



Navigating the modular shift: Insights from real estate developers in the Netherlands

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Thesis presentation

July 7th, 2023, 08:15
Zaal D (BG.Oost.430), BK TU Delft

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Traditional approach to construction

But can we build in another way?

What if we could build in a way that is more sustainable, more productive, and less labour intensive?





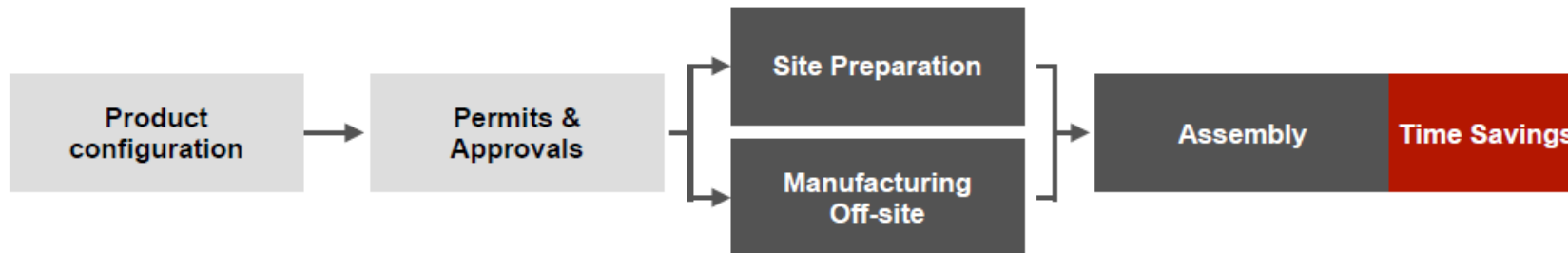


Point of departure

Conventional Construction Process



