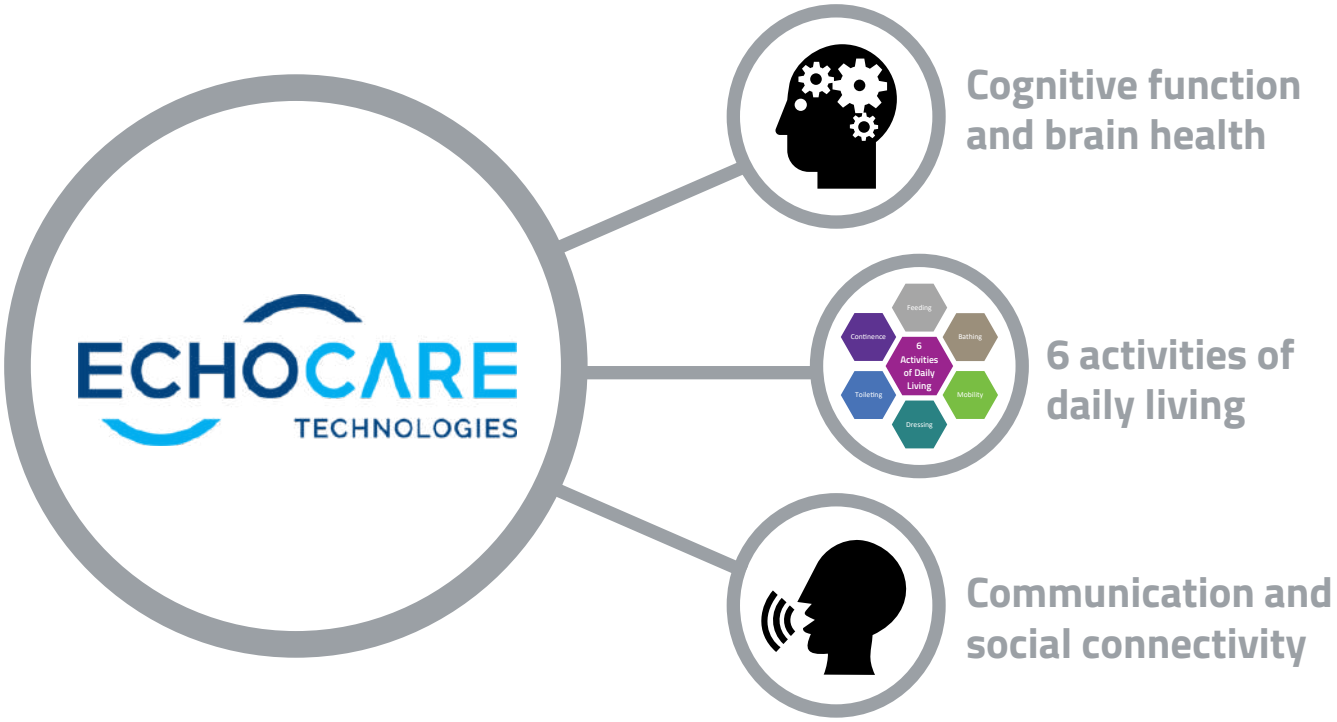
Echocare
Company Profile



EchoCare aims to help seniors live longer in their homes through its unique remote monitoring system for emergency detection and preventive care. EchoCare has developed a non-wearable and non-privacy invasive remote monitoring system for seniors and patients. It can automatically detect and alert both informal and formal carers on various emergencies, abnormal situations and even highlight potential health deterioration in the home. The ECHO system is a cloud connected solution that detects falls, respiratory distress and other incidences of emergency; it can even detect if an individual has slipped below the water level in the bath, highlighting a dangerous situation that could indicate drowning. It can detect potential health deterioration by analysing a person's daily activities and how they change over time.

