# Industrialized Building Systems in Malaysia



We're constantly looking for that better way, aren't we? Building faster, smarter, more efficiently, especially when it comes to something as crucial as putting a roof over people's heads. It's a fundamental need, yeah. And well, traditional construction often faces challenges in meeting demand while, you know, keeping quality up and costs reasonable.

Okay, let's unpack this then. That's where industrialized building systems, or IBS, come in. Think of it like a, well, a giant construction set made in a factory.

Instead of building everything on-site from scratch, you're assembling pre-made components like pre-caft walls or, say, steel frames. It kind of shifts a big chunk of the work to a more controlled environment. That's a great way to visualize it, actually.

Moving a lot of the construction process off-site into a factory, it offers huge potential for consistency and efficiency. Exactly. And today, we're taking a deep dive into IBS.

We're focusing specifically on its adoption in Malaysia, looking through the lens of some really detailed studies. We're going to explore the exciting possibilities, the real hurdles they've faced, and maybe what the future holds for this, well, fascinating approach to building. And Malaysia's longstanding efforts to promote IBS make it a really insightful case study.

It offers, you know, valuable lessons for anyone interested in modern construction methods. For sure. And for you, our listener, the learner, this deep dive is your shortcut to understanding.

We've sifted through the research to bring you the essential insights, those aha moments, and hopefully a clear picture of what can seem like a complicated topic. Get ready for some surprising facts and takeaways that'll really stick with you. So what makes IBS so appealing in the first place? What are the big advantages that have governments and industries so interested? Well, the potential benefits are quite compelling, as the research highlights.

For one, construction time can be dramatically reduced. Some studies suggest by more than half compared to conventional methods. That speed, well, it has a huge impact on getting people into homes faster.

Yeah. And that time saving isn't just about speed, is it? It has this sort of domino effect. Exactly.

Shorter project timelines often lead to better organization on site, less chaos happening over a compressed period. Plus, you mentioned consistency. The factory precision of IBS leads to significantly less material waste compared to the variability of traditional sites.

And that controlled factory environment also translates directly to improved quality. Standardized processes, rigorous quality checks, it means potentially fewer defects compared

to the inherent uncertainties of building everything out in the elements. Absolutely.

The sources also point to cleaner, more organized construction sites, less raw material storage, less on-site fabrication. It just creates a safer and more efficient workspace. And crucially, IBS can decrease the reliance on manual labor, potentially needing fewer workers on site overall.

Let's consider the core insight here. IBS isn't just about building faster. It's about a fundamentally more controlled, more efficient process that can lead to big advantages across the board.

If it's implemented correctly, I suppose. That's a key point. And we shouldn't overlook the environmental benefits either.

Less waste, potentially shorter construction times that can contribute to reduced air pollution and a smaller environmental footprint from the building activity itself. OK, here's where it gets really interesting. This isn't just theory, right? The research points to successful IBS implementation around the world.

Real world examples. Yeah. Think of companies like Sakitui Home in Japan, Living Solution in the UK, Open House in Sweden and Wenswoon in the Netherlands.

These are actual examples showing this approach can work effectively and at scale in different markets and under different rules. Those examples really demonstrate the adaptability of IBS. Its potential to address diverse housing needs globally.

And Malaysia has been actively pursuing IBS for a while now. The government even launched an IBS roadmap quite a while back, actually aiming for a major shift. Right.

They've had policy focus for years. Exactly. And more recently, there's been a strong push to use IBS for government funded projects targeting a minimum of 70 percent IBS usage.

That's, well, that's a significant commitment. It signals a long term strategic vision. That strong government backing really underscores the recognition of IBS's potential.

Its potential to tackle key challenges within the Malaysian construction industry, like reliance on foreign labor and productivity issues. Yeah. And the Construction Industry Development Board, or CIDB, in Malaysia, they've even created a detailed classification system for IBS.

It covers everything from precast concrete to steel frames, timber, block work, even innovative systems. That detailed classification by CIDB shows they're trying to structure the market, foster innovation across different prefab techniques. Definitely.