Industrialized Construction Process



Point of departure



New technology

+



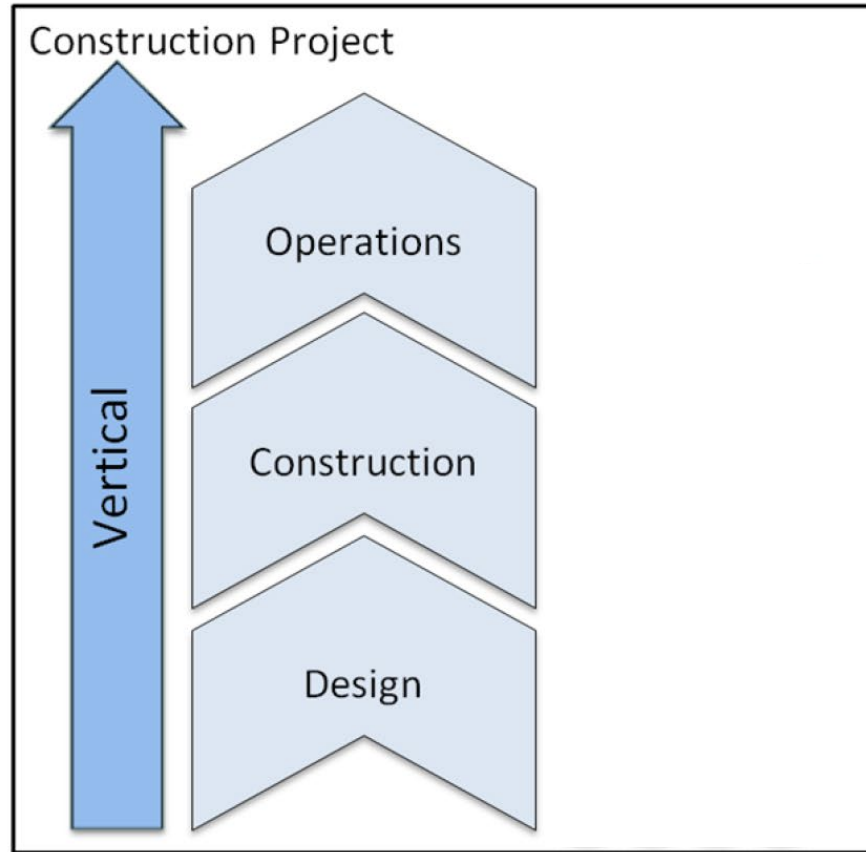
New business model



Some problems with this approach

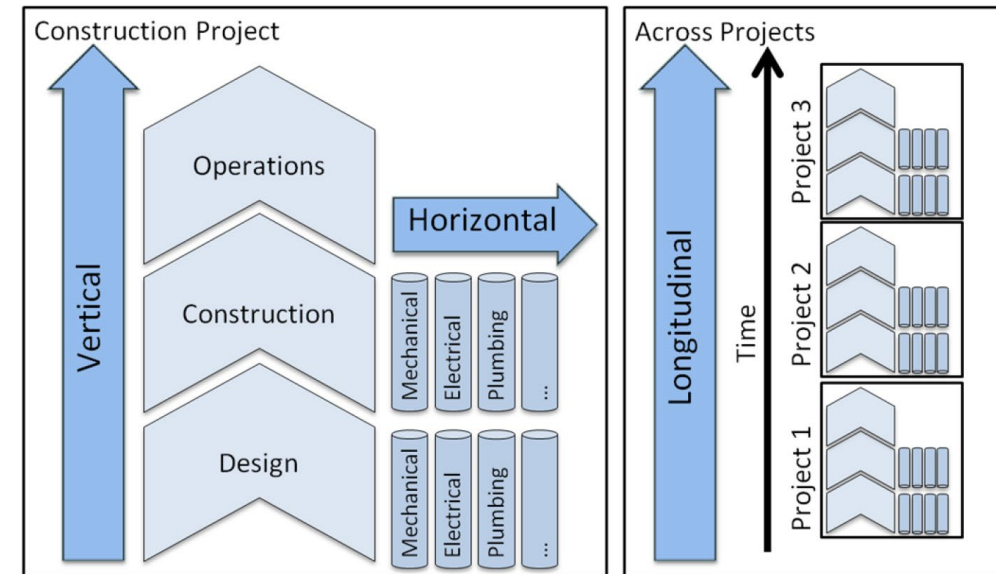
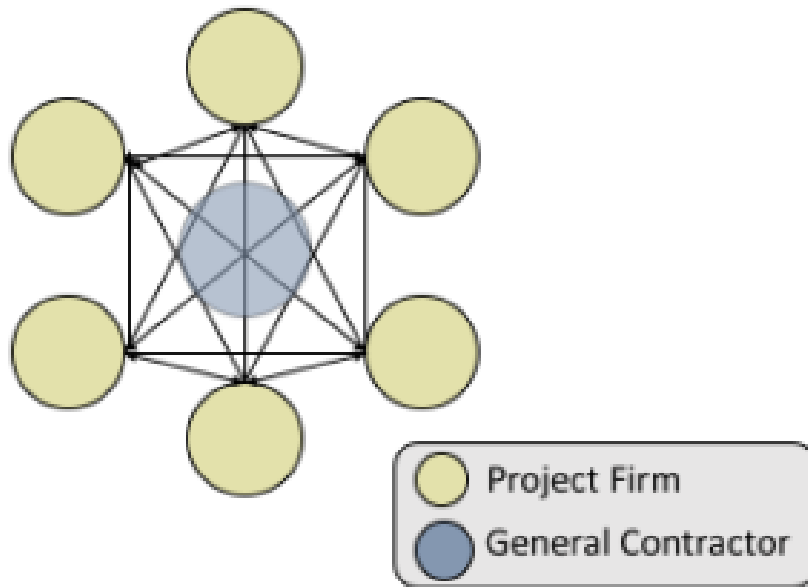
- Steve Jobs
- Each construction project is **location specific**
 - All Buildings project are unique
 - All project team are unique
 - All projects are built with a unique technical solution
- **Not just one type** of modular construction
- **Fragmented** industry with many **different stakeholders** involved working in silos

