

SINGAPORE INTERNATIONAL CHAMBER OF COMMERCE
2019 COLLABORATIVE INNOVATION AWARDS

ADVERTORIAL

Singapore's 1st Large Scale Modular MEP Project Clinches SICC Most Scalable Collaboration Award

As digitalization continues to proliferate it brings with it an explosion of demand for data storage and processing. It is no wonder that more and more data centres are being built. Singapore has its fair share of data centres.

Global Switch (Property) Singapore Pte Limited, a leading owner, operator and developer of large-scale, multi-tenanted data centres in Europe and Asia-Pacific, sought to meet market demand by building a new data centre in Singapore.

Global Switch wanted to build its second data centre in Singapore differently by adopting a Design for Manufacturing and Assembly (DfMA) approach not only for the building structure but also for the mechanical, electrical and plumbing (MEP) components.

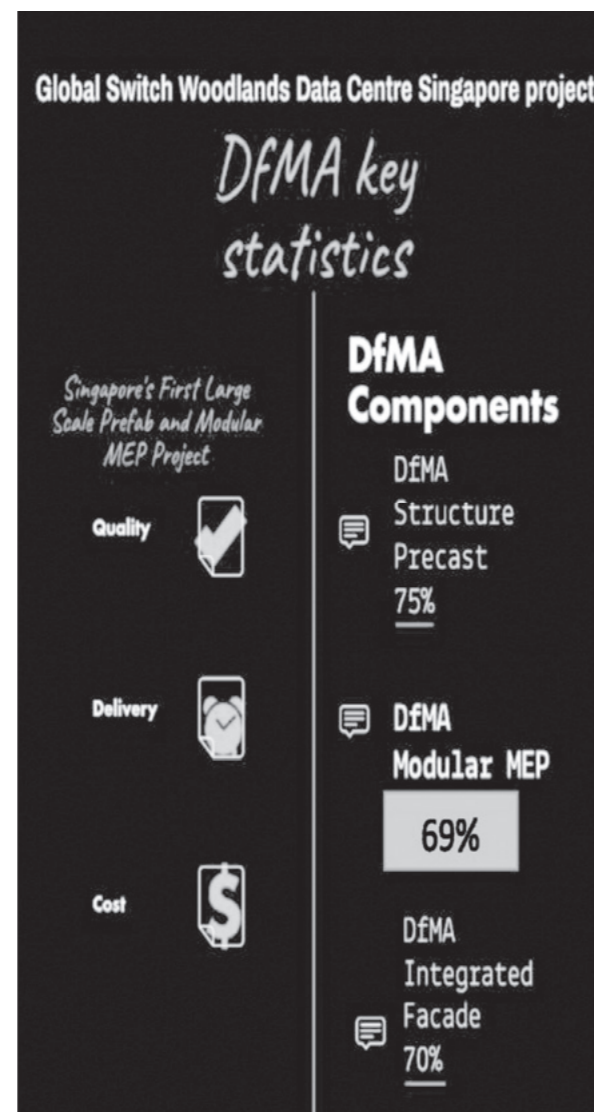
The goal was to build the data centre faster, of higher quality and with greater safety than what would normally be achieved by traditional construction methods.

Global Switch faced several challenges in realizing its goals.

