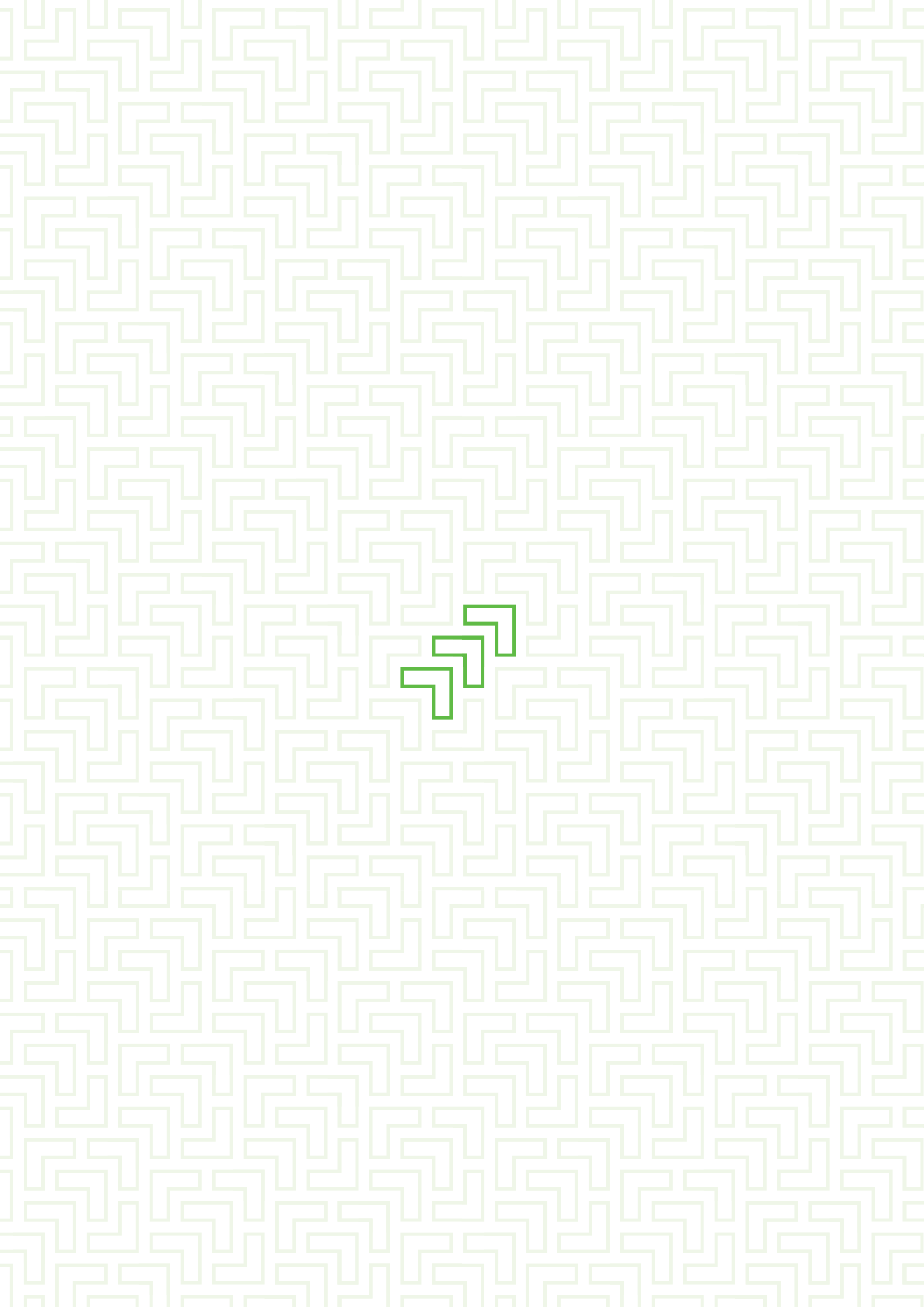


SMART
LIFE
SCIENCES
FACILITIES

Concept Benefits 2020



EXECUTIVE SUMMARY

C-CUBE was registered in January 2019 with the objective to supply modular cGMP facilities for life sciences, avionics and food & beverage industry by assembling independent modules together. With only three types of modules, we can build all kind of layouts to meet customer requirements.