Problem space



Problem space

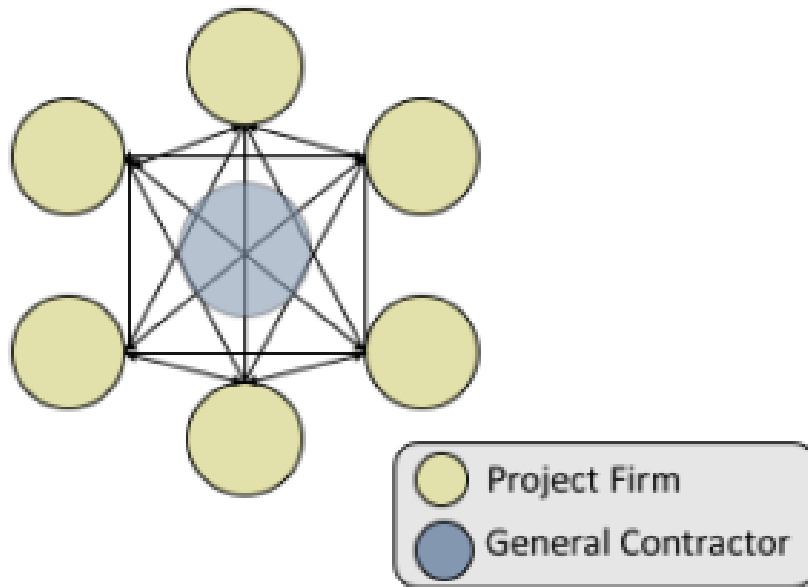
Decentralized modular clusters





Problem space

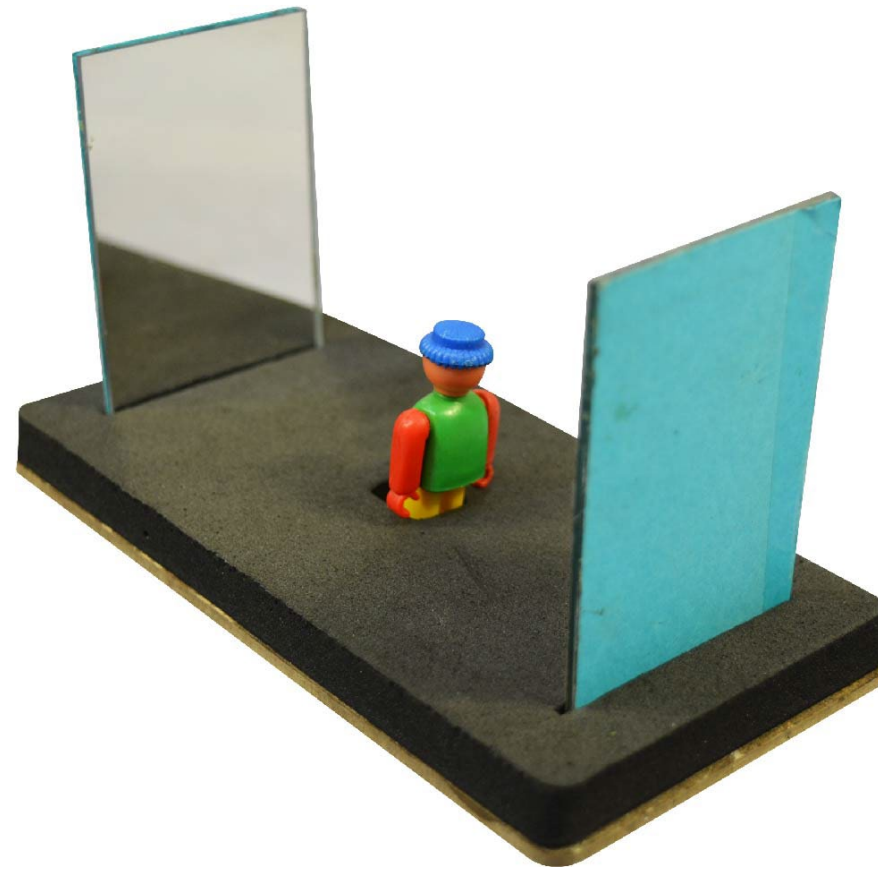
Decentralized modular clusters



- Only focus on improvements within cluster
- Lose ability to innovate at global level



Mirror 'trap'





New technology

+

New business model



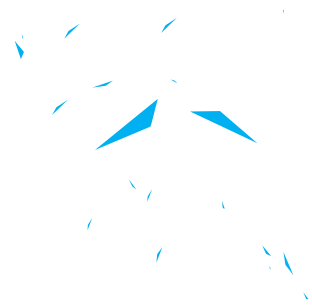


Implications so far

- Industrialized construction
- Fragmented industry
- Organized in decentralized clusters
- New business models

The page is decorated with numerous abstract geometric shapes, primarily triangles and quadrilaterals, in two shades of blue: a dark navy blue and a light sky blue. These shapes are scattered across the page, some overlapping, creating a dynamic, crystalline background. The shapes vary in size and orientation, with some pointing towards the center and others towards the edges.

Navigating the modular shift: Insights from real estate developers in the Netherlands



RESEARCH OBJECTIVE

Identifying strategies of real estate developers to integrate modular construction in their business.



MAIN RESEARCH QUESTION

How and in what ways can real estate developers strategically integrate modular construction while adopting industrialized construction?



Research questions

How and in what ways can real estate developers strategically integrate modular construction while adopting industrialized construction?