But with all these potential upsides, the strong government support, why hasn't IBS become the dominant way of building in Malaysia? What are the major roadblocks, the things holding it back? That's the million dollar question, isn't it? And the research really dives into these significant barriers, grouping them into several key areas. One major area is what they call

readiness issues. Readiness issues.

Yeah. Basically, the capacity and maybe the willingness of the local industry to effectively embrace and implement IBS. Right.

For example, there's apparently a shortage of skilled local workers who are, well, interested in construction jobs, maybe due to lower pay or safety concerns. Exactly. And this leads to a heavy reliance on readily available and often cheaper foreign labor.

Which I guess kind of puts a damper on investing in automation or upskilling locals for IBS, right? If the cheaper option is readily available. You can inadvertently slow things down, yes. Why invest heavily in new systems and training if the old way, using readily available labor, seems cheaper in the short term? Makes sense.

And the studies mentioned training programs haven't quite caught up, not providing enough people with those specialized IBS skills, like integrating the systems or assembling components. That's right. It's a different skill set needed compared to traditional building.

Plus, many local contractors just lack practical experience with IBS projects. There's a learning curve and maybe some hesitation to be the first mover. And you also mentioned limitations in local R&D, less investment there, maybe lower uptake of IT and construction generally.

Yeah. The research indicates limited local investment in IBS research and development, a sort of lower tech adoption overall in construction processes, and restricted access to the more advanced IBS technologies, often leading to reliance on expensive imports. Which adds to the cost concern, no doubt.

And even if a contractor wants to use IBS, there can be issues with the supply chain, like inconsistent supply of the components locally. Exactly. You can't easily switch to a system if you can't guarantee a reliable source of the parts when you need them.

It adds risk. Okay. So readiness is a big one.

Right. What else? You mentioned cost earlier. Cost is definitely another major barrier, perhaps unsurprisingly.

Yeah. While everyone talks about the long-term cost-saving potential, the upfront investment can be a really significant obstacle. Right.

Setting up the factories for these components, that must require huge initial capital, machinery, molds, specialized tech. Absolutely. Not to mention the skilled labor to operate it all.

Small contractors often just don't have the financial capacity, the backup, for such a significant investment. And developers, too. Are they hesitant? Well, yes.

Developers can be hesitant due to things like fluctuating housing demand, high interest rates,

general economic uncertainty. It makes them cautious about potentially higher initial capital outlays for IBS projects, even if it might pay off later. It's like asking a baker to invest in a whole new set of expensive, specialized ovens before they even know if people will buy the new type of bread.

That's a good analogy. Yeah. And there's also a perception issue within the industry.

Yeah. Some players see IBS as, well, a threat to their existing ways of working rather than a new opportunity. Resistance to change happens everywhere.

It does. And the current systems for procurement and contracting, they aren't always set up well for IBS either. Often the component manufacturers, the precasters, they get brought in quite late in the game.

After the main tender stage, maybe? Yeah, often. Which makes proper design integration much, much harder. Ah, okay.

The research really emphasized that, didn't it? For IBS to be truly cost-effective, the design needs to think about prefabrication right from the very start. Exactly. Trying to shoehorn an IBS approach onto a conventional design later on, that usually leads to increased costs and delays.

You need that early collaboration, designers, manufacturers, contradictors, all on the same page from day one. That makes sense. And what about the actual project execution, financial hurdles there too? Yes, there are logistical and financial complexities in execution.

IBS often requires quite large upfront payments, sometimes 30, 50 percent before manufacturing even begins. That can be a cash flow challenge for developers. Wow, yeah, that's significant.

Plus, the whole process demands really meticulous planning and control. Any delays, say, in component manufacturing or even just getting them to site can have a huge knock-on effect on the entire project schedule, very vulnerable to bottlenecks. Right.

And managing the production, the transport, the site coordination for potentially multiple projects at once, that sounds like a logistical headache. It adds another layer of complexity, requiring sophisticated management. But it's not just about these practical and financial challenges.

