



WHITEPAPER

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# Remote monitoring increases security & integrity for society's seniors

## Foreword

The Corona pandemic has undeniably turned the world upside down. Our lives have changed, and many things are no longer as they were. Society's seniors have been living in isolation for a year now, and the need to provide care services in an infection-proof way has made life harder for service providers. Taking advantage of the potential offered by digital technology and the implementation of remote monitoring (technology to facilitate interaction between professionals and seniors at home) offers a way of solving this problem. In 2021, in what was a very timely move, Sweden's municipalities were allocated SEK 200 million to develop digitalisation in the care of the elderly (Swedish Ministry of Health & Social Affairs, 2020).

This development work provokes exciting questions and challenges: how, for example, can remote monitoring be developed within the care of the elderly sector? And how can this be done in a cost-effective way that helps ensure that resources are allocated more effectively?

In this whitepaper, Careium provides an insight into the latest research in the field and presents analysis that compares remote monitoring with traditional monitoring that entails physical visits. The analysis also shows that the environmental benefits of remote monitoring are considerable, and that resource utilisation within domestic care services could be improved.



## Careium Visit – is a virtual check-in

service. In essence, it is a safe and less intrusive alternative to home visits. The user is supervised by a camera, which is only activated at certain times or when required. Remote supervision is carried out solely by authorised personnel. An event log is stored to keep a record on the time and date when the remote supervision was carried out and by whom. No images or videos are saved. The camera is directed towards the ceiling or wall when it is not active. The administrator agrees together with the user how and when the supervision is permitted.

While Visit is discreet, it also makes the user feel more secure. For you as a service provider, it is a complete solution that is both environmentally and budget friendly:

- Less intrusive than home visits
- Secure, reliable technology
- Enables redistribution of resources and time
- Environmental benefits



## How does Careium Visit work?

Visit comprises a camera, communications equipment, mobile data subscription and remote supervision service. Remote supervision means that an operator at the monitoring centre carries out the supervision by means of a camera, in accordance with a requested timetable. This ensures that an alert is only raised to the service provider when assistance is required.

How an operator at the monitoring centre carries out remote supervision:

1. Log in
2. The operator selects the user for which supervision is to be carried out
3. The camera is activated from sleep mode (camera is directed towards the ceiling or floor) to a predetermined active mode
4. The operator carries out supervision of the user using a 30-second live streamed video sequence
5. The video link is disconnected, and the camera returns to sleep mode
6. The visit is logged with information on when and by whom the supervision was carried out. No images or videos are saved

Careium Visit is supplied preconfigured and is simple to install, even for non-technical personnel.

# 1. Huge increase in seniors preferring night-time cameras - not visits

Interest in security cameras is growing in more and more regions and municipalities throughout Sweden, and the use of cameras for night-time monitoring increased by 60% in Sweden's municipalities between 2016 and 2018 (Swedish Ministry of Health & Social Affairs, 2018).

Kerstin Olsson is one of the many people who benefits from digital night-time monitoring, and she says that as a result, she gets more sleep at nights. She used to be happy that domestic care services personnel were looking in on her, but the fact that she was often unable to go back to sleep after the night-time patrol had visited her was a big problem.

"I feel very relaxed, comfortable, and safe when I go to sleep, because I know that someone will be checking in on me," says Kerstin (Gotland Region).

Other users, such as Evy Henriksson, Inge Samuelsson and Jeanne Sturmhoefel, are also happy with the digital monitoring, which has increased their sense of security.

"You get used to the camera and I don't feel like I'm being spied on. Not having nightly visits is a plus, too. I feel safe, and I'm grateful for that," says Evy ("Borås Tidning" newspaper).

"I think it's great and I feel very safe. I trust them to use the camera in the right way. The staff used to come in the middle of the night and often woke me up. Now I can sleep all night. They can still see me and check that I'm doing fine," says Inge (Vara municipality).

"If something happens, the camera registers it, so that feels really safe. Apart from that, I don't think about the camera very much. I barely notice it," says Jeanne (Karlstad municipality, 2019).

A study by the Swedish Handicap Institute in 2012 showed that people who need nightly checks often feel distressed by physical visits, something that leads to an increased need for aid and assistance. Home visits in the middle of the night disturb sleep and relaxation, which can cause distress and confusion, particularly amongst seniors suffering from dementia. And the disturbance of night-time sleep can also cause an increasing decline in quality of life and mobility during the day (Swedish Ministry of Health & Social Affairs, 2018).

