

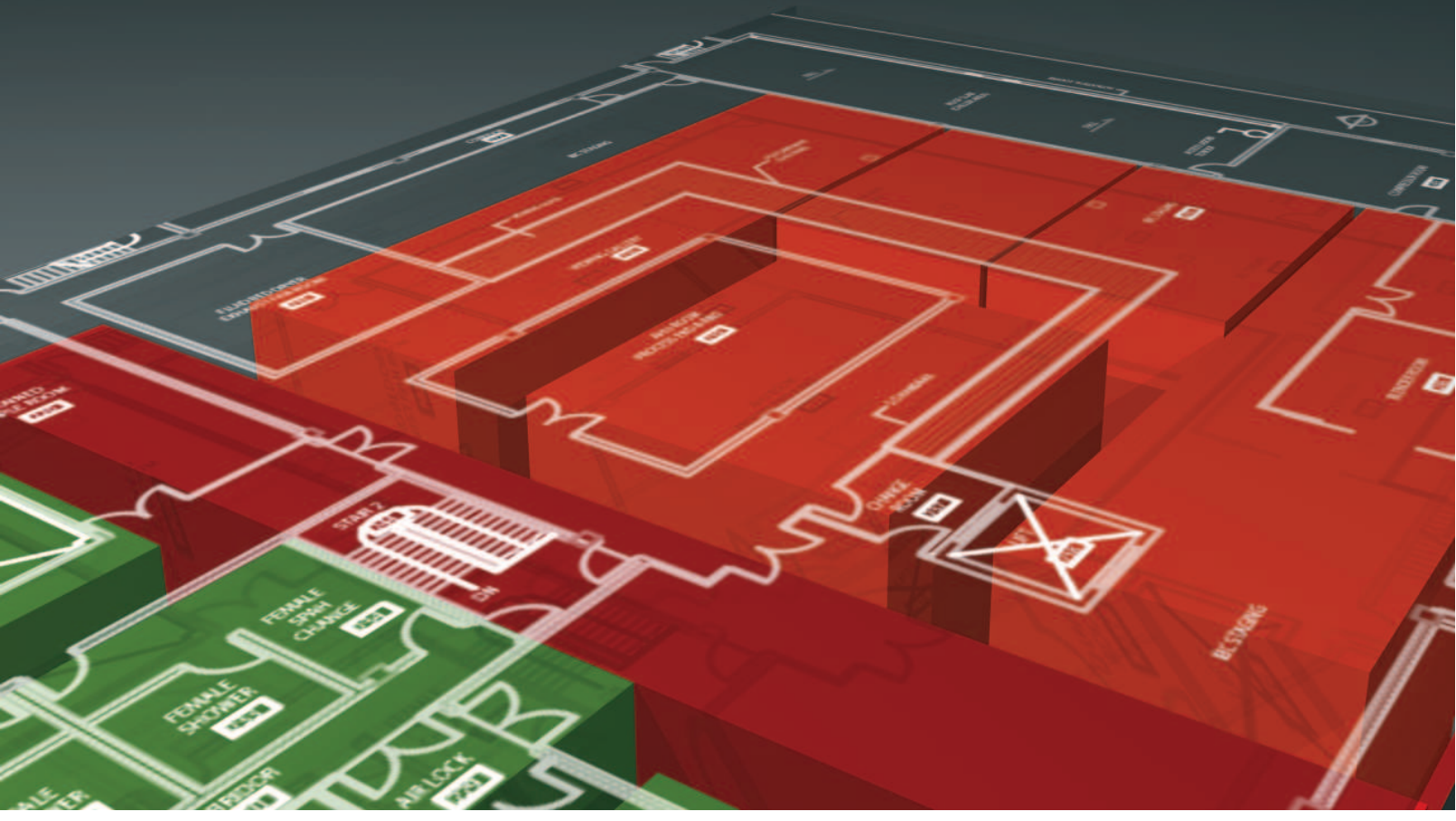


Less Risk

More Product Launches

Outperform the Competition

*The Leading Industrial Engineering
Application to Accelerate Product Launch*



Innovative Production Space Solutions From Beacons Systems Technology

SPA and Beacons SPA Solution, from Beacons Systems Technology, can provide significant financial strength and flexibility to your organisation. This strength and flexibility gives your organisation a competitive advantage by mitigating business risk and enhancing strategic investment options.

SPA's innovative production space design features accelerate product development, scale-up and launch, and make running multiple production lines a breeze.

