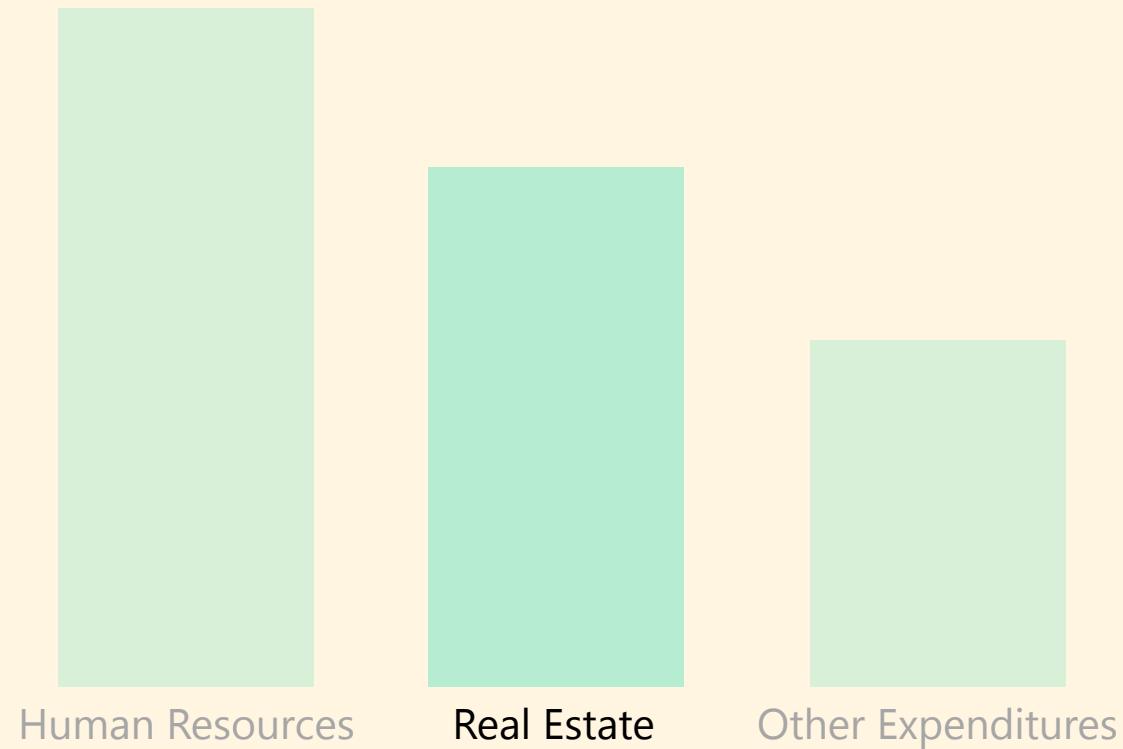


Ask the audience:

**Do you think renting or buying  
properties are expensive?**

Did you know?

# Real Estate: Second Biggest Expense



*(Gibler & Lindholm, 2012)*

# Workspace: ?

# Workspace: Cubical

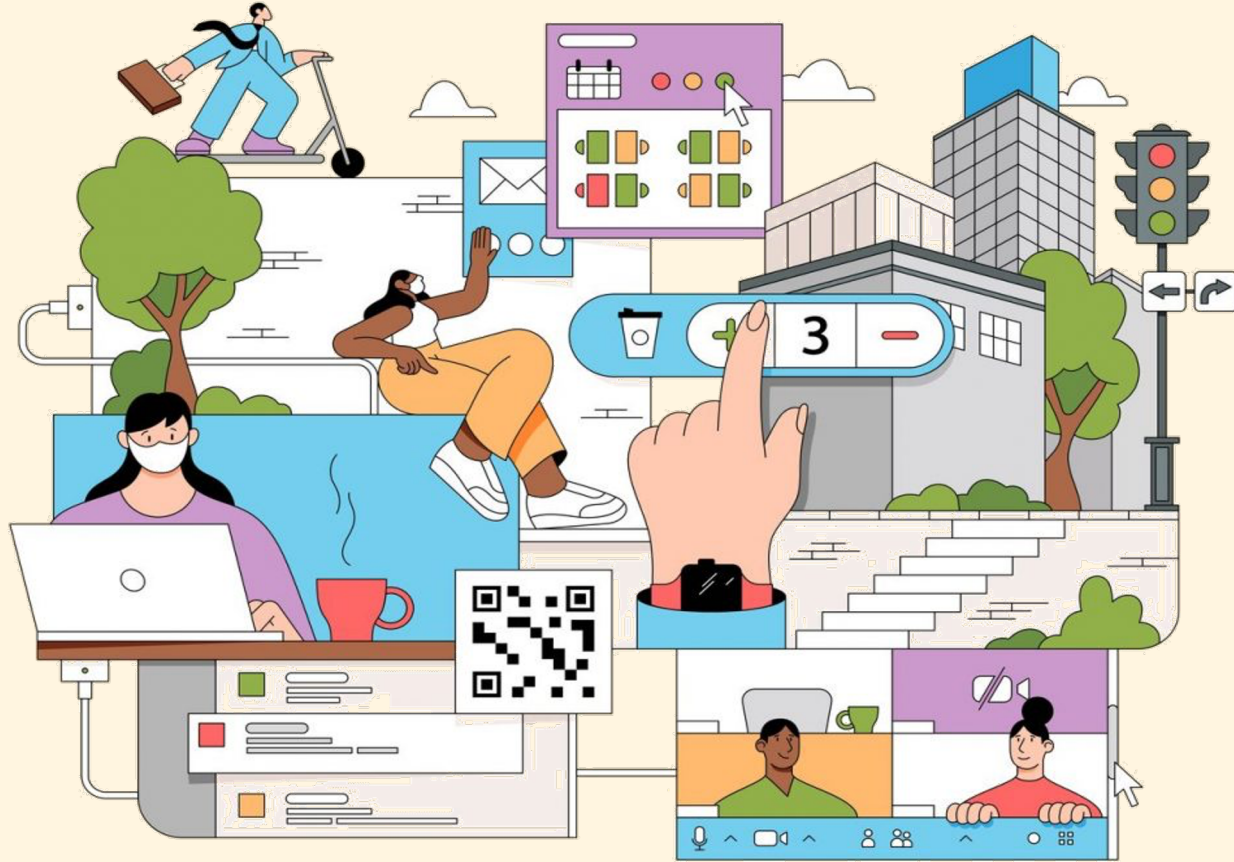




# Workspace: Co-Working



# Workspace: Remote Working



# Workspace: Back to Office



Workspace  
Retailshop  
Industrialplant  
Universitycampus  
Healthcarefacility

Workspace  
Retailshop  
Industrialplant  
Universitycampus  
Healthcarefacility

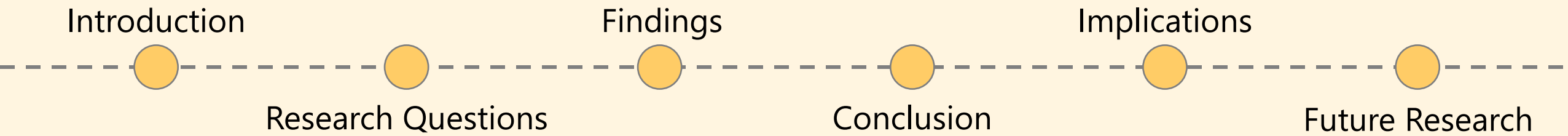
How to accommodate changing demands?

# Exploration towards a Resilient Corporate Real Estate:

Re-conceptualisation and Operationalisation  
in Various Commercial Asset Classes

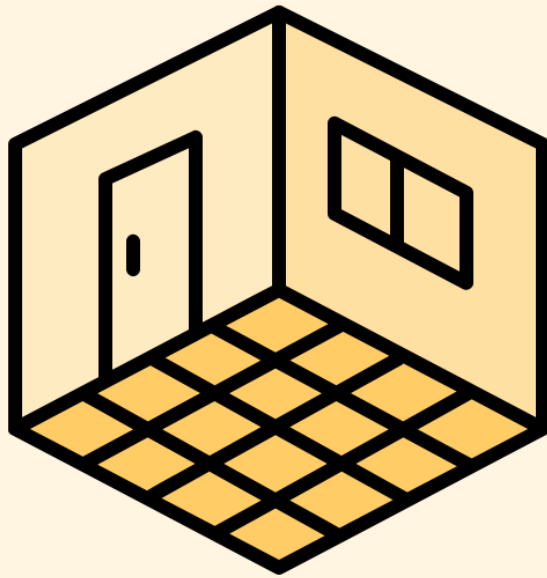
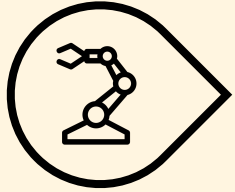


# Contents



Basic definitions

# Corporate Real Estate (CRE)



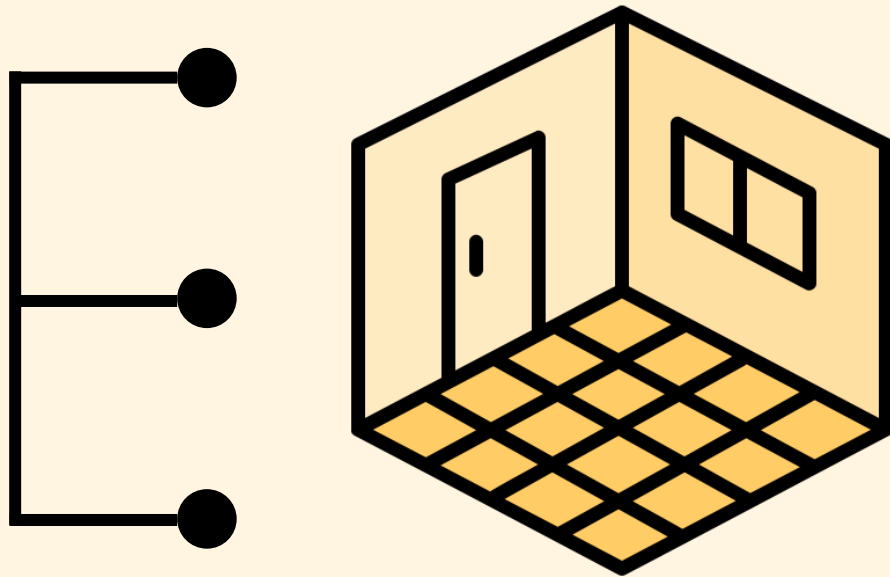
Properties that serves as the physical entity that in which the organisation's business activity occurs

(CoreNet Global, 2015)



Basic definitions

# Corporate Real Estate Management



Management of real estate, which may include strategic and operational alignment of demand and supply sides, to deliver mutual added value.

(de Jonge, 1994; de Jonge et al., 2009)

Research goals

# **Advance and explore applicability of Resilient CRE**



Research question

**How can resilience  
be advanced in the  
context of corporate  
real estate?**

Research question

# How can resilience be advanced in the context of corporate real estate?

Re-conceptualisation of CRE  
*(Theoretical)*

Operationalisation of CRE  
*(Practical)*

Research question

# How can resilience be advanced in the context of corporate real estate?

Re-conceptualisation of CRE  
*(Theoretical)*

Operationalisation of CRE  
*(Practical)*

## WHAT

is the extended  
definition of resilience  
and  
its features that fits the  
context of CRE  
industries?

Research question

# How can resilience be advanced in the context of corporate real estate?

Re-conceptualisation of CRE  
*(Theoretical)*

Operationalisation of CRE  
*(Practical)*

## WHAT

is the extended  
definition of resilience  
and  
its features that fits the  
context of CRE  
industries?

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should CRE industries  
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from the value delivery  
perspective?

Research question

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Re-conceptualisation of CRE  
*(Theoretical)*

Operationalisation of CRE  
*(Practical)*

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is the extended definition of resilience and its features that fits the context of CRE industries?

## WHY

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## HOW

can resilience be operationalised and optimised in various CRE asset classes?

Research question

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Re-conceptualisation of CRE  
*(Theoretical)*

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is the extended definition of resilience and its features that fits the context of CRE industries?

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should CRE industries enhance resilience from the value delivery perspective?

Operationalisation of CRE  
*(Practical)*

## HOW

can resilience be operationalised and optimised in various CRE asset classes?

