PULCHRAM

PULCHRAM
Senior living development and operated by a non-profit care foundation

A disruptive solution for the ageing population

CONTENTS

Introduction

Outline of the Pulchram initiative

This information memorandum briefly outlines the Pulchram initiative for senior living and provides information on the Global Pulchram Philosophy, the organisation and specifically the situation and business case for Spain, which is the launching country for Pulchram and a good example regarding the benefit potential for each country.

Pulchram philosophy, a brief overview

Pulchram is a Swiss-based development company for senior, nursing, community homes and student homes. Pulchram builds modern, state-of-the-art homes with a planned roll-out in many countries around the globe. Pulchram combines rapid building methods with quality materials to deliver affordable quality housing. The holding company is based in Switzerland. A separate holding company will be set up for each country and locally a construction company will be set up to execute the building activities. A Pulchram care operations company, fully separated from the main Pulchram Holding, will be set up for the operation of building and care. This will be a non-profit organisation.

Pulchram will disrupt the current ecosystem of public and private organizations offering housing and care for the elderly. The project kicked off in the autumn of 2017 and spent already 2 years investigating building methods, materials, high quality products and high-quality production methods and negotiating with suppliers and factories. The company's mission resulted from an ever-increasing frustration with the existing ecosystem of organizations providing housing and care for the elderly. In particular, the failure to make the changes required to deliver a better service and create a much-needed increase in capacity to meet the needs of the ever-growing ageing global population. Existing care organizations are also failing to unleash the potential of new (internet) technology, new mobile sensor devices and associated new medical technologies, or adapt to the changing attitude of today's senior citizens.

Pulchram is breaking with the traditional approach by combining four innovative strategy pillars into an integrated and disruptive strategy:

Affordable housing

Rapid building methods and quality materials to deliver affordable housing. Creating affordable housing for this fast-growing market (globally +7.6%[1]), will be well received by the senior community, now left with informal care or overbooked and often over-priced residential facilities. A global strategy, necessary for creating a high-volume construction project, contributes to the purchasing power and helps the project to be sustainable due to the operational scale created. Pulchram will construct buildings for senior homes, community homes (combined senior and youth housing) and nursing homes (dedicated high care facilities). These will be erected using modern building methods which are up to 50% faster and up to 50% cheaper, compared to existing methods, while retaining high quality standards. Pulchram positions itself in the lower to the mid-market (West-European) segment.

Quality living

The Pulchram-authorized expert teams, trained at dedicated training centres, will deliver the complete range of care required for operating a nursing home, from assisted living to a high level of care. The staff serve residents based on the philosophy of creating self-reliance, and mobilize residents to participate in social activities and to interact with society. In this way, Pulchram lives its motto; "make living meaningful". Adding greenhouses and fish farms to the senior homes, will ensure the provision of fresh organic food for the daily menu, and by nature create a community atmosphere due to the joint efforts in growing, harvesting and even selling the crops.

The apartments are organized around a courtyard or atrium. The atrium and other adjacent spaces host in-house services that will make life enjoyable; an in-house swimming pool, fitness facilities, a library, a restaurant, a bar, a grocery, a 24/7 medical station, a physiotherapy practice and a hairdresser. All these services are offered at an price. It will be possible to enjoy meals on wheels in the apartments, and take advantage of in-house laundry services.

The positive effect of enjoying quality art, sourced from unveiled public and private art collections and organizing cultural trips will help to revive spirits and create a positive atmosphere. In densely populated areas or where possible, Pulchram homes will combine senior living with student life. One or two floors will be designated for housing students. The elderly contribute their experience in life, while students bring energy and spend time helping them in return.