PILOT PLANT

SPA features an embedded pilot plant, integrated in the production facility. This provides immediate cost savings in land and capital by not having to build and maintain a separate pilot plant facility.

Developing clinical batches in the same building as commercial scale makes reproducibility and repeatability much easier. And, quality issues, such as those associated with different air and water sources, are completely eliminated.

With the added convenience of having the development team and scientists in the same building as production, technology scale-up, transfer and commercialisation are faster, consistent and more economical than ever before!

This quality and regulatory friendly environment can greatly reduce approval times, and give your organisation a significant competitive advantage with faster, more frequent quality product launches.

MODULAR DESIGN AND CONSTRUCTION

The standardised template SPA and its modular approach greatly streamlines planning and saves valuable time in the concept, design, qualification and construction stages of the project.

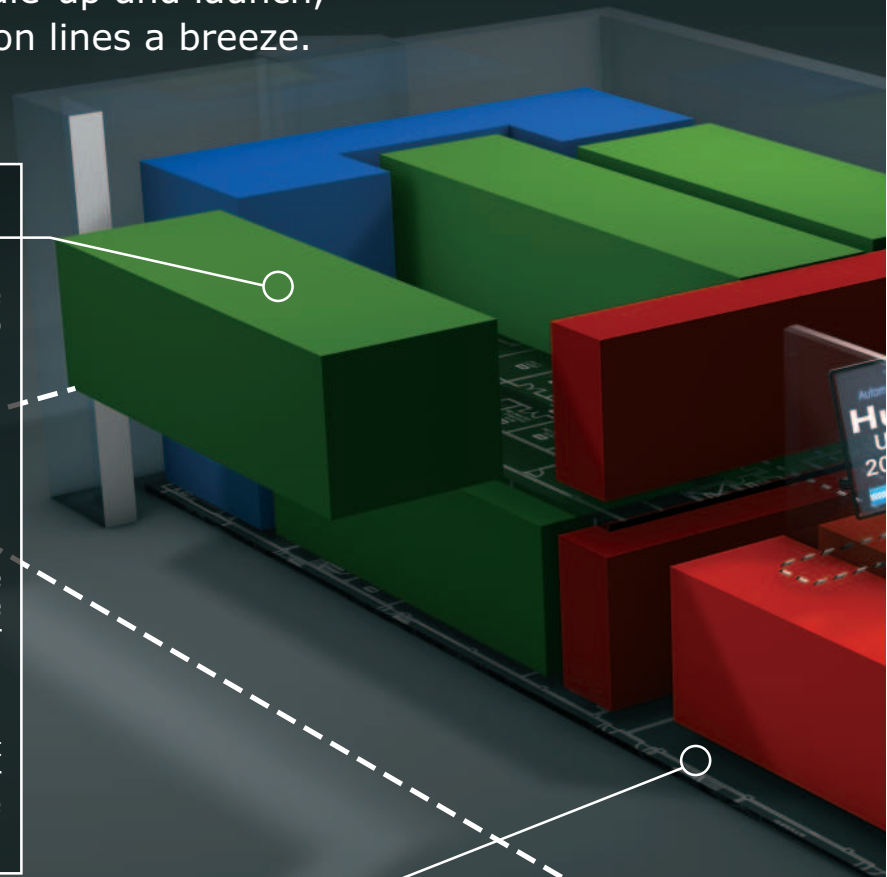
SPA modules are pre-constructed, with all equipment installed, tested and validated in a controlled environment, enabling quick and cost effective changes prior to shipment. This ensures quality and predictability in the construction process, and shortens delivery time.

With SPA modules, your complex and state-of-the-art production facility can be up and running, anywhere in the world, in less than 18 months... allowing your products to be launched faster and sales and cash flow to be realised sooner than ever possible before!

HIGHLY EFFICIENT DESIGN

Because of its innovative, highly efficient design, SPA utilises at least 20% less land than a conventional plant with similar output capacity. This means your organisation will save at least 20% upfront in land and environmental costs.

With its smaller footprint, SPA also provides significant savings in capital, operational, maintenance and entire life cycle costs, making it the green facility solution of the future.



Automated QC/QA with SPAH Hub Box

SPAH's hub-corridor design makes it easy to comply with future FDA, regulatory, or internal requirements for automated QC/QA systems such as Process Analytical Technology (PAT). With automated QC/QA capability, production batches are monitored, quality tested and released using real time data.

