

'IPV Região Impulsiona e Inclui'

Bright Learning Farm or Center for a BLF intelligence (*Best Life Forever as for Bright Learning Farm*)

The challenge of promoting contemporary training and of generating innovative impulses in young people and adults should be supported in spaces that promote active, integrative, flexible learning, and framed within the assumptions of a sustainable climate, digital and industrial transition, where all processes are centered on individuals and their social relationships, promoting collectivity, participation and citizenship.

Invisioning to achieve an outstanding result, it is necessary to build a "Bright Learning Farm", *a sustainable, flexible and intelligent construction, which integrates in a rational and economic way, up-to-date technical and technological resources, with the ability to evolve in each moment and situation, adapting and incorporating new processes and learning dynamics and new technological resources.*

It is intended that this learning infrastructure is also the "place for a break in routine, where you can talk to friends, read the description of a cutting-edge research process, walk, stroll through the surrounding nature, read a book about a perplexity that an interaction has created. A moment that will interrupt the linearity of time, allowing us to contemplate what already exists. And of what may come to exist. Living life, in its different facets, as a work of art that recreates itself all the time. And that lasts for a moment".

The **Bright Learning Farm or Center for a BLF intelligence** aims to fill the gap in agricultural science teaching and researching infrastructures, at the level of common spaces - auditorium, versatile space for science and scientific dissemination, flexible research laboratories, essential to enhance synergies between scientific research, learning and development in agriculture and forestry, in the rural world of the inland territories. Intelligently thought out, it will be a reference space in the promotion of scientific culture that provides a challenging and disconcerting journey through the realities that will mark our future.

The creation of a **Bright Learning Farm or Center for a BLF intelligence aims**, as a scientific, pedagogical and creative building, for the School of Agriculture of Viseu, based on innovative and sustainable guidelines and technical solutions, directed to students, farmers and other actors of the agro-forestry, food and veterinary sector and the community of the territories in which it operates, based on a higher education institution, such as the **Polytechnic of Viseu**, will make a fundamental contribution to the development of the sector, by enriching the human capital that will constitute an important engine for development, competitiveness, and territorial cohesion. On a global scale, the **Bright Learning Farm will also become an innovative center for sharing science, knowledge and culture capable of positioning in an innovative way the Polytechnic of Viseu in the international context, particularly on issues related to climate transition.**

The School of Agriculture of Viseu (ESAV), created in 1994, is inserted in the Portuguese center inner territories, where food systems, agriculture and forestry have a structuring role, from the territorial, economic, social and cultural point of view, contributing markedly

to renewed dynamics in the agricultural sector, mainly due to the entrepreneurship and dynamism of the new agents of the sector who settle in these territories.

To recreate the territorial order of a markedly rural region and with strong asymmetries in relation to the coast, where schooling is low (73% of the population of these areas have not a higher education degree or training), involves the creation of mechanisms that contribute to the growth of the number of active people, for example by attracting young people and adults to higher education who may constitute, by settling in the region, new agents of development and revaluation of the primary productive sector, boosting the economy at local, regional, national level and contributing to job creation.

To date, ESAV has structured its activities from old and small retrofitted or prefabricated buildings, in the spaces of a farm in the city of Viseu – Quinta da Alagoa, in order to install the administrative services of the School, teaching and research laboratories and classrooms. Despite the various interventions carried out, the facilities where it currently develops its activities, lack modern and spacious spaces where it can fulfill its mission of teaching, researching and transferring knowledge to the community in a modern, open and collective way.

ESAV provides a diverse training offer, based on specialized higher technical courses, bachelor's and master's degrees in the areas of agricultural and animal production, forestry, agro-food industries and veterinary sciences, and is now proposing a wide range of training courses aimed at young people and adults in the area of climate, digital and industrial transition, with particular emphasis on short courses, not conferring degrees, but integrated into flexible training courses that will enhance the beginning / resumption of a new lifecycle in higher education.

Besides that, ESAV has an intense research and knowledge transfer activity that has resulted in multiple national and international research projects over the past 10 years, which translate into the need to organize activities and national and international scientific and technical events aimed at the various actors in the sector. It is a school very well integrated in the surrounding community with which it has developed the most diverse strategic partnerships in research and development activities, consulting and provision of specialized services, which strengthen the technological capacity of the region and have allowed to bring the scientific system closer to economic, social and creative activities.