Distributed databases & IT technology

To secure the efficiency of the organization, Pulchram will actively use distributed databases technology. Distributed databases will be used for logging of processes, authorizations and management flow, health files, treatments, financial data, subscriptions, communications and documents - an essential step to innovate the full administration workflow and avoid the heavy manual interface burden of systems of the past. Pulchram foresees the digital interoperability with the ecosystem of partners required to provide a perfect service: GPs, hospitals, governments, notaries, e-commerce, social sites, universal communication centres (voice, video, chat), security, banking and more. In order to improve the quality of healthcare by introducing real time monitoring, location and detection tools, as well as improving (digital) security, Pulchram will leverage the full potential of new sensor technology and availability of security services, provide safety and image recognition software as well as irregular pattern detection. This will lead to a centrally controlled situation where alarms will trigger swift action and thus improve safety for the residents.

Control the whole chain

Pulchram wants to be an effective organization by controlling the process from beginning to end, meaning that Pulchram prefers to execute any task or service by itself or at least reduce outsourcing to the absolute minimum.

Success is as always in the details and Pulchram believes that by managing all tasks itself, it will have full control and maximum influence on quality, planning and overall result and success. Pulchram is highly selective and will only work with a high-quality suppliers. Although Pulchram will directly build homes by its own construction team, sufficient training will always be given to construction partners to speed up the building pace. In all cases Pulchram will oversee the construction by its team of architects and construction specialists. All the other tasks will be in principle fully managed and executed by Pulchram or, when in a certain country a strategic building partnership is signed, closely monitored by Pulchram. Pulchram believes that this will avoid all kinds of conflicts of interest which traditionally lead to longer planning, extra costs, interruption or stopping the project, quality issues, errors etc. By fully managing the chain the result will be better and the costs will be lower.

# Pulchram background, what is the reasoning behind the project?

The ageing global population demands a completely new approach; the percentage of elderly and number of seniors is growing fast globally, and projections show that this will not diminish until 2050. Globally, the elderly are confronted with housing shortages, rising housing costs and a deterioration of living conditions when they need assistance. Often, they can only rely upon informal care, or benefit from assisted living, when they need a higher form of care. In the event of urgent and daily (intensive) care, they end up in facilities that are overpopulated, have to share a room and relinquish their privacy and general standard of living. At the same time, society is changing and the latest elderly generation are not accepting this inferior treatment. They demand living conditions that are at least comparable to what they have been used to: they do not want to be treated as second grade citizens, locked up, isolated and left in their residential areas to pass their days without purpose.
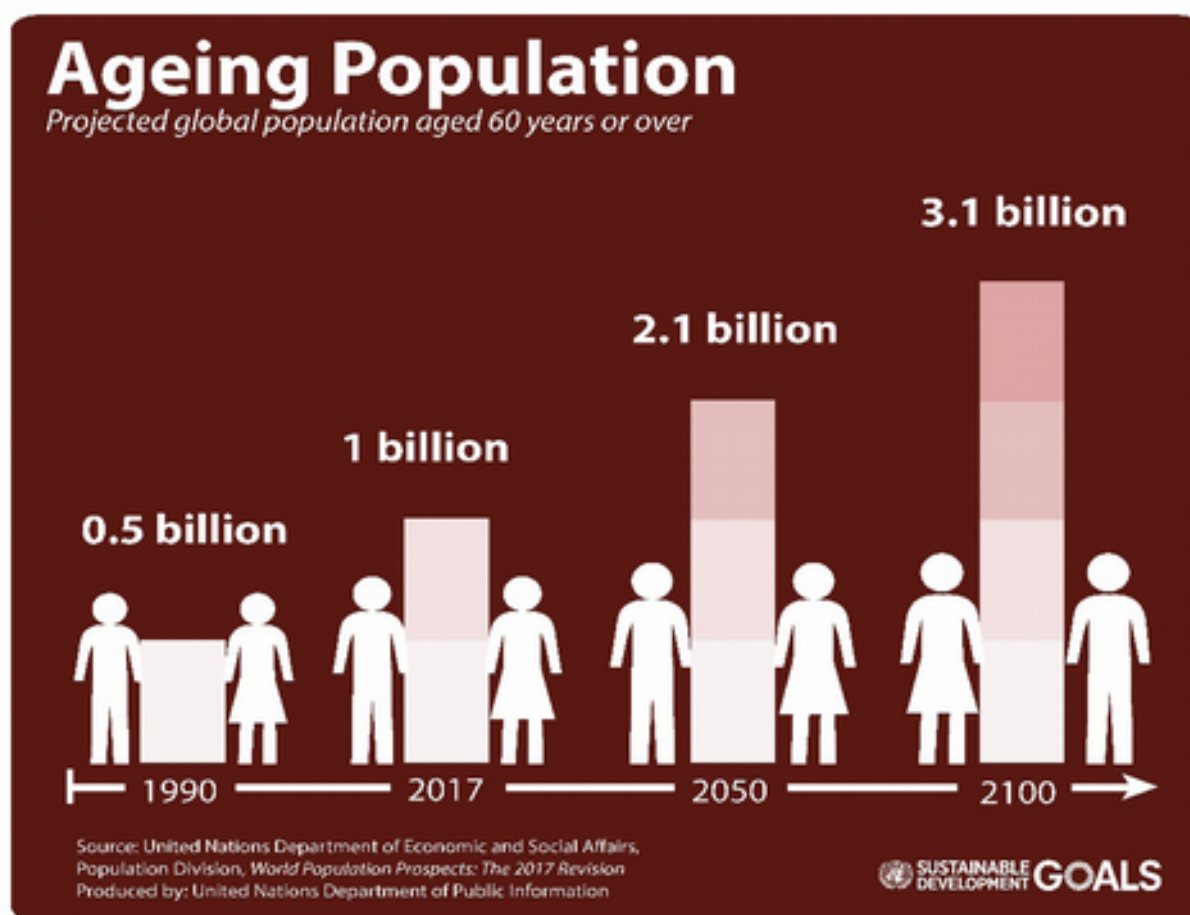
Since we know governments are already struggling to find the budgets needed, we can definitely state that this is only the start of a problem which will affect society as a whole.

