

SEMINÁRIO

**BIM 2018**

15 DE MARÇO ÀS 9H

BIMexcellence.org

**BIM**  
INITIATIVE 

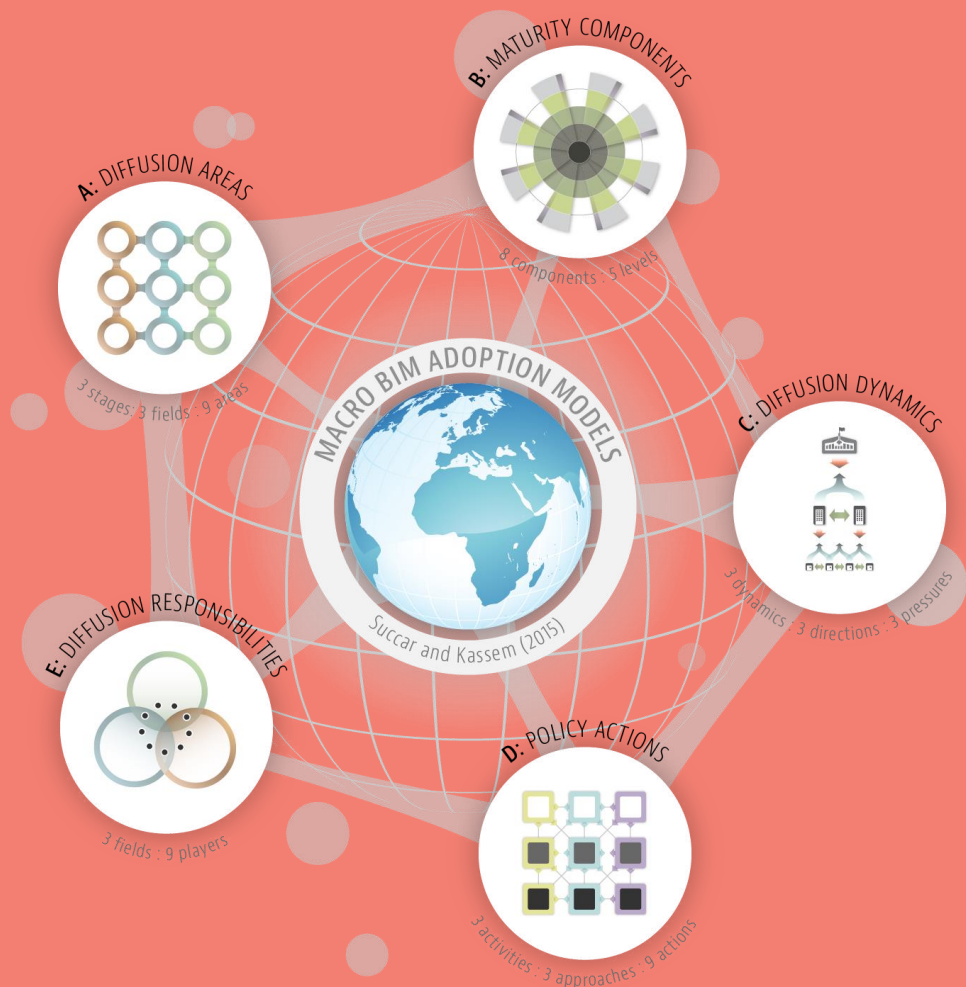
charting the path towards digital transformation

# Macro BIM Adoption

Dr. Bilal Succar | BIMexcellence.org | March 2018 | Brasilia

**CBIC** *Câmara Brasileira  
da Indústria da Construção*

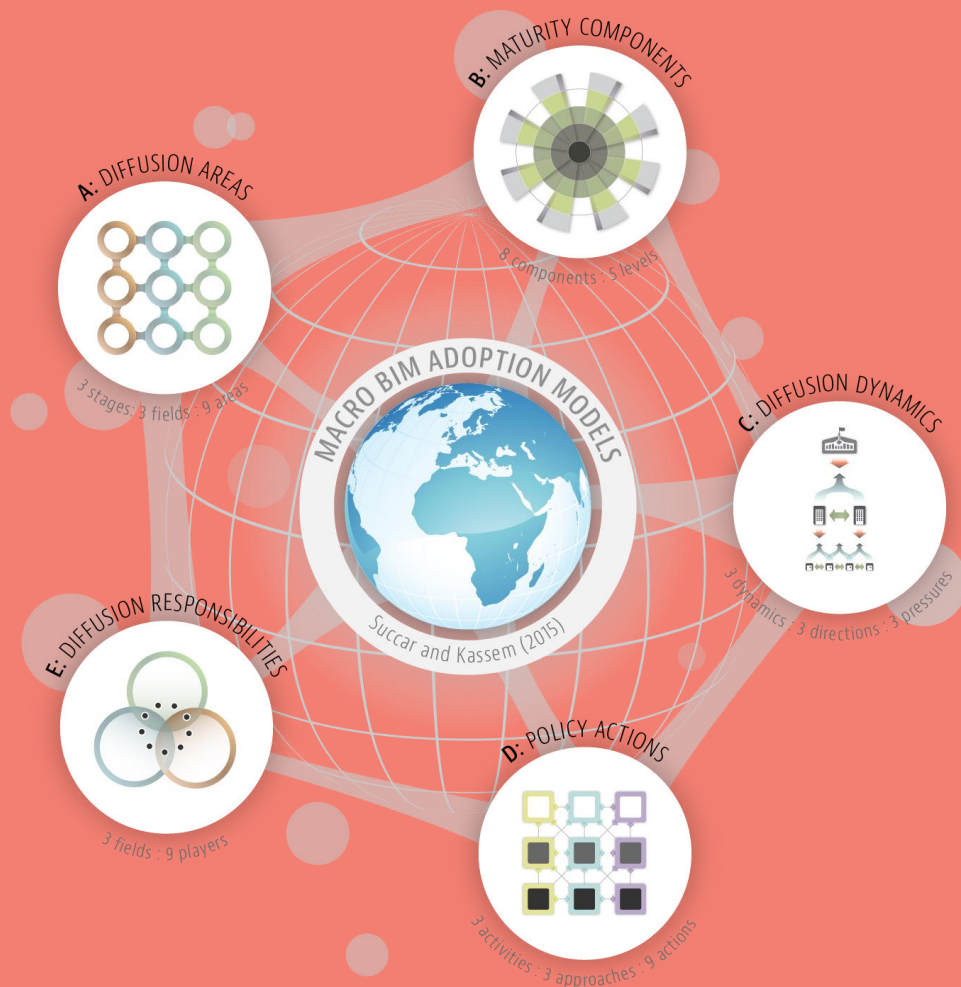
- An introduction to **Macro BIM Adoption**