Our concept brings together five areas of competency to build the smart modular factory of tomorrow: **steel structure, cladding & insulation, HVAC system, clean room technology, IOT**. Please take a look at our technical brochure for further details.

C-CUBE combines European life science Engineering from its Swiss partner SP Groups with a manufacturing capacity based in Asia.

This is the right platform to bring advanced technology at a fair price to customers worldwide.

This document summarizes how our technology will bring a competitive advantage to your business.

ADDRESS YOUR CHALLENGES

Deploy a cGMP facility (production unit, pilot scale unit, laboratory, R&D center...) in a short period of time.



Build a facility following cGMP standards at a competitive price.



Reduce the environmental impact of a facility construction (CSR).



Set up a qualified facility in a location where a skilled construction workforce is unavailable.



Establish a flexible facility which is easy to adapt (extend, reduce, re-purpose) at a later stage in-line with the development of your business activity.



Install a cGMP facility with the possibility to move it to another location at a later stage.



Build a temporary, fully functioning facility while revamping your main installation.



Monitor remotely both cGMP environment and process performances.

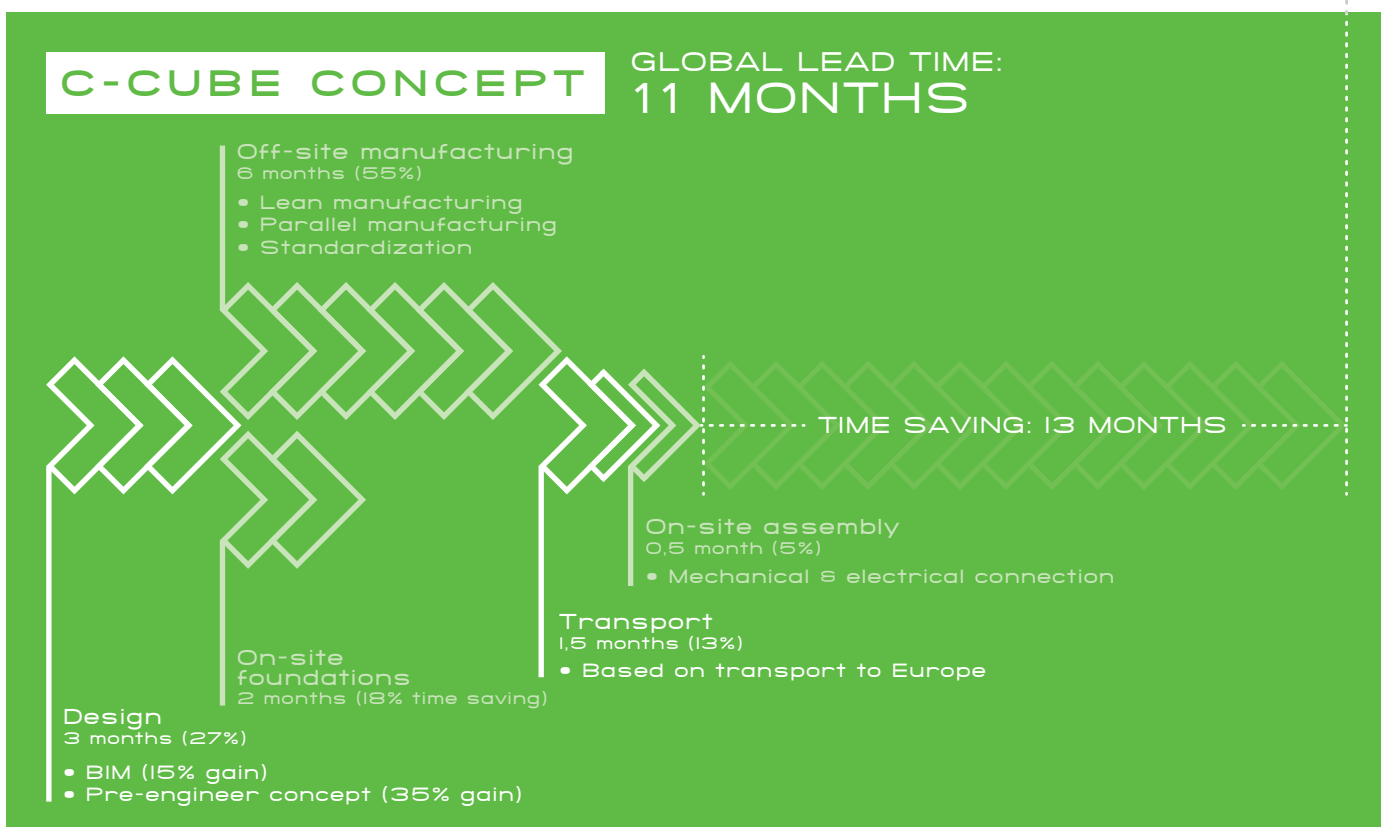
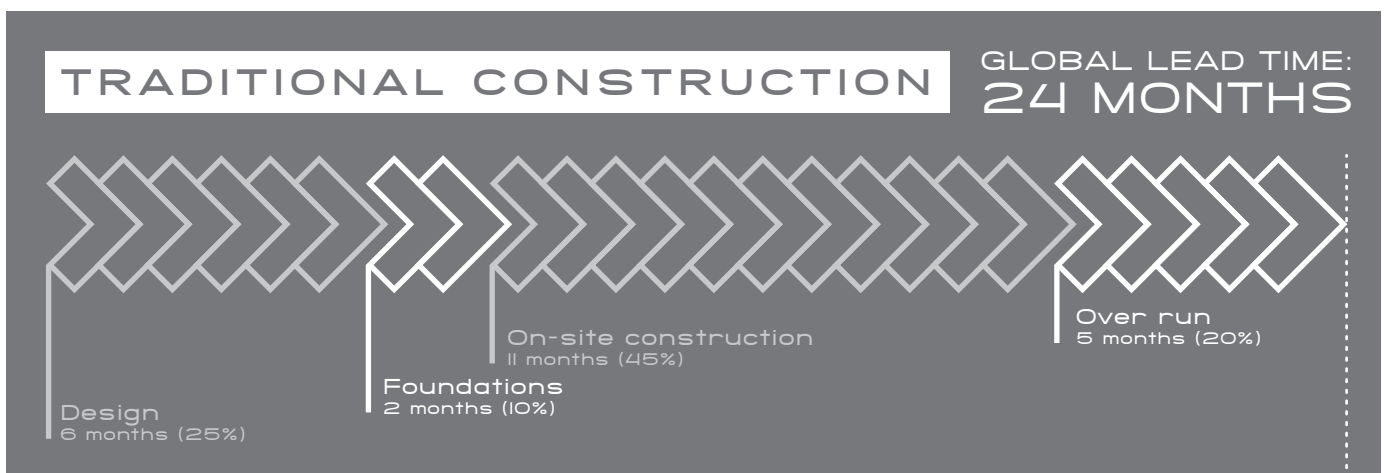