## WHAT

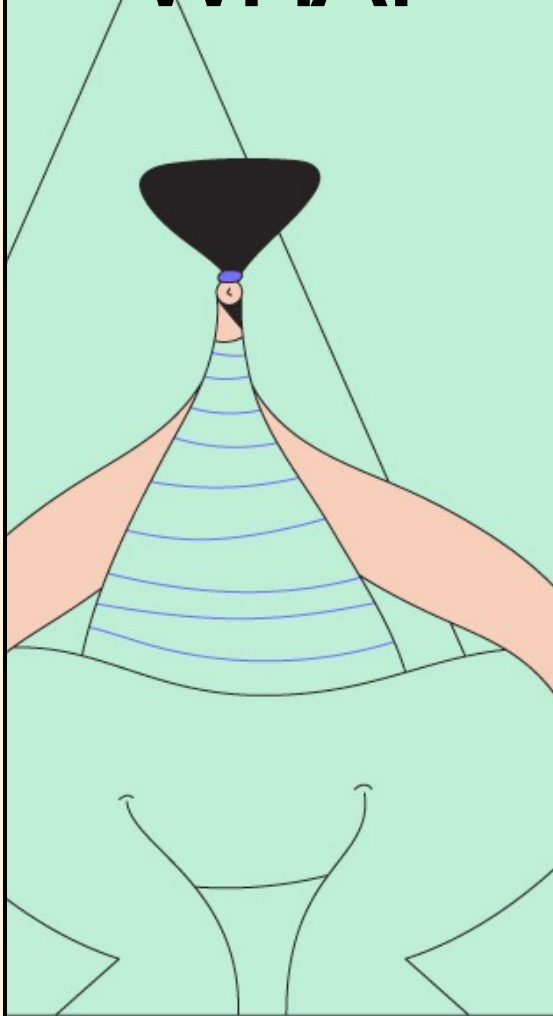
are the potential measures that CRE industries may take to maintain their resilience?



# Research Methods

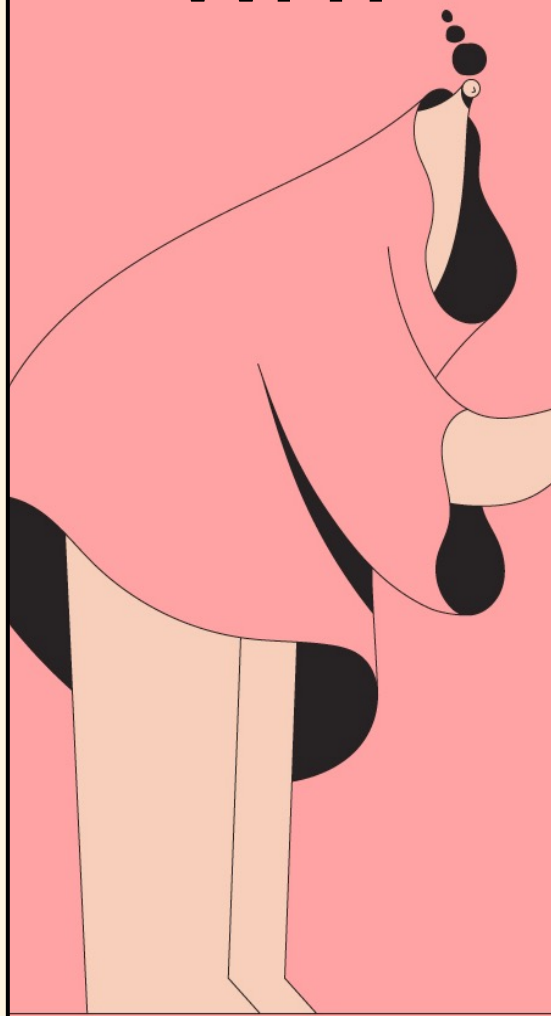
Focus	Research Methods	RQs	Research Final Output
Re-conceptualisation of Resilient CRE	Theoretical Study Literature Reviews	WHAT	Extended definition and features
Operationalisation of Resilient CRE		WHY	Value delivery
	Empirical Study Case Studies	HOW	Resilience framework
			Resilience approaches
	Iteration of Findings	WHAT	Continuous resilience

# WHAT



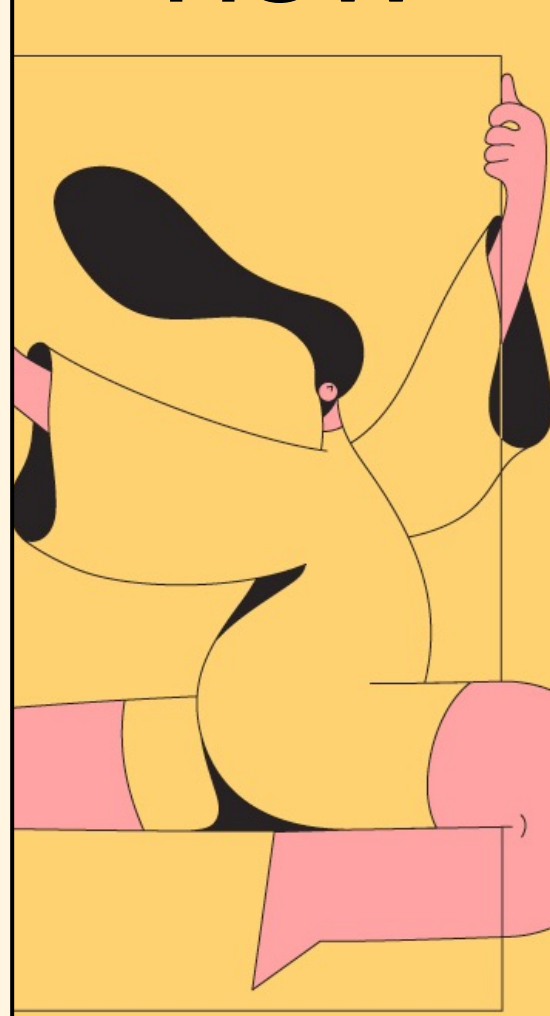
IS  
RESILIENT CRE

# WHY



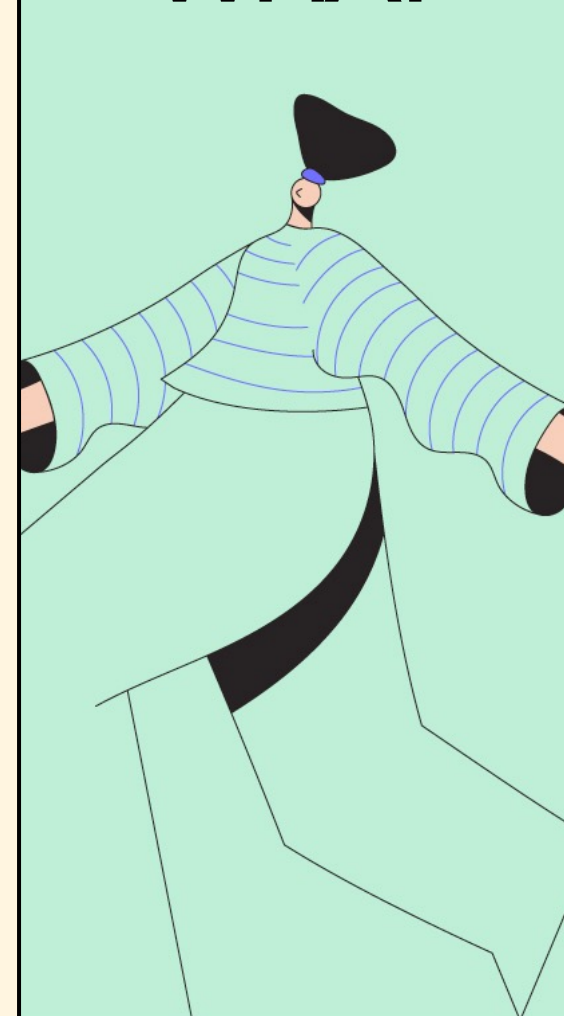
SHOULD CRE  
BE RESILIENT

# HOW



TO OPERATIONALISE  
AND OPTIMISE

# WHAT



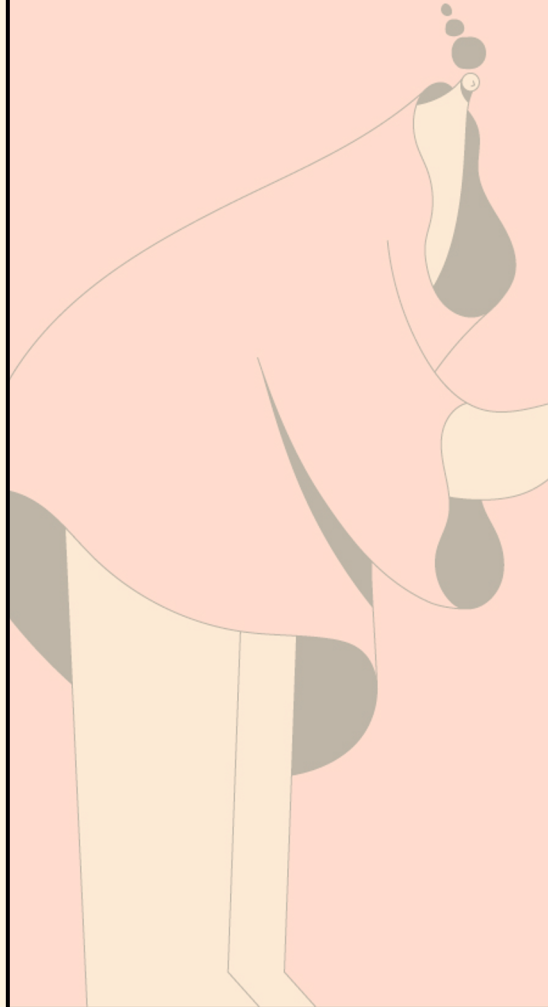
MEASURES TO  
MAINTAIN RESILIENCE

# WHAT IS RESILIENT CRE

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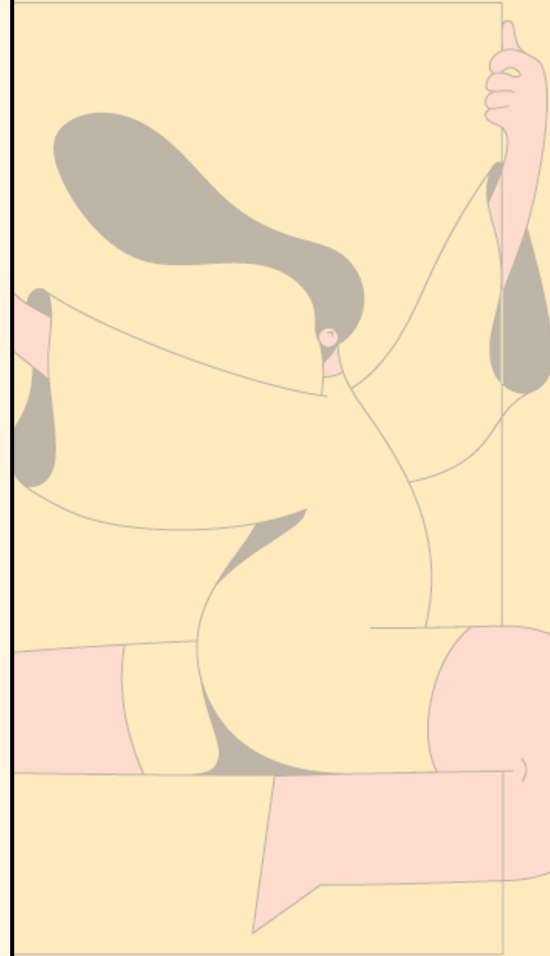
Extended  
Definition and  
Resilience  
Features

## WHY



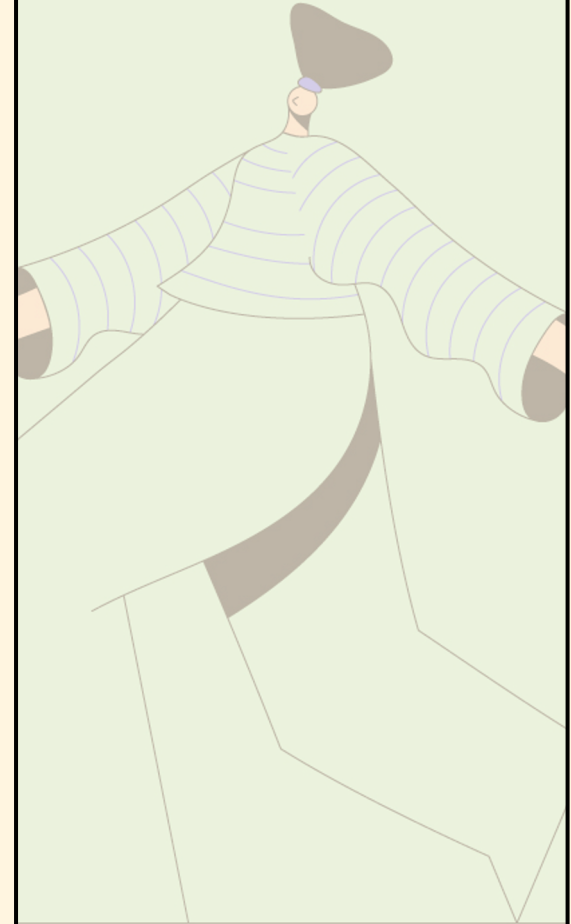
SHOULD CRE  
BE RESILIENT

## HOW



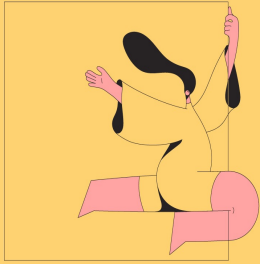
TO OPERATIONALISE  
AND OPTIMISE

## WHAT

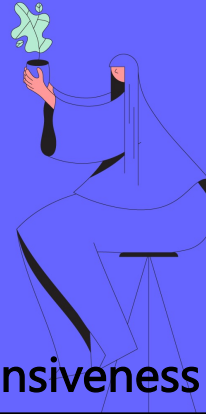


MEASURES TO  
MAINTAIN RESILIENCE

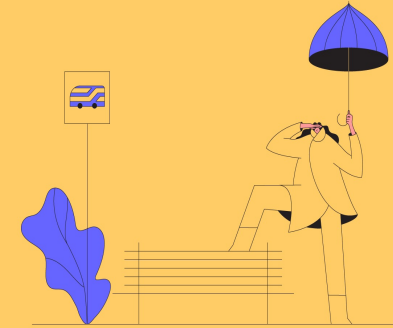
# What is Resilience?