By 2050 there will be *just two working age people* per one elderly person in Europe

2015

Working → Retired   Working → Retired

2050
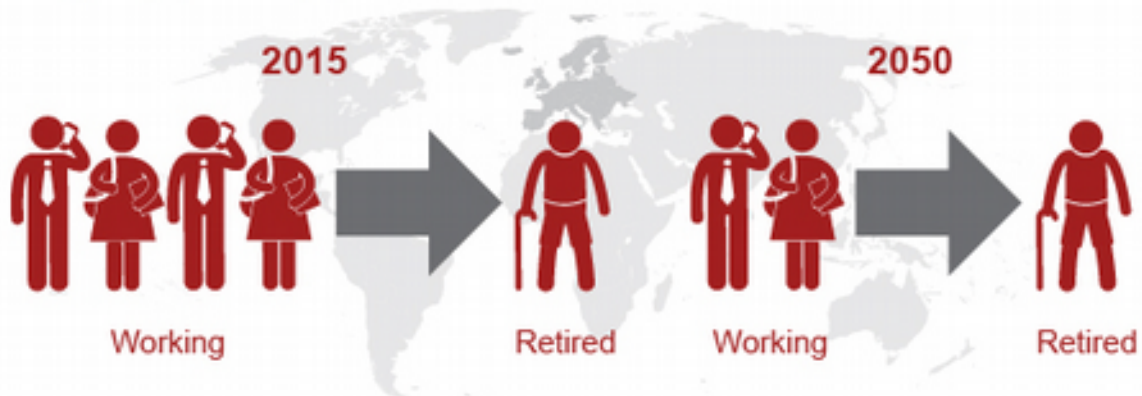
Source: UN Population Division, World Population Prospects 2015

A significant number of the Pulchram advisory committee and team has a high-tech industry background and feels challenged by the huge opportunity there is to leverage available solutions for the 'old fashioned' elderly care sector and finally introduce a radical change.