SQ 1:

*What are the current **strategies and mechanisms** used by real estate developers for integrating modular construction in their operations?"*

SQ 2:

*What are the **challenges and drivers** influencing the adoption and enhancement of modular construction strategies?"*

SQ 3:

*How can real estate developers play a **more strategic and proactive** role in advancing the **broader adoption** of industrialised construction?"*

In-depth interviews

- Focus on Urban Housing Construction
- Scope of Experience
- Modular Construction Experience



In-depth interviews

No.	Title	Working currently at organization	Years of expertise	Modular projects
1	Real estate developer/transaction manager	Private developer	10	1 project (failed)
2	Real estate developer + MT	Private developer	5	6
3	Real estate developer	Developing builder /Spin-off factory	10	0
4	Real estate developer/ architect	Corporate developer	3	3 (1 process)
5	Real estate developer	Developing builder	5	2 (1 failed)
6	Co-Founder/system developer	Digital system integrator	15	4
7	System architect	Vertical integration firm	6	8
8	Real estate developer	Vertical integration	10	4 (2 failed)
9	Real estate developer	Corporate developer	5	1
10 *	Real estate developer	Concept developers	8	1 (failed)
11 *	Real estate developer	Corporate developer	5	1



In-depth interviews

III. KEY THEMES

A. Exploring the Journey towards Modular Construction Integration

- Background and motivation (e.g., what sparked your interest in modular construction?)
- Decision-making process (e.g., why?)
- Implementation steps: Could you describe your journey to modular construction?

B. Tools and Strategies in Modular Construction Integration

Could you describe your journey to modular construction?



Strategies drawn from academic literature

1. Collaborative modular clusters (Hall, 2018)
2. Virtual project-based companies (Hall, 2018)
3. Spin-off factory (Hall, Whyte and Lessing (2020))
4. Core-periphery platform (Hall, Whyte and Lessing (2020))
5. Integrated hierarchical firms (Hall, Whyte and Lessing (2020))



Strategies drawn from academic literature

1. Collaborative modular clusters
2. Virtual project-based companies
3. Spin-off factory
4. Core-periphery platform
5. Integrated hierarchical firms

Use of Bim, Lean construction ,

- Integrate information
- Integrate organization
- Integrate process

Findings

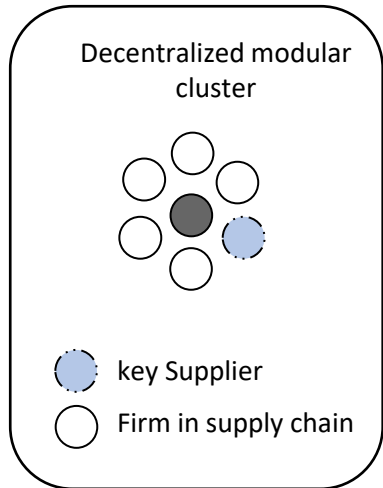


Wide spectrum of integration strategies





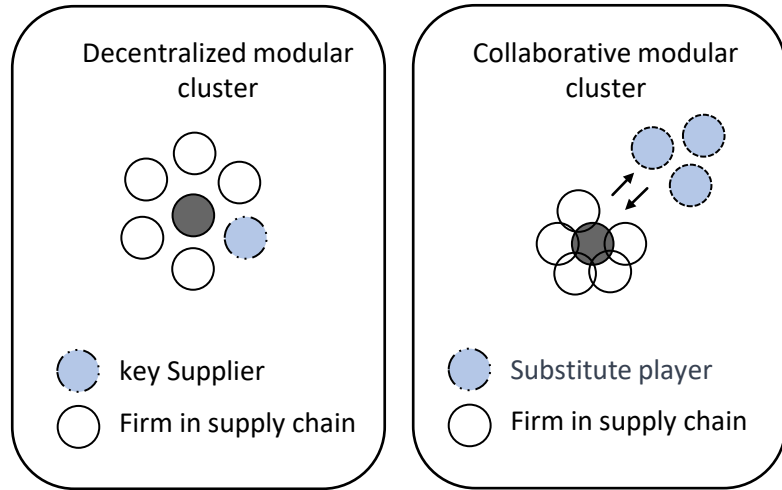
Wide spectrum of integration strategies



- Organized in the traditional way
- Early involvement of modular supplier
- Benefit: maximize cognitive resources
- Challenge: mirroring 'trap' and risk