SPAH's patented "Hub Box" technology interfaces with the production modules to provide instant "plug and play" process validation and quality control. With instantaneous testing of any batch, compared to the "several days" required for a traditional batch testing approach, you will enjoy faster batch release to market time and faster revenue.

Modular Production Flexibility

With SPAH's modular construction, you can quickly and easily modify production assets to meet ever-changing business requirements.

Maximise profits by increasing a product line's capacity to meet surging demand for a blockbuster... or reduce capacity to cost-effectively produce an established product. Worried about the impact of a product launch failure? With SPAH, you simply retrofit the production line!

This modular flexibility not only mitigates business risk, it provides a strategic advantage to roll out more products in a faster time.

Glass Viewing Gallery

SPAH's innovative hub-corridor design features a unique, highly impressive glass-viewing gallery overlooking the entire production area.

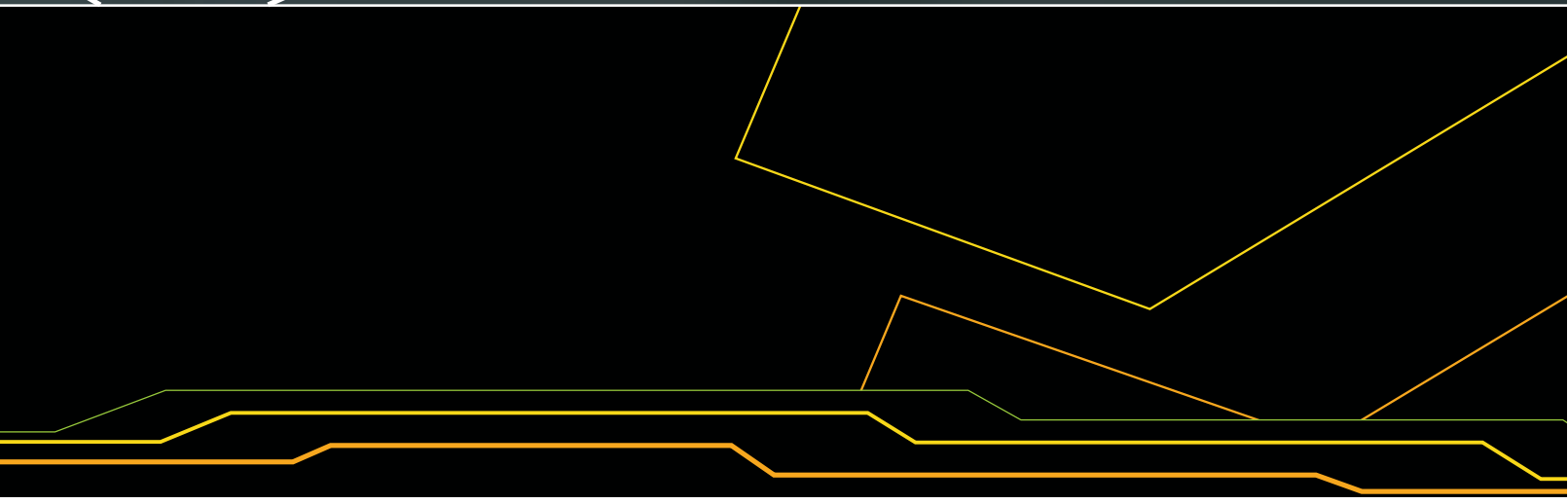
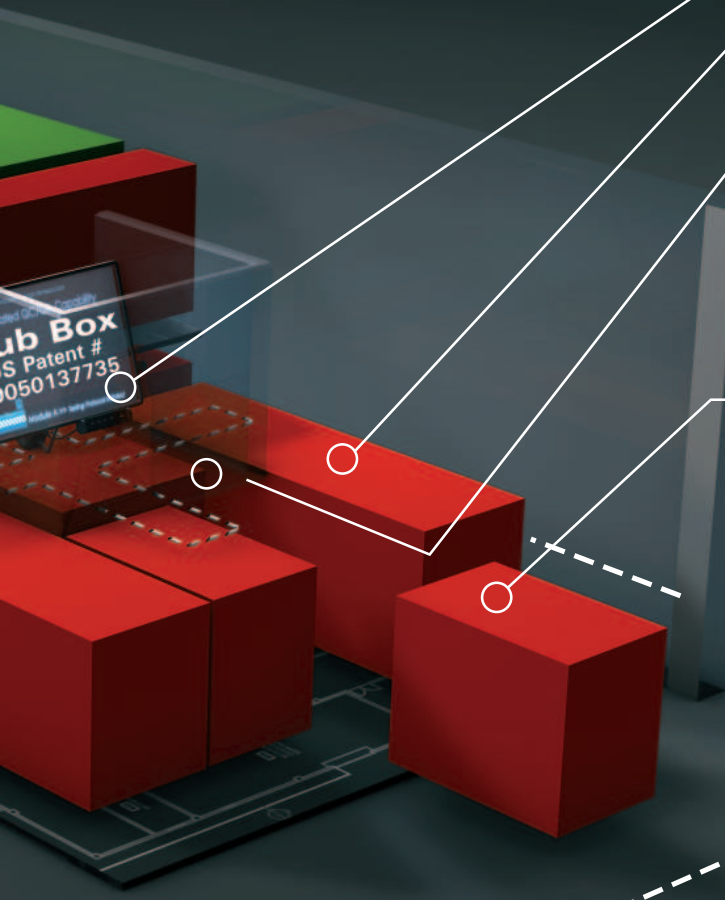
Everyone enjoys a factory tour and this powerful feature can be leveraged as a convenient and cost effective marketing tool for both sales and public relations. And now, all this can be done without the need to gown-up!