ADVANTAGES OF C-CUBE CONCEPT

A. FAST IMPLEMENTATION TIME

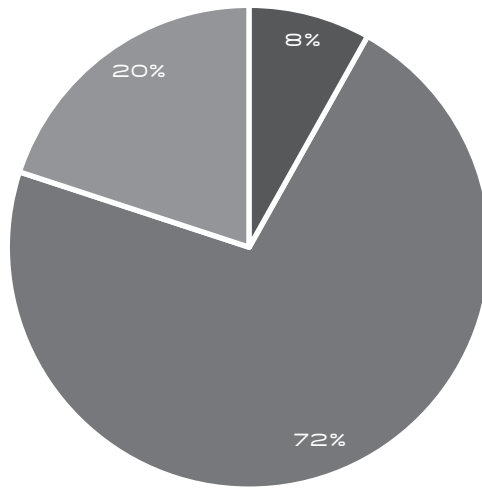
You will save more than **50%** on project timescale with C-CUBE concept.

Timescale of a 500 m² pharmaceutical factory project (not including cGMP validation).

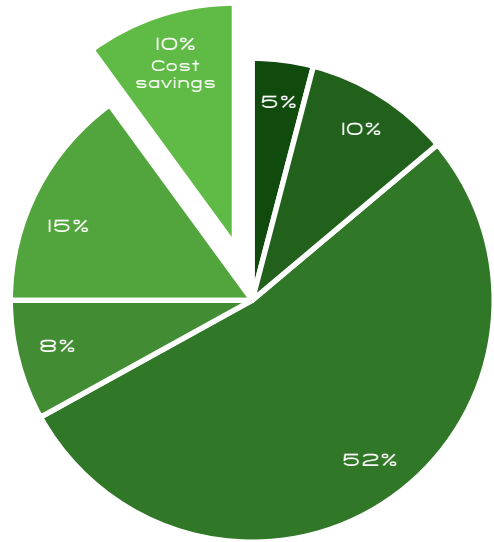


B. COMPETITIVE SOLUTION

You will **save 10%** on overall construction cost with C-CUBE concept.