The system, which is at its initial commercialisation in the US, Japan and Australia, is based on a unique radar, followed by AI/ML engines, and, unlike regular camera monitoring systems, an individual's privacy is not compromised. This is because unlike a visual image being relayed back to the end user, the ECHO system uses a radar to capture an image of the room that is incomprehensible to humans, yet can be interpreted by the ECHO system to produce information about a senior's movements. This protects privacy while maintaining a high level of accuracy while monitoring, a single device can cover a nominal senior apartment with the technology being able to work through the interior walls of the house.

EchoCare was founded in 2015 by Rafi Zack, CEO, and his co-founder and executive director, Dr Yossi Kaufman. After his father was diagnosed with dementia, Zack, a seasoned technological executive and entrepreneur, sought technological solutions that could help with home care. When the typical alarm buttons and wearable solutions available at the time were not promptly contacting him after his relatives suffered acute to moderate falls, he began searching for an alternative. EchoCare began to formulate a solution for the home environment that would be non-wearable and non-privacy invasive as camera-based systems were shown to be unfavourable. EchoCare's first mission was to develop a robust fall detector that can cover a nominal senior apartment with a single device.

The most prominent fall detection devices currently in the market all focus on a wearable device, however, Echocare noted that when it comes to the seniors aging in place, individuals do not want to be committed to wearing a device 24 hours a day and are even more averse to having cameras set up in the home intruding on their privacy. This led EchoCare to its unique vision to provide the best elderly care solution that grants seniors independence without the burden of wearables or being exposed to invasive camera monitoring. Moreover, EchoCare's vision is to provide a flexible and evolving solution that fits with seniors' stage in life and their current living situation, by including multiple services from activities of daily living (ADL) and sleep monitoring to emergency detections.

EchoCare plans to become a key player in remote senior care and remote patient monitoring in both the home care and hospital care setting. The ECHO system is designed to become a lost-cost solution that is easy to install and has connectivity to third party systems, such as Nursing Call systems or Electronic Health Records systems. It also must be easy to upgrade the system remotely to allow for continual upgrades and the addition of new services. One of EchoCare's additional objectives is to become a source of information to be used for various preventative care capabilities. EchoCare's pathway to profitability is via a broad adoption of the system by the various stakeholders, mainly remote home care operators, senior living facilities and medical centres, specifically in a 'hospital at home' settings. The system will also be primed to be adopted by insurance companies and purchased directly by senior households, and relatives of senior households looking to protect their family whilst they age in the home.

At this stage, the company's target customers are senior living facilities and remote home care operators at a business-to-business level. In a later stage EchoCare will approach retailers at a business to consumer level. Current customers include home construction companies, bathroom makers and security operators.

Longevity Potential: ECHO system for fall prevention, health deterioration and emergency incidences

EchoCare's flagship product is the ECHO system (PN: ECT1310PC) that is based on a unique radar. It transmits a very low power radio signal into the home environment and receives back the reflected signal to capture movement within that room, the device will process and send that information through the ECHO cloud to alert the care giver to any movement or lack of movement the system has monitored. It continuously tracks five essential body indicators:

1. An individual's location
2. An individual's posture
3. Motion in the room
4. An individual's respiration profile
5. Heart rate

These essential body indicators are tracked and, using AI engines. abnormal to emergency level situations can be identified; for example, the system can detect an individual lying on the floor and determine whether this is an emergency level acute fall or if it is one of many repetitive moderate falls that requires carers to be notified but no serious intervention to be recommended. After installation of the device, it can learn the regular daily activities and movements of the individuals living there. It does this by monitoring:

- Physical daily activities – continuous monitoring of the person's activity levels (low, mid, high very high) along the day

- Home usage – for example, monitoring the persons locations throughout the day to learn when said person visits in the kitchen/bathroom or when the person stays in the bedroom and in bed

- Walking profiles – how long the person walks during the day and at what daily speed and gait.

If abnormalities are detected alerts can be sent to remote carers and relatives, allowing carers to reduce valuable time checking into low-risk seniors and granting relatives peace of mind that their loved ones are safe in their homes.