Wide spectrum of integration strategies



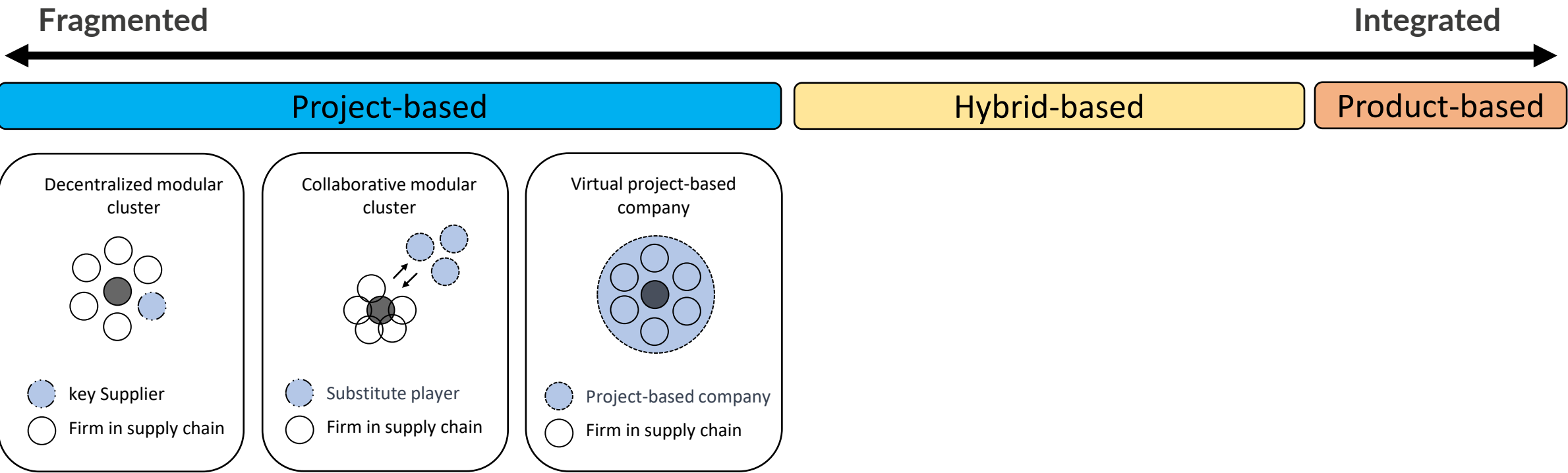
- Work with 'makers' and substitute players
- Integrate information, organization, processes