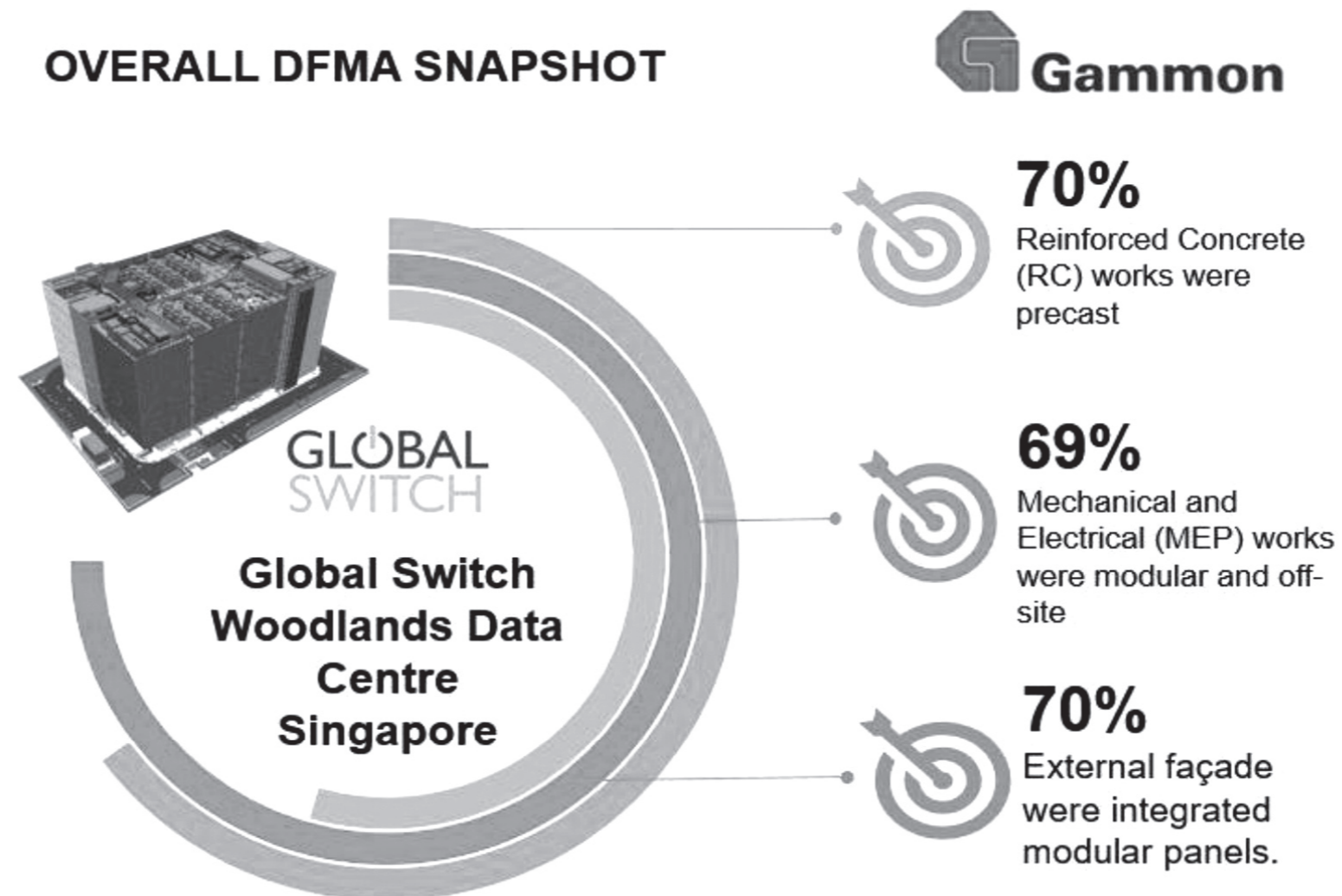
First, the biggest barrier was executing a pre-fabricated MEP approach that had been never done in Singapore before at the scale required by the project. "There was a lack of local expertise and track record in this area and the project team had to be built from the ground up", said Global Switch Managing Director Mr Sam Lee.

Another important challenge Global Switch had to overcome was getting its supply chain vendors to adopt DfMA principles in their delivery schedules. "This required helping them to re-organise their traditional working styles, explaining the benefits of DfMA and convincing them to take the journey with us", he added.

Global Switch needed to find the right collaborator to realize their vision of a data centre built according to DfMA and MEP.