Based on the human capital it holds, demonstrated by its research activity and its integration in the community, and that produces innovation, mobilize and generate employment and economic, social and territorial value, ESAV can assume itself as a relevant actor in the framework of the RRP.

The existence of a building designed specifically for the current needs and capacity of training, namely through new forms of learning in practical and mobility contexts, will strengthen its role in building knowledge for the climate transition of the region and the country, reinventing itself as a network and sharing center for an efficient dissemination of good practices essential to create value, expand activity, boost innovation, and improve production processes.

The construction of the **Bright Learning Farm, or the Center for a BLF Intelligence**, as a scientific, pedagogical, and creative building, at the School of Agriculture of Viseu, is a strategic and priority investment that fills a gap at the level of research and higher education infrastructures in the region. It is intended not only for a modern, innovative teaching model based on new learning forms and technologies, but also for research

and the transfer of knowledge that are essential to strengthen productivity, competitiveness, and territorial cohesion.

The building

The Bright Learning Farm will be a building with a high degree of technological sophistication, designed for its sustainability and the work developed there: scientific, pedagogical and social. With high symbolic value in the region, and in the country, for its active contribution in the technological, environmental and cultural areas.

- **Sustainable location** valuing the local dynamics and promoting an adequate integration, protecting the biodiversity and ecosystems.
- **Architecture adjusted** to local climatic conditions, ensuring comfort conditions and integrating bioclimatic strategies.
- **Impactful**, focusing on visual perception and potential sensorial objectives.
- **Sustainable, flexible and intelligent** construction, that integrates in a rational and economic way, up-to-date technical and technological resources, preserving the capacity to evolve, adapting and incorporating new technological resources.
- **Efficient** in terms of heat, energy and resources, with a strong environmental commitment.
- **Efficient support** to the program of foreseen activities, providing quality of human life, productive, efficient, and economically rational environment, through the optimization of its basic elements: structure; technology; energy systems; centralized management systems, and global interrelation.
- **Technical** construction solutions based on high sustainability criteria and use of materials with reduced environmental impact throughout the life cycle.
- **Collaborative** workplaces that challenge talent and brilliance, these spaces incorporate a social and human component that promotes interaction and interpersonal relationships, involvement and satisfaction in the creation of innovative responses to the challenges posed.
- **Auditorium, library, gallery, and study room(s)** dedicated to promoting and sharing the experience of a new world.

The **Bright Learning Farm** project will ensure an effective support to the activities developed in a productive, efficient, and economically rational environment, through the optimization of its basic elements: structure, technology, energy systems, centralized management systems, and global interrelation. A building with a high degree of technological sophistication is planned, designed for long-term sustainability and minimal environmental impact, incorporating the most appropriate technical solutions and materials available, in symbiosis with an architecture adjusted to local climatic conditions, which ensures comfort conditions and integrates bioclimatic strategies. The **Bright Learning Farm** is intended to be impactful, focusing on visual perception and potential sensory objectives.

The **Bright Learning Farm**, centered on a "biodiversity reserve" at the interface between urban and rural, which allows for the sustainable enjoyment of the best of both worlds,

will be a privileged place to combine science and knowledge, with innovation and art, culture and sport.

The activity

The **Bright Learning Farm** will be designed to host a diversity of scientific, educational, cultural, and social activities in a flexible, step-by-step manner. The central idea of the Bright Learning Farm is to create *"the opportunity to bring together and inspire rising scientists to discover a bright world. To awaken the interest of children and young people in the magic of science. From biodiversity to computing, from mathematics to art, from health to engineering, from countryside to city, through innovative scientific and technical enrichment programs"*.

SCIENTIFIC	PEDAGOGIC	CULTURAL, CREATIVE AND SOCIAL
<ul style="list-style-type: none"> - sustainable and flexible labs for agroecology, precision farming, innovation, biotechnology - collaborative labs - center for climate change and regional impact studies - organization of discussion forums and knowledge share 	<ul style="list-style-type: none"> - farmer schools, such as those for precision and circular farming - summer schools and camps - experimental visits and cross-visits - thematic exhibitions - open libraries and IoT - co-learning and co-experimentation spaces - interpretation and observation center 	<ul style="list-style-type: none"> - open competitions for green technology and green intelligence ideas - ‘tech’ clubs - festivals of tech culture - open calls for art and science~ - hackathons for energy efficiency - open canteen, with local and healthy production – ‘Breath Local Food - BLF’

The **commitment of the Bright Learning Farm to the community is a premise**, which borrows in science and learning, but continues in the construction of nature, culture, the exercise of thought, participation. This will be assured through diverse activities integrated in continuity plans, which projects of creation and installation of tech-artistic pieces of different scales, permanent internal and external communication pieces, neighborhood partnerships (living extension of the !Center, that bring the public to the school), bridges between regional media and global and local technological research, among others.