A further study shows the same trend amongst satisfied users. 95% of the users who had trialled the night-time camera chose to continue (Swedish Association of Local Authorities and Regions, 2018), and also revealed that users and family members felt security cameras had less of an impact on personal integrity than physical monitoring. Family members also felt that their own quality of life had improved, in that the installation of the remote system removed a major cause for concern in relation to the monitoring of their nearest and dearest. This, in turn, helped generate a greater sense of security amongst family members (Swedish Ministry of Health & Social Affairs, 2018).



## 2. Time and environmental benefits

Monitoring visits in the middle of the night entail long car journeys, often simply to confirm that the person who needs monitoring is asleep/safe. The longest of these journeys occur in more rural areas and result in large amounts of emissions that can now be reduced. The personnel who have to travel long distances in the middle of the night often also face road safety risks, such as poor road surfaces and the lack of good visibility (Swedish Ministry of Health & Welfare, 2018). Digital monitoring offers a solution to these problems.

The lifecycle analysis conducted by Careium in partnership with Lund University's Faculty of Engineering is unique and supports this

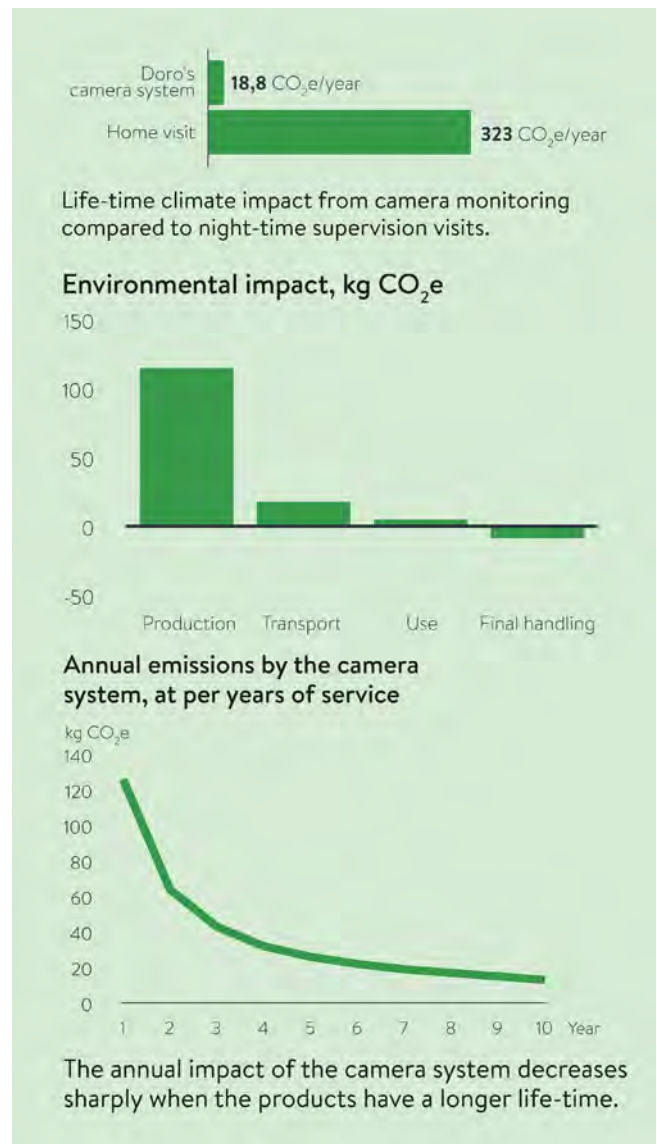
conclusion. The analysis compares traditional monitoring in five municipalities with Careium's remote monitoring system (camera, security alarm, alarm button, and router) to examine which has the greatest environmental impact, and to determine whether replacing traditional, physical monitoring with remote monitoring is beneficial. The calculations for traditional monitoring were based on the Swedish Ministry of Health & Social Affairs' information on the number of visits that could be avoided with the help of camera monitoring. Night-time visits with no need for other measures were the only type of monitoring included in the calculations.

The answers suggested there were clear environmental benefits to using remote monitoring. The metric used in the analysis was CO<sub>2</sub>e, or carbon dioxide equivalents, which is a common measure of the total climate effect in lifecycle analyses.

The calculations show that, on average, over 300kg of carbon dioxide equivalents are saved per user per year by using remote monitoring. This corresponds to a return flight from Sweden to Greece. The vast majority of the total environmental impact of remote monitoring comes from production, and the most effective thing that can be done to reduce this environmental impact is to ensure a long product lifespan, which has been a key focal area for Careium for a number of years now.

