

Enabling Adoption of Innovative Solutions in the Built Environment

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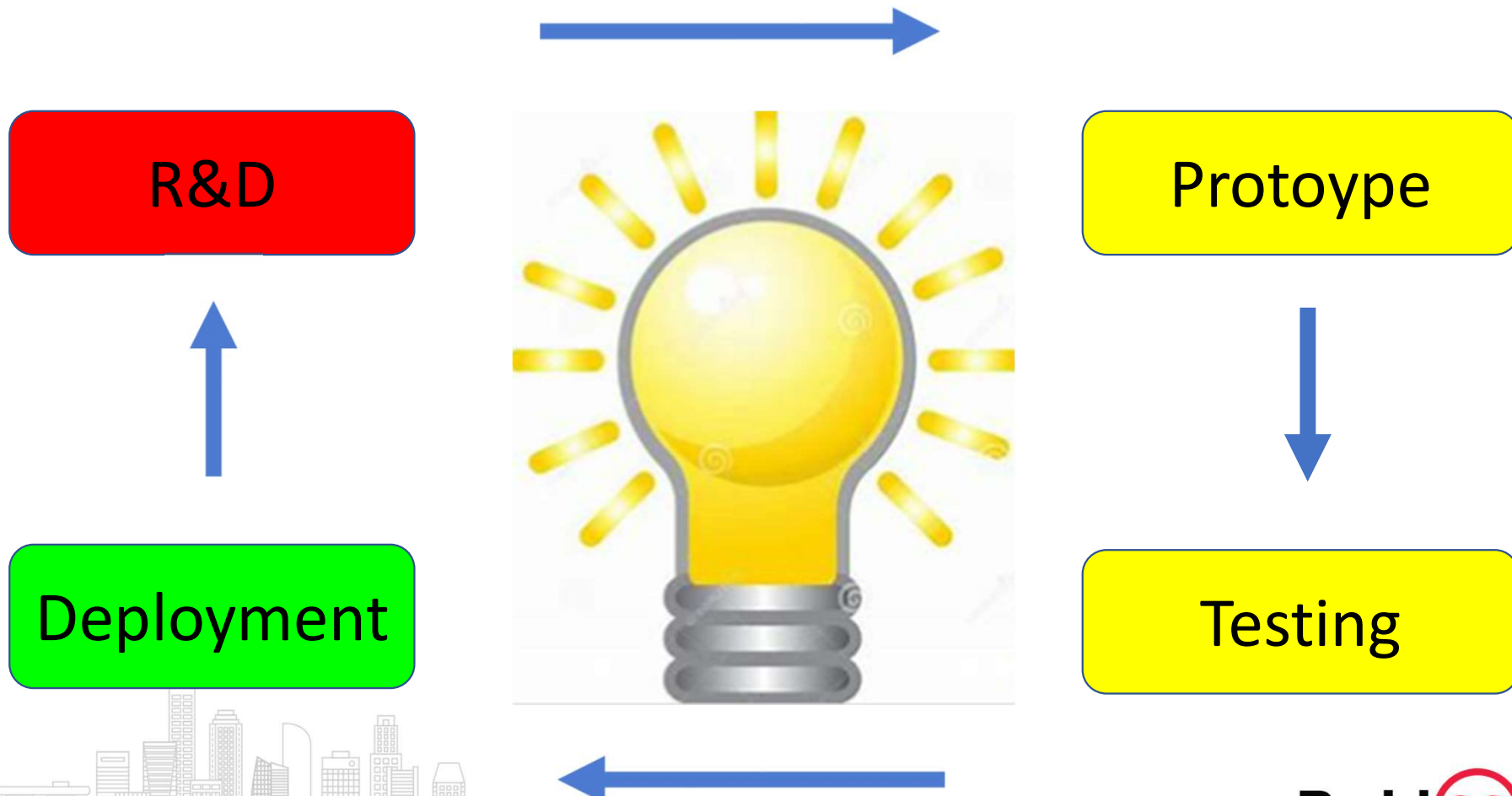
Built Environment Research & Innovation Institute
Building and Construction Authority



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From An Idea to An Innovation



