

*All-in-One Sensor*

<i>All-in-One Sensor</i>		
<b><u>Organisation(s):</u></b>	Barcelona Provincial Council	
<b><u>Country:</u></b>	Spain	
<b><u>Contact:</u></b>	<a href="mailto:policy@esn-eu.org">policy@esn-eu.org</a>	
<b><u>Theme:</u></b>	<input checked="" type="checkbox"/> Ageing & Care <input type="checkbox"/> Asylum & Migration <input type="checkbox"/> Young People <input type="checkbox"/> Support for Children & Families <input type="checkbox"/> Community Care <input checked="" type="checkbox"/> Integrated Care & Support <input type="checkbox"/> Co-Production <input type="checkbox"/> Disability <input type="checkbox"/> Housing & Homelessness <input checked="" type="checkbox"/> Artificial Intelligence <input checked="" type="checkbox"/> Digitalisation <input type="checkbox"/> Quality Care	<input type="checkbox"/> Labour Market Inclusion <input type="checkbox"/> Social Inclusion <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Workforce and Leadership <input checked="" type="checkbox"/> Social benefits <input type="checkbox"/> EU Funding <input type="checkbox"/> Social Service's Resilience <input type="checkbox"/> Mental Health <input checked="" type="checkbox"/> Person-centred Care <input type="checkbox"/> Other, please specify:
<b><u>Principles of the European Pillar of Social Rights:</u></b> <i>Check the 20 principles <a href="#">here</a>.</i>	<input type="checkbox"/> 1. Education, training, life-long learning <input type="checkbox"/> 2. Gender equality <input type="checkbox"/> 3. Equal opportunities <input type="checkbox"/> 4. Active support to employment <input type="checkbox"/> 5. Secure and adaptable employment <input type="checkbox"/> 6. Fair Wages <input type="checkbox"/> 7. Transparent employment conditions <input type="checkbox"/> 8. Social dialogue <input type="checkbox"/> 9. Work-life balance <input type="checkbox"/> 10. Healthy, safe work environment	<input type="checkbox"/> 11. Childcare and child support <input type="checkbox"/> 12. Social protection <input type="checkbox"/> 13. Unemployment benefits <input type="checkbox"/> 14. Minimum income <input type="checkbox"/> 15. Old age income and pensions <input checked="" type="checkbox"/> 16. Health care <input type="checkbox"/> 17. Inclusion of people with disabilities <input checked="" type="checkbox"/> 18. Long-term care <input type="checkbox"/> 19. Housing and assistance to homeless <input type="checkbox"/> 20. Access to essential services
<b><u>Current status of the practice:</u></b>	<input type="checkbox"/> Concept and Design Phase <input type="checkbox"/> Execution & Monitoring Phase <input checked="" type="checkbox"/> Consolidation Phase <input checked="" type="checkbox"/> Scaling Up and Transformation Phase <input type="checkbox"/> Other (please specify)	
<b><u>Context/ Social issues addressed</u></b> <i>Please explain the problem you attempt to solve.</i>	<p>In the province of Barcelona, there is a growing care crisis due to the accelerated ageing of the population, with a population over 65 that reaches 14% and 36% over 80, and with an increase in the ageing population (people over 80 years old represent 30% of the older people and the 6% of the total population of the Barcelona province). In recent years there have also been accelerated social</p>	