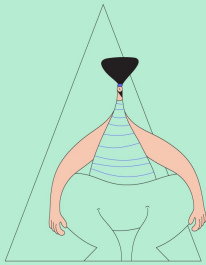
Strength



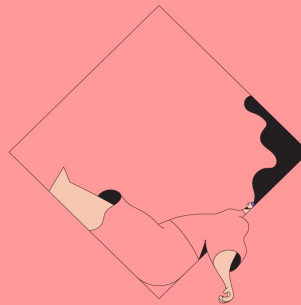
Responsiveness



Resistance



Elasticity

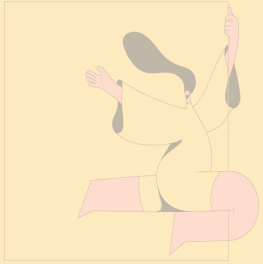


Adaptability

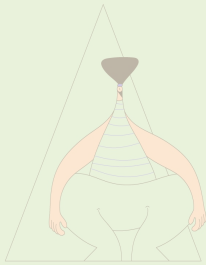
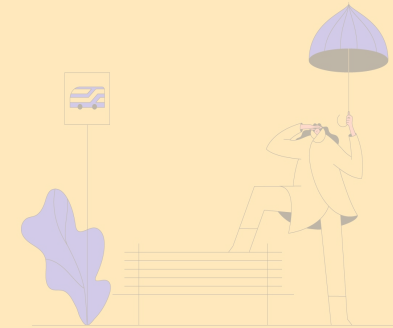


Quick Recovery

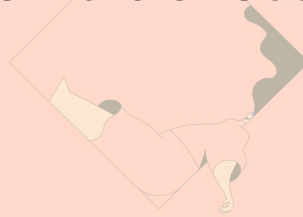
# What is Resilience?



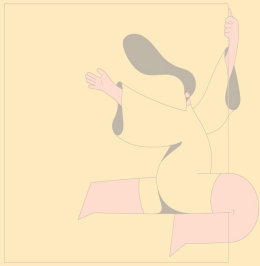
Problem:  
**Not clearly defined**  
**Abstract**



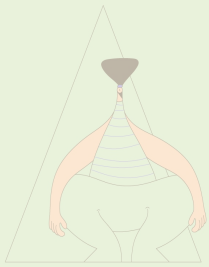
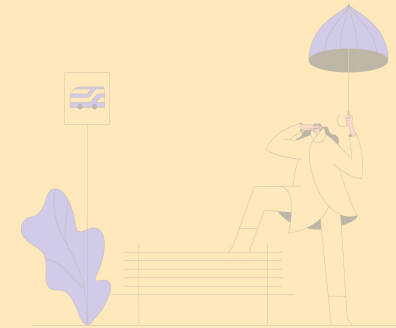
**Vague**  
**Contradictory**



# What is Resilience?



Problem:  
**Not clearly defined**  
**Abstract**



**Vague**  
**Contradictory**

**Necessary to redefine resilience!**



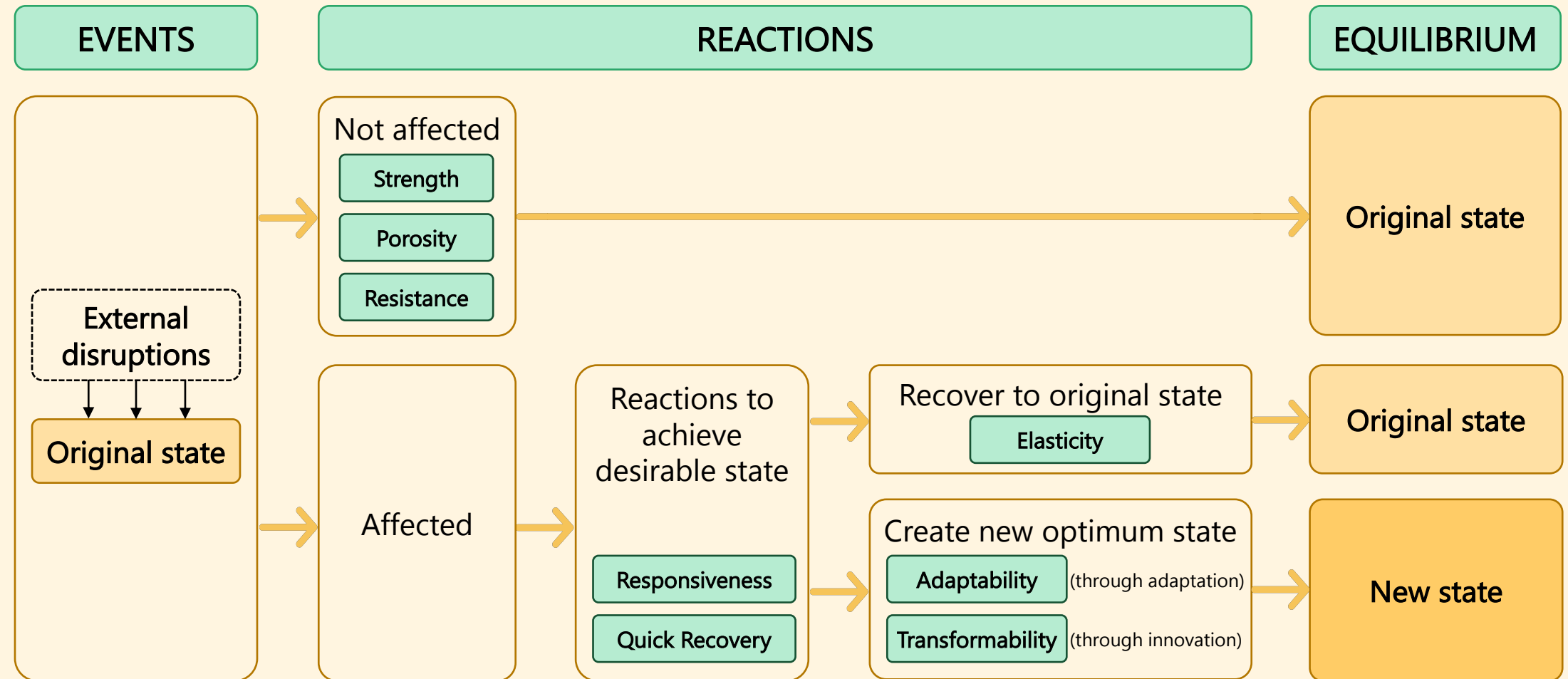
# Resilience through different lens

## Redefining Resilience

Source (Author)	Definition	Characteristics							
		Strength	Resistance	Porosity	Elasticity	Adaptability	Transformability	Responsiveness	Quick Recovery
Oxford Languages	"1. the capacity to <b>recover quickly</b> from difficulties; <b>toughness</b> . 2.the ability of a substance or object to spring back into shape; <b>elasticity</b> ."	○			○			○	○
UNISDR*	"The ability of a system, community or society exposed to hazards to <b>resist, absorb, accommodate to and recover</b> from the effects of a hazard in a timely and efficient manner, including through the <b>preservation and restoration of its essential basic structures and functions</b> ." (p.24) <i>*UNISDR: United Nations International Strategy for Disaster Reduction</i>		○	○	○			○	○
Hassler & Kohler	"The <b>capacity of a system to experience shocks</b> while <b>retaining</b> essentially the same function, structure, feedbacks and therefore identity" (p. 125).	○	○						
Meerow, Newell & Stults	"Urban resilience refers to the ability of an urban system-and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales-to <b>maintain or rapidly return to desired functions</b> in the face of a disturbance, to <b>adapt</b> to change, and to <b>quickly transform systems</b> that limit current or future adaptive capacity" (p.39).		○		○	○	○		○
Total Definitions: 19		4	10	8	13	7	4	12	8

Resilience through different lens

# Redefining Resilience





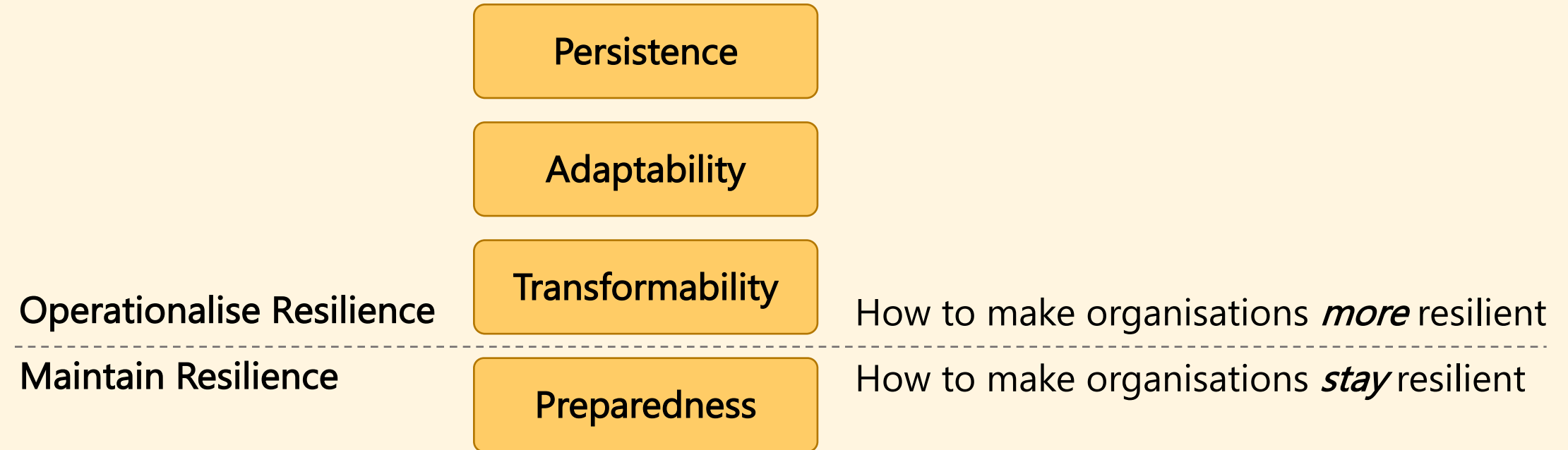
Extended definition

# Resilient Corporate Real Estate

		Characteristics	Features
The <u>capability and preparedness</u> of managing business' physical assets and CRE organisational processes, to <u>respond and immediately recover</u> following external disruption(s) thus maintain its value delivery, by interchangeably being:		<div>Responsiveness</div> <div>Quick Recovery</div>	<div>Preparedness</div>
<div>Low</div> <div>Degree of disruption through the perspective of the receiving ends</div> <div>High</div>	1. Invulnerable to the disruptions	<div>Strength</div> <div>Porosity</div>	<div>Persistence</div>
	2. Resistance following the disruptions	<div>Resistance</div> <div>Elasticity</div>	
	3. Flexible in adapting the sub-processes to maintain the main pathway	<div>Adaptability</div>	<div>Adaptability</div>
	4. Innovative to transform to a more desirable pathway or state	<div>Transformability</div>	<div>Transformability</div>

Extent of Resilience

# Resilient CRE: Features



Source: Davoudi et al. (2013)

Extent of Resilience

# Resilient CRE: Features

## Persistence

Physical ability to resist external disturbances, which requires physical robustness and rigidity.

## Adaptability

Flexibility and resourcefulness to adapt the sub-processes in order to maintain the same pathway.

## Transformability

Ability to innovate a new desirable pathway, which requires more radical changes and the emergence of different trajectories.