BE Living Lab Framework (LLF)

- An initiative by MND and BCA
- Aims to facilitate test-bedding of innovative solutions
- Allow solution providers access to living laboratories



Objective of the BE LLF

Challenges

Solution providers uncertain on which agency to approach for test-bedding opportunities



Solution providers uncertain on regulatory requirements and associated clearance process



Concerns over potential risks that come with new innovations



Solutions

BCA as the “one-stop” office for solution providers to submit proposals for evaluation

Direct solution providers to Building Innovation Panel (BIP) for consultations

Regulatory sandbox to support proposals not allowed under current regulations

Scope of BE LLF Proposals

Innovative solution that is ready for deployment and beneficial to the built environment.

Examples*:

Design & Development

Design for
Manufacturing
& Assembly



Sustainable
Landscaping



Integrated
Digital Delivery



Energy
Solutions

Construction & Assembly

Construction Technologies (e.g.
Robotics and Automation)



Advanced
Construction
Materials



Workplace
Safety and
Health

Operations & Maintenance



Smart Facilities
Management and
Urban Logistics

Urban
Analytics



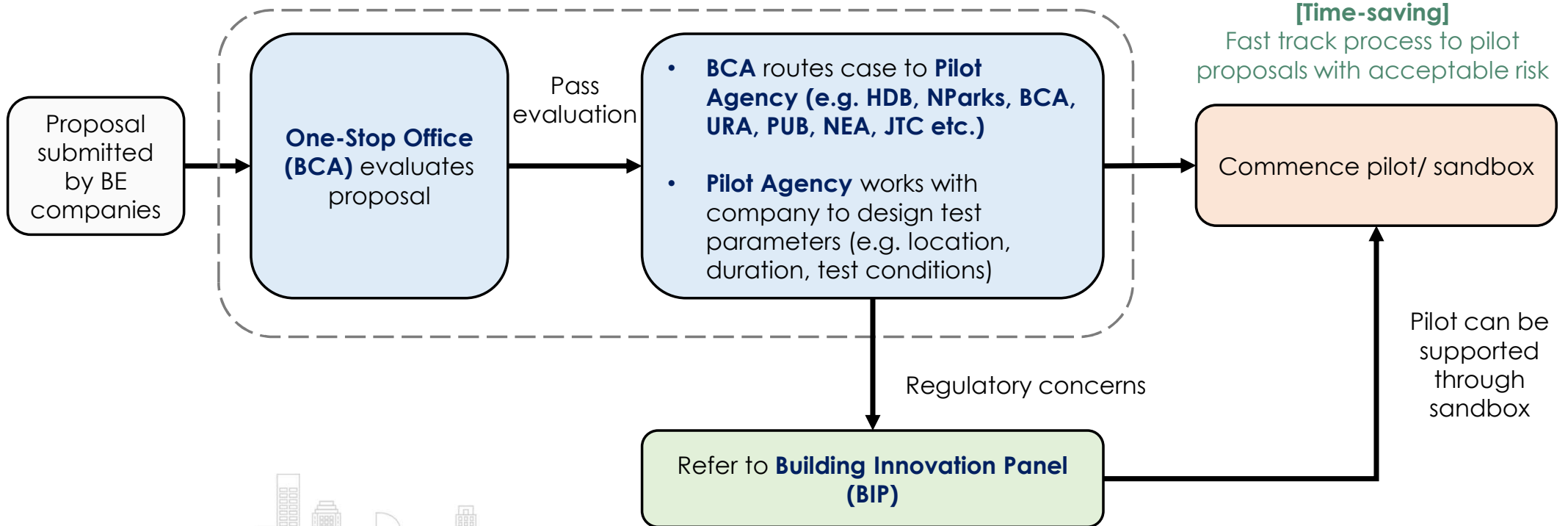
Evaluation Criteria

- **Benefits the Built Environment** (i.e. contribute towards achieving a liveable, sustainable and resilient city)
- Solve existential problems related to BE, and able to **scale up for adoption** in Singapore
- **Demonstrate improvements to existing processes and/or business models**, e.g. 20% increase in productivity, 10% cost saving