As the diagram shows, the annual environmental impact declines drastically in conjunction with longer product lifespans. Careium Visit has an expected average lifespan of 7 years. The recyclability of the camera systems is also an environmental plus.

Finally, it was also apparent that remote monitoring saves a substantial number of hours by reducing the time taken to travel between the monitoring visits. Remote monitoring can, therefore, generate the preconditions for both a better work environment and efficiency gains. If fewer personnel are needed at night-time, more valuable care visits and meetings can take place during the day, thereby generating benefits for users and personnel alike.



**” You get used to the camera and I don't feel like I'm being spied on. Not having nightly visits is a plus, too. I feel safe, and I'm grateful for that.”**

**Evy Henriksson**  
 (“Borås Tidning” Newspaper 2021)

### 3. Case Study: Uddevalla Municipality

A number of municipalities are working to take advantage of the opportunities offered by assistive technology. Uddevalla is one such, and last year it was selected as a model municipality for the digitalisation of the care of the elderly by the Swedish Association of Local Authorities and Regions. The municipality was keen to extend its implementation of digitalisation, so Careium studied the comments on and experiences of digital monitoring by Christer Fransson, Uddevalla's Social Services Departmental Manager, as this is a field in which he is heavily involved.

“A lack of security and a lack of independence are two of the biggest problems faced by seniors. Assistive technology is there to help them. Remote monitoring makes the users feel more secure, and they avoid being woken in the middle of the night and feeling uncomfortable. Having someone come into your home in the middle of the night impinges more on your integrity than using a discreet camera. The system can also help increase users' feelings of independence by reducing the number of monitoring visits.”

“The staff also like the system, primarily because they avoid having to make unnecessary home visits and it allows them to focus more on care visits. A visit during the daytime often means more than one at night. Another big factor is the way it enables the redistribution of resources and making optimum use of time.”

“The positive response from users and personnel alike has resulted in us setting a goal of reducing the night-time workforce by

25%. In the long term, this could save millions of kronor,” says Fransson. “This is money that can be redistributed so it is used more efficiently, or which can be invested in other digital aids for the elderly. A total of 60 municipality residents are currently receiving monitoring visits, and 21 of them have digital monitoring (April 2021). The goal is for everyone who wishes to have remote monitoring.”

“Our vision is to use digital technology as extensively as possible. We are very keen to see things that work well being introduced even more widely and in a longer term way. Other municipalities who are using remote monitoring are also finding that it works very well indeed.”

“We hope that it will eventually also be possible to gather other health data via the sensors, for more preventative purposes. We don't need a picture: what we need to know is that the person is in bed and is feeling fine. The developmental potential for assistive technology is massive.”

#### Uddevalla chooses digital for smarter senior care



Uddevalla has been selected by the Swedish Association of Local Authorities and Regions as a model municipality for digitalisation in 2020-2022. The municipality has made substantial progress in implementing assistive technology in senior care as part of a project that includes testing new, digital solutions and supporting other municipalities with their expertise in digital services and assistive technology.

## 4. Great future need for assistive technology in senior care

The percentage of the population over the age of 80 will increase by more than 50% between 2019 and 2030 (the National Board of Housing, Building, and Planning, 2020). A growing senior population places far-reaching demands on the ability of the medical and senior care sectors to meet growing care requirements. Adequate staffing levels is one of the biggest challenges faced by tomorrow's care sector – and a mapping survey has shown staff shortages in 17 of the 20 municipalities in Kalmar and Kronoberg counties (SVT News Småland, 2021). The introduction of digital security services is being promoted as one way of addressing these challenges, and much of the work entailed involves resetting the care approach and developing new methodologies and routines (Uddevalla Municipality, 2021).

Assistive technology can never completely replace human relationships and daily interactions, but it can simplify and create the space for better quality of life and more interactions. Remote monitoring enables the redistribution of resources in senior care and domestic care services and a number of studies have confirmed how the support of assistive technology not only enables individuals to live longer in their own homes, but also strengthens their sense of independence. This, in turn, creates a stronger sense of well-being amongst both seniors and their nearest and dearest (Swedish Agency for Health & Care Services Analysis, 2020).

The way ahead, therefore, leads towards spreading the word about the use of digital monitoring and building a sense of trust in the new technology amongst personnel, users, and their families. Many seniors are initially sceptical of monitoring cameras, but quickly see the benefits, such as eliminating visits in the middle of the night, always feeling safe and secure, and getting a good night's sleep (National Board of Health & Welfare, 2018). This results in increased security, integrity, and a more meaningful day to day life for society's seniors.

With the help of assistive technology, we can do more for each other, with each other.





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