The device is installed either on the apartment ceiling or inner wall and is connected to the ECHO cloud. The ECHO cloud distributes the alerts and other data to the caregiver or remote home care operator using a web-based nursing call system displayed on a dashboard. It also collects the multiple users' un-tagged data and compiles and sends this information through the ECHO cloud to be received by a third-party care system or direct to the dashboard end user, this can highlight arising issues that carers may need to be aware of.

The ECHO system allows seniors with a low to medium care dependency live more independently by providing them with a monitoring system that will grant them peace of mind, knowing in the event of an emergency a relative, friend or formal carer will be notified if they are unable to call for help. This reassurance is also granted without compromising seniors' privacy or dignity, allowing families to confidently age in place. These benefits extend to seniors with a higher care dependency, and those in full time care, by taking off formal care time needed to check in on individuals, granting even those in high dependency situations, such as with cognitive decline, more independence.

Flagship Product Deep Dive

The EchoCare device is an incredibly accessible device with one simple installation that takes around 5-10 minutes; it is installed into the household ceiling or wall, similar to a ceiling or wall light. During set up, the device will request number of rooms in the house and will guide the individual around the house to get a sense for the house boundaries. The device may then be connected to the cloud either through an ethernet cable or WiFi and once set up can be left to begin monitoring. The device can be used in a large variety of apartments, with or without inner walls, as the technology is not restricted to one room. Generally, one single device can cover most of the senior apartments in age care facilities. In the case of large apartments, more devices may be necessary with 2 or 3 units being needed to cover larger scale areas.

EchoCare has designed the product with older adult accessibility in mind; it is non-wearable and so takes the responsibility of use off the individual. Once a technician or family member has installed the device there is nothing they need to handle. The ECHO cloud allows data to be seen on a dashboard, however, this is intended to be used by a relative, caregiver, or clinician. Therefore, the EchoCare technology is considered as a "forgettable" technology with seniors being able to carry out their normal day to day activities without the EchoCare technology crossing their mind.

The ECHO system has been tested in Japan, Australia and Israel. They have been in place for over a year and have been providing highly valuated information about the cohort's daily activities and respiratory profiles. Further, the detection of emergency cases such as falls can be monitored to gather data about how the device is working in a real-world setting.

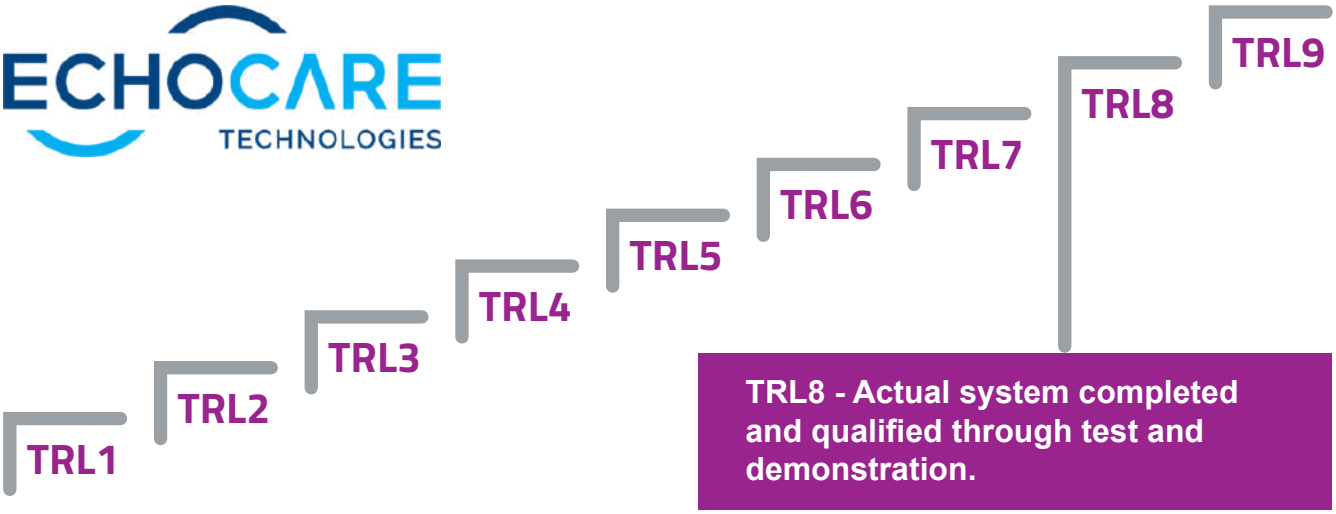
In Japan, the ECHO system was tested in a variety of situations, including various bathroom settings, an environment that is challenging for radar-based systems to operate in. The ECHO system was tested in this environment to detect distress in the bathroom from falls to drowning in the bath.