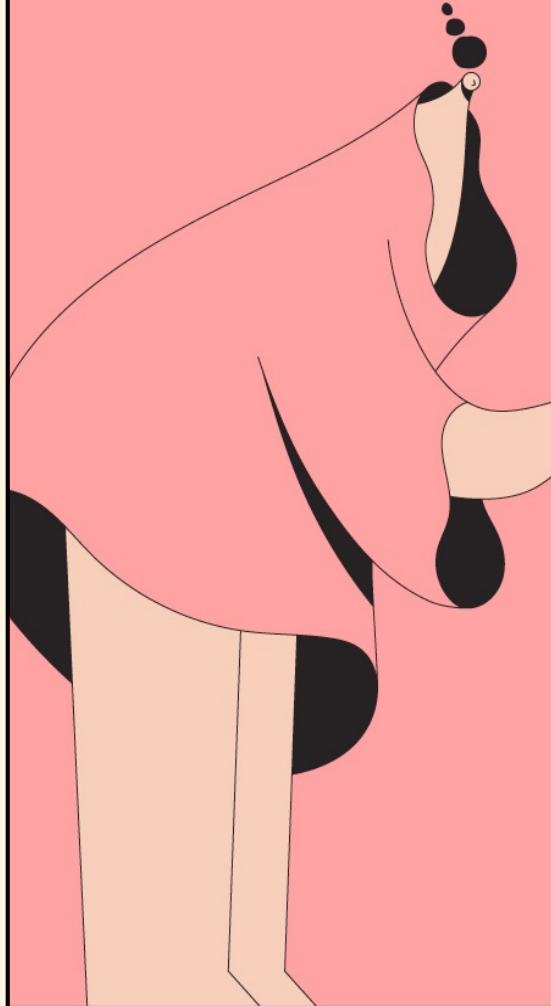
Source: Davoudi et al. (2013)

# WHAT IS RESILIENT CRE

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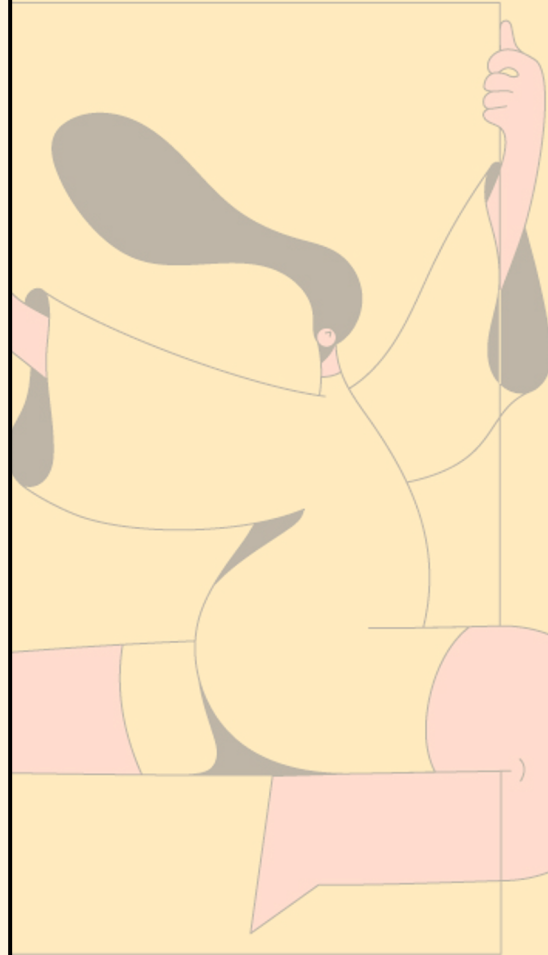
Extended  
Definition and  
Resilience  
Features

## WHY



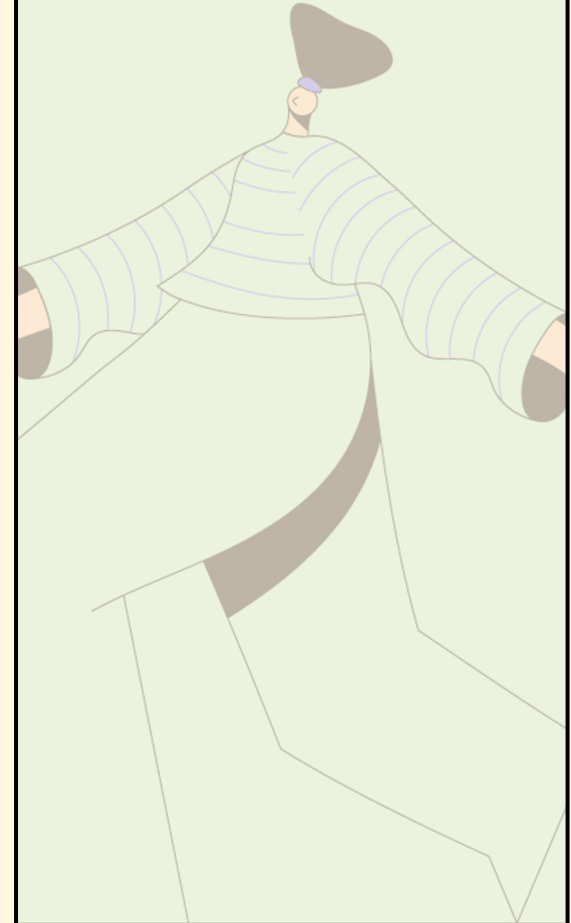
SHOULD CRE  
BE RESILIENT

## HOW



TO OPERATIONALISE  
AND OPTIMISE

## WHAT



MEASURES TO  
MAINTAIN RESILIENCE

# WHAT

IS  
RESILIENT  
CRE

---

Extended  
Definition and  
Resilience  
Features

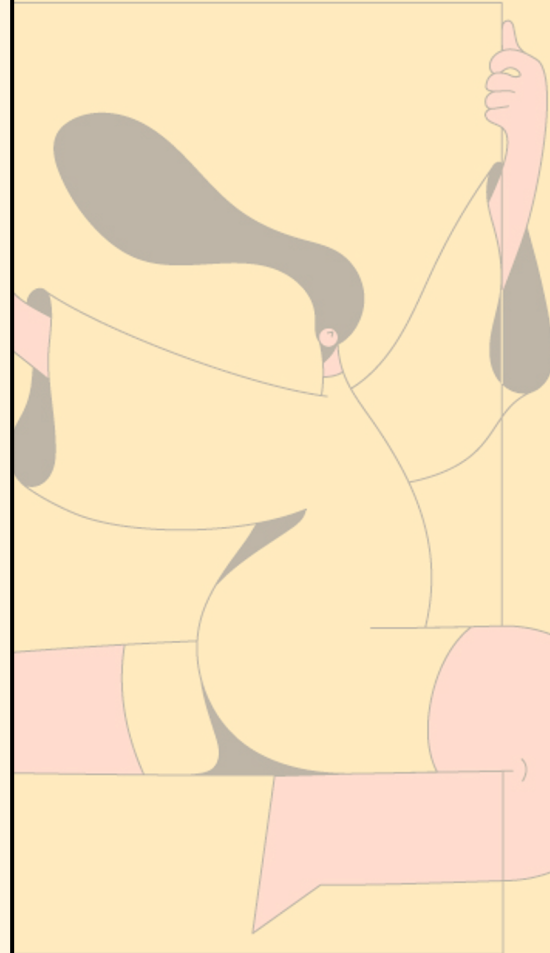
# WHY

SHOULD  
CRE  
BE RESILIENT

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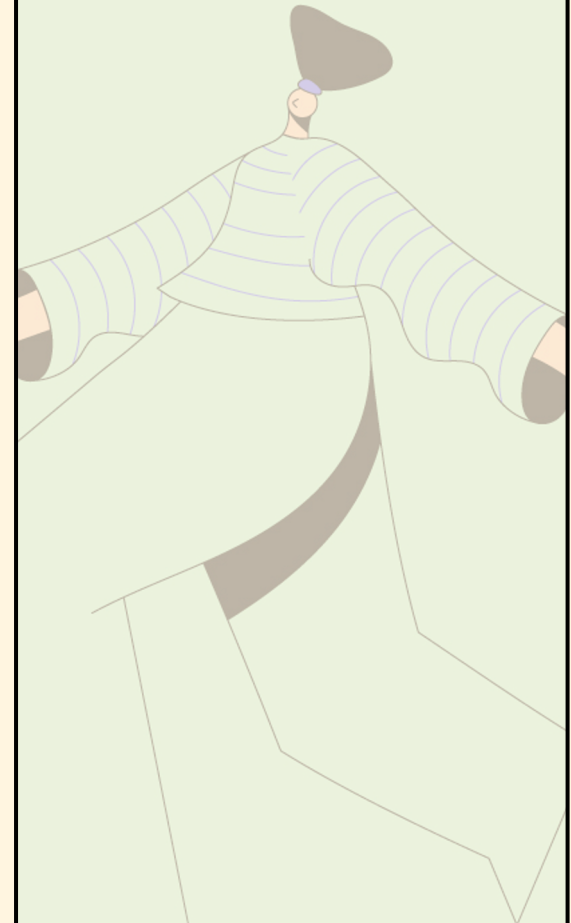
Value  
Delivery  
of  
Resilience

# HOW



TO OPERATIONALISE  
AND OPTIMISE

# WHAT



MEASURES TO  
MAINTAIN RESILIENCE

Value delivery

# Added Value of Resilient CRE

Contributions of <u>real estate</u> to the organisations (de Vries, 2020; de Jonge et al., 2009, p. 18)	Contribution of <u>resilient real estate</u> to the organisations
Increasing productivity	Maintaining productivity
Enhancing flexibility	Enhancing flexibility to adapt and adjust to changes
Stimulating innovation	Constant evaluation and innovation
Increasing satisfaction	Maintain satisfaction
Enhancing synergy	Synergy between organisation (internal) and its external environment.
Reducing cost	Cost reduction through its readiness to respond to changes
Controlling risks	Minimising risks through its readiness to respond to changes