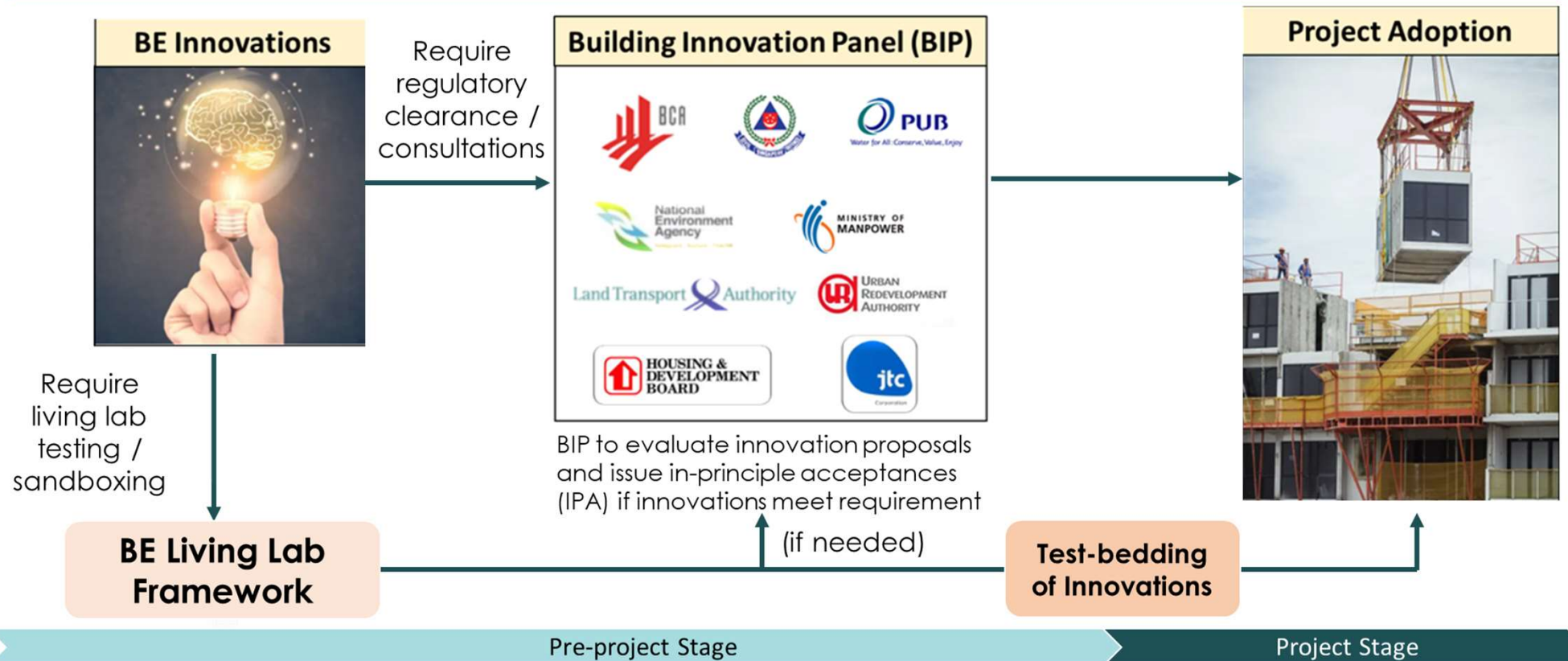
Overall BE LLF Workflow

[Convenient service] One-stop platform to support innovative proposals that benefits the BE without industry going to multiple agencies



Building Innovation Panel (BIP)

How BIP fast-tracked innovation adoption



Building Innovation Panel (BIP)

How BIP works?