There's also this notable, well, negative perception surrounding IBS in Malaysia. That was quite interesting in the research. Negative perception? How so? Well, it really underscores the power of perception, doesn't it? How past experiences can really color the industry's view of new tech.

So what's the baggage? Apparently, IBS is sometimes linked, in people's minds, to past instances of maybe poor quality, leaking roofs, abandoned projects, even some, let's say, uninspired architectural designs from earlier prefabricated efforts decades ago. Ah, OK. So old

failures are casting a long shadow.

Precisely. This has created a sort of negative public image for precast concrete in particular, leading to customer hesitancy. Oh, is it one of those buildings? And that negative public image then makes developers worried, right? Worried about buyer resistance if they use IBS.

Exactly. It creates a significant barrier to wider adoption if the end customer is skeptical. And it's not just the public.

Professionals too. Not just the public, no. Even some construction professionals can be wary, maybe due to potential post-construction issues they associate, rightly or wrongly, with earlier IBS projects.

And some designers feel that prefabrication limits their creative freedom. That highlights a need for better education then, and maybe showcasing modern IBS designs that are high quality and look good. Absolutely.

The research points directly to a lack of effective branding and promotion of IBS to the end users. There isn't enough consumer demand pulling developers towards it. They even suggested a rebrand.

Yeah, they floated the idea of something like Intelligence Building Solution, trying to shed that negative baggage and frame IBS as a modern, value-driven option. Interesting. And beneath the perception, there's also just a lack of knowledge.

That's another fundamental issue identified. Poor knowledge and awareness. Many professionals in Malaysia, apparently, lack deep technical understanding of the different IBS components and systems.

So developers stick with what they know. Often, yes. They feel more secure with familiar conventional methods and their established cost calculations.

And compounding that, IBS hasn't been sufficiently integrated into university courses. So the next generation of engineers and architects might not be as familiar or comfortable with it. That lack of foundational knowledge creates a kind of natural resistance, doesn't it? Fear of the unknown.

It does. And then you have more specific hurdles layered on top. Things like a perceived lack of standardization and components.

Right. Makes it harder to mix and match or guarantee supply. The complexities of supervising a workforce that needs specific training for IBS assembly, and just the practical difficulties of transporting those big, heavy IBS panels.

Think about road restrictions, permits, needing specialized cranes. Yeah. Logistics again.

Those practical things can add time and cost if you don't plan really carefully. Definitely. And finally, there's the regulatory landscape.

Ah, the rules in red tape. Always a factor. The research highlights a lack of specific building codes, standard contract forms, and procurement processes really tailored for IBS.

The approval processes can be lengthy and may be made worse if the authorities themselves aren't fully familiar with IBS plans. That uncertainty around approvals, the potential delays, that could be a major deterrent for developers deciding between methods. It certainly can.

And specifically looking at developers in the Klang Valley area. While getting finance wasn't seen as a major problem in one survey, concerns did pop up about potential unexpected extra costs during implementation, those big upfront payments we mentioned, and the costs of importing certain materials or technologies. So it's a really tangled web, isn't it? Skills gaps, money issues, perception problems, planning challenges, rules, all interconnected.

It really is. A complex mix of factors hindering wider adoption. Okay.

So we've explored the potential, the shiny upside, and now the tangled web of problems. But what about the bottom line, the crucial question? Does IBS actually save money compared to traditional construction in the Malaysian context? This is where the data gets really interesting and provides some valuable, maybe even slightly counterintuitive insights. One study initially indicated potentially higher structural costs for IBS in some cases.

Higher, why? Mainly due to increased use of concrete and reinforcement in some precast systems compared to say conventional brick and mortar walls for certain elements. However, it also pointed to lower architectural costs because IBS often integrates wall panels and finishes, right? So it reduces the need for separate stages like bricklaying, plastering, skimming. Ah, I see.

So a cost trade-off, higher structure costs maybe, but lower finishing costs. But what about the overall total cost when you add it all up? That's the key. Across the majority of the projects studied, the research looked at specific case studies like the Avanti project, the Ruhana project, Pangsapuri Aurora project.

