# DYNAMIC DIGITAL FLOOR PLANS, TIME SCHEDULES AND ROUTE OPTIMISATION FOR EXHIBITION SPACES

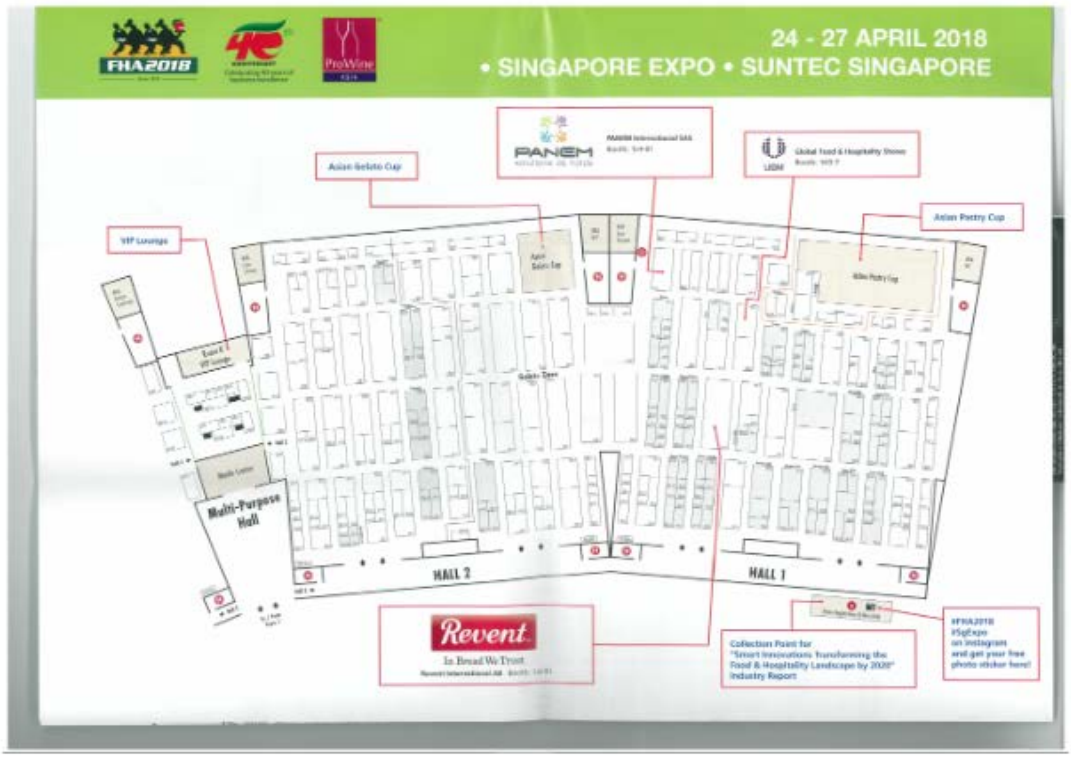
## CONTEXT

Agility is one of the world's leading exhibition freight forwarding specialists, handling more than 6,500 trade fairs, exhibitions, and events each year globally. This includes some of the biggest and most highly attended events in the business.

They are responsible for the logistics of moving exhibits around the world, and into and out of diverse exhibition spaces. Exhibits need to be delivered at the right time, as exhibition spaces take shape according to the organiser's timetable. Very large items often need to arrive first, while smaller items should only be delivered once booths are ready. As booths are built, the routes in and out become more constrained. The timetable, the sheer diversity of the exhibits they handle, and the spaces into which they deliver, conspire to create a complex logistical challenge. They also need to manage and store the empty cases for their exhibits and arrange for the speedy return to exhibitor for packing on tear-down, which is often within a very tight timeline of one day or increasingly on overnight basis.

Currently, Agility will receive a paper or PDF floor plan and timetable for move-in of the event from the event organiser. The floor plan which shows a two-dimensional layout of the event booths, entrances of the venue, thoroughfares and booth numbers (with/without exhibitor names) usually by email and sometimes finalised only within one month to the show start, depending on the size of the show.

A sample floor plan can be downloaded from here:




The move-in and tear-down timing can also change pretty close to show start date. They therefore have to plan and execute their delivery and removal with limited and changing information. This drives an overuse of manpower and equipment to provide redundancy for unforeseen challenges.

Agility hopes to find a digital platform solution to improve efficiency of delivery of exhibits, recovery of empties on the build-up and sending back of empties and recovery of packed exhibits on tear-down, manage the construction and deconstruction of exhibitions, using a digital floor plan and scheduling timetable solution.