The ECHO system currently falls into the 8th technology readiness level as its system has been completed and proven to effectively work through tests and demonstrations. This shows that the product has passed through its prototype phase and has not only been proven functional in operational environment but also in a real-world setting. It shows that the technology works in its final form in expected conditions. Reaching TRL 8 signals the end of true development of a system and indicates a high level of maturity in the technology.

Additionally, EchoCare's platform is planned to be used as a remote patient monitoring system for both

hospitals and at home. The EchoCare technology will be used to identify various respiratory failures and other deteriorations during the hospitalisation period.

ECHOCARE TECHNOLOGIES



EchoCare for care dependency

The EchoCare device has amazing potential to help reduce care dependency globally. The product learns about the person's daily activities by tracking them throughout the day. Over the course of many days a large data set can be collected. The system report on the daily status of the individual and can indicate any significant deviation from the long-term average daily activity. This will allow the system to monitor an individual's ability to complete the six activities of daily living and so highlight any increase in dependency that may occur when they struggle to complete one or more of these activities.

The system can provide information about:

- Feeding – when and for how long a person visits the kitchen.
- Mobility – walking profile, ability to walk around the household, fall detection in the household
- Bathing – when and for how long a person uses the bathroom, and fall detection and safety in the bath
- Toileting – the system knows if the person washes the hands after restroom time (as the system knows whether person stands next to the washbasin) contributing to hygiene maintenance.

EchoCare's system has given care givers the ability to monitor the

ability of seniors to complete the 6 ADLs, but also allows seniors greater independence. The ability to track whether seniors are completing the ADLs when they have cognitive impairments is vital to allowing them autonomy whilst remaining at low risk to live on their own or with less supervision. The system can also help monitor wandering in people with dementia, by allowing formal and informal carers to check in and see if a person is in their home when they are supposed to be.

Finally, by bridging the communication gap between seniors living in their homes and their relatives and caregivers, the ECHO system is significantly reducing the risk of isolation attached to aging in place independently. The system allows alerts to be made to the right people in cases of emergency when seniors cannot access a traditional method of communication. EchoCare has created a solution that supports aging in place from multiple angles, by monitoring completion of ADLs, to supporting living with cognitive impairments to aiding social connectivity.

Interoperability

The EchoCare system is originally designed to interoperate with other platforms. EchoCare believes in an aggregation of various capabilities and solutions rather than creation of a single product to allow aging in place to become more accessible and reduce care dependency. Therefore, EchoCare's device is connected to the cloud, to enable the transfer of information to other third-party platforms such as NCS, EHR or NHS systems. EchoCare's system is designed to support HIPAA or GDPR.

Target market

EchoCare's device is targeted for the elderly population, mainly 75 years old and over. The device would mainly benefit the seniors that live independently, either at their own home or in a senior living facility. For the consumer, the ECHO system will improve the life of seniors who need monitoring for many reasons, such as being at risk of mild/moderate falls to seniors with dementia who struggle to remember to go into the kitchen and eat. The system will allow them to live as independently as possible, while remaining as safe with low risk of exhibiting behaviours that may encourage further comorbidities.