Pre-fabricated "Plug and Play" Modules

SPAH modules are pre-constructed, with all equipment installed, tested and validated in a controlled environment, enabling quick and cost effective changes prior to shipment. This ensures quality and predictability in the construction process and shortens delivery time.

SPAH production modules feature patented "plug and play" technology and can be easily changed without disrupting other production lines. And, changes take only days, not weeks or months like in a typical conventional plant, maintaining continual sales and cash flow.

SPAH's modular flexibility ensures it will always be a highly efficient, cost-effective production asset, immune to obsolescence.



Beacons SPAH Solution

Beacons SPAH Solution is a complete turnkey package that fast tracks the design and construction of your new SPAH. Once it's completed, we pay for it, and you lease it. And if needed, we operate it!

Beacons SPAH Solution

Design & Construction

Buy Outright

Leasing Property Management Operation Capability

Plant Upgrade Programme

We'll give you cash and lease options for your old plant, so you can afford to build a new SPAH. With the combination of Beacons SPAH Solution and SPAH, your production assets will never be obsolete!

Locate Anywhere!

You can locate your new SPAH facility anywhere you want. In another country or right in your own backyard - with Beacons SPAH Solution, the choice and convenience is yours!

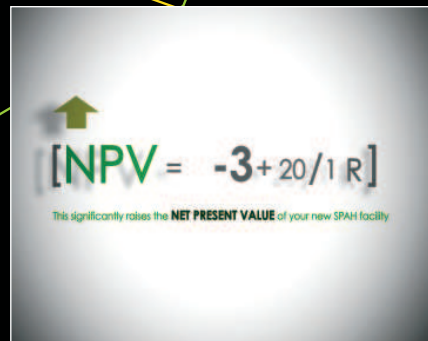


Higher Project Net Present Value

Beacons SPAH Solution allows your organisation to fully recover its SPAH capital expenditures in just 3-5 years, instead of the up to 20 years it usually takes. This unleashes valuable asset capital and significantly raises the project Net Present Value (NPV) of your new SPAH facility.

Lower Weighted Average Cost of Capital

The asset light strategy of Beacons SPAH Solution eliminates debt from your books, creating a lower Weighted Average Cost of Capital (WACC) for your organisation.

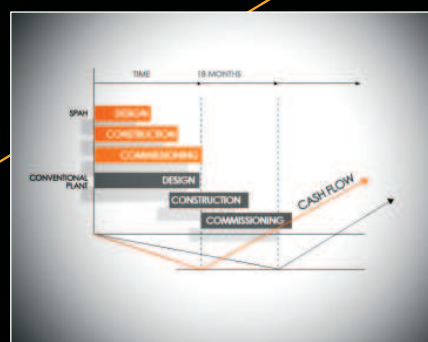
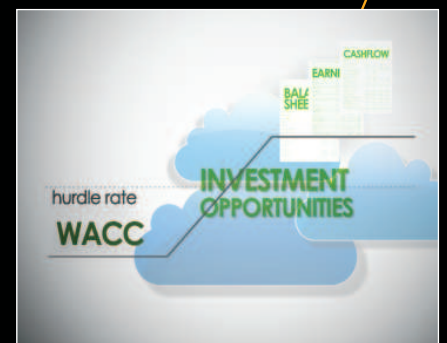


Strategic Investment Opportunities

With a lower Cost of Capital, your organisation will have the competitive advantage and options to pursue more strategic investments and improve core businesses.

