1.5 m physical distancing	✓	✓	✓
Reduced occupancy	✓	✓	✓
Physical distancing	✓	✓	✓
Staggered arrival		✓	✓
Managed entry process			✓

Main building parameters

Office space ratio	1 person / 11 m ²
Amount of elevators	4
Floor levels	16
Elevator size	1500 kg (20 persons)
Building population	850
Reduced occupancy	425
Physical distancing	1.5m

	2 Person limit in the elevator	4 Person limit in the elevator lobby	How to interpret the results: In our third option the building owner sets in place a process for managing the arrival and entry to the building in addition to already reducing demand with bi-weekly team allocation and staggered arrival.
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	30-35 People arriving at a time during the busiest 5 min slot capacity	NOTE: This is 1/3 of the normal amount due to reduced elevator capacity	How to interpret the results: The transportation capacity remains the same as in options 1 and 2.
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	105 min Filling time	NOTE: This is 2.5X the amount of time needed compared to a normal capacity situation	How to interpret the results: In this option the filling time remains the same. The building owner advises occupants to use stairs strategically to relieve extra pressure from elevator travel. Dedicated upward stair use is recommended during morning up-peak especially to reach lower floor levels. The general need for short trips during the day is reduced with office management and lunch policy restrictions. Stair use direction is changed to downwards as an additional option for building exit at the end of the day.
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	50 sec Average building lobby dwell time	26 sec Average elevator lobby dwell time	How to interpret the results: With a managed building entry process, the building user journey can be planned in a safe manner. This helps provide a clear understanding of how long it will take to reach a desired destination floor from the moment a person arrives to the building, and of the required touchpoints along the journey.
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	3.7 Average number of people in building lobby (queue length)	1.8 Average amount of persons in the elevator lobby	How to interpret the results: On average, each person will pass through the building and elevator lobby in just over one minute. The arrival to the office is safe, smooth, and without unplanned queuing. At the peak time, the queue length in the building lobby is at most 14 people, which the building owner can safely accommodate in the lobby's designated waiting areas. The occupancy levels in the building lobby and elevator lobby remain safe at all times, without additional need for waiting. The customer experience is secure and safely planned.
	14 Maximum number of people in building lobby (queue length)	4 Persons in elevator lobby at most crowded moment	

KEEP YOUR EQUIPMENT RUNNING 24/7

Keeping every unit running is now more critical than ever. Office buildings will experience constant shifts in usage, due to the ramp-up and change in operations. KONE 24/7 Connected Services can help you stay on top of equipment reliability, while allowing for maintenance services to be catered to your specific needs.

- Minimise disruptions and maximise availability of critical elevators to guarantee optimal people flow (e.g. office, hospitals, elderly care)
- Optimise on-site maintenance work required by spotting critical service needs and planning accordingly (to secure social distancing)
- Keep staff up to date on equipment status

How it works?

- The system keeps a constant eye on critical parameters
- Intelligent technology analyses maintenance needs and predicts faults
- Our technician gets the right information at the right time
- You get trustworthy insights into the health of your assets and proposals for the future



Contact your local KONE representative
to learn more about KONE 24/7 Connected Services



MAKING YOUR JOURNEY SAFE, HYGIENIC AND SMOOTH

How people interact with everyday environments has changed. Safe and hygienic will be even more of a priority. KONE's expertise in people flow planning, along with a suite of health and wellbeing solutions, can help you re-plan and user journeys in a new environment.



KONE health and wellbeing solutions promote health and wellbeing. However, the solutions do not ensure that no new diseases or infections will occur at premises where they are being used. KONE cannot be held liable for any infections or diseases occurring at such facilities or the resulting medical consequences.