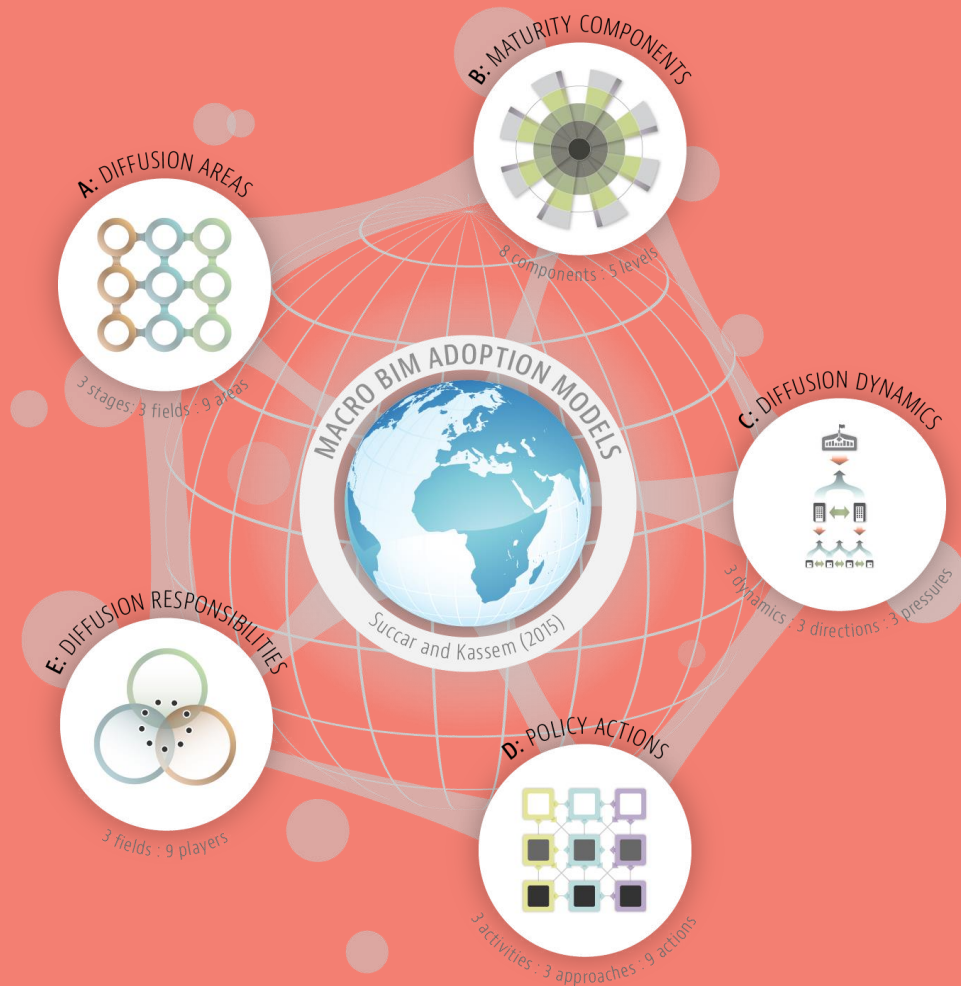


- An introduction to **Macro BIM Adoption**
- Quick evaluation of Macro BIM Adoption across a number of countries



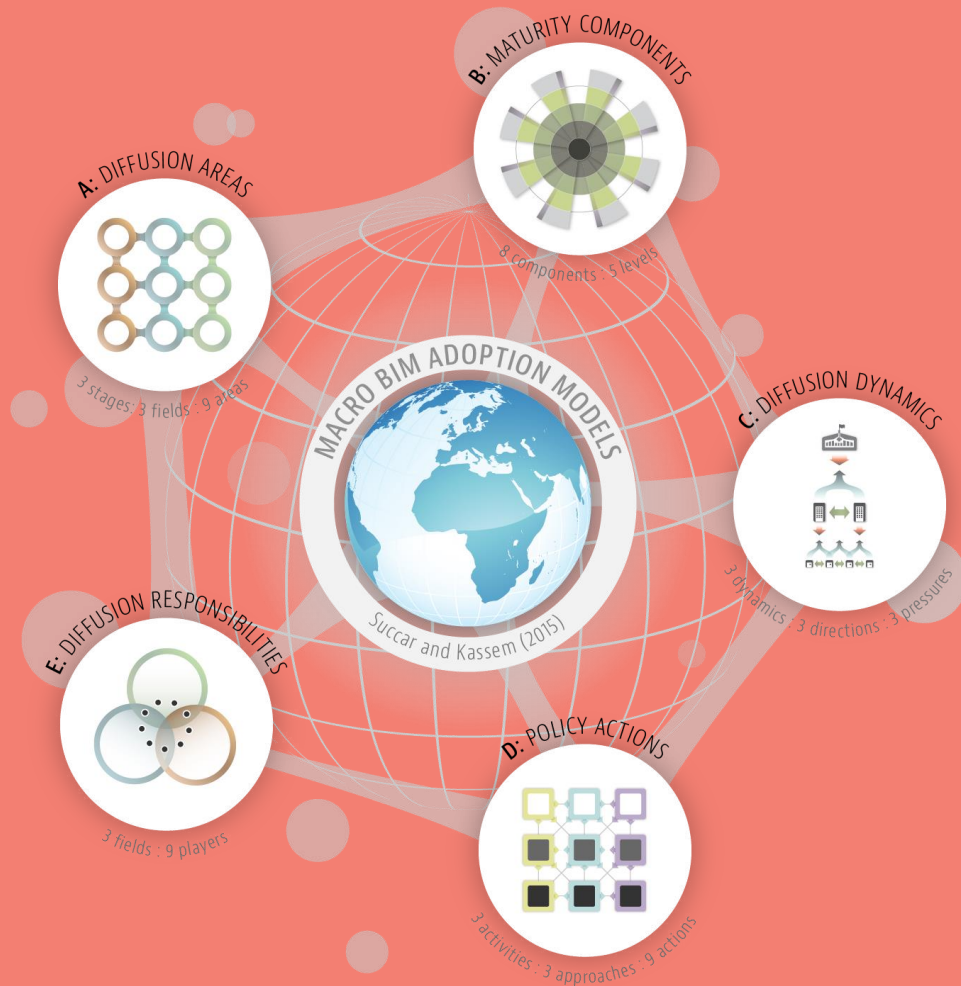
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- The **Eight Components** needed in every market to enable Macro BIM adoption