Percentage aged 60 years or older:

- 30% or more
- 10 to <30%
- <10%

2025
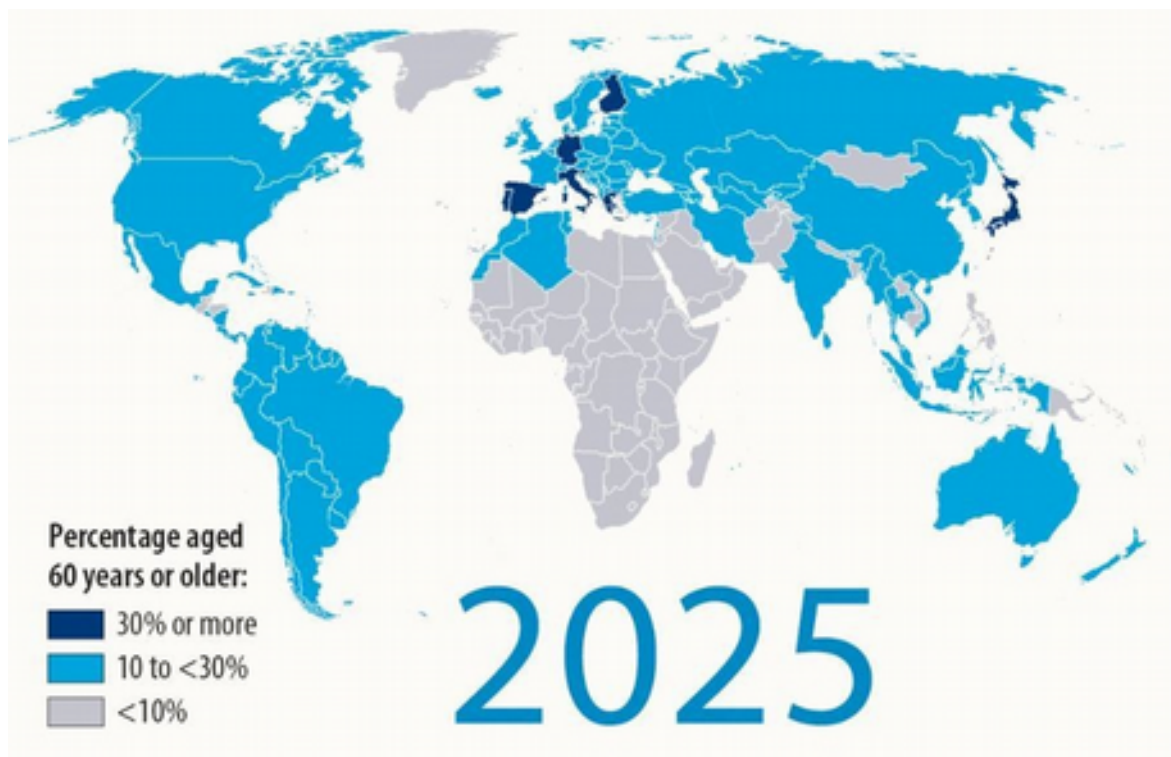
Vision – three track approach

To make its mission a reality and fulfil its goals, Pulchram will build its strategy on the following pillars:

Cost reduction

This pillar will make the homes affordable and create an attractive business case. Cost savings will be achieved by adopting new construction technologies (based on modular prefabricated building sections); providing care (adopting Internet of Things (IoT) sensors and high-tech aids); implementing Building Information Modeling reducing the traditionally High rework costs); implementing effective administration (distributed databases); and reducing energy consumption. Housing costs will also be controlled by applying exceptionally high thermal insulation materials and dimensions, and making use of renewable energy sources which, in turn, will provide cost savings and will also minimize environmental impact (carbon footprint). The Pulchram buildings will be CO_2 neutral to the highest possible extent. This will depend upon availability of land and local legislation.