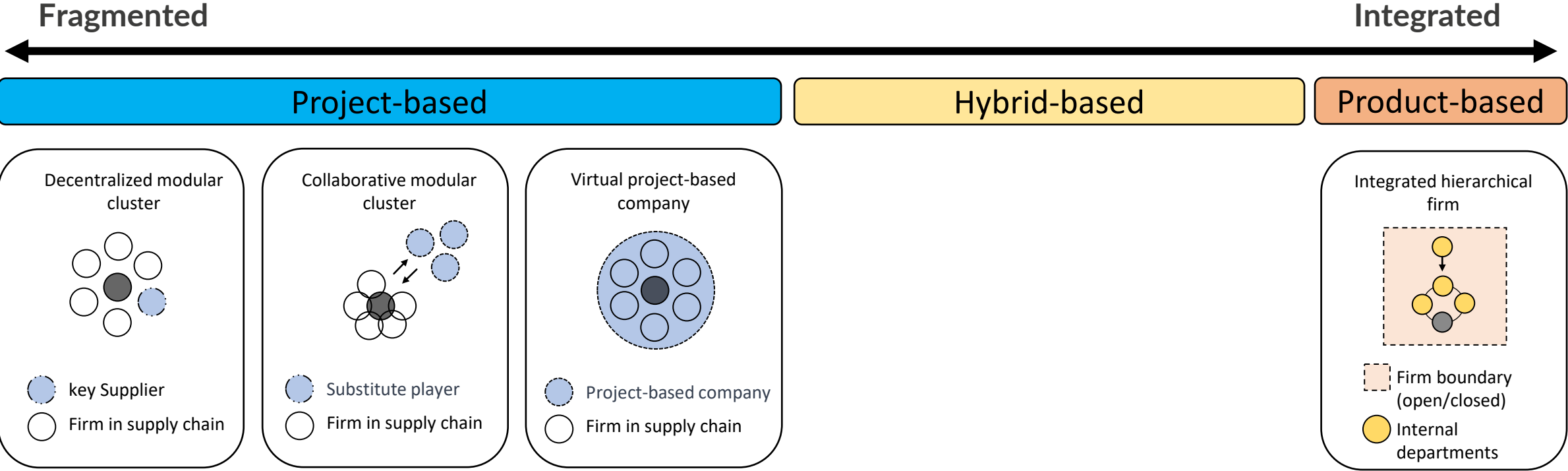


Wide spectrum of integration strategies





Wide spectrum of integration strategies

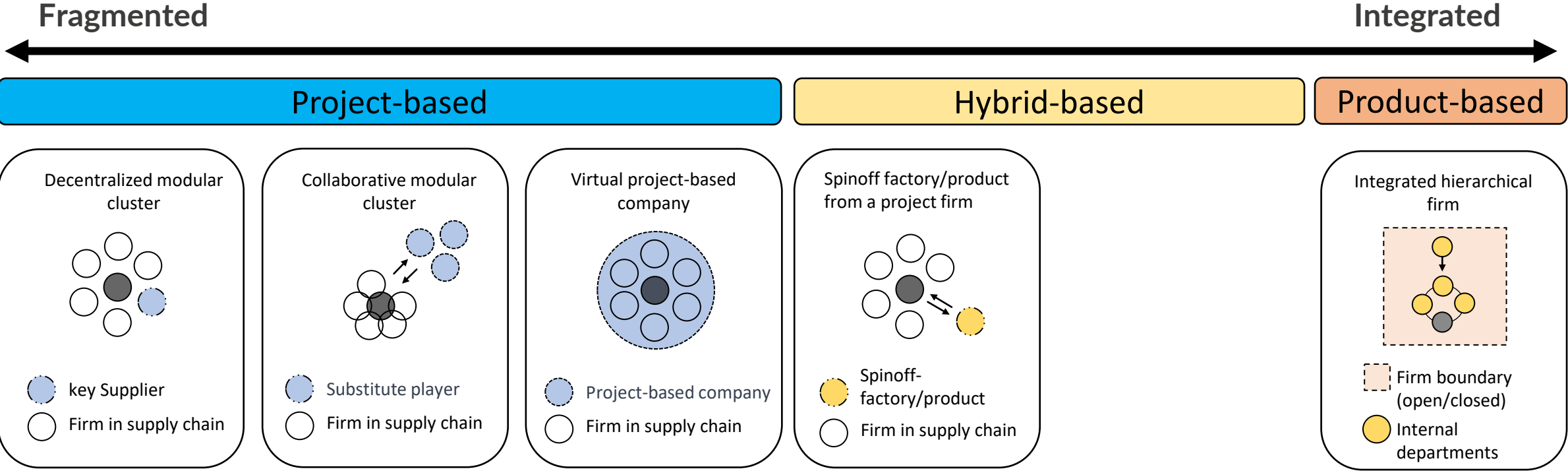


● Real-estate developer

(inspired by Hall, 2018)

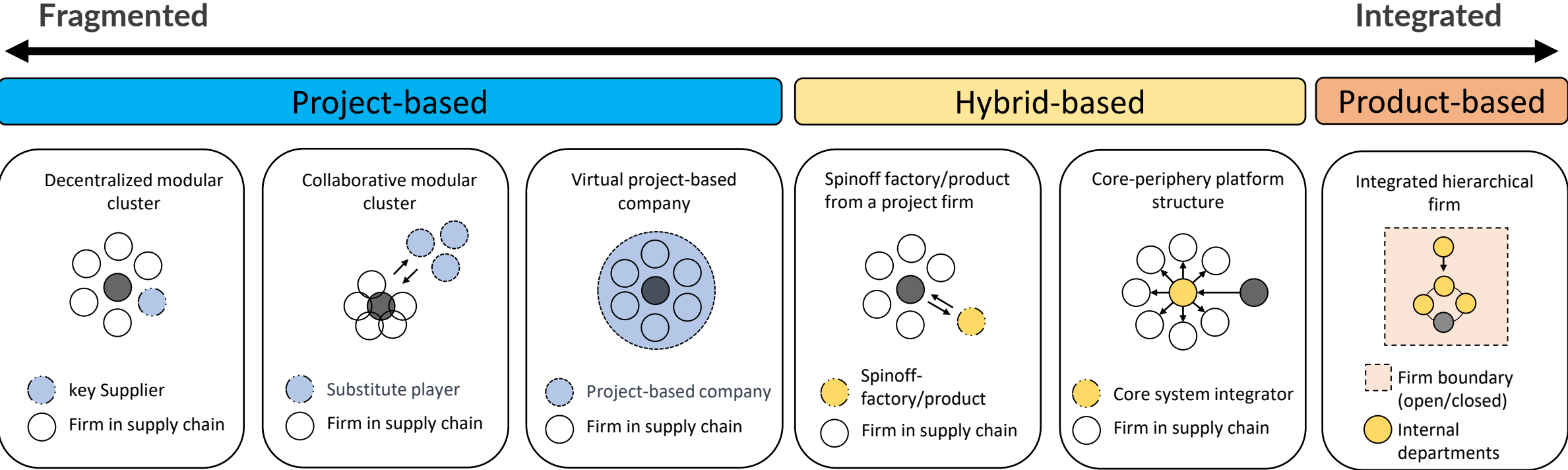


Wide spectrum of integration strategies





Wide spectrum of integration strategies





Taking a closer look :