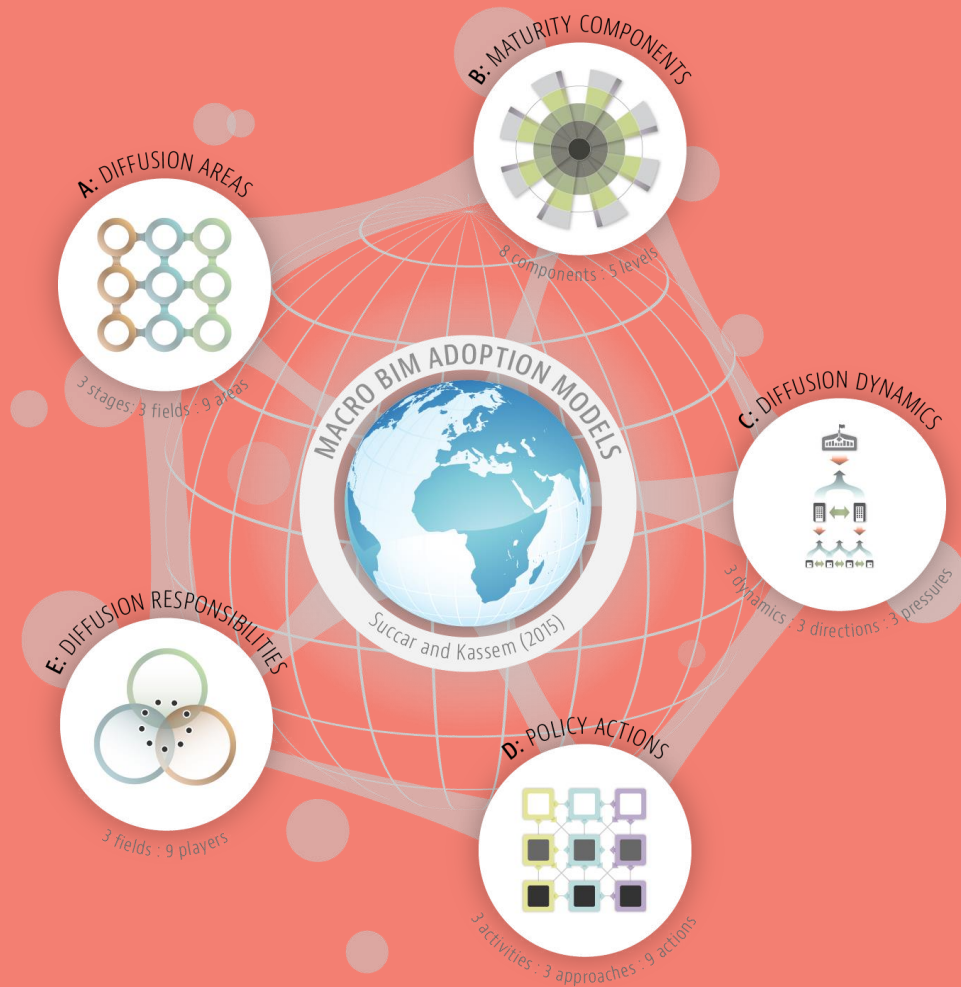
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- Preparing for transformation – templates for developing a **BIM Adoption Strategy**





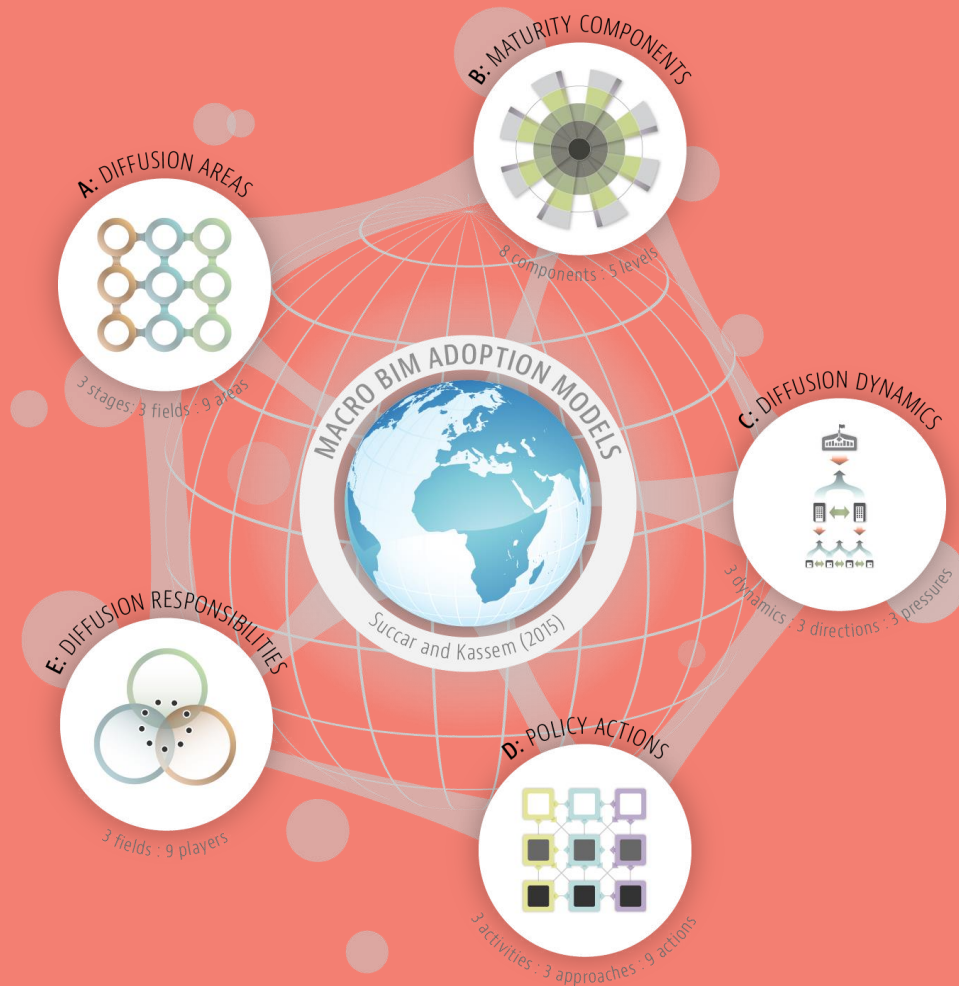
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- The **Three Questions** often asked when developing a BIM Adoption Strategy