CONTRIBUTE TO A
HEALTHIER ENVIRONMENT

REDUCE THE NEED TO
TOUCH SURFACES

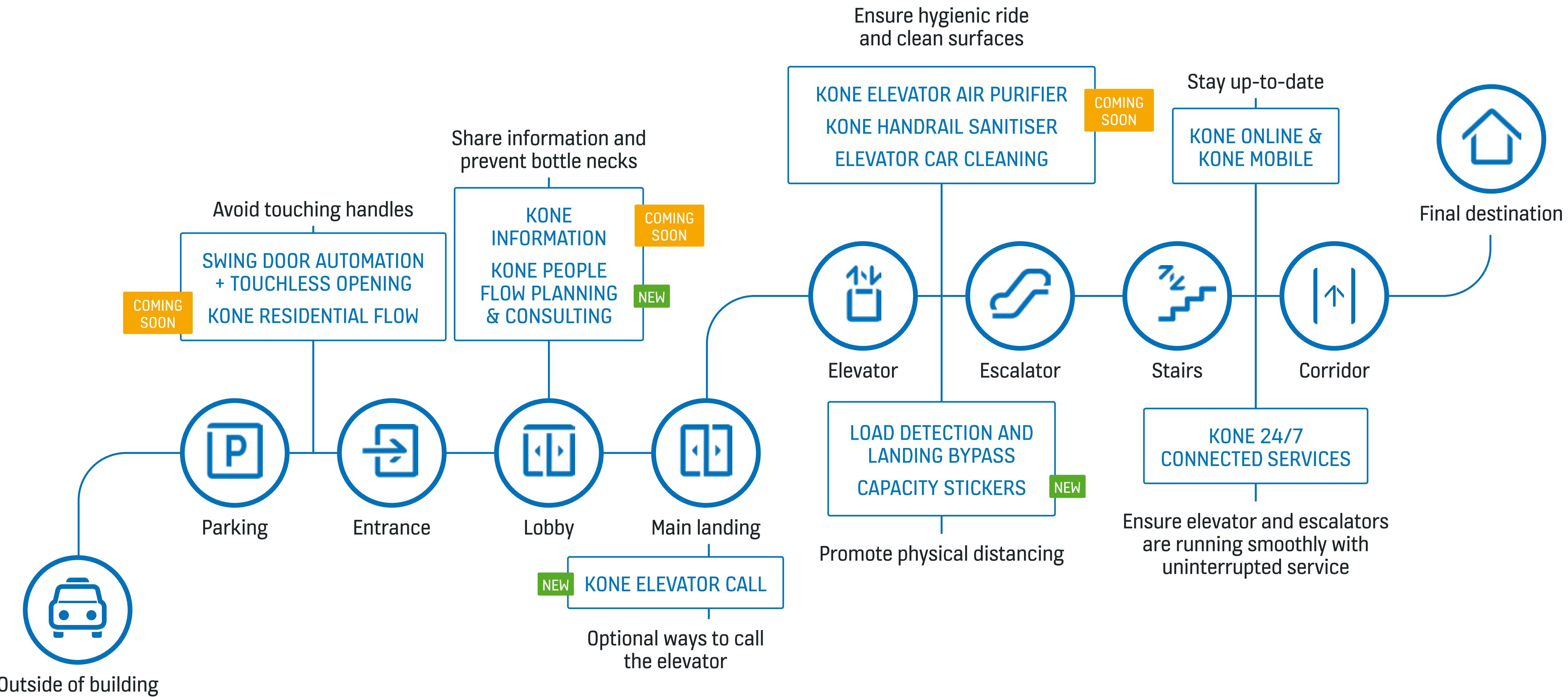
KEEP EQUIPMENT
RUNNING AND SAFE

HELP PREVENT THE
SPREAD OF DISEASE

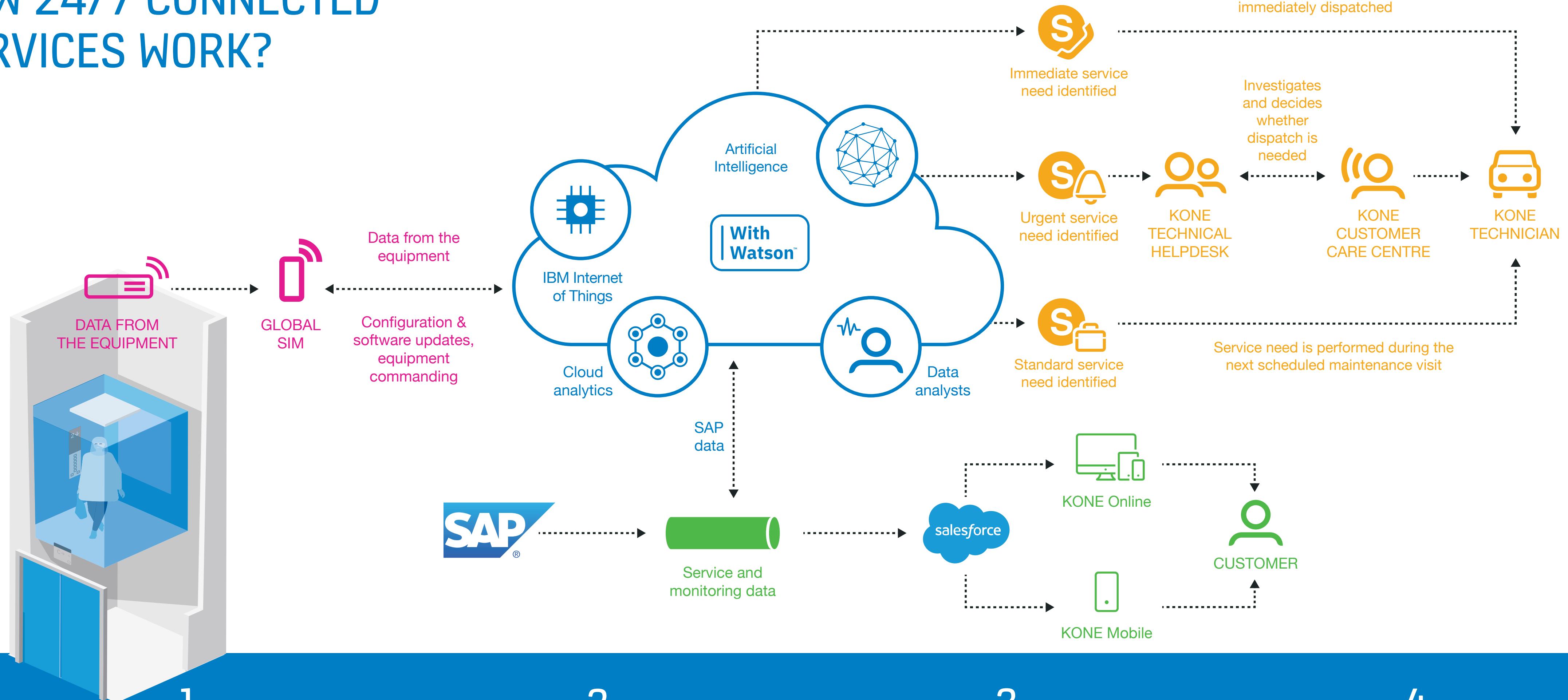
KONE DELIVERS THE BEST PEOPLE FLOW® EXPERIENCE



SAFE, EASY AND EFFECTIVE EXPERIENCES OVER THE FULL LIFE CYCLE OF BUILDINGS



HOW 24/7 CONNECTED SERVICES WORK?



1
Information on the key operating parameters, usage statistics and faults is sent in real time to KONE's cloud service, where the analytics are located.

2
The data is processed by an advanced analysis system – IBM Watson IoT. The system then identifies whether it needs maintenance, further investigation or immediate attendance by a technician, depending on how critical the problem is.

3
Your service technician receives information on the equipment's service needs and conducts the service either right away (for critical issues), or during the next maintenance visit (for non-urgent issues).

4
We send you clear notifications and report all of the actions we take to keep your equipment running safely and smoothly.