Community and care

A second important pillar in the strategy is to create respectful living conditions with a positive, compelling attitude towards the senior community. This is done by creating spacious housing with lots of privacy (high sound insulation,large internal dimensions including doors, elevators, shared facilities), high quality

in-house facilities such as a swimming pool, shops, restaurant and bar, hair dresser, laundry, medical stations, physiotherapy practice and fitness facilities, but will also include new services such as foot and leg massage. Access to health care assistance when needed will be immediately guaranteed at the same site 24/7. Other services such as physiotherapy and/or podotherapy practice, a pharmacy will be provided on demand. Pulchram has also added a greenhouse and fish farms to this list to create a continuous supply of fresh, organic food in addition to creating a shared community goal. Working in the greenhouse and engaging with the residential community creates challenges to help the residential community stay engaged with society. Helping elderly residents remain active will fulfil a fundamental part of Pulchram's mission: make living meaningful when growing old. Artistic pursuits that have a healing effect on the mind, and bring comfort and reflection, will be part of the social activities offered. Pulchram will bring art to the community to nurture the minds and moods of the inhabitants.

Governance

From the start of the project, a lot of attention will be paid to data storage and security. Data needs to be stored in a unique manner and procedures well documented to make reproduction on this scale possible. Distributed databases will be fully adapted to fit the elderly care requirements for this purpose.

It will fulfil security and authentication requirements, and create verifiable transactions by all residents in relation to, for example, registration, payments, general services, legal and notarial services, interactions with state agencies, health files and health data. Another innovation will use new (remote) sensing technologies to detect irregular patterns and to assist the early diagnosis of problems. Starting in Spain and Germany, the mission will become a reality in many countries around the world to eventually have a global impact

History and project status

Over the past years, an expert team has come together. Its members have varied backgrounds, combining solid academic and higher vocational backgrounds with strong management skills gained over many years. Members of the advisory committee have dedicated their professional life to managing teams across the globe. The combined knowledge of the team and advisory committee encompasses many fields of expertise: finance, banking, project development, (general) management, C-level management of stock listed companies, construction, architecture, geriatric care, healthcare, IT, security, telecommunication, legal, logistics, nursing, project management, digital rights, the arts, governance and social communication. In addition to broad fields of expertise, the group has an extensive network within charity organizations and pension funds.

Over the last year, the revolutionary construction method has been selected and assessed. Since the construction principle relies on using prefabricated building sections and shipping them from global high-quality factories, the logistics are a critical success factor. The Pulchram team can rely on many years' expertise in executing large scale logistics operations and making these work on a global scale. This sourcing method cuts out a chain of intermediary traders, thus creating the favourable procurement conditions needed to form an interesting business proposition. To make it even more interesting, the scope of the whole plan for Spain, totalling 40 buildings*, and the strong acquisition skills within Pulchram, all adds up to the favourable procurement conditions Pulchram has created.

Not only does the team bring extensive (technical) knowledge to the negotiating table: it is also driven by many years of business experience in all corners of the world. This has resulted in solid quotes from selected suppliers that are not compromised by lower quality materials due to high negotiation pressure. To secure the Quality of all materials used,

Governance

From the start of the project, a lot of attention will be paid to data storage and security. Data needs to be stored in a unique manner and procedures. Pulchram will make use of certification agencies such as SGS and Veritas. Existing building plans from current care organizations are being consulted to challenge the Pulchram business case from the perspective of both quality and quantity. For the purchase, Finance and selling of land and Homes, international valuation companies like Cushman & Wakefield or Engel & Völkers are consulted ´

(*) After 5 to 6 years when 15 of the 40 homes are completed, the planned strategy is to sell those 15 homes in order to (partly) liquify the accumulated value in the project. This will be sold including or excluding the right to build the remaining planned homes in the project for Spain.