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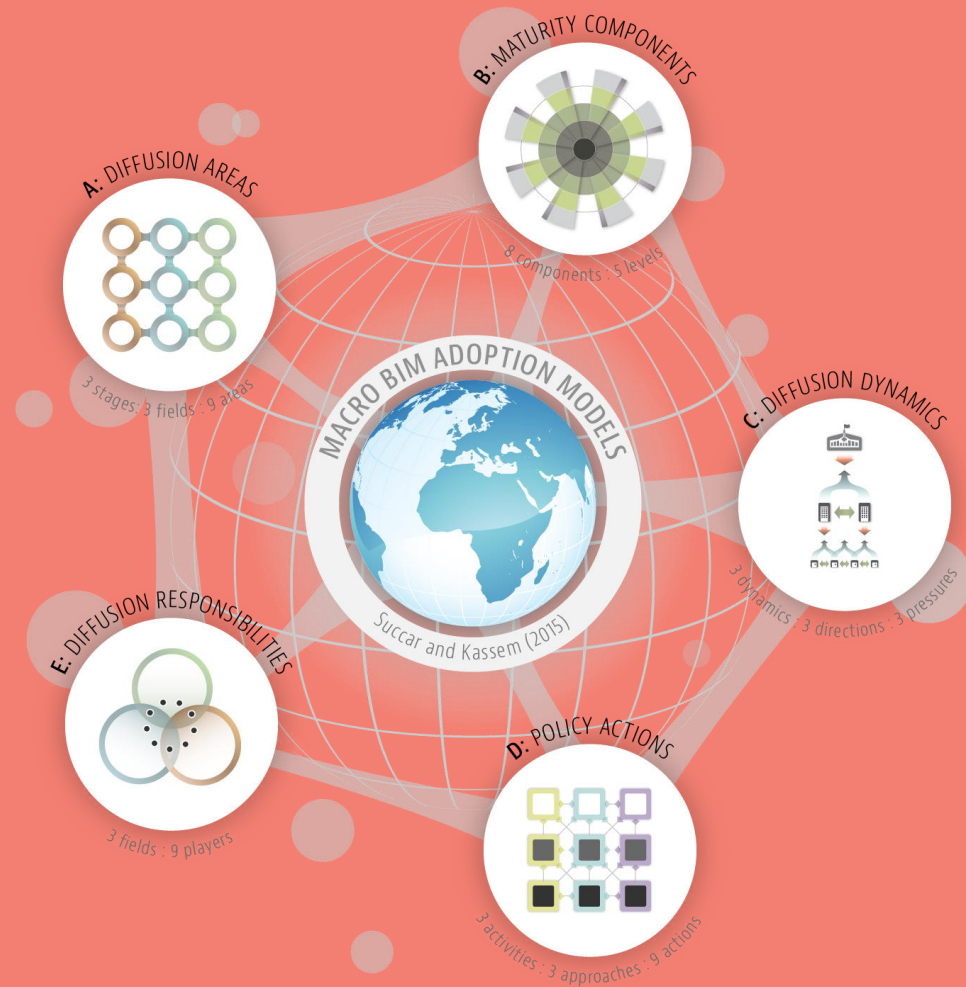


The **Three Questions** often asked when developing a BIM Adoption Strategy:

1. Can policy makers **copy** BIM adoption strategies from other countries?

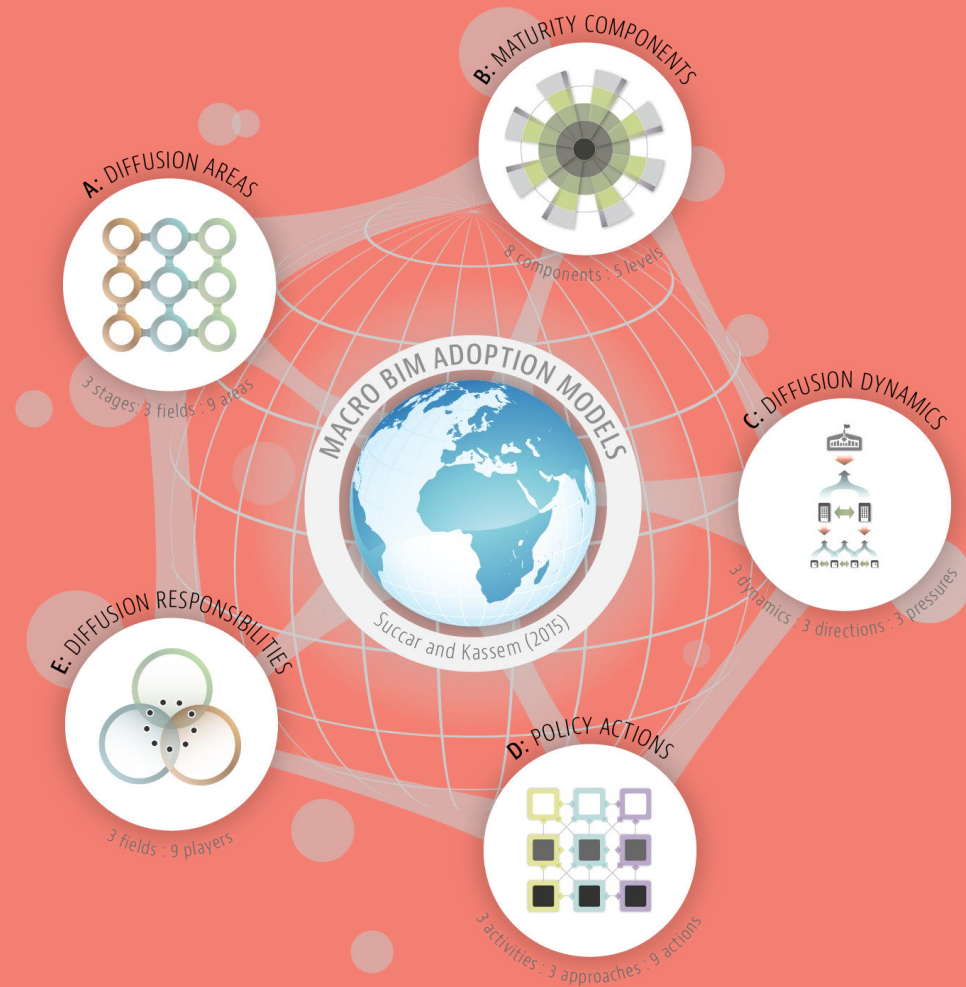






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1. Can policy makers **copy** BIM adoption strategies from other countries?
2. Does every country need a BIM **mandate**?
3. Who is **responsible** for leading BIM adoption efforts across a market?



# What is Macro BIM Adoption?

# Macro

‘Macro’ refers to *all adoption activities* intended to affect a whole market, country, or large region

# BIM

‘BIM’ refers to the *current expression* of *digital innovation* within the construction industry



# ADOPTION

‘Adoption’ refers to the whole mix of implementation and diffusion activities: adoption within *organisations*, adoption on *projects*, and adoption by *individuals*

1	Market
2	Defined Market
3	Sub-Market
4	Industry
5	Sector
6	Discipline
7	Specialty
8	Team
9	Organization
10	Organizational Unit
11	Organizational Group
12	Organizational Member

Implementation  
Capability  
Maturity  
Competence

Micro  
(small)

1	Market
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Performance  
Compliance  
Compatibility

+

Implementation  
Capability  
Maturity  
Competence

Meso  
(middle)

Micro  
(small)



1	Market
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Diffusion  
+  
Performance  
Compliance  
Compatibility  
+  
Implementation  
Capability  
Maturity  
Competence

Macro  
(large)

Meso  
(middle)

Micro  
(small)

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# Macro Adoption

=



Macro  
(large)

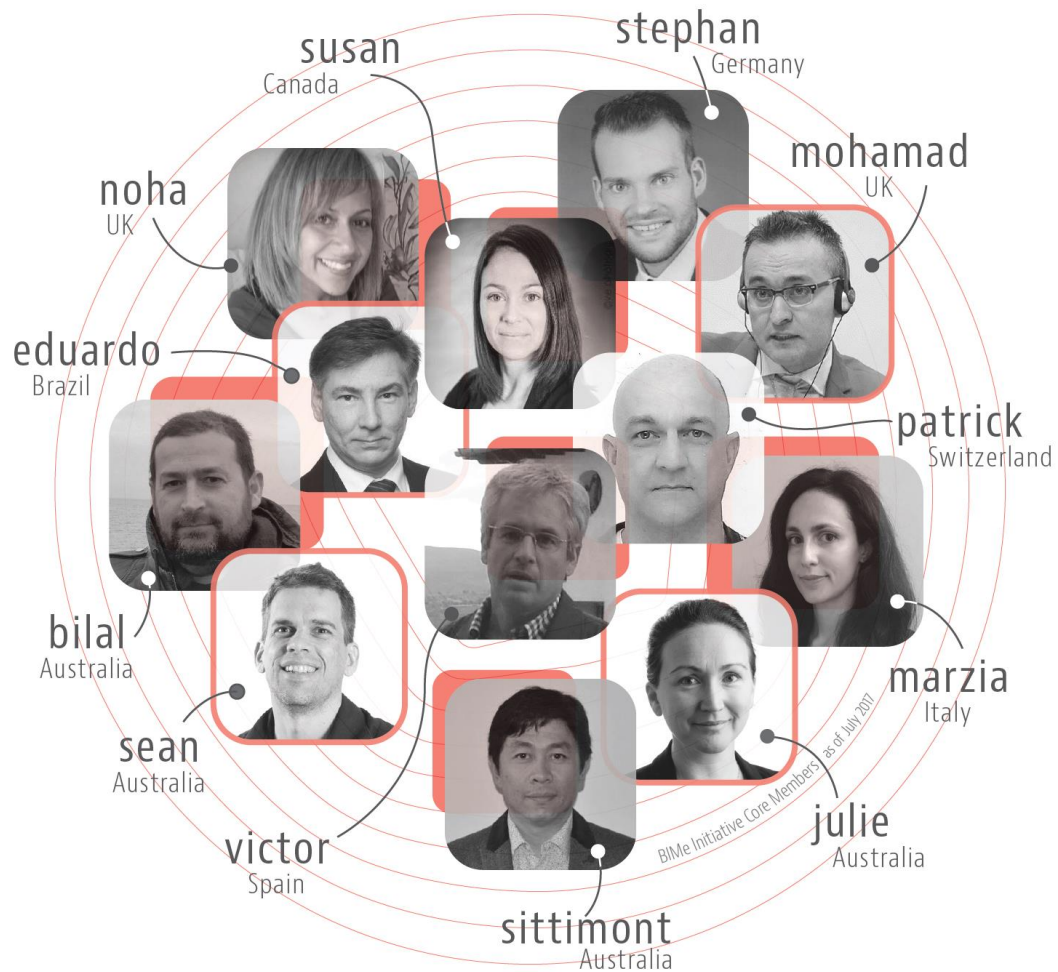
Meso  
(middle)