**PROBLEM STATEMENT**

How might we better plan and execute the movement of exhibits into and out of diverse and dynamic event sites with greater efficiency?

**WHAT ARE WE LOOKING FOR**

- A prototype digital platform solution for representing, communicating and displaying floor layouts and the construction timetable, to enable enhanced planning and execution of exhibit delivery and removal. The solution needs to include:
    - A digital, dynamic floor plan format for event spaces that shows the layout in 3D and can be updated in real-time by the event organisers (this could be something that can provide an event organiser the ease to change the floor

plan easily or converting a static floor plan into a digital one but then providing ability to make changes on the digital format).

- A digital, dynamic timetable format that is easy to understand, and linked to the floor plan, to show the expected timeline of build-up and tear-down of stalls and exhibits (the information on construction or deconstruction of booths will need information to be provided by stand contractors engaged by exhibitors and Organisers).
- Algorithmic support to determine efficient logistics using the floor plan and timetable as inputs:
  - Planning the optimum way to move in and move out to minimise resource and equipment use (optimised timetable working together with all other suppliers on the show floor).
  - Integrate easily with existing data, e.g. shipping details of exhibits or relevant exhibitor sited at particular booths.
  - Responsive to updated information to automatically reroute and reschedule.
- Enhanced geolocation within the event space, linked to the floor plan to make it easy to navigate and find precise (down to 1m) locations within the site and ability to detect choke points on the show floor to direct workers to deliver the exhibits using the most optimal route to reach the specified booth from the staging area where cargo is stored on site on arrival at event venue.
- A suitable way to display the information to staff at the site (e.g. tablet or similar) that is highly intuitive to support execution.

There are no restrictions on the geographic location of the problem solvers who may choose to apply to this challenge. However, the prototype needs to be demonstrated in Singapore.

**POSSIBLE USE CASES**

The solution could be used by:

- Freight Forwarders - to plan, execute and monitor the movement of exhibits at event venues to increase productivity (primary focus)
- Show Organisers - to have an easy way to make and change their floor plans to optimise their revenue from space that they sell as they can better cater to the requirements of request from their customers(exhibitors) and also have better control of the logistics aspect of their events esp between the stand contractors and forwarders
- Venue Managers - to plan, coordinate and manage the various stakeholders to enhance the safety aspect.

For example, at the upcoming Food and Hotel Asia Expo, a freight forwarder is planning the delivery of exhibits including large food processing machines, food stuffs, beverages and more.

The freight forwarder receives the floor plan and timetable in advance, in a digital format that is updated in real-time. They use the planning system to plot the best routes and schedule to get the items there just at the right time (as the stands are constructed). The work crews use the same system to receive their delivery instructions, including what equipment will be needed. Updates from the site prompt changes to the instructions to ensure efficiency, allowing for dynamic rerouting and scheduling if required.

**WHAT'S IN IT FOR YOU**

- SGD 35,000 of prize money (GST-inclusive, if any) for each winner of this challenge (see Award Model)
- Potential to set a new industry framework in Singapore together with SACEOS
- Opportunity for future global application in the exhibition industry and for others requiring 'last mile delivery' in built-up spaces.
- Partnering with a global leader in the industry with deep knowledge of the problem statement and the industry context
- Collaborate with SACEOS to reach out to the greater community for refinement and deployment

**EVALUATION CRITERIA**

The Applicants shall be evaluated in accordance with the evaluation criteria set out below:

**Solution Fit**

- To what extent does the proposed solution address the problem statement effectively?

**Solution Readiness**

- How ready is the proposed solution to go to market?
- Is there any evidence to suggest capacity to scale?

**Solution Advantage**

- Is the solution truly innovative, does it make use of new technologies in the market, and can it potentially generate new IP?

**Company Profile**

- Does the product have user and revenue traction?
- Do the team members possess strong scientific/ technical background?

## AWARD MODEL

30% of the prize money will be awarded to each selected finalist at the start of the prototype development process, with the remainder 70% to be awarded during the prototype development process, based on milestones agreed between Agility and the solver.

Note that a finalist who is selected to undertake the prototype development process will be required to enter into an agreement with Agility that will include more detailed conditions pertaining to the prototype development.

## DEADLINE

All submissions must be made by 14 February 2020, 1600 hours (SGT/GMT +8). Agility and IMDA may extend the deadline of the submission at their discretion. Late submissions will not be considered.