Three types of senior homes to serve the whole market and simultaneously serve the student market

Pulchram has designed three types of homes.

Because Pulchram wants to serve citizens from the age of 55 and students, the range of homes comprises assisted living (senior home), community living – the young with the elderly, and a nursing home equipped to provide comprehensive, high quality care. The community homes will be mostly suitable for deployment in and near cities, and where housing problems for students are imminent. The combination of young people with senior citizens creates a win-win situation with the young needing affordable housing, and the elderly longing to stay in contact with society.

Senior home (designed for residents from age 55)

The senior home will have an average of 90 apartments with dimensions ranging from 48 m^2 to 160 m^2 (including terraces) divided over three or four floors. These can be occupied by couples or singles. The home itself is a square building with an inner courtyard (the atrium totalling approximately 900 m^2). It will provide assisted living for people over 55 years old who can manage daily activities themselves. Twenty-two apartments are planned for 'sale'*, an average of 51 are designated as rentals. A greenhouse and fish farm form part of the site concept.

Community home (students and residents from 55 years)

The community home comprises a senior home, with one or two additional floors designated for student accommodation. There are an additional average of 28 apartments extra in this home. Students are required to provide care of around 10 hours of their time per week to help their fellow elderly residents: this can be hours spent in general care, or maintenance and work in the greenhouse. In return, they benefit from a deduction in rent.

(*) the apartments will not be sold in a traditional way. It is an investment with a contractual agreed interest and a bonus when the property is being sold to e.g. a pension fund.

Nursing home (seniors dealing with physical and mental problems)

A site offering nursing home facilities will provide a seamless solution for people living in the senior home for when they need a higher level of care. Pulchram has created a nursing home based upon the senior home design. This facility will have dedicated high care facilities and act as a closed unit, ensuring the safety of the residents and staff. In total the building will have an average of 98 apartments of 36 - 48 m^2 all dedicated for rent.

Possible alternative applications of the Pulchram construction concept

As stated in the chapter 'Business case summery', under certain conditions and available upon request, depending upon legislation, both the community home as the nursing home can be changed to holding smaller sized (24 m^2 and 36 m^2) apartments. This scenario suits request to make dedicated student living possible and jumps in to the high market demand where cities suffer from s a shortage of student housing. The Pulchram concept can also be used to build a hotel and/or academy to facilitate the care organisation.

Applying innovative construction methods up to 50% cheaper and faster

Construction methods: steel structure with prefabricated panels

The construction of the three types of homes (senior, community and nursing home) is based upon a dry building method. The three and five storey buildings have a steel core skeleton. The steel core is made of hot rolled high tensile steel and is galvanized to prevent corrosion (of extra importance in coastal areas) and additionally protected with fire retardant paint. The core will not require any welding due to the use of high tensile bolts. Floors, the façade, and inside walls, will be constructed using precast panels. The panels are made from autoclaved aerated concrete and have unique properties: lightweight, fast and easy installation, unique thermal insulation, high acoustic insulation and cost-effective pricing. The glass roof will also be completely prefabricated in the factory and will be lifted on top of the building on-site 1 . The use of the highest quality aluminum window frames and doors supports this approach. The windows support the CO_2 neutral goal.

Because of the high thermal insulation, energy consumption will be low. The roof will be fitted with a maximum number of PV panels, and if possible space adjacent

to the building will also be used to make the building CO_2 neutral. If the building plot does not allow any ground-mounted PV panels, Pulchram will strive to make the building as CO_2 neutral as possible. In addition to the deployment of a large set of PV panels, the use of air-to-air heat/cooling pumps and underfloor heating on the ground floor, will provide a solid base for an economical and highly efficient heating/cooling system, ensuring the buildings' low carbon footprint.