The total building cost using IBS was actually found to be lower than conventional methods. Lower overall, despite the structural costs potentially being higher sometimes. Yes, lower overall in most of those cases.

There was one block work system that came out slightly higher, but for the precast system studied IBS was generally cheaper overall. It suggests that despite those initial investment concerns we talked about, many of these real-world Malaysian case studies show IBS is already proving more cost effective than traditional methods in practice, at least for those projects. Well, that's a pretty compelling finding, isn't it? Especially when you add in the time savings and the other potential benefits like quality and waste reduction.

It is. And it seems to align with the broader feeling in the industry there too. A significant majority, nearly 88% of the stakeholders they surveyed, agreed that overall IBS is more cost effective.

Almost 9 out of 10 think it's cheaper in the long run. Okay. Did the research give specific numbers? It did provide some specific cost comparisons from the case studies, which are quite telling.

For instance, one comparison found precast wall systems resulted in a total cost about 3.14% lower than conventional. Okay, about 3%. The Avanti Residence project, their conventional construction cost around 3.2% more than using precast IBS.

Similar figure. Duralhana showed a comparable trend with conventional being roughly 3.5% more expensive overall. And Pangsapuri Aurora, another project, showed a slightly smaller but still significant cost saving just over 1% using precast compared to conventional.

So these real world project comparisons seem to offer pretty solid evidence for potential cost benefits of IBS, at least in those specific contexts using precast. They do offer compelling evidence, but it's important to remember it's not a universal always cheaper answer, is it? Right. Context matters.

Definitely. And the research also draws an interesting comparison with Australia. Oh yeah.

How so? Well, they observed this trade-off between the higher capital costs often associated with setting up IBS production and the higher labor costs associated with traditional on-site building. Okay. In Australia, where labor costs are very high, that makes precast IBS economically very attractive.

The savings on labor outweigh the capital investment. Makes sense. But historically in Malaysia, the relatively lower cost of labor, particularly foreign labor, has favored the more labor intensive conventional methods.

The math's just worked out differently. Ah. So the relative cost of labor versus capital is a huge factor in which method looks cheaper on paper or in practice.

Exactly. It highlights how local economic factors and labor market dynamics really influence the cost competitiveness of different construction approaches. Maybe as Malaysian labor costs rise or efficiency demands increase, the equation shifts more firmly towards IBS.

Interesting point. So, okay, given this potential, the demonstrated cost savings in some cases, the government push, but also all those barriers, what needs to happen to really accelerate IBS adoption in Malaysia? What are the key steps forward suggested by the research? The research proposes several crucial recommendations, focusing on pretty systemic changes actually, both within the industry itself and in the wider support structure around it. Okay.

Like what? Well, one really interesting suggestion is a kind of re-engineering of the contractor's role. Re-engineering? How? Moving them away from just being traditional on-site builders towards becoming more like system integrators or process coordinators, overseeing the whole thing from factory production coordination to final on-site assembly. So more of a project manager focused on the whole prefab process.

Exactly. But that requires a whole new set of skills, different knowledge, maybe different organizational structures within contracting firms. Yeah, that's a big shift.

Not easy to implement. Would likely need government help, consultation, funding for retraining. The research suggests exactly that government consultation and support would likely be needed to help contractors make that transition effectively.

Okay. What else? R&D? Yes. R&D is another big one.

The researchers stress the importance of restructuring and refocusing R&D efforts, not just on the hardware, the physical components, but on the entire IBS value chain. That includes things like verification processes, specialized software for design and logistics, developing local suppliers, better marketing strategies, specific safety protocols for IBS, lifecycle cost analysis, lean construction principles applied to IBS, even financial models for IBS businesses. Wow.

Okay. So a much broader view of R&D, not just inventing a better concrete panel, but improving the whole ecosystem. Precisely.

And they suggest things like increased government research grants and tax incentives to encourage this wider R&D focus. A more holistic approach is seen as crucial for sustained growth and innovation. And technology adoption, ICT.