Micro  
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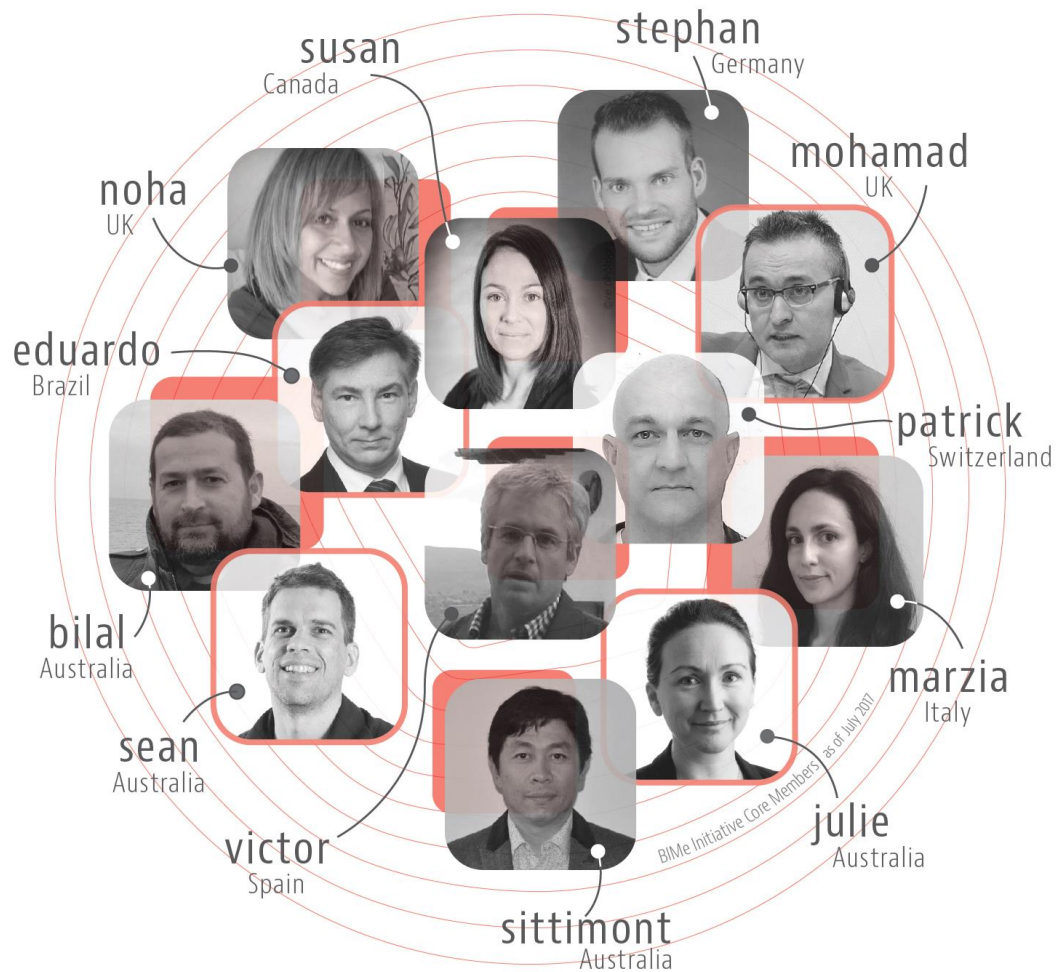
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# Background: BIMe Initiative + Ongoing Research



+ a large **Community** of Volunteers  
**Knowledge Network**

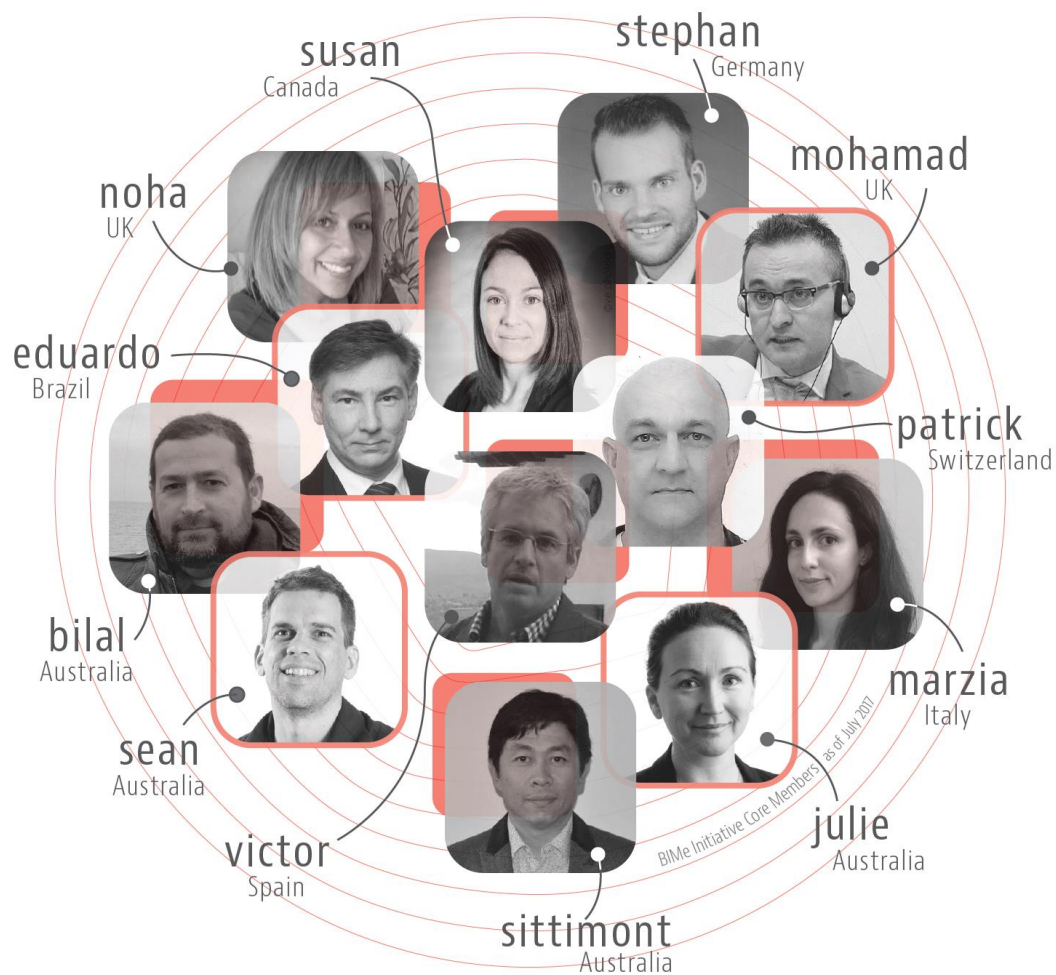


+ a large **Community** of Volunteers  
**Knowledge Network**



[BIMdictionary.com](http://BIMdictionary.com)