TRADITIONAL CONSTRUCTION COST



MODULAR CONSTRUCTION COST



DESIGN	<ul style="list-style-type: none"> Start from scratch for each new project 	<ul style="list-style-type: none"> Faster design using BIM Basic modules predesigned Design limited to final assembly of modules
ON-SITE CONSTRUCTION	<ul style="list-style-type: none"> Main driver of cost involving many contractors and laborers Exposed to weather uncertainties 	<ul style="list-style-type: none"> Limited to final Assembly of modules (mechanical & electrical)
OFF-SITE CONSTRUCTION	<ul style="list-style-type: none"> No off-site construction 	<ul style="list-style-type: none"> Full installation is managed off-site with skilled workers in a lean manufacturing environment Industrial approach working closely with engineering team to support manufacturing Lower rates of wastage Low cost for redesign, and rework completed under one roof
TRANSPORTATION	<ul style="list-style-type: none"> Materials delivered on-site and logistics expenses are included in the on-site construction costs 	<ul style="list-style-type: none"> Modules delivered on-site after completion of off-site construction phase
MANAGEMENT	<ul style="list-style-type: none"> Large onsite management to deal with all stakeholders working simultaneously Special transversal management is also necessary onsite (safety, project, material, accommodation..) 	<ul style="list-style-type: none"> Limited project management team at the factory to manufacture a project Transversal management already in place dedicated to a few projects Efficiency due to a lean industrial organization Centralized procurement to coordinate smooth manufacturing and production

C. FLEXIBLE AT ALL TIMES

C-CUBE concept brings flexibility along the life cycle of the facility.

At the design stage, we can adjust the installation in many ways to meet customer need.

I. INTERNAL AND EXTERNAL LAYOUT

Three sizes of modules can shape any type of facility layout as a result of their unique dimensions (the lengths are in multiples of the widths). Each module can be opened completely in order to create open spaces. Walls, partitions, doors, and windows can be positioned anywhere within the layout.



II. AIR SUPPLY/RETURN, LIGHTING AND UTILITIES

Modular cleanroom ceiling is made of identical interchangeable panels which allows multiple locations for air supply, air return, lighting and utility distribution.



III. CONSTRUCTION MATERIAL

We offer different types of material for cladding and partitions in accordance with facility requirements.



IV. THERMAL INSULATION

The level of insulation is adjusted to meet the weather requirements of where the facility is to be located.



After final assembly of the facility, C-CUBE solutions remains flexible.

I. MODIFY FACILITY FOOTPRINT WITHOUT IMPACTING OPERATIONS

Whether the objective is to improve the facility (grade level, layout), change its use, or to enlarge or reduce it in scale, our concept can adapt and modifications can be implemented quickly onsite.

A. RE-DESIGN EXTERNAL LAYOUT

We can modify the external layout as a result of our modular construction approach. Cladding is mounted on independent panels which can be removed or swapped out to allow a modification (adding a door, window, footprint extension...). These changes can be implemented without affecting the clean room work area, and you can continue operations during the re-design or upgrade.

B. RE-DESIGN INTERNAL LAYOUT

Internal partitions and walls use sandwich panels that allow easy modification to the internal layout. Modular ceilings can house lights, ventilation grills and utilities in multiple locations.



II. RELOCATE THE ENTIRE FACILITY

Modules are mechanically tied together onsite during final assembly of the facility. We can easily disconnect the modules and transport them individually to another location. A relocation can also be an opportunity to implement modifications to the current facility without the need to bring modules back to the manufacturing site.



III. OPTIMIZED FACILITY REGULATION

With our concept, you will benefit from an intelligent facility. We can monitor and adjust parameters from a distance. We are able to remotely upload the latest management system and regulation software to the facility without any disruption to business.



D. FULLY MOBILE

C-CUBE concept is a fully mobile solution:

I. EASY TO TRANSPORT

The concept is based on three modules to create any cGMP facility. These modules are used both for the building and the clean room work area. The dimensions of these modules facilitate their transportation to anywhere in the world in accordance with sea and road freight regulations.