Senior living facilities and care providers are also key target markets for EchoCare, with the device being able to fit into care home facilities and data drawn from the ECHO cloud being able to be viewed remotely. The device would aid care workers in prioritising their workload, being able to monitor patients remotely and knowing they will be notified if any emergencies occur. The system can monitor changes in behaviour allowing care facilities to detect any health abnormalities, or a potential deterioration in health in patients. This would allow early interventions to be made, limiting individuals falling into an even higher care dependent category, reducing the burden of care givers.

In addition, EchoCare's technology is also targeted for remote patient monitoring (RPM) in a clinical setting, highlighting an additional target market of patients that are hospitalised at home and their formal or informal carers. Lastly, direct customers may also include bathroom and home construction companies and health insurance companies.

Channels to market

EchoCares channels to market are via three main channels. Firstly, reginal distributors with a proven channel to the target customers. Secondly, through partner companies with the same target market. In this instance EchoCare products will provide an advancement on their technology allowing a full-service package when bought in combination. In the aging in place space there are currently multiple technologies aimed at tackling different areas to make aging in pace assessable and safe. While some companies focus purely on aiding seniors to complete the 6 ADLs, others focus on a more general aiding people living with cognitive dysfunction and some focus on bridging the communication gap between either, seniors and their family, or seniors and formal care and health services. While EchoCare covers a broad range of these targets, in order to allow help with all of the 6 ADLs, cognitive decline care, and communication services fully, technologies must become interoperative with each other in order to deliver a full ‘aging in place’ package. Thirdly, EchoCare will be selling directly to the consumer where seniors and their relatives will be buying for installation in their homes and their relatives’ homes. In the future, EchoCare will aim to sell through retailers in a business to consumer setting.

Success Factors

Team and Reputation

- Rafi Zack, as the founder and CEO of EchoCare, brings over 30 years of extensive experience in technology, management, BizDev and entrepreneurship. Zack holds a BSc in electrical engineering from Ben-Gurion University and studied for his MSc electrical engineering in Tel-Aviv University in Israel. Recently, Zack was named one of the 30 Best Entrepreneurs of 2019 by The Silicon Review Magazine.

- EchoCare’s core team are experienced electrical engineers and SW engineers with over 125 accumulated years in RADAR technologies, advanced signal processing, AI and machine learning, system architecture and product design for volume production.

- EchoCare is highly active in Japan and Australia. There are more than 15 multibillion Japanese companies that have been testing EchoCare’s products for several months with many considering adopting the product. In Australia, the EchoCare system has already been installed in several aging care sites.

- During the last years, the company achieved several awards: EchoCare was awarded 1st place in the Aging2.0 Global start-up search competition in Boston (May 2016), 2nd place out of 125 companies in the Active Aging Challenge in London (March 2018) and were selected by Aging2.0 as a worldwide top 10 out of 400 start-up companies for elderly-care in San Francisco (November 2016).

- EchoCare has plans to further expand its sales and marketing team to accommodate for its products release. The team expansion will also extend to the research and development department to facilitate EchoCare’s product development and future device upgrade opportunities.

Intellectual Property

- EchoCare is the first company to have developed an advanced non wearable solution, based on radar, for elderly care at home.
- EchoCare already has 6 key issued patents and more in the pipeline that protect the ECHO systems concept, architecture, algorithms and functionalities.
- The ECHO systems uniqueness centres about its capability to continuously monitor 5 body indicators: a person's location, posture, motion, respiration and heart rate.
- The ECHO systems major capabilities are to properly cover the home environment, including through the internal walls, and to detect and alert on various distress in the home with emphasis on emergencies in the bathroom. These include incidents ranging from falls to drowning in the bath.
- EchoCare provides a solution to both detection of acute situations and a means of preventative care monitoring in the home.
- EchoCare's products and their connection to the ECHO cloud enables remote download of new services, plus other system support capabilities. These include new dashboards, data collection, continuous analysis for system improvement and interoperability capability to third party systems.
- Long-term trials, conducted by EchoCare, involving strategic consumers has enabled the product to face challenges in a 'real world' setting, such as in the home. This has enabled EchoCare to make performance improvements to the device and software accordingly.
- EchoCare is currently entering a stage of mass-production and is beginning commercialisation in its first regions in Australia and Japan.