Fast building method beating local market standards

The buildings are prepared in a factory, shipped from the factory and transported to the building plot. Expected building times will be around five to seven months. The building will be fitted with the HVAC and electrical/mechanical installations on-site. Prior to erecting the prefabricated structure, the plots will be prepared with a suitable building foundation. If the building plot needs urbanization facilities (roads, power, sewerage, etc.) Pulchram has included this in the project plan and financial planning.
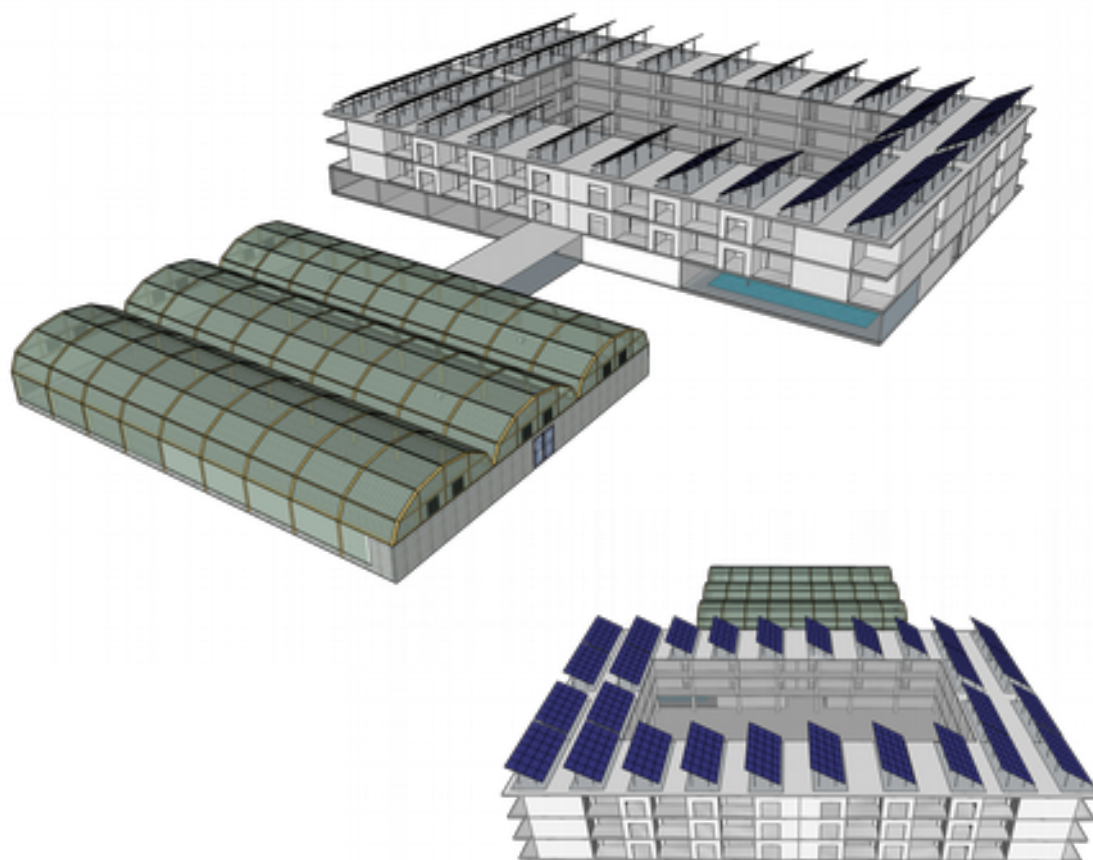
Pulchram Care foundation

A new approach to community and care

A separate care foundation will be tasked with ensuring the Pulchram mission – make living meaningful – will be fulfilled. The organization will both act independently, but will also cooperate with existing institutions with a solid track record and a representable size. This will depend on the specific local conditions and requirements, being able to operate effective from the moment the services need to be live and working. The care organization has a separate P&L and has its own business case. The senior homes will offer services that can be best described as 'assisted living'. Nursing homes will offer services for residents in condition that require more intensive care and need actively be looked after day and night.