Healthier Financial Ratios

With Beacons SPAH Solution, your organisation will enjoy overall healthier financial ratios such as Debt to Equity, Return on Equity and Return on Assets, which your current and prospective investors will truly appreciate!



Enhanced Cash Flow

Beacons SPAH Solution enhances cash flow, giving you additional funds for mission critical business areas such as R&D, marketing and new product launches.

Alignment of Business Interests

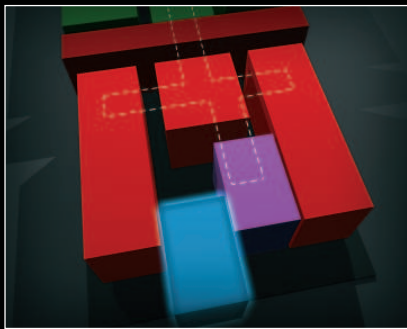
Beacons SPAH Solution aligns our business interests with yours, creating the best quality SPAH at the best price to meet your needs and requirements. You'll have us on YOUR side!

SPAH empowers your organisation to Mitigate Risk, Maximise Profits and Outperform the Competition! Designed specifically for manufacturing environments such as Pharmaceuticals, Food Manufacturing and Life Sciences.

Strategic Advantage

Faster and more frequent product launches...

Faster and reproducibility of technology transfer and product launch from clinical batch to commercial production (because of the SPAH benefit of having the pilot production area embedded in one single building with the commercial production area – enabling the sharing of resources like knowledge, personnel and process water).



Tactical Advantage

Modular production flexibility and cost effective technology transfer...

Faster and cost effective (flexibility) of scaling up or down of commercial production or even complete production retrofit (because of SPAH's extensive process-technical corridor configuration which will be valuable to mitigate unpredictability scenarios of early product launch demand).

Financial Advantage

Higher project NPV, lower WACC, enhanced cash flow, healthier financial ratios...

Sharing and mitigating the risk of new product launches at the production facility asset level (because of our Buy Outright and Lease Solution).

Substantial Improvement of Return on Equity (ROE)

- More success due to more launches
- Flexibility of SPAH and Beacons SPAH Solution to mitigate failures
- Faster launches
- Substantial improvement of Return on Assets (ROA) through Beacons SPAH Solution of Buy Outright and Lease



SPAH Technical Features

Innovative, Efficient Design
Modular Planning and Design
Modular Construction
Modular Production Flexibility
Plug and Play Production Modules
Embedded Pilot Plant
Process Analytical Technology
Glass Viewing Gallery

Beacons SPAH Solution

Plant Upgrade Programme
Locate Anywhere
Higher Project Net Present Value
Lower Weighted Average Cost of Capital
Strategic Investment Opportunities
Healthier Financial Ratios
Enhanced Cash Flow
Alignment of Business Interests

Beacons Systems Technology

Our services include: Advisory, Study, Design, Build, Project Finance and Operate (Complete Turnkey and Contract Manufacturing) for Pharmaceuticals, Food Production and Life Science projects.

Example of SPAH's superior output per total facility area footprint

(due to innovative reverse engineering of overall facility space):

Target Production	200-300 million tablets per year
Average Tablet Weight	500 mg
Total Processing Weight	150 Tonnes per year
Batch Size	250 kg
3 Batches / Day	180 Tonnes (given 240 working days per year)
Process	IBC Systems with direct compression, coating, blister packing with provision for fluid bed, microwave granulation drying. Processing and operational equipments are predominately European technology.
Compliance and Automation	Current and future FDA requirements for Process Analytical Technology (PAT) due to the Hub-Process configuration.
Footprint	About 75 m by 45 m, 2 floors, with manufacturing suites floor area of 3600 m ² . Pilot production suites about 300 m ² .
Total Project Cost (in Singapore)	S\$39M (vs. typical S\$45M or more)
Ability to Execute Project	Worldwide, prefer operation (contract production) to be in Singapore - but not ruling out other locations.

Global Engineering Foster Wheeler's and our SPAH One design basis. These comparison numbers are highlighted in Table A, Page 4 of ISPE article available for download at:

http://www.spah.info/docs/06JF_Brocklebank.pdf



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