Multi-agency, **one-stop platform**

Facilitates **evaluation** of new technologies

Addresses **regulatory hurdles** upfront

Issuance of **In-Principle Acceptance**

Co-chaired by



Regulatory Agencies

Building and Construction Authority

Land Transport Authority



Potential end users

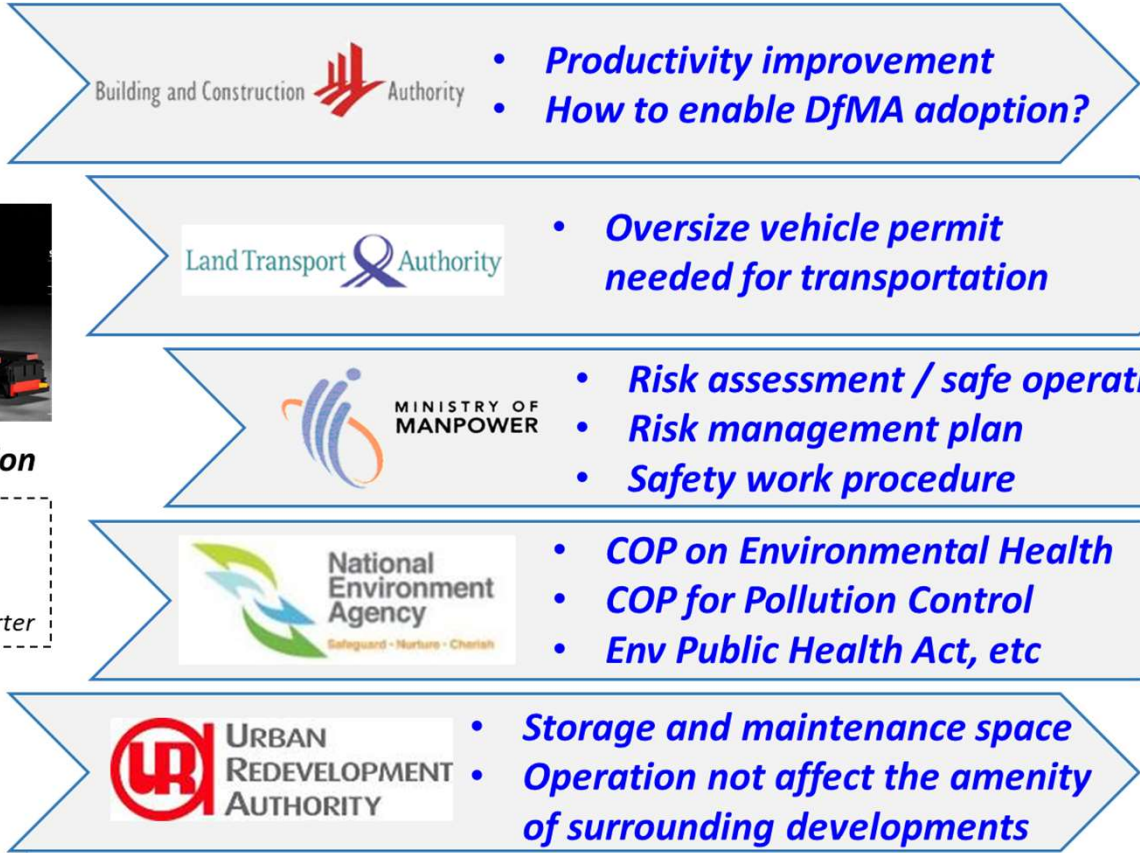


BIP – Robotics & Automation



BIP Application

Shimizu's Robo-Carrier is an autonomous material transporter



Issuance of IPA and ready for adoptions*

* Shimizu's Robo-Carrier is ready for adoption in Q4 2021 (for construction material transportation for Mount Alvernia Hospital Project)



BIP – 3D Printed PBU

Material tests	Review by industry experts	Review by agencies
 <p style="text-align: center;"><i>*sample only</i></p>	 <p style="text-align: center;"><i>*Photo taken 2019</i></p>	
<p>The 3D printed wall had to undergo and pass stringent material tests (Appendix D) set out by BCA such as strength of wall, water absorption and heat-rain tests.</p>	<p>A site visit with a panel of industry experts was arranged to review the overall innovation (e.g. Material, production method, quality)</p>	<p>Example of agency's concerns : MOM – Risk assessment and safe work procedures on production and installation SCDF – compliance to prevailing Fire Code requirements</p>



Apply with your innovative proposal:

go.gov.sg/be-llf



<https://go.gov.sg/be-llf>

You may direct all queries on BE LLF to:

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Thank you



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