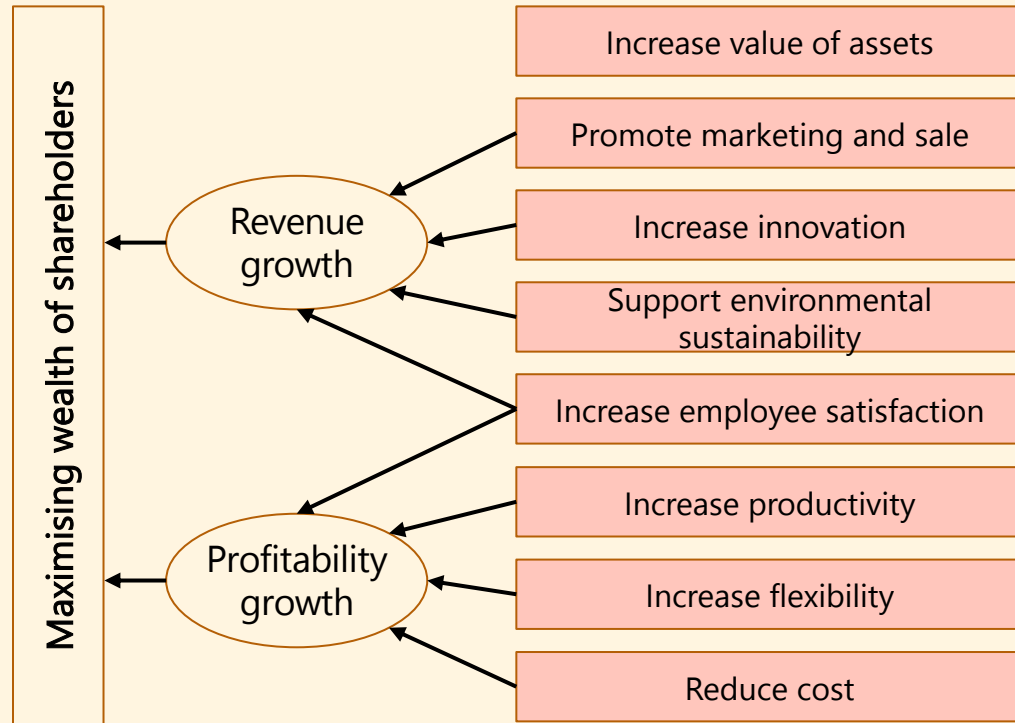
Value delivery

# Added Value of Resilient CRE

CRE in normal market conditions

**Role: maximising income**

*(Gibler & Lindholm, 2012)*



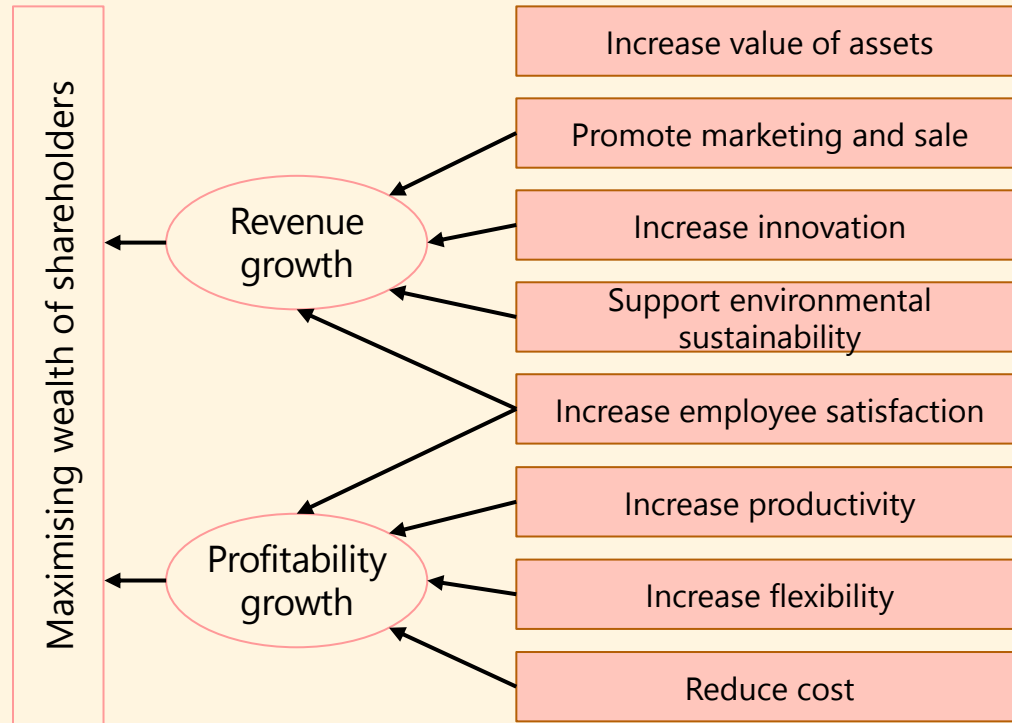
Value delivery

# Added Value of Resilient CRE

CRE in normal market conditions

**Role: maximising income**

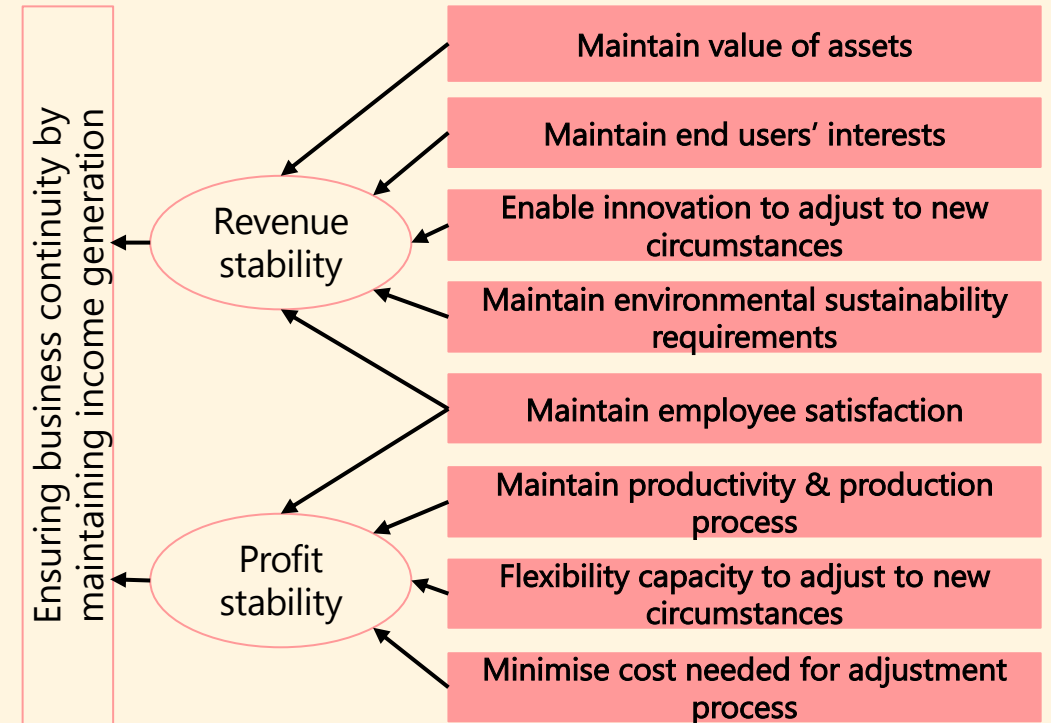
*(Gibler & Lindholm, 2012)*



CRE in event of a disruption

**Role: ensuring business continuity thus maintaining income generation**

*(modified version of Gibler & Lindholm, 2012)*





# WHAT IS RESILIENT CRE

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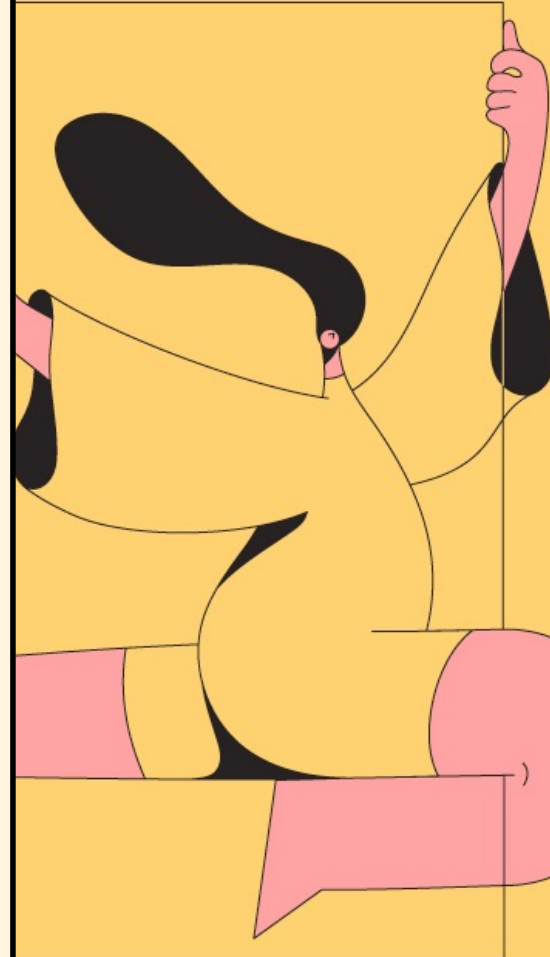
Extended  
Definition and  
Resilience  
Features

# WHY SHOULD CRE BE RESILIENT

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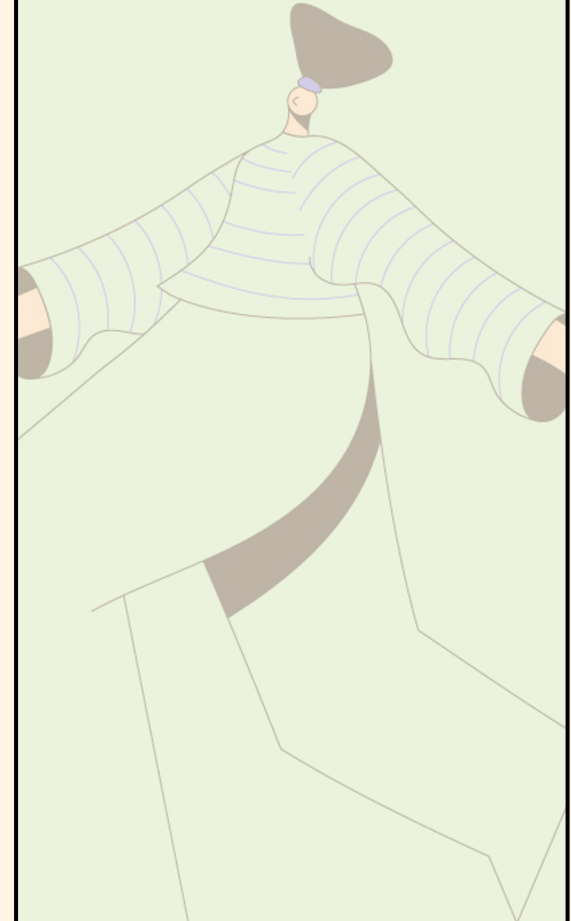
Value  
Delivery  
of  
Resilience

# HOW



TO OPERATIONALISE  
AND OPTIMISE

# WHAT



MEASURES TO  
MAINTAIN RESILIENCE

# WHAT

IS  
RESILIENT  
CRE

---

Extended  
Definition and  
Resilience  
Features

# WHY

SHOULD  
CRE  
BE RESILIENT

---

Value  
Delivery  
of  
Resilience

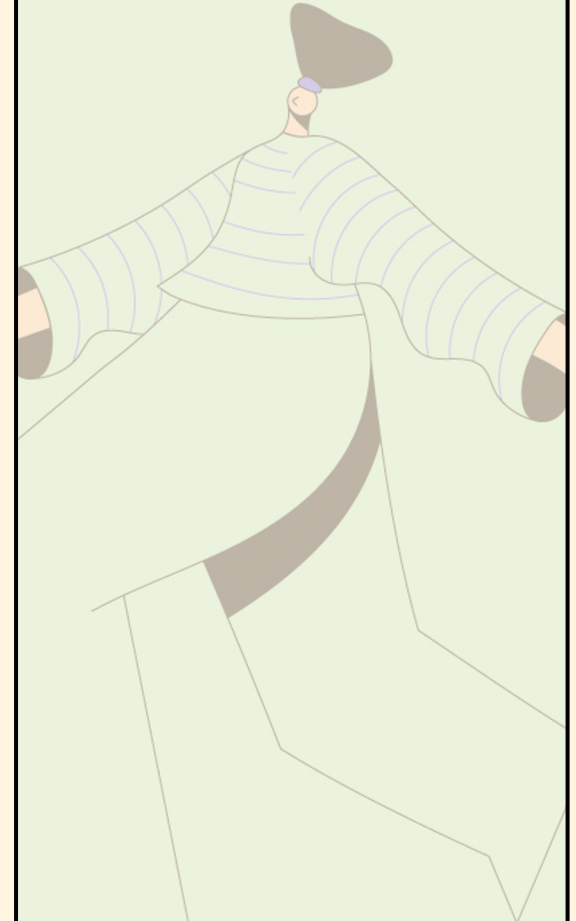
# HOW

TO  
OPERATIONALISE  
AND OPTIMISE

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Resilience  
Framework  
and  
Approaches