Funding

- EchoCare raised its seed round as part of the Israeli incubation programme through the Incubit technologies venture.
- EchoCare then raised its A Round with through strategic investors such as: Centrica Innovation (UK), Lifeview residential care (AU), Tigbur Group (IL) and SMK, a Japanese corporation.
- By 2022, EchoCare plans to have a revenue of $5 million, increasing to $10 million the following year.
- As a result of the COVID-19 pandemic, worldwide healthcare systems have been pressured to ensure that seniors are well protected in their homes. This is showing an even greater shift of seniors wanting to age in place over moving into a care facility, and so a greater need for technology that will allow them and their relatives peace of mind that they are safe.
- In addition, the expected caregiver shortages and labour-related challenges with which healthcare

providers are soon to be faced, public and private care services will need to further leverage remote home technologies to reduce the care burden from their staff.

- The above has created a huge opportunity for EchoCare to develop and grow in this market space. EchoCares potential is validated by the vast amount of interested companies are already taking in the EchoCare solution.

- EchoCares main priority currently is to scale up product manufacturing, gearing them up to penetrate the US & European market. In the future EchoCare will be key in proposing more services to enhance elderly care and develop technology to aid in preventive care in both hospital and home care settings.

LongevityTechnology PRIMETIME PARTNERS

EchoCare success grid

Intellectual property:

EchoCare already has 6 key patents issued with further patents in the pipeline that cover the ECHO systems concept, architecture, algorithms and functionalities.

Team:

The core team has a range of skillsets, with 125 accumulated years of experience in RADAR technologies, advanced signal processing, AI and machine learning between them.

Unique value proposition:

The EchoCare RADAR system captures images of senior homes that are incomprehensible to humans yet can be interpreted by the ECHO system to detect seniors' movements, posture, respiratory profile and heart rate. This allows for accurate monitoring without compromising the individual's privacy, in the way that video monitoring alternatives do.

Added quality of life:

The EchoCare system has been tested by strategic consumers to highlight challenges it would face in the home allowing for performance improvements to be made accordingly. More than 15 multibillion Japanese companies have been testing EchoCares products with many considering full time adoption. The system is also interoperable with other platforms as The ECHO cloud is based on the Amazon IoT platform to enable the transfer of information to other third-party platforms.

Competitive advantage:

EchoCare is uniquely led by CEO Rafi Zack, a highly experienced entrepreneur who has been named one of the 30 best entrepreneurs of 2019 by the Silicon Review Magazine.

Target:

The ECHO system monitors daily activities to allow carers to see if seniors are completing various ADLs. It closely monitors mobility, analysing walking profiles. Abnormal activity can be flagged when monitoring seniors with cognitive decline and the device automatically contacts carers to any incidents without the senior needing to use any of the technology themselves, reducing their care dependency.

Runway:

EchoCare raised its seed and round-A funding from both equity and non-equity grants involving strategic investors: Centrica Innovation, Lifeview residential care and Tigbur Group. EchoCare is currently using their funding to grow manufacturing capabilities with plans to have revenue of $10 million by 2023.

Customer segments:

The target market is predominantly the elderly who wish to live independently, however the end-user is more likely to be a carer. The device also targets a second key market, senior living providers, as it can monitor multiple residents and even identify health decline.

Channels:

EchoCare's omni-channel approach takes on three channels: regional distribution, directly to the consumer (seniors and relatives) and through partner companies who share the same target market, in which EchoCare hopes to provide a full-package service in combination with their technology.

Inflection point:

The EchoCare device has passed through its prototype phase showing its ability to work in its operational environment. EchoCare's priority is to scale up the company to penetrate the US and EU market. In the future they want to propose more services to enhance elderly care. If they are successful in this, they will raise further funds, allowing for the development of more care technology.

Positive progess Work-in-progress Needs attention