Enhancing the adoption of information and communication technology, ICT is another key recommendation. Using tech across all stages, design, production tracking, onsite monitoring, integrating different parts of the supply chain. Wow.

That seems essential for managing the complexity we talked about. It does. And again, this likely needs supportive government policies and maybe financial aid to help companies, especially smaller ones, upgrade their IT infrastructure and skills.

Leveraging IT effectively can boost accuracy, communication, and overall efficiency. Makes sense. And the skills gap we discussed earlier, training.

Definitely needs addressing. The recommendation is to restructure IBS training programs based on the actual skill shortages identified in the industry. This means more practical, specialized training, hands-on stuff for both designers learning how to design for IBS and for the installers doing the assembly.

Targeted training. Yeah. Building that capable workforce.

Essential. And then there's that perception issue. Ah, yes.

The negative baggage. How do you fix that? The research calls for serious, robust marketing and rebranding efforts, really hammering home the message that modern IBS is a value-driven solution offering high quality, good life cycle costs, and environmental benefits. Selling the modern reality, not the old myths.

And they mentioned renaming it again. Yeah. They reiterated that idea of maybe using a more modern name like Intelligence Building Solution or something similar, just to help reshape its image and signal a break from the past.

Changing perception, both public and within the industry, is seen as vital. You need to create that pull, that demand. Exactly.

And related to that, awareness programs need to be redesigned. Not just one-way information dumps, but fostering two-way communication. Promotion agencies need to talk with stakeholders, listen to their concerns, understand the barriers from their perspective, and address them effectively.

That feedback loop builds trust and helps tailor the message. Good point. What about looking outwards? Learning from others? Yes.

Benchmarking is suggested. Looking closely at successful IBS implementation in countries like Japan, Sweden, Singapore, places that are further along the adoption curve, and learning from their experiences, both successes and failures. Makes sense.

And the government's role, beyond funding and R&D, more regulation? The researchers believe government authorities need to enact more push factors, using bylaws and regulations more assertively to incentivize or even mandate IBS use in certain situations, perhaps building on that 70% target for public projects. So a mix of carrot and stick, perhaps? Perhaps. And finally, there are recommendations around addressing those practical supply chain issues, ensuring sufficient volume and economy of scale for component production, maybe tackling potential monopolies by larger players, actively increasing the off-site manufacturing capacity nationwide, really emphasizing sustainability as a key selling point, and crucially, ensuring better supervision and monitoring on actual IBS project sites to guarantee quality execution.

A lot to do, then. It's quite comprehensive. It really touches on almost every aspect of the construction ecosystem.

So to kind of wrap up our deep dive here, it's really clear that IBS offers, well, significant potential for the Malaysian construction industry. It promises greater efficiency, improved quality, potential cost savings, especially important for housing. Absolutely.

The potential is there. However, realizing this potential, it means tackling this really complex set of interconnected challenges we've discussed, everything from how people perceive IBS to the

very practical nuts and bolts of implementing it effectively on-site and managing the supply chain. Exactly.

While the government has clearly been active in promoting IBS, and the benefits seem demonstrable in many cases, overcoming these often deeply ingrained obstacles is going to require a really coordinated, sustained effort from everyone involved, government, industry, educators, financiers. A lot. A real systemic shift.

And for you, The Learner, hopefully you now have a much clearer picture of the complexities, the nuances, but also the real opportunities surrounding these modern construction methods viewed through the specific Malaysian case study. Which I think raises a pretty significant question for you to consider as we finish up. Go on.

Given the compelling benefits that seem to be demonstrated in many of these case studies, and the clear ongoing government support, what will ultimately be the tipping point? What will truly accelerate the widespread adoption of IBS? Not just in Malaysia, but maybe in other regions facing similar construction pressures and challenges. What's the key that unlocks it? What roles will evolving technologies play, supportive government policies? And maybe most importantly, those ever-shifting perceptions we talked about. How will they ultimately shape this transformation in how we build? It's definitely something worth pondering as you maybe explore this fascinating area further.