Integrated hierarchical firm

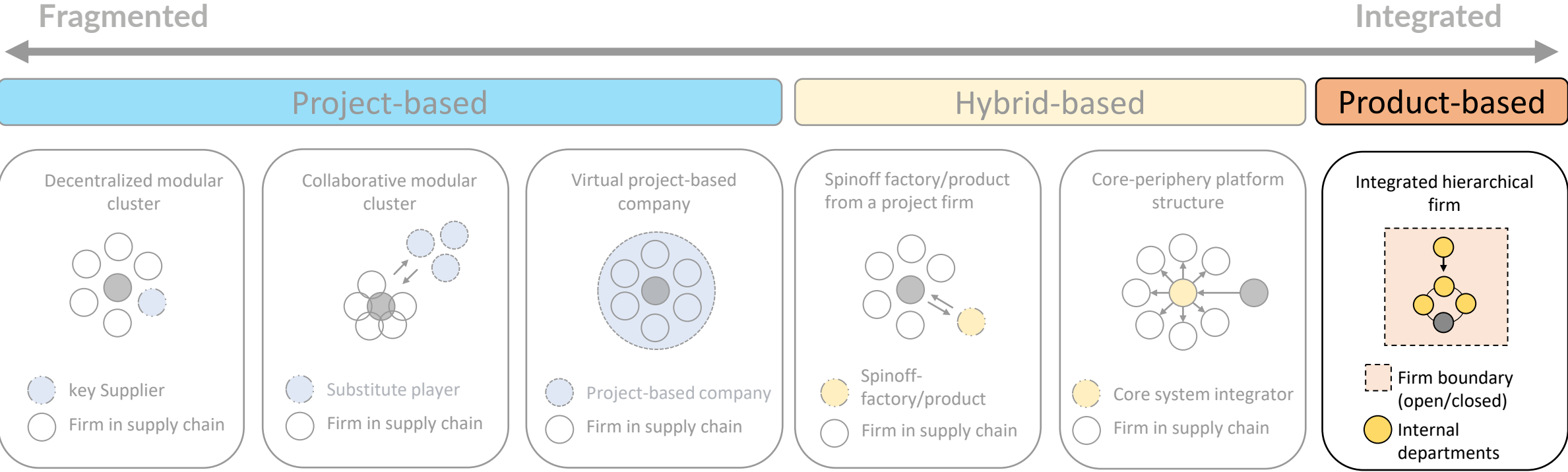
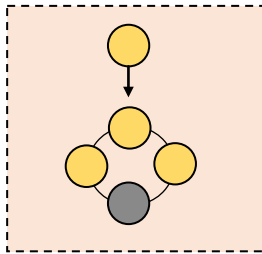






Foto van fabriek etc.