# WHAT



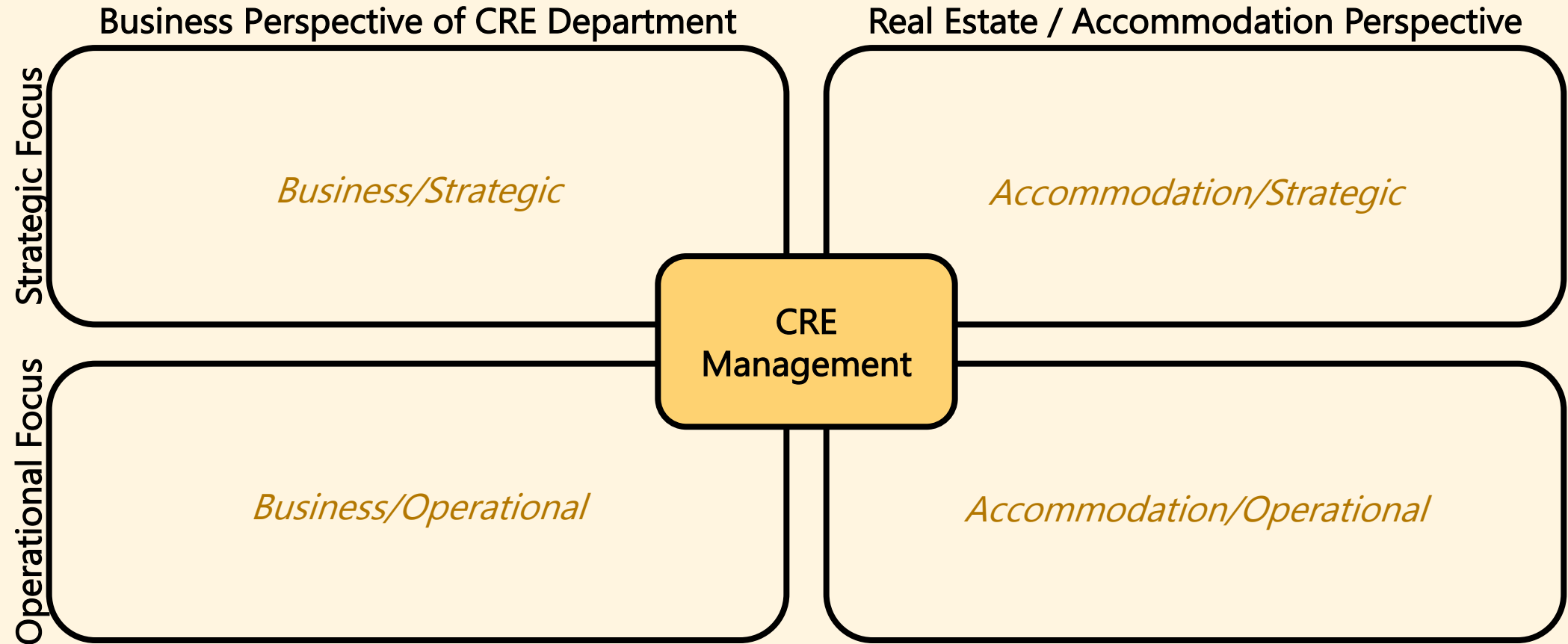
MEASURES TO  
MAINTAIN RESILIENCE

Operationalisation

# **Resilience Framework**

# Resilience Framework

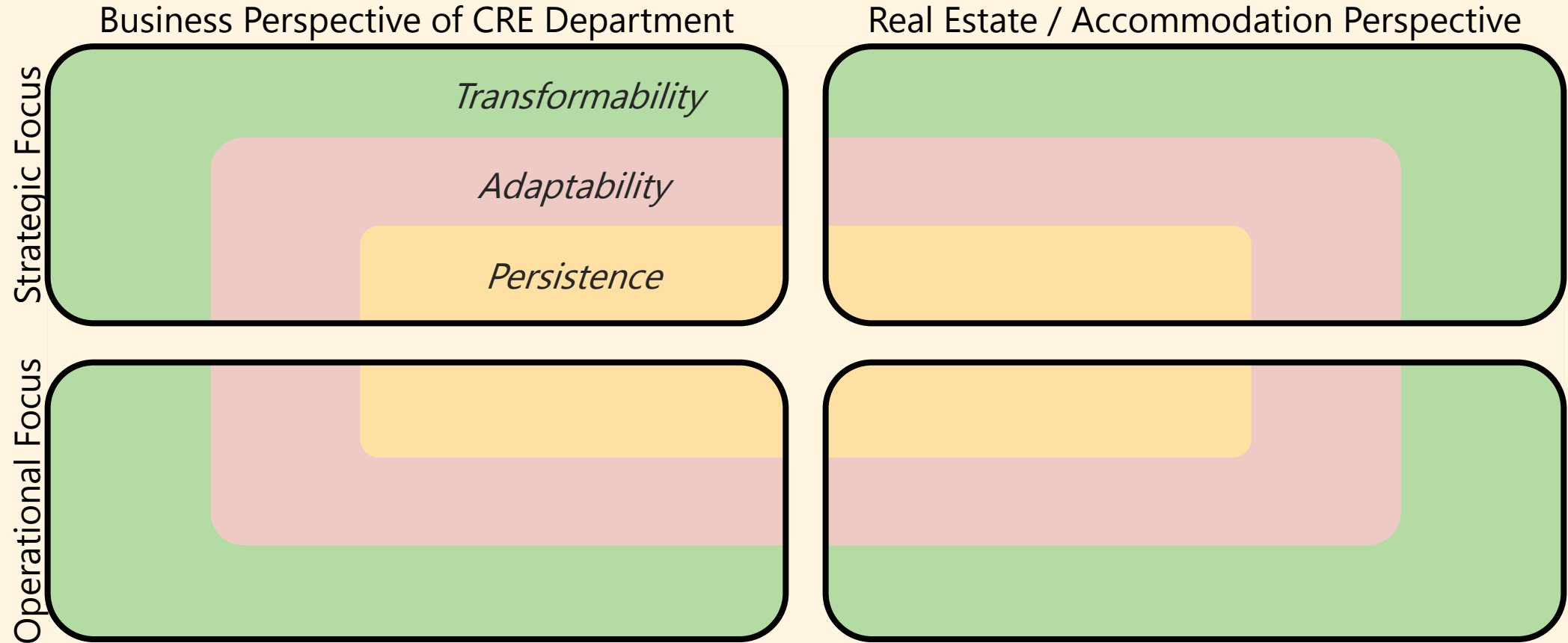
## Four Domains



Krumm, et al., 2000

## Resilience Framework

# Three Features



Davoudi, et al., 2013

# Resilience Framework

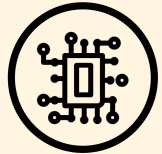
## Ten Categories



Category 1  
**Strategic Alignment**



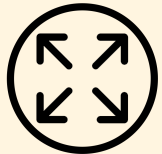
Category 2  
**Accommodation of Trends**



Category 3  
**Digitisation**



Category 4  
**Space and Activities**



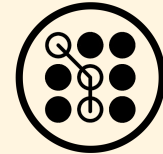
Category 5  
**Property Feature Flexibility**



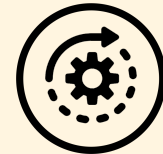
Category 6  
**Environmental Sustainability**



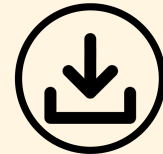
Category 7  
**Financial & Contractual Security**



Category 8  
**Accessibility**



Category 9  
**Process and Real Estate**



Category 10  
**Input and Real Estate**

# Resilience Framework

## Persistence Features

### Business Perspective of CRE Department

Strategic Focus



Core business gives input to CREM



Ability to follow trends and utilise needs



Ability to ensure financial and contractual security

Operational Focus

### Real Estate / Accommodation Perspective



Physical resistance to disturbances that threatens activities



Day-to-day digitisation to optimise property management



Flexibility to accommodate changes within boundaries



Environmental impact reductions according to regulation



Assets with easy site accessibility



Capacity to sustain process without significant delay



Capacity to sustain critical input-related resources

# Resilience Framework

## Adaptability Features

### Business Perspective of CRE Department

#### Strategic Focus



CRE collaborates with core business



Ability to predict trends and needs



Ability to adjust and optimise cost on portfolio

#### Operational Focus



Day-to-day digitisation to optimise process



Organisational capacity to maintain or adapt operational process to maintain production process



Organisational capacity to adapt the source of supply whenever needed

### Real Estate / Accommodation Perspective



Multi-use / space-sharing of activity space



Physical flexibility to accommodate changes beyond current spatial boundaries



Decentralisation of assets, create multiple access



Environmental impact reductions further than regulation



# Resilience Framework

## Transformability Features

### Business Perspective of CRE Department

#### Strategic Focus



CREM adds significant value to core business



Ability to create needs



Ability to innovate and drastically change the contractual state

### Real Estate / Accommodation Perspective



Optimisation of activity-space relation



Repurpose assets to accommodate functional changes

#### Operational Focus



Ability to predict and minimise critical points in the production process



Digitalisation in business operational



Ability or effort to predict the optimum state of input-related resources



Decrease dependency on physical site accessibility



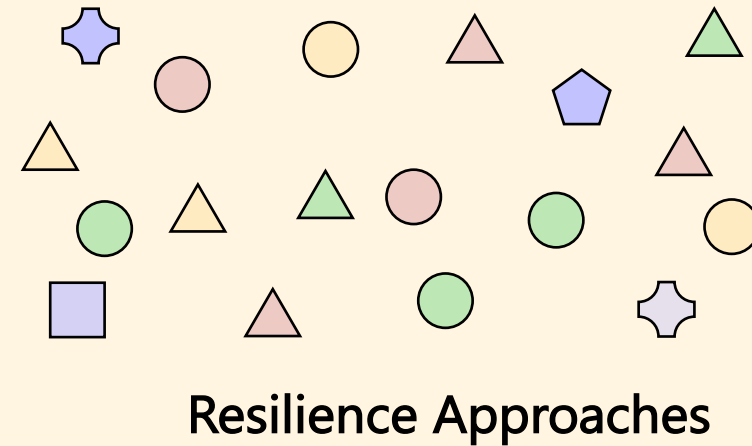
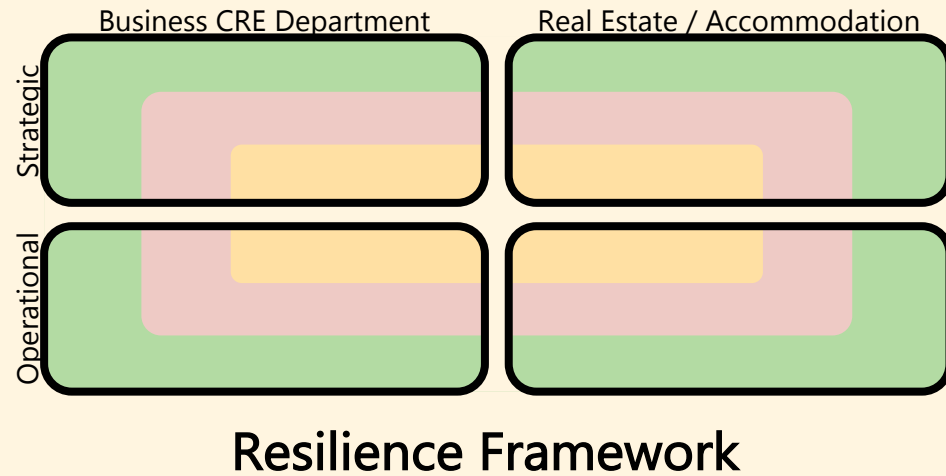
Positive contribution to the surrounding environment

Operationalisation

# **Resilience Approaches**

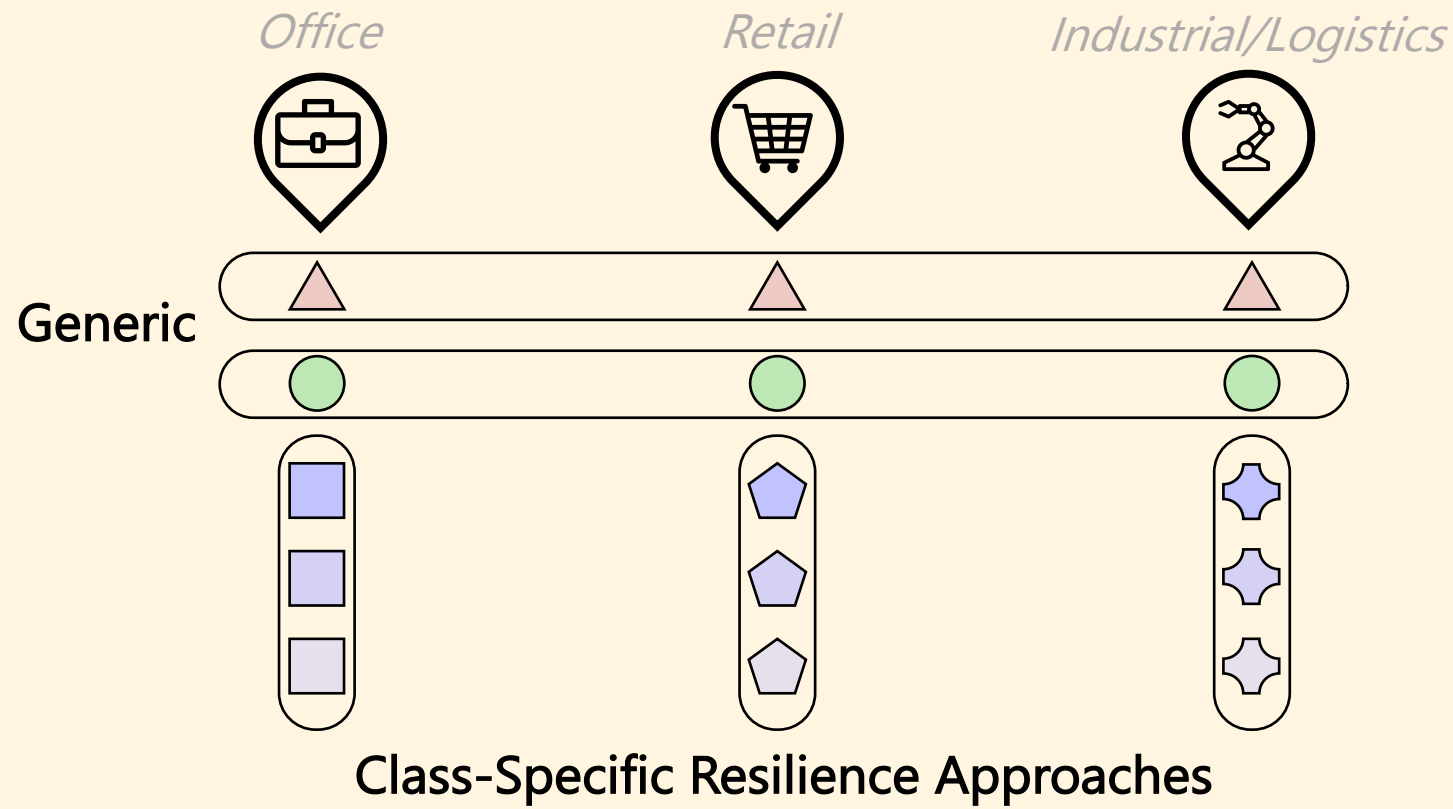
# Operationalisation of Resilience

## Generic & Specific Approaches



Operationalisation of Resilience

# Generic & Specific Approaches



# Operationalisation of Resilience

## Generic Approaches



# Operationalisation of Resilience

## Generic Approaches



Category 1  
**Strategic Alignment**



Category 2  
**Accommodation of Trends**



Category 3  
**Digitisation**



Category 4  
**Space and Activities**



Category 5  
**Property Feature Flexibility**



Category 6  
**Environmental Sustainability**



Category 7  
**Financial & Contractual Security**



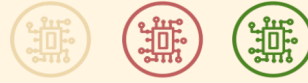
Category 8  
**Accessibility**



Category 9  
**Process and Real Estate**



Category 10  
**Input and Real Estate**



# Operationalisation of Resilience

## Generic Approaches



Category 1  
**Strategic Alignment**



Category 2  
**Accommodation of Trends**



Category 3  
**Digitisation**



Category 4  
**Space and Activities**



Category 5  
**Property Feature Flexibility**



Category 6  
**Environmental Sustainability**



Category 7  
**Financial & Contractual Security**



Category 8  
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Category 9  
**Process and Real Estate**