**BIME Initiative Projects**



+ a large **Community** of Volunteers  
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## BIM Management Plan (BMP)

2341.en

A formal document used to define how a **Collaborative BIM Project** will be delivered. A BIM Management Plan (BMP) includes model exchange templates and detailed guidance covering **BIM Roles**, **Modelling Standards** and **Data Exchange Protocols**. According to **NATSPEC National BIM Guide**, there are two types of BMPs: a Design BMP and a Construction BMP. In some cases, a BMP is considered part of the **Contractual Relationship** between **Project Participants**. Also refer to **BIM Execution Plan (UK)**

Similar terms: BIM Project Execution Plan, Project Delivery Plan, BIM Collaboration Guide, Design BMP, Construction BMP

Concepts: **Document**

Version 1

ar bg ca cs de el en es fa fr hr it lt pt ru tr zh

[BIMdictionary.com](http://BIMdictionary.com)

Área-chave de maturidade - Granularidade - levels	a INICIAL (pts. 0)	b DEFINIDO (max pts. 20)	c GERENCIADO (max pts. 20)	d INTEGRADO (max pts. 30)	e OPTIMIZADO (max pts. 40)
<b>Software:</b> aplicações, entregáveis e dados	O uso de software não é monitorado e regulamentado. Os modelos 3D são utilizados principalmente para gerar representações precisas em 2D. O uso de dados, armazenamento e trocas não são definidos dentro das organizações ou das equipes de projeto. As trocas sofrem de uma grande falta de interoperabilidade.	O uso e a introdução de software é unificada dentro da organização ou das equipes de projeto. Os modelos 3D são produzidos para gerar entregáveis em 2D bem como em 3D. O uso de dados, armazenamento e trocas são bem definidos dentro da organização e das equipes de projeto. A interoperabilidade é definida e priorizada.	A seleção e o uso de softwares e gerenciado e controlado de acordo com o tipo de entregáveis definidos. Os modelos BIM são bases para as vistas 3D, representações 2D, quantificações, especificações e estudos analíticos. O uso de dados, armazenamento e as trocas são monitorados e controlados. O fluxo de dados é documentado e bem gerenciado. A interoperabilidade é obrigatória e monitorada de perto.	A seleção e a implantação de softwares seguem os objetivos estratégicos da empresa e não somente os requisitos operacionais. O processo de modelagem e seus entregáveis são bem sincronizados através dos projetos e firmemente integrados com os processos do negócio. O uso de dados, armazenamento e as trocas são regularmente documentados e executados como parte global da organização ou como estratégia de uma equipe de projetos.	A seleção e o uso de ferramentas de software são continuamente revisados para aumentar a produtividade e alinhar com os objetivos estratégicos. Os entregáveis do processo de modelagem BIM são sincronizados e revisados ciclicamente para se beneficiarem de novas funcionalidades dos softwares e seus externos disponíveis. Todos os assuntos relacionados ao armazenamento, uso e troca de dados, interoperações, são documentados, controlados, refletidos e proativamente reforçados.
<b>Hardware:</b> equipamento, entregáveis, localização, mobilidade	Os equipamentos para uso do BIM são inadequados; as especificações técnicas existentes são muito baixas para a organização. A troca ou atualização dos equipamentos são tratados como itens de custo e realizados apenas quando são inevitáveis.	As especificações dos equipamentos - apropriadas para a entrega de produtos e serviços em BIM - são definidas, orgadas e normalizadas em toda a organização. As atualizações e substituições de hardware são itens de custo bem definidos.	Existe uma estratégia estabelecida para documentar, gerenciar e manter o equipamento para uso do BIM. O investimento em hardware é bem orientado para melhorar a mobilidade do pessoal ligando necessário e aumentar a produtividade do BIM.	As implantações de equipamentos são tratadas como visibilidades do BIM. O investimento em equipamentos é integrado firmemente com os planos financeiros, as estratégias de negócios e com os objetivos de desempenho.	Os equipamentos existentes e as soluções inovadoras são continuamente testadas, atualizadas e implantadas. O hardware torna-se parte da vantagem competitiva da organização ou da equipe do projeto.
<b>Rede:</b> soluções, entregáveis e segurança e controle de acesso	As soluções de rede são inexistentes ou provisórias. Indivíduos, organizações único local / dispersos e equipes de projeto usam qualquer que seja a ferramenta para se encontrar, comunicar e compartilhar dados. As partes interessadas não têm a infraestrutura de rede necessária para coletar, armazenar e compartilhar conhecimento.	As soluções para compartilhamento de informações e controle de acesso são identificadas dentro e entre organizações. No projeto, as partes identificam as suas necessidades de compartilhamento de dados/informações. As organizações e as equipes de projeto são relativamente baixas.	As soluções de rede para a coleta, armazenamento e compartilhamento do conhecimento dentro e entre as organizações são geridas através de plataformas comuns. As ferramentas de gerenciamento de conteúdo e de ativos são implantadas para regular os dados através de conexões de banda larga.	As soluções de rede permitem múltiplas facetas do processo BIM para ser integrado através do conhecimento dentro e entre as organizações. As soluções incluem redes/portais de projeto específicos que permitem o intercâmbio de dados intensivos (troca interoperável) entre as partes interessadas.	As soluções de rede são continuamente avaliadas e substituídas pelas últimas inovações testadas. As redes facilitam a aquisição de conhecimento, armazenamento e compartilhamento entre todas as partes interessadas. A otimização dos canais de dados, processos e comunicações integradas é rigida.