Integrated hierarchical firm

Integrated hierarchical firm



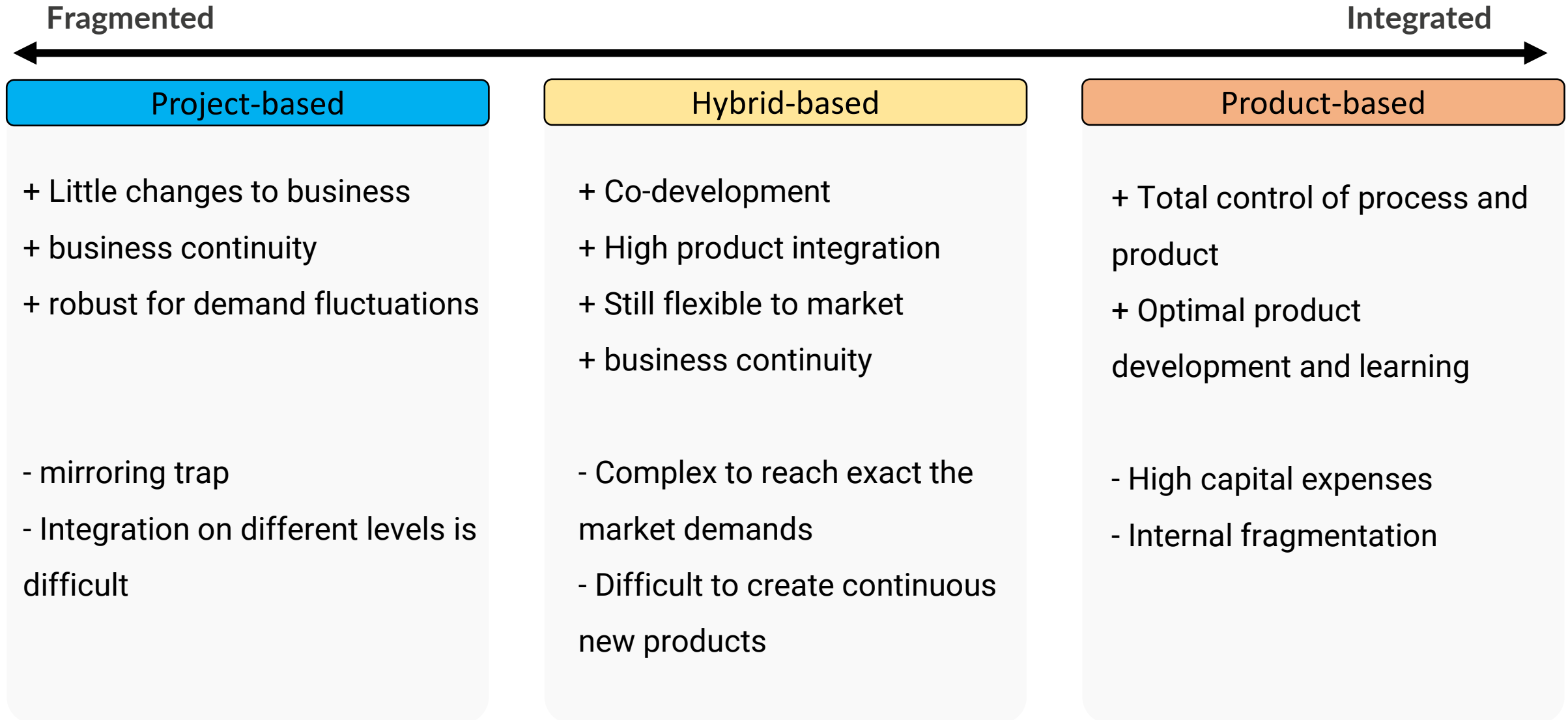
 Firm boundary (open/closed)

 Internal departments





Discussion of findings





Recommendations for real estate developers

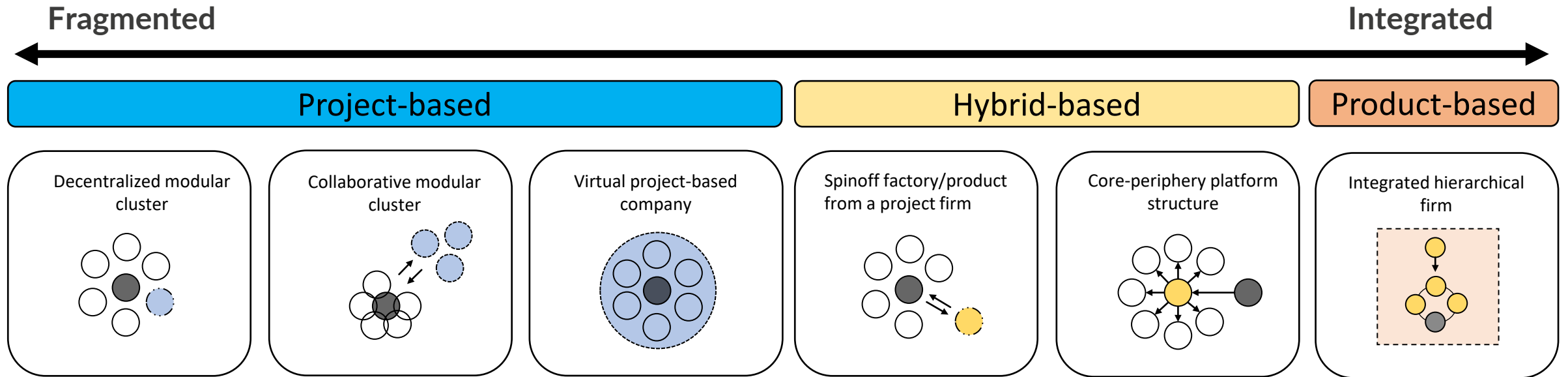
1. Create a **Product Strategy**
2. Develop **Unique Product Offerings**
3. **Optimize Design** for Factory Production and Logistics
4. **Build Relationships** with Modular Suppliers
5. **Test Fully Modular Construction**



Summery and contributions | conclusion

- Can integrate modular construction via **Project-, hybrid- or product-based approaches**
- **Diverse, strategies** in current landscape
- Importance of **business continuity** during transition
- Different levels of integration have their **own benefits and challenges**
- Currently there seems **not** to be a '**one size fits all**' approach
- Integration ought to be **adaptable and customized**

Implications for future research



- Predict “optimal” model for each situation
- Real estate developers as strong or weak system integrators



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Thank you!