Senior home with 'assisted living' formula, main functions
- Living function: Providing a safe, comfortable home
- Community building and keeping residents in a social environment: providing a joint project with running a greenhouse, sharing a coffee at the coffee/croissant bar, do physical exercise together, jointly engage with the local community
- Additional function of providing additional services due to the increasing age of the habitants like elevators, meals on wheels, improve in house security with intelligent camera systems
- Comfort: providing in-house functions to ease the way of living, hairdresser, grocery and large shared spaces to create cosy meeting places
- Strong focus on self reliance and autonomous operating which will help feel the resident feel useful and provides an object in life. Elderly nowadays, now
- Responsibility for the health and safety stays at the resident, so for example, the supervision of the intake of medication remains at the residents side.

Services included for all residents
Pulchram residents will enjoy the standard maintenance package including: clean shared spaces, 24/7 surveillance, heating, cooling and electricity and water consumption

Optional services for residents (packages)
Optional and additional care packages will provide more convenience and can be selected depending on the resident's needs. Common packages will be:
- Standard care, 24/7 stand-by care
- High care, with additional care for daily treatments
- Entertainment TV & high-speed internet
- Apartment cleaning
- Meals
- Laundry
- Physiotherapy

Less conventional packages will also be offered:

- Insurance: benefit from attractive deals offered by Pulchram's main insurance partner
- Bank loan: benefit from attractive deals offered by Pulchram's main banking partners
- Hairdresser
- Massage (feet and legs)
- Dog care (for small dogs)
- Dog walking
- Holiday exchange pack, every 2 years, a maximum of 3 months' stay at an alternative (Pulchram) facility

Make living meaningful – the Pulchram way

Pulchram's mission is to enable people to continue living a meaningful life as they get older, and therefore a full activity programme will be offered throughout the year. The activity programme creates a satisfactory feeling where people feel part of the community. The activities can range from gardening and maintaining the greenhouse, working at the fish farm, harvesting crops, cooking, reading, swimming/aqua gym, dance, light fitness, music, cultural activities, day trips, joint visits to the cinema and fora to exchange ideas with the local community.

Reasoning for choosing assisted living
- Elderly feeling insecure in their existing home
- Fear of falling or have other in-house threats
- A diminishing mind that might incur accidents of leaving the stove on etc
- Robbery and burglary threat
- Elderly looking for regular company and feel isolated at their existing home
- Elderly who's partner suddenly dies and are looking for help
- The existing home is sold and the capital can be used. The residents want to rent and for example want to live of the freed capital
- Residents wanting to live in a smaller home

Temporary care will be part of the offering
- Temporary needs (1- 3 months) due to absense of informal care
- Recovery of a major surgery; open heart surgery, artery surgery etc, hip replacement etc
- Recovery of smaller surgery; carter act, knee surgery etc
- Temporary limitation of freedom of movement due to smaller accidents, concussions, etc

Dedicated trained staff
The staff will be trained and certified as care professionals. By mixing local people with staff originating from abroad, for example the Philippines, an intercultural blend will be created. Depending upon the size and number of homes, the training will be designed and conducted in-house.

Pulchram and the arts, unveiling unused art collections
Extensive scientific studies indicate that art is useful for our mental and physical well-being. Pulchram believes art has a particular importance in a healthcare environment as it was showed to have a direct impact on the healing process of patients. Besides helping on a curative level, art creates a stimulating and comfortable environment which will allow Pulchram's residents and staff to access a higher quality of life. We will source art from private collections and premium art galleries in order to curate entertaining shows in Pulchram facilities, for the benefice of our community.

Feel safe with 24/7 security and technology
The castle-shaped home with an inner courtyard (atrium) has a restricted number of entrances. This means that restrictions can be imposed regarding who enters the building. Combined with in-house security staff, and supported by the newest technology, these provisions all contribute to the 'feel safe' factor.