	<p>changes regarding household, family and gender structures that explain the growth of the "gap" between the need and supply of care.</p> <p>The ageing of the population and changes in the family structures are also generating an increase in households with people over 65 years of age. Currently 35% of the households in the province of Barcelona where there is a member over 65 years old are single-person households, which is a risk factor for caring needs and loneliness. Moreover, as always, older people have preferred to stay at home; the crisis in the residential sector related to the COVID-19 period has even increased the willingness to age at home. Nevertheless, the home care service is underdeveloped in the province of Barcelona, as well as in Catalunya and Spain in general, reaching around 4% of the older people with average attention of 21 hours/month in the province. In this context, improving caring attention at home through technology represents an opportunity to improve the life conditions of older people and people with dependency.</p> <p>Furthermore, studies and experience show behaviour pattern at home is essential to measure and predict risk because:</p> <ul style="list-style-type: none"> <li>• Patterns are regular (mealtimes, going out, showering, etc.).</li> <li>• Subtle changes or deviations only detectable by direct observation of the other person may indicate earlier physical or mental problems.</li> <li>• Older people who live alone have more difficulties with early detection of social and health risks.</li> </ul>
<p><b>Objectives:</b> Please provide a <b>maximum of three</b> objectives in bullet points.</p>	<ol style="list-style-type: none"> <li>1. Supporting ageing at home with innovative technology based on the Internet of Things, providing security and better quality of life for users and their families.</li> <li>2. Detect and predict social and health risk situations in vulnerable, alone and or isolated people's homes through monitoring and non-invasive systems.</li> <li>3. Help professionals of local social services in their decision-making process and day-to-day work. On one hand, early detection is a key factor of effective intervention in day-to-day work and, on the other hand, "All in one sensor" allows predictive analysis through artificial intelligence and thus gives key information for a better planification according to future needs in terms of home care and social services.</li> </ol>
<p><b>Activities:</b> Please summarise the activities put in place to achieve the objectives (maximum 200 words).</p>	<p>The Local Telecare Service has been implementing a person-centred care model since 2017. This model has made it possible to adapt the benefits and complementary technology to the needs of the users, intensifying the monitoring (both by telephone and in person, and with technologies of support such as security devices to prevent risks at home such as fire/smoke, gas and carbon monoxide detectors, and devices to prevent risks to the health of the person such as detectors of presence, falls and remote assistance out of home) of the most vulnerable and reinforcing the preventive nature for the most autonomous.</p> <p>The digitalisation of the service, which started in 2022 as part of the technological and digital improvements related to care at home and the digitalisation agendas of public services at the European, state, and local levels, allowed the implementation</p>

of the censoring program “All in one sensor”. This program has a unique sensor incorporating different functionalities (temperature, humidity, presence, light, infrared and acceleration control). These are non-invasive sensors for the intelligent monitoring of habits or behaviour patterns of the most vulnerable people of the service by observing aspects such as activity during the day (linked to movement and prolonged stay in rooms), shower detection (in relation to consumption and non-consumption patterns and the duration of its consumption), or the analysis of a person's movement (regarding speed, anomalies and/or forgetfulness in mobility), among others. According to the health and social risks detected, a personalised plan is established.

Depending on the needs detected it can be activated a more intensive follow-up from the Local Telecare Service with home visits and periodic calls, or participation in digital programs, such as the digital program for the prevention of cognitive deterioration. The person may also be referred to social or health services or to social programs of Diputació de Barcelona such as the program for elderly people in loneliness situation.

**How it works:**

- A terminal in the home permanently connected to the service centre and with coverage throughout the house is being installed.
- The person must always wear the pendant or bracelet to communicate with the service by pressing the red button. **The person will be able to communicate with the service by pressing the red button** on either device.
- Installation, in case of vulnerability (people living alone with isolation and lack of family or social support) of a unique sensor incorporating different functionalities (temperature, humidity, presence, light, infrared and acceleration control). These are non-invasive sensors for the intelligent monitoring of habits or behaviour patterns.

The operation and the phases of the program are:

1. The sensors collect information on the person's activity at home.
2. The data is reported to the platform that stores and processes them.
3. Daily activities are analyzed, and patterns of behavior are established.
4. Anomalies or deviations are detected, which may be indicative of some risk.
5. The system creates automatic notifications based on the communication protocol developed.

**Evaluation of practice:**

*Please explain how you evaluate the practice, and what the results were/are so far*

- Feedback through people’s experiences of services
- Quantitative data collected internally

**Impact:**

The general assessment of the service is positive, as more than 80% of the respondents rate their satisfaction with the service as “good or very good”. Within the good assessment of overall satisfaction, more than 60% of users would recommend this service to family and friends, with a score of 10 out of 10.

	<p>Currently, 220 people are connected with the “All in one sensor”, and the number of users will increase to 3.900. The evaluation of the pilot program concludes that 73% of the users say that the sensors do not cause them any discomfort, and 60% consider that the sensors are well hidden. More than 13,000 activities have been monitored.</p>
<p><b><u>Links to supporting documents:</u></b> <i>e.g. website or report of the practice</i></p>	<p>Website of the Local Telecare Service of Diputació de Barcelona: <a href="https://www.diba.cat/es/web/teleassistencia/">https://www.diba.cat/es/web/teleassistencia/</a></p>
<p><b><u>Comments and tips</u></b> <i>i.e. for people willing to use your Practice</i></p>	<p>The All-in-one Sensor project is based on a personalised centre model of telecare, and it also needs to create confidence among old people in technologies and protection. The educational role of the professionals is a key issue.</p>