The SMARTGreen concept

The **Bright Learning Farm** will be a smart green building, seeking to minimize and harmonize its impact on the environment and human health, and is a response that seeks raise awareness of the role of human activity in global climate change. This building incorporates design, construction and operation practices that significantly reduce or eliminate the negative impact of its development on the environment, landscape and people. In addition, it ensures maximum energy and resource efficiency and responsibility to the environment.

A large and multifunctional space will be equipped with all the necessary infrastructures for the realization of a large diversity of activities, on various themes and publics, with direct connection to an adjacent outdoor area, allowing for outdoor or mixed activities. To host several activities simultaneously, the space will ensure a high degree of **functional flexibility and modularity, allowing the creation of new spaces through its transformation, division and reorganization.**

"SMART buildings" offer optimized building solutions that provide an environment that enhances productivity, at the lowest cost and reduced environmental impact, throughout their life cycle. They foresee

- *Detailed planning at the design stage, ensuring the longevity of the technologies to be implemented;*
- *Full integration of building systems into a shared IT infrastructure with centralized building management, ensuring operational efficiency and integrated functions;*
- *Maximum efficiency and human resource benefits;*
- *Maximum building performance and termic and energy efficiency.*

Safety:

Intelligent access control (people and goods), vehicle parking control, time and attendance management, location of people and goods, automatic notification and information system, digital signage, emergency situation detection (fire, gas emissions and leaks, monitoring of gas concentrations and flooding), surveillance and intrusion detection, fire protection system, communications and audio and video distribution, management, monitoring and control of user privileges.

Technical Management Systems:

Energy Management, HVAC: dynamic modulation of systems control, water production and distribution systems, Generator and uninterruptible power supplies, Control of irrigation systems, lighting, elevators, Inventory and asset management, Protection and security systems, Alarm monitoring, indoor air quality control;

IT infrastructure and communications

High speed data network, Wireless; building management systems and IT platforms, VPN, Virtualization, global connectivity and Internet of Things (IoT); Security, protection and secure access to databases; Voice communications (VoIP);

Maintenance: Fault Diagnosis and Systems

Maintenance

Analysis algorithms detect performance problems before they manifest themselves in normal operation, increasing the equipment's useful life. Supervision of all maintenance actions.

The building will be designed based on the most up-to-date technical knowledge, ensuring:

- **bioclimatic conception of the architecture**

- **adequate landscape integration** - use of material and form adjusted to the geography and nature, use of species with reduced irrigation requirements, preferably native species (maintenance of biodiversity); preservation of trees around buildings (provides shade, reducing energy costs for cooling, gives a sense of well-being to residents); existence of gardens, with safety for children, the disabled and the elderly; natural pest control.
- **selection and use of materials and construction solutions with reduced environmental impact throughout their life cycle** - preference should be given to materials with lower negative impacts throughout the stages of extraction, transformation, use and end of life, i.e., it is important to use environmental and social criteria for their selection, in addition to economic ones, from a life cycle perspective. The precautionary principle is particularly effective here, and the choice of materials with zero/low hazard in terms of handling, exposure and maintenance is essential.
- **correct management of construction and demolition waste**
- **possibility of deconstruction of the building**
- **recycling of the residues resulting from the use**
- **water collection and recycling of waste water**
- **renewable energy and heat supply**

Green buildings have lower operating costs, are more efficient, are less likely to become obsolete, provide a higher rate of return, and have been shown to promote well-being, health, and productivity. Green building measures include:

- careful building design to reduce thermal need by maximizing natural light and promoting fresh air circulation;
- energy-efficient HVAC and lighting;
- using environmentally friendly and non-toxic materials
- reducing waste and using recycled materials.
- storage, harnessing, and efficient use of water;
- use of renewable energy sources;
- sensitivity to the impact on the environment.

The future

When everything is literally controlled, measured, and hyper-efficient, what will happen to the things that cannot be quantified? What will we do to emotions, surprise, hesitation, uncertainty, contemplation, mystery, mistakes, accidents, chance and the other traits characteristic of human beings?

Gerd Leonhard