Category 10  
**Input and Real Estate**



**Give Input**

Main  
Business

CRE

**Translate**  
core  
organisational  
strategy to real  
estate strategy



**Assess**

Main  
Business

CRE

**Collaborate**  
between real estate  
and other  
departments and  
core business



**Gain Value**

Main  
Business

CRE

**Adds Value**  
by possession of  
dynamic strategy  
and constant  
assessment

## Operationalisation of Resilience

# Categories with Sequential Features



Category 1  
**Strategic Alignment**



Category 2  
**Accommodation of Trends**



Category 3  
**Digitisation**



Category 4  
**Space and Activities**



Category 5  
**Property Feature Flexibility**



Category 6  
**Environmental Sustainability**



Category 7  
**Financial & Contractual Security**



Category 8  
**Accessibility**



Category 9  
**Process and Real Estate**



Category 10  
**Input and Real Estate**



**Non-resilient CREM**

**Resilient CREM**

**Category 1, 4, 6**

Persistence

Persistence  
Adaptability

Persistence  
Adaptability  
Transformability



Operationalisation of Resilience

# Class-Specific Approaches



# Operationalisation of Resilience

## Class-Specific Approaches



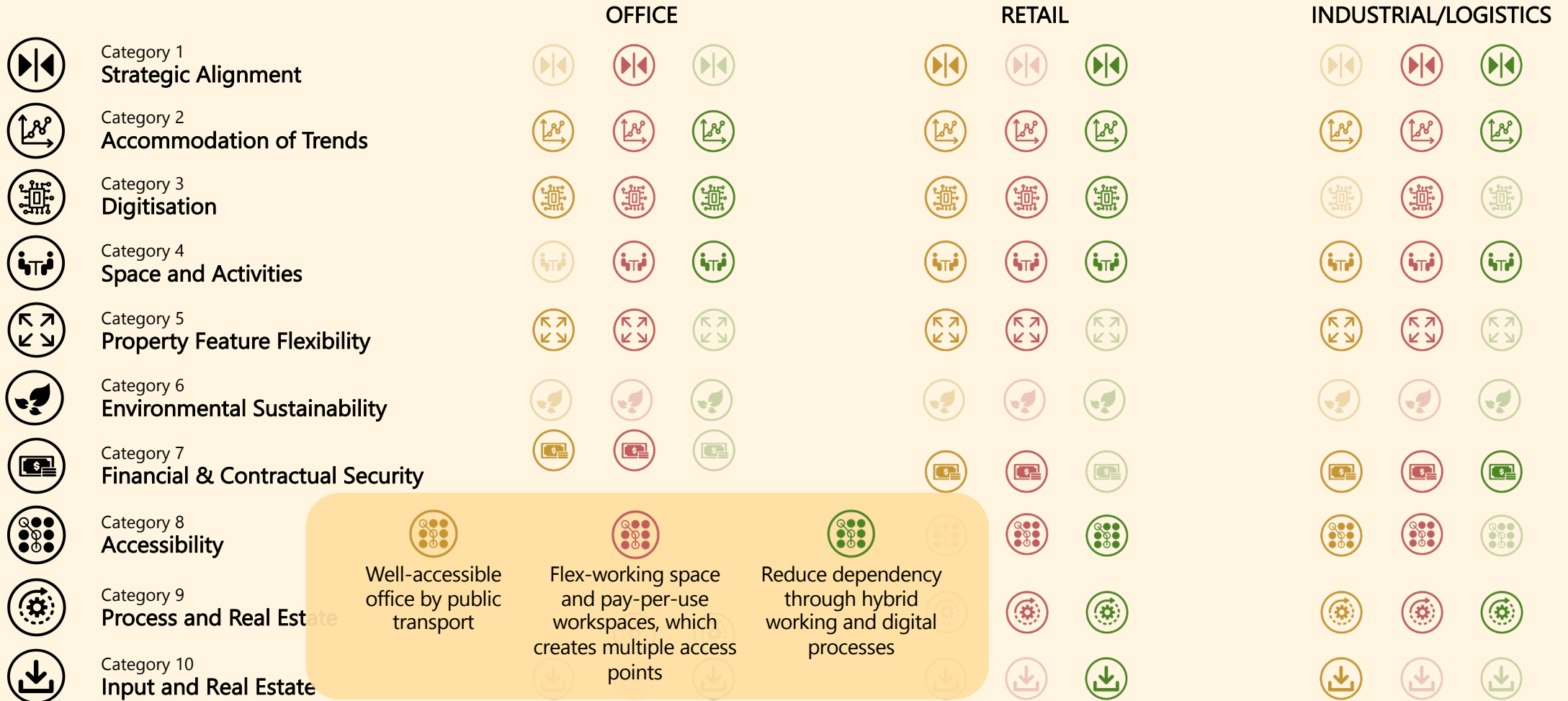
# Operationalisation of Resilience

## Class-Specific Approaches



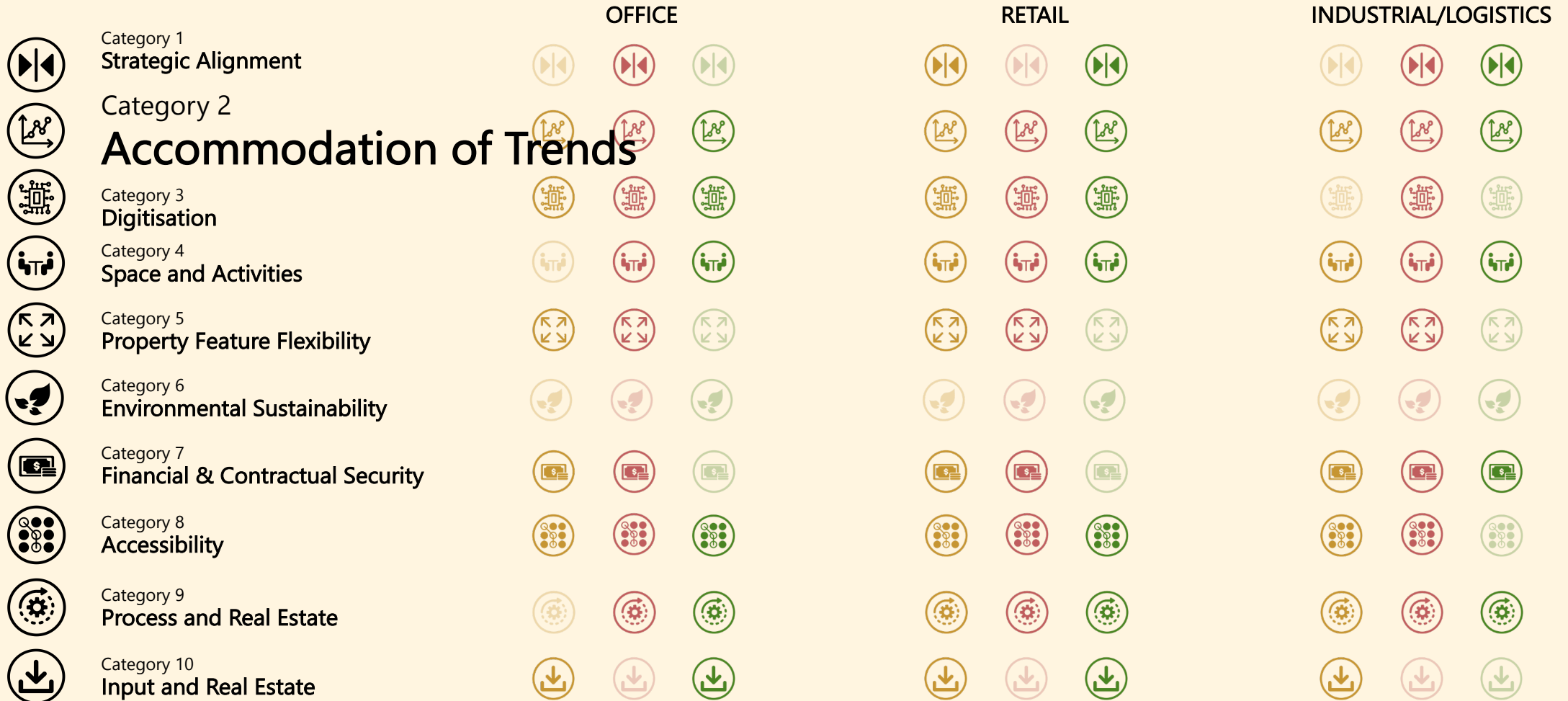
# Operationalisation of Resilience

## Class-Specific Approaches



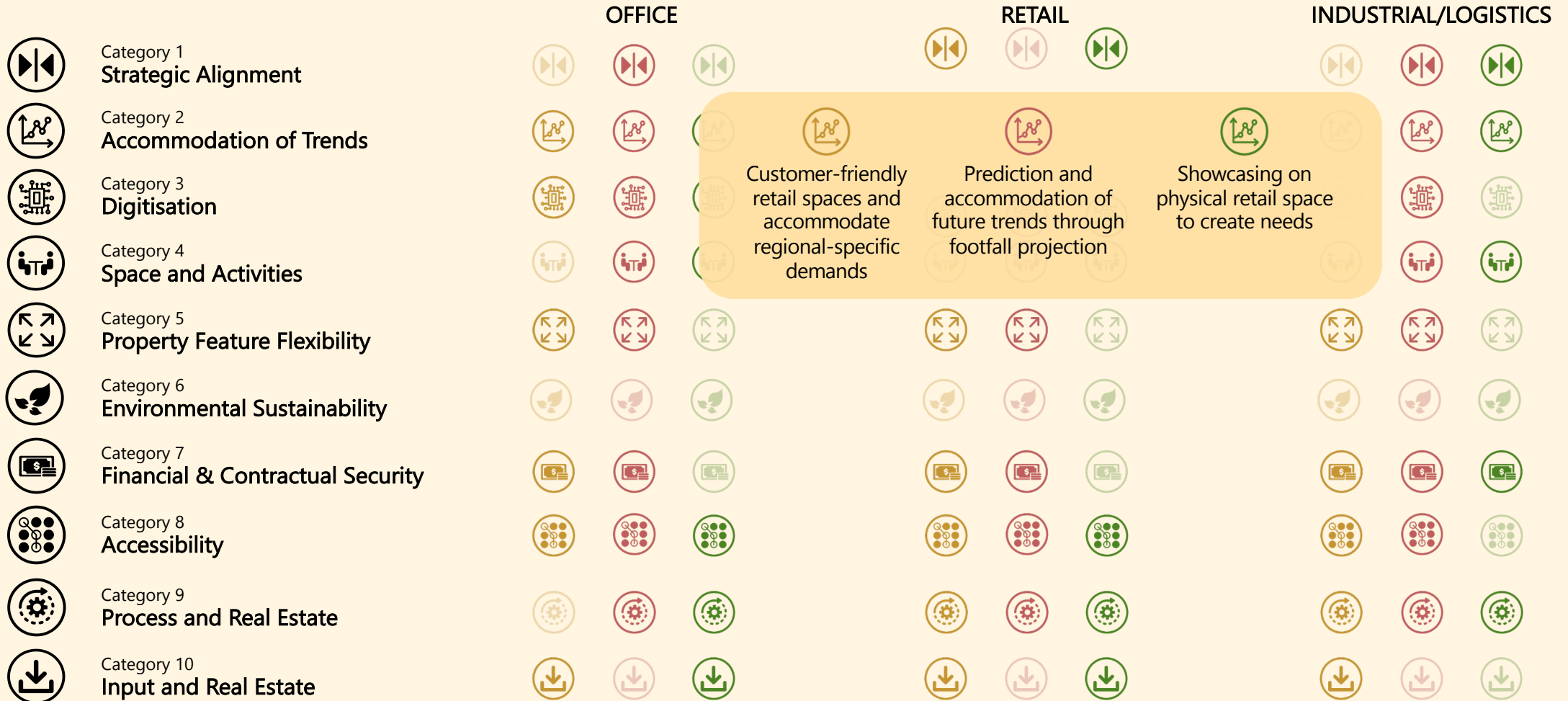
# Operationalisation of Resilience

## Class-Specific Approaches



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# Operationalisation of Resilience

## Class-Specific Approaches





# Operationalisation of Resilience

## Overview Approaches



# Operationalisation of Resilience

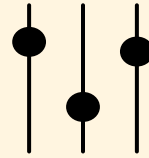
## Overview Approaches

	OFFICE			RETAIL			INDUSTRIAL/LOGISTICS		
 Category 1 <b>Strategic Alignment</b>									
 Category 2 <b>Accommodation of Trends</b>									
 Category 3 <b>Digitisation</b>									
 Category 4 <b>Space and Activities</b>									
 Category 5 <b>Property Feature Flexibility</b>									
 Category 6 <b>Environmental Sustainability</b>									
 Category 7 <b>Financial &amp; Contractual Security</b>									
 Category 8 <b>Accessibility</b>									
 Category 9 <b>Process and Real Estate</b>									
 Category 10 <b>Input and Real Estate</b>									

Transformability approaches are highly specific per business case  
→ Not easily streamlined

Operationalisation of Resilience

# Overview Approaches



Optimum state of organisation at one point in time:  
**Maximising value delivery while maintaining required level of resilience**

Transformability: innovative and top level resilience approaches  
May not be optimal to possess without costing value delivery trade-offs