OVERALL DfMA SNAPSHOT



"Design for Manufacturing & Assembly" approach (Left) to deliver on the global data centre in Woodlands (Right).

The company found the ideal partner in Gammon Pte Limited, a leading infrastructure and construction solutions provider in Singapore and South East Asia, as its main contractor for the Global Switch Woodlands data centre project.

Collaborative design thinking helped integrate the DfMA approach and facilitate planning for setting up of an off-site factory.

From the start, the project focused on extensive pre-fabrication with a Building Information Modelling (BIM)-led design, which is considered more "intelligent" because of the three-dimensional mode-based processes involved.

"Leveraging on BIM was a significant catalyst in driving the project design, construction efficiencies and a detailed asset management system to the client" said Gammon Executive Director Tan Hee Wee. The BIM approach was chosen as it was able to drive efficiencies in sequencing and in planning the construction.

Specifically, Gammon was able to deliver the desired integrated 'DfMA' approach.

The result was the creation of a six-storey data centre with 25,000 square metres of gross floor area called the Global Switch Woodlands Data Centre project.

It was this collaborative effort which won Global Switch (Property) Singapore and Gammon the 2019 Most Scalable Collaboration at the annual SICC Collaborative Innovation Awards.

The annual SICC Awards were launched in 2015 to learn from and recognise the role collaboration has in fostering business innovation and growth. The Awards, open to SICC members and non-members, provide an inclusive platform to recognize Singapore's champions of collaborative innovation. The Chamber believes that continual innovation, or transformation, is key to the sustainability of every business and collaboration is very often the fastest way

for a company to innovate. The Awards aim to provide a knowledge-sharing community for companies irrespective of sector or size.

SICC believes that in today's complex and disruptive world, collaboration is one of the best ways to leverage knowledge, to innovate, to grow and to stay relevant.

First-of-its-Kind in Singapore

Through this collaboration, the Global Switch Woodlands Data Centre project became the first project in Singapore to adopt prefabricated mechanical, electrical and plumbing (MEP) modular construction on a large scale where over 69% of the

MEP works were assembled off-site.

This modularization and offsite fabrication method are closely aligned to the Singapore government's objective to transform the built environment sector through a significant increase in off-site design for manufacture and assembly supply capabilities.

As a part of this collaboration, Gammon carried out the offsite modular works by setting up Singapore's first MEP modular factory in Tuas.

This methodology achieved a significant improvement in productivity, in manpower reduction and in time-saving. From a manpower perspective, about 40% fewer workers were required compared to the conventional installation approach. The programme benefitted from four weeks of time saving.

Looking ahead, this collaborative innovation can be applied to other mechanical and electrical teams, both within the companies and across the wider industry.

The key learnings from this project are that MEP is an effective DfMA strategy that significantly improves construction productivity. It has also shown the industry that large scale MEP modularisation is achievable in Singapore and should encourage more companies to adopt MEP.

This is the final of four articles on the winners of the 2019 SICC Collaborative Innovation Awards.

SICC Singapore International Chamber of Commerce

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The Voice of International Business in Singapore since 1837

SICC was founded in Singapore in 1837 making it the city-state's longest serving voice of the private sector. Today, SICC is proud to be Singapore's most inclusive Chamber and its best platform for business networking.

The SICC engagement platform cuts across all potential silos of ethnicity, nationality, industry and business sector. The Chamber represents 600 companies, 40 nationalities and 20 business sectors. Membership is equally split between local and foreign multi-nationals and large organizations and local and foreign medium, small and start-up companies.

Diverse members are a truly representative slice of the Singapore business community. An independent advocate for business, SICC shares its members' views and concerns on government policy with policymakers and politicians. The Chamber focuses on 3 main pillars: human capital development and leadership, collaborative innovation and championing the circular economy.

SICC AWARDS 2020
Celebrating Collaborative Innovation

SICC is now inviting parties to submit their interest in participating in the 2020 Collaborative Innovation Awards