Matriz de Maturidade BIM ([link](#))

**BIME Initiative Projects**



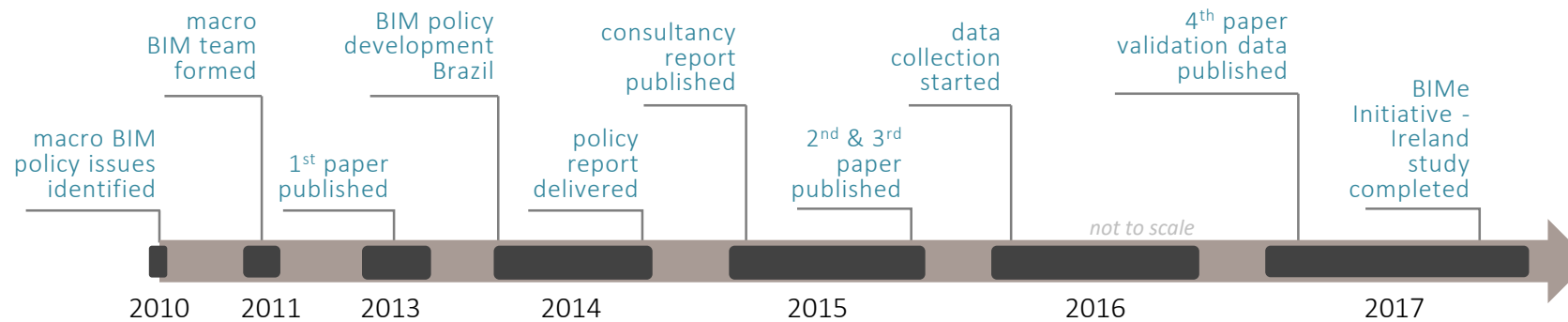


# BIMe Initiative: Macro Adoption Project

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## Project Team



BIM Leadership Forum | Brazil



Future BIM Implementation | Qatar



EU BIM Summit | Spain



Geospatial World Forum | Portugal



2016, 2017, 2018...

Barcelona, Milan, Rome, Sao  
Paolo, Hannover, Cairo, Dublin,  
Montreal, Mexico ...



GEOBIM | Netherlands

# A PROPOSED APPROACH TO COMPARING THE BIM MATURITY OF COUNTRIES

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## ABSTRACT

BIM concepts and tools have now proliferated across the construction industry. This is evidenced by the comparative results of BIM adoption rates reported through a number of industry surveys. However these surveys typically cover a small number of industry stakeholders; are intended to establish adoption rates by organisations rather than markets; and are unsupported by theoretical frameworks to guide data collection and analysis. Flawed or published theoretical frameworks, the paper proposes three metrics to augment survey data and help establish the overall BIM maturity of countries. These metrics apply to noteworthy BIM publications (NBPs) and assess their BIM knowledge content (BKC). NBPs are publicly-available industry documents intended to facilitate BIM adoption, while BKC's are specialised labels (a report, manual, and contract) used to describe NBP contents. The three metrics – NBP awareness, BKC content distribution, and NBP references – are applied in assessing the knowledge deliverables of three countries – United States, United Kingdom and Australia – chosen for their similar construction culture and active BIM scene. The paper then discusses how these complementary metrics can inform policy development and identify market-wide knowledge gaps.

Keywords: Building Information Modeling (BIM), Country-scale BIM maturity, Noteworthy BIM Publications, BIM Knowledge Content taxonomy.

## 1. INTRODUCTION


This paper adopts a wide-angle approach to BIM maturity as applicable to countries rather than organizations. Assessing maturity at this large scale is conceptually supported by a published framework used as a basis for proposing new qualitative metrics to complement quantitative surveys conducted in three countries. For the purpose of simplification and targeted exploration, we propose three cost-of-many possible – qualitative metrics; focus on three countries with similar construction cultures; and share more data differentiating between BIM adoption diffusion and excellence. The proposed innovations are introduced to facilitate this exploration of country-scale BIM maturity and will be revised over future more detailed studies.

### 1.1 COUNTRY-SCALE BIM MATURITY

BIM maturity refers to the quality of BIM implementation and the degree of BIM-enabled service or product (Gossain, 2010). There are three main ways to measure BIM maturity: specific BIM frameworks (Gird and Lee, 2010); China, USA and UK standards (Zhang et al., 2010); and performance of organizations (Gossain, 2010). The performance of organizations is most applicable across all geographical scales (Gossain, 2010). As such, there are seven key factors that affect BIM maturity: Government support (Gossain, 2010); Education (Gossain, 2010); Industry culture (Gossain, 2010); Infrastructure (Gossain, 2010); Human resources (Gossain, 2010); Technology (Gossain, 2010); and individual BIM capability (Gossain 2013) (Gossain,

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# AUTOMATION IN CONSTRUCTION


AN INTERNATIONAL RESEARCH JOURNAL


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- Maintenance & Management

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# Macro Adoption Project: Countries covered to date



## 24 countries so far including input from +140 experts

*Initial Benchmarking Data – collected in 2015 from*

Country	No.	Country	No.	Country	No.	Country	No.
Australia	4	New Zealand	3	Netherlands	4	Switzerland	2
China	3	Brazil (2015)	4	Portugal	9	UAE	3
Finland	5	Ireland	3	Qatar	6	United Kingdom	16
Hong Kong	3	Italy	5	Russia	2	USA	5
Malaysia	4	Mexico	3	Spain	7	South Korea	4

*Detailed studies conducted in Ireland 2017 (completed), Egypt 2018, Spain 2018, Russia 2018....*

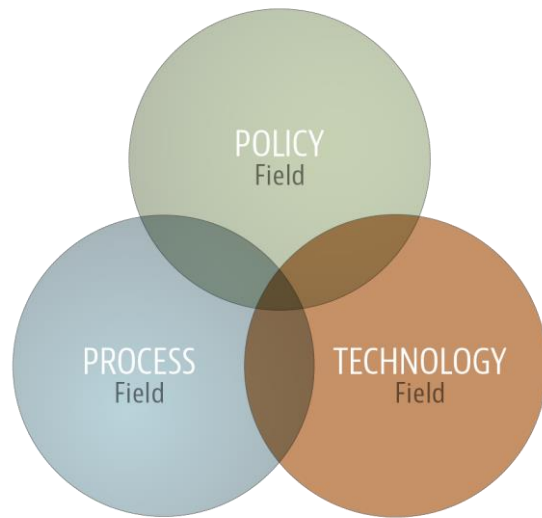


# Macro Adoption Project: What is being measured

	What is being measured	Number of points	Sub-total
A	<b>Level of Adoption</b> within organisations across the market	3 BIM Stages x 3 BIM Fields	9 Points
B	<b>Maturity Level</b> of key enablers across the market	8 Maturity Components x 5 Maturity Levels	40 Points
C	<b>Diffusion Dynamic</b> across the market	3 Diffusion Dynamics	3 Points
D	The <b>Policy