# WHAT

IS  
RESILIENT  
CRE

---

Extended  
Definition and  
Resilience  
Features

# WHY

SHOULD  
CRE  
BE RESILIENT

---

Value  
Delivery  
of  
Resilience

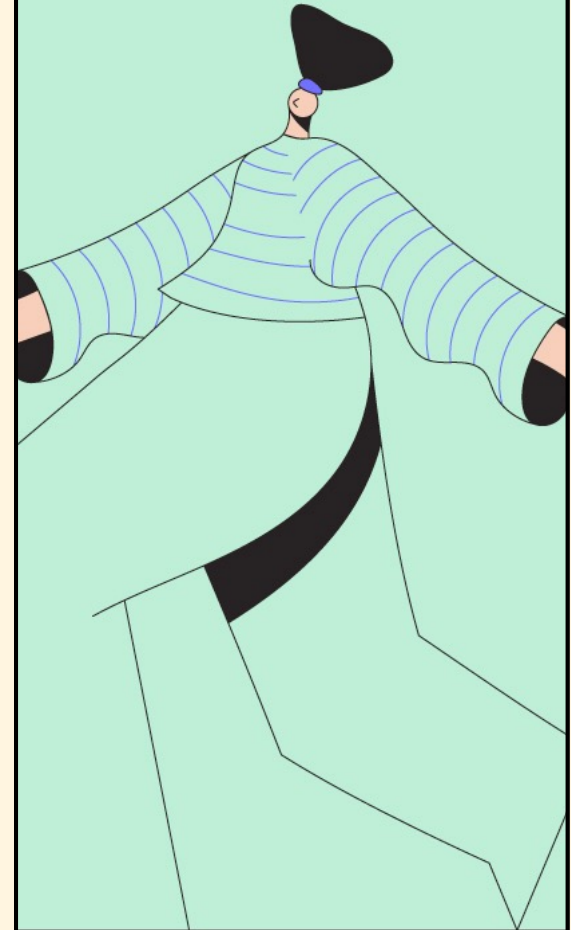
# HOW

TO  
OPERATIONALISE  
AND OPTIMISE

---

Resilience  
Framework  
and  
Approaches

# WHAT



MEASURES TO  
MAINTAIN RESILIENCE

**WHAT**

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**WHAT**

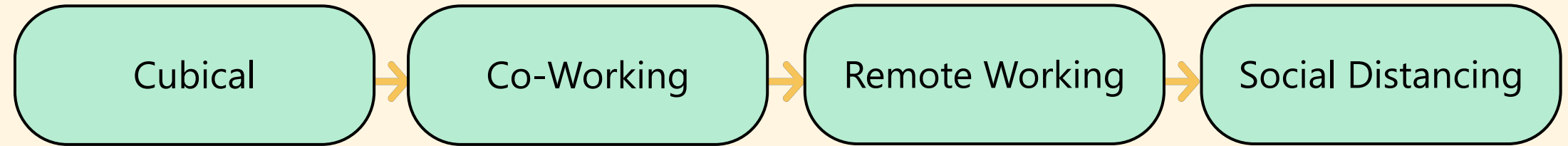
MEASURES TO  
MAINTAIN  
RESILIENCE

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Continuous  
Resilience  
Concept

Continuous Resilience

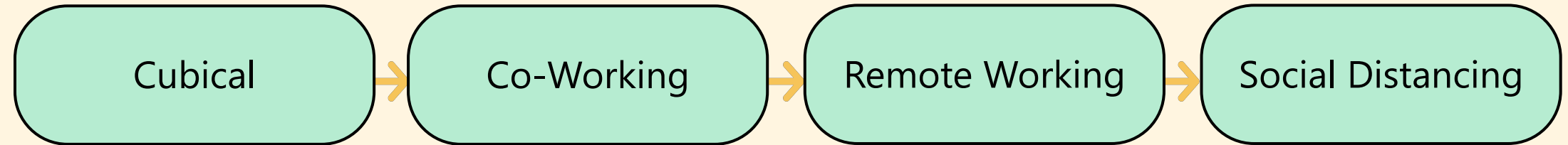
# Maintaining Resilience in CRE Fields



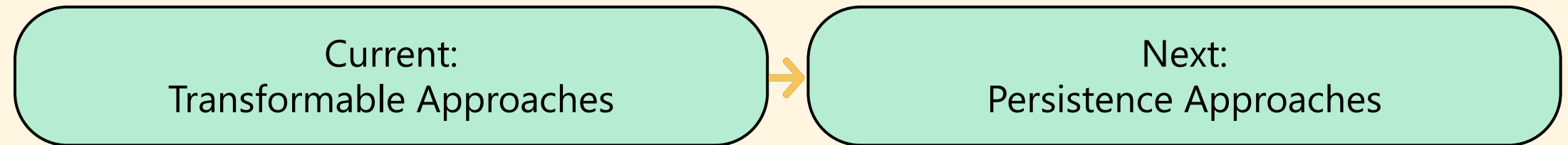
Everchanging demands of the occupiers

Continuous Resilience

# Maintaining Resilience in CRE Fields



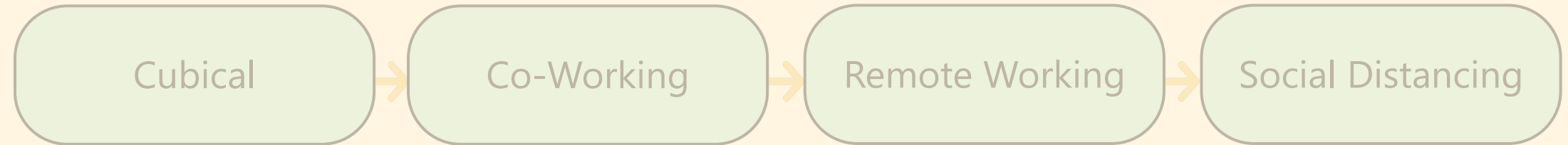
Everchanging demands of the occupiers



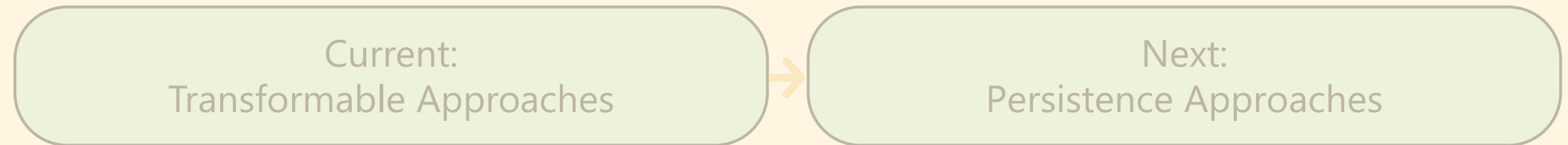
New innovation becomes the new normal

Continuous Resilience

# Maintaining Resilience in CRE Fields



Everchanging demands of the occupiers



New innovation becomes the new normal

**Preparedness is necessary:  
Continuous evaluation, exploration, and improvements**



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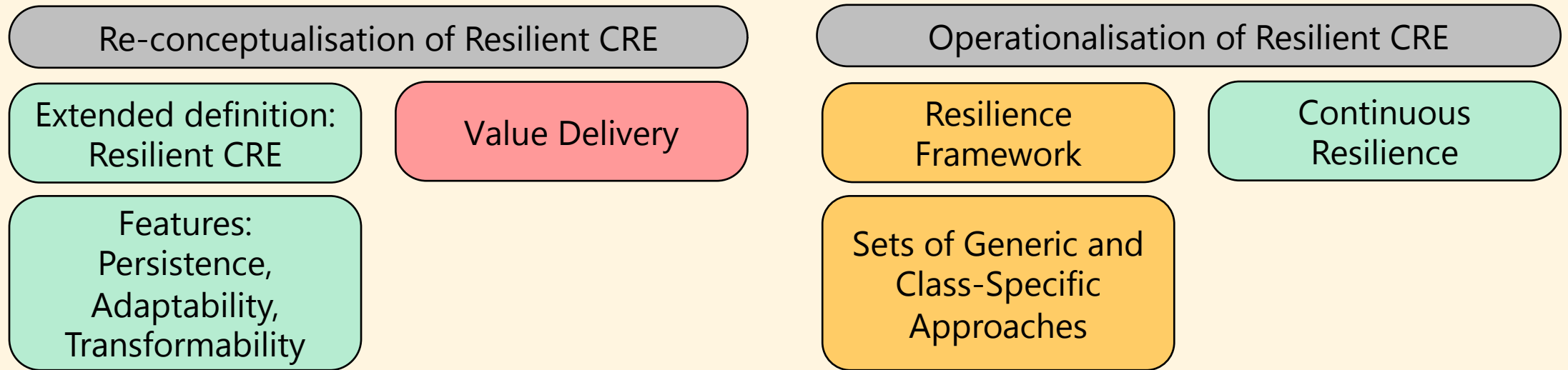
Continuous  
Resilience  
Concept

Closing the loop:

**How can resilience be advanced in the  
context of corporate real estate?**

Closing the loop:

# How can resilience be advanced in the context of corporate real estate?



Closing the loop:

# How can resilience be advanced in the context of corporate real estate?

## Re-conceptualisation of Resilient CRE

Extended definition:  
Resilient CRE

Features:  
Persistence,  
Adaptability,  
Transformability

Value Delivery

## Operationalisation of Resilient CRE

Resilience  
Framework

Sets of Generic and  
Class-Specific  
Approaches

Continuous  
Resilience



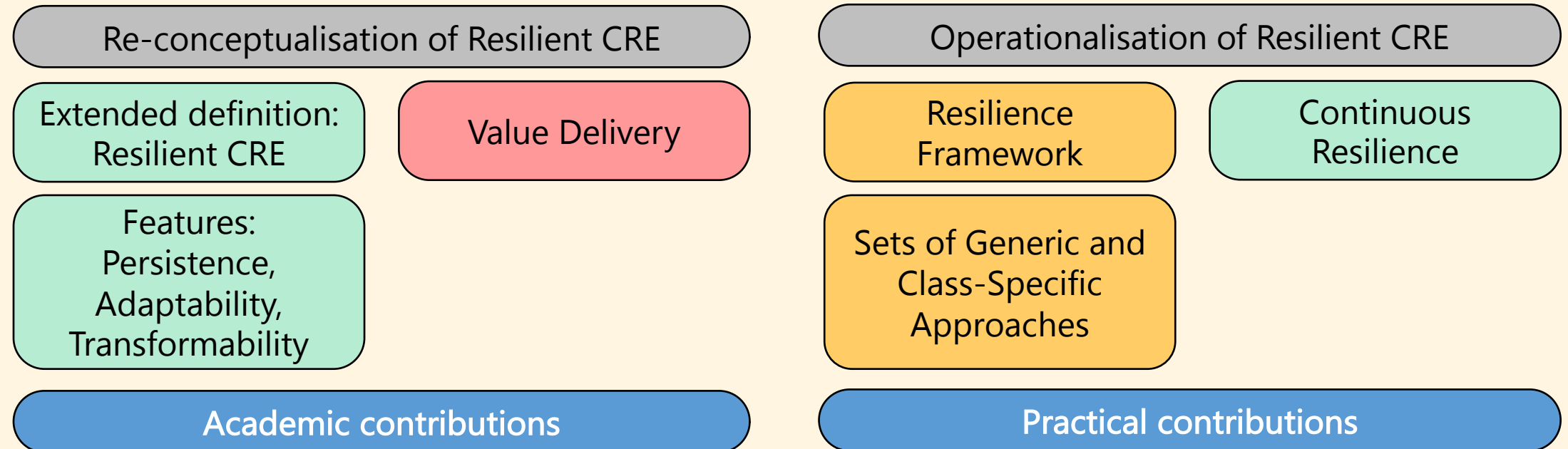
Let's get the ball rolling!

**Research**

**Contributions**

**and Future Possibilities**

# Research Contributions



# Research Contributions



## Academic contributions

CREM-related research

Other resilient fields

Filling research gap: bridging two fields



## Practical contributions

CRE management

Advisory and consultancy

Further utilised in business scope

# Research Contributions



## Academic contributions

CREM-related research

Other resilient fields

Filling research gap: bridging two fields

Preparedness during unprecedented crisis



## Practical contributions

CRE management

Advisory and consultancy

Further utilised in business scope



# Future Research

Continue current research

More case and expert  
studies

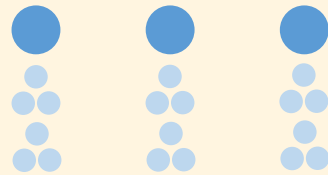
# Future Research



Expand Asset Classes

Healthcare Facilities

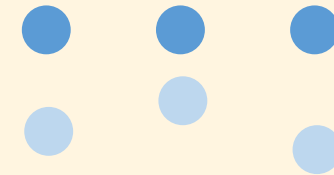
Educational Campuses



Specify Sub-Classes

Supermarket

Banking



Optimum Efforts

Value delivery & cost  
tradeoffs of resilient  
approaches

# Resilient Corporate Real Estate:

Equip organisations to protect business continuity



# Resilient Corporate Real Estate:

Preparing you for the future.



# Resilient Corporate Real Estate:

Preparing you for the future.

Thank  
You! | **TU**Delft  
**BK**Bouwkunde