II. ADAPTABLE TO A DEMANDING ENVIRONMENT

Modular buildings are constructed to be as wind-and earthquake-resistant as conventionally constructed buildings, and the mass-customization aspect of the modular approach provides the flexibility to make it easier and less expensive to integrate additional resilient and adaptable design features.



III. REMOTELY CONTROLLED

Modular concept is smart because facility performance can be monitored remotely to ensure perfect conditions at all times. It is this ability which facilitates cGMP facility implementation in remote locations.



E. SMART FACILITY

Intelligence of our concept relies on four points:

I. REAL TIME REPORTING OF YOUR KEY DATA PARAMETERS

Being alerted of any issues likely to affect the manufacture of a product.



II. REMOTE ACCESS & MONITORING OF YOUR FACILITY'S DATA

Being aware of what is happening in your facility at anytime, anywhere, and acting on it.



III. CONTINUOUS DATA BACKUPS TO GENERATE REPORTS

Generating reports to analyze data, necessary for continuous improvement, quality, traceability, management support and inspection by regulatory authorities.



IV. IT EQUIPMENT EMBEDDED FOR ADDITIONAL 4.0 IMPLEMENTATION

Connect all your equipment easily without the need for extra IT infrastructure.



F. SUSTAINABLE CONCEPT

Our concept delivers the following environmental advantages:

I. REDUCTION IN WASTE



Modular construction can cut net waste in half compared to conventional construction. The optimized conditions of our fabrication facility result in a reduction in the incidence of errors, as well as a reduction in accidental damage. Our factory-based modular construction process is also better able to implement lean production principles and other strategies to better control inventory.

II. REDUCTION IN ENERGY USE



The energy requirement for construction can be reduced during the fabrication phase of a modular project because our factories are better able to control energy use and emissions compared to conventional construction sites.

Modular projects require fewer workers onsite and for a much shorter period of time. This will lead to a significant reduction in the onsite energy requirement for such things as transport and worker accommodation, as well as the energy needed to power tools, plant, equipment and site-wide lighting.

Modular construction will also reduce transport emissions and other transportation-related impacts such as noise and air pollution at the project site. Modular construction can reduce the total number of deliveries to sites by 90%, and decrease the average travel distance of workers to the site by 75%.

III. LONG LIFE-CYCLE SOLUTION



Modular construction brings a "plug and play" flexibility that allows buildings to be easily and more affordably adapted, modified, or disassembled into components that can be reused or deconstructed for recycling. Modularity at the systems level will contribute toward making a building more flexible and adaptable, and therefore more future-proof.

IV. COMMUNITY FRIENDLY



Modular projects generally have a smaller construction footprint and require less space around the project site for workers, transportation traffic, and material storage compared to conventional projects. The onsite portion of the process only takes a fraction of the time, so there is less disruption to the neighboring community in terms of noise and air pollution.

V. IMPROVED SAFETY



Compared to conventional onsite construction, modular construction at an offsite fabrication facility is oftentimes safer for workers. Workers in a modular fabrication facility are exposed to fewer risks than workers on a conventional building site, where they are generally required to work in outdoor conditions, in the presence of heavy machinery, and at heights.

CONCLUSION

C-CUBE business strategy and innovative modular concept offers many advantages in terms of competitive pricing, short lead-time, flexibility, mobility, intelligence and reduced environmental impact.

These advantages will lead to positive financial impacts for our customers regardless of the development phase they are in and the challenges they are facing.

The following is a non-exhaustive list of positive P&L impacts our C-CUBE solution provides:

	RISK MANAGEMENT	Start small and extend quickly when business requires it, limiting financial risk.
	CAPITAL EXPENDITURE	Defer decision-making on starting/adding capacity until you gain certainty about the market demand/position of your product.
	TIME TO MARKET	Run a quality production/pilot unit in record time and reduce time to market.
	RETURN ON INVESTMENT	Improve Net Present Value of a cGMP facility investment, owing to a short lead time for implementation and a competitive price.
	CASH FLOW	As the facility is a mobile construction, it could be categorized as a business equipment as opposed to a fixed-in-place asset, bringing financial cash flow advantages.
	FINANCING	Facility can either be leased or purchased, giving you options when choosing the best financial approach.
	CONTINUITY	Whenever you need to extend or modify the modular facility, its flexibility prevents the disruption of existing operations.

