# 2-STAGE INNOVATION GRANT (iGRANT) REQUEST FOR PROPOSALS (RFP)

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<th>Solution for Structural Submission Mapping Plugin Toolkit</th>
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<td>17 June 2019</td>
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| **Contact** | **Mailing Address** | iGrant Secretariat  
c/o Building and Construction Authority  
Built Environment Research & Innovation Institute (BERII)  
200 Braddell Road  
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Singapore 579700 |
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| **Enquiries** | For more information, please refer to website:  
http://www.bca.gov.sg/ResearchInnovation/2stage_InnovationGrant.html |
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CALL FOR PROPOSALS: SOLUTIONS FOR STRUCTURAL SUBMISSION
MAPPING PLUGIN TOOLKIT

Background

1. The 2-Stage Innovation Grant (iGrant) funded by Ministry of National Development launched the Grant Call for Solutions for Structural Submission Mapping Plugin Toolkit on 17 June 2019.

BIM Submission for Regulatory Approval

2. Building Information Modelling (BIM) is currently widely used by the local industry. With effect from 1 July 2015, all projects with GFA more than 5,000 sqm are required to be prepared and submitted in BIM for regulatory approval.

Current Gaps or Needs

3. To fully harness the capability of BIM and improve overall productivity, there is a need to explore the availability of technology that will aid to bring information from the Analysis and Design (A&D) Model into BIM Model to reduce human intervention and possible human error.

4. Conventional way of modelling in most Civil and Structural firms is to model the A&D model and BIM model independently to expedite the process. This results in different element markings in both models and there is no linkage between the A&D and BIM models. With increasing complexity of projects and bigger project size, it is unproductive and time consuming for Qualified Person (QP) and the Accredited Checker (AC) to review the design based on two sets of data from the two models.

5. An effective way would be to populate a detailed design summary sheet indicating the corresponding element markings in both models. This will assist QPs and ACs in reviewing the design of all the structural elements efficiently.
Objective of Grant Call

6. There are two objectives for this grant call:

a. Tapping and enhancing current technologies to develop a mapping tool to map the A&D structure element ID and BIM element markings so as to automate extraction and listing of both ID and markings into a common platform.

b. Improving and standardising the presentation of the design report with an engine to generate a listing of the structural elements designed or checked by the QP/AC. The listing shall be developed with flexibility for additional attributes to be added in.

Scope of Grant Call

7. The following are potential areas for the development of Mapping Plugin Toolkit:

a. Automatic extraction of BIM marking and A&D structure element ID from BIM model and A&D model respectively and match them in repository platform or to be deposited back into the BIM model.

b. Generate standardise report format with flexibility for User to key in structural elements that are not covered in the A&D model.

c. Other features include
   - Provide error reporting for users
   - Provide filtering and counting of the structure element by type and level
   - Allow traceability of the source from where the marking was extracted from.

8. Please see para 9 and 10 for the detailed requirements expected for Stage 1 and 2 of the Grant Call.
Stage 1 of iGrant – Proof-of-Concept

9. For the purpose of Stage 1 (Proof-of-Concept) of this Grant Call, the Mapping Plugin Toolkit must demonstrate the following:
   a. Marking of Vertical elements
      - Extract of vertical element ID/Marking in both A&D model and BIM model
      - Present the format of the auto-generated report.
   b. Extension of the Mapping Plugin Toolkit (if selected in stage 2)
      - Limitation of extracting different element from different models
      - Any adjustment or change of workflow or work processes (If any).

Stage 2 of iGrant – Proof-of-Value

10. Successful applicants selected in Stage 2 should be able to meet the following requirements:
    a. To map all the elements ID/Marking in at least 2 A&D models.
    b. To provide the finalised report with traceability of the original source.

11. Applicants are reminded that if the toolkit in Stage 2 can be successfully developed and implemented, there is a possibility that the Mapping Plugin Toolkit may be adopted by the local construction industry.

Eligibility

12. This call is open to locally-based companies (i.e. companies with at least a local office in Singapore) providing BIM solutions to the local industry.
Funding Support

13. Applicants will qualify for funding support up to 70% of the total qualifying costs of a project.

14. Proposals should not be funded or be currently considered for funding by other agencies.

15. Funding awarded cannot be used to support overseas R&D activities. All funding awarded must be used to carry out the research activities in Singapore unless approved in the grant.

16. The funding support level for Stage 1 (Proof-of-Concept) is up to 70%, capped at $20,000 and the project duration should not be more than 2 months. For stage 2, the funding support level is also capped at 70% but capped at a quantum of $250,000 and project duration should not be more than 6 months.

Assessment Criteria

17. Proposals will be evaluated against the following criteria:

(1) Innovative new design tools, methods & technologies (50%)
   - Reliability and Integrity of plugin toolkit
   - Extent of plugin to different A&D models

(2) Competency and track record of the applicants & project team (20%)
   a. Competency, experience and relevance of project team
   b. Track record of similar projects or services related to BIM rendered to other clients

(3) Degree of replicability and scalability & commercialisation potential (20%)
   a. User-friendliness of the product
   b. Competitiveness of pricing models for the industry
      - Provide competitive pricing for the local industry so as to facilitate mass adoption
   c. Maintenance and ease of updating the rules set created
Building and Construction Authority

- Following the commission of the project (if successful), the applicant should support maintenance works for the first 2 years of the project
- Method adopted to address revised requirements

(4) Degree of impact to improve BCA strategic focus areas of productivity and safety (10%)

Evaluation Process

18. All proposals received by the iGrant Secretariat will be submitted to the Evaluation Panel (EP) for evaluation. The EP comprising representatives from public agencies and industry will evaluate and recommend (to award or decline) each proposal.

Submission

19. All applicants must send in 2 hard copies and 1 electronic copy of duly signed proposals by 15 July 2019 to the following:

iGrant Secretariat  
c/o Building and Construction Authority  
Built Environment Research & Innovation Institute (BERII)  
200 Braddell Road  
ZEB Level 3  
Singapore 579700

20. For further enquiries, please contact:

Mr Darren Lim at Darren TY LIM@bca.gov.sg (iGrant related enquiries) or  
Mr Brian Phua at Brian Phua@bca.gov.sg (Scope of grant call)

Results

21. Successful proposals which are accepted and approved will be notified by Q3 2019.

~ End ~