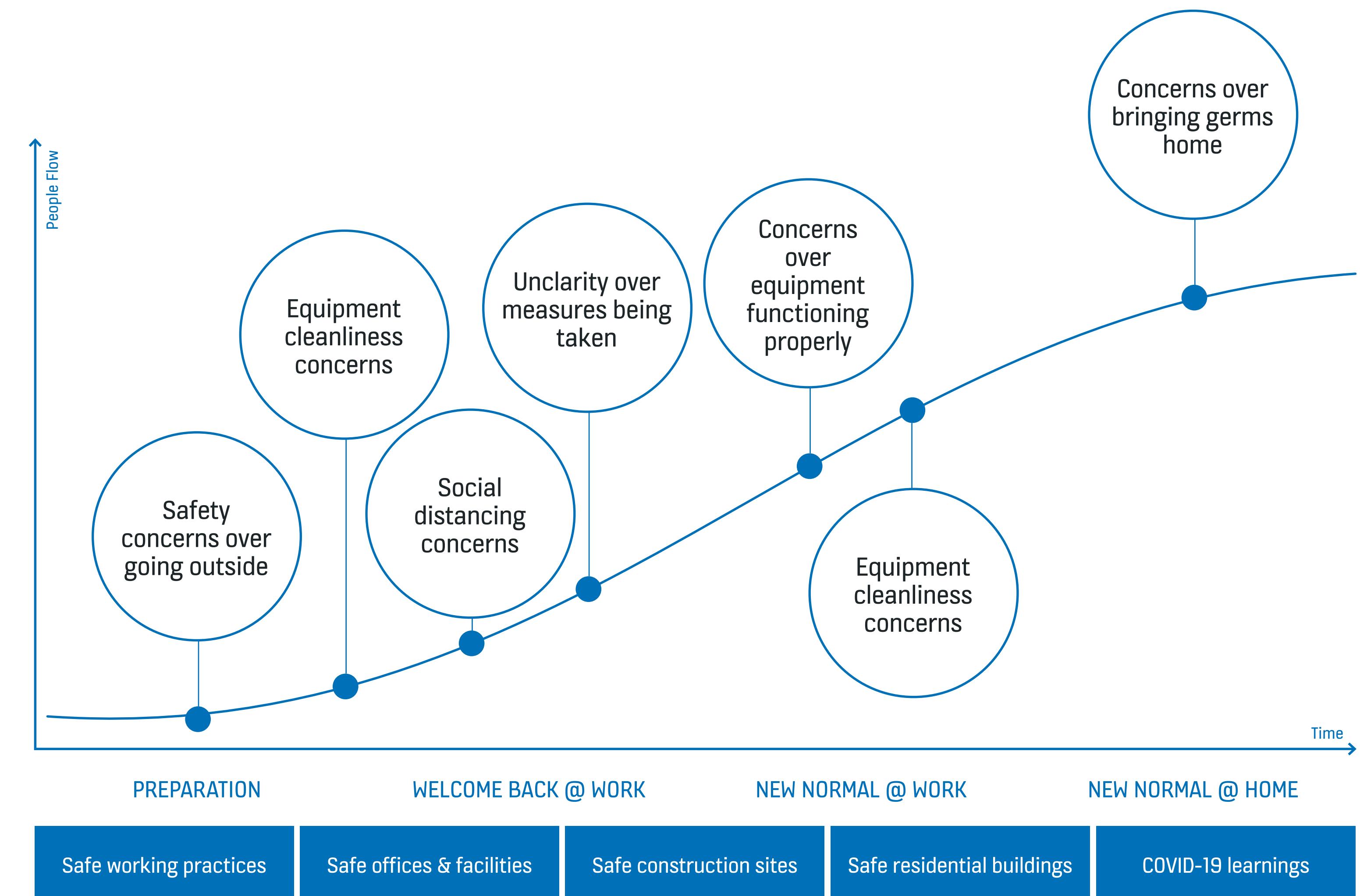
AT KONE, SAFETY, HEALTH AND WELLBEING OF OUR PEOPLE AND OUR CUSTOMERS IS OUR TOP PRIORITY

The coronavirus pandemic is an unprecedented crisis which affects all of us. We care deeply about the customers and communities we serve, and at KONE we are taking extra precautions to help protect our people and our customers' businesses.

We take our role seriously in keeping society running and we are taking actions to keep people moving safely, while working closely and in line with local governments and health authorities. During these exceptional times we have strong actions and processes in place to help safely return back to work and business.

With this in mind, we have compiled an overview of best-practices, specifically for customers.

They include an overview of our safety practices, guidelines for safe site planning and how to manage the flow of people at office premises. We also intend to bring you more information through a series of webinars.



Contact your local KONE representative to learn more about KONE's material packages



While KONE has taken reasonable efforts to ensure the accuracy of this document, KONE shall not be liable for any errors or omissions herein. The models, solutions and products described herein do not ensure that no diseases or infections will occur at premises where they are being used. KONE cannot be held liable for any infections or diseases occurring at such premises or the resulting medical consequences.

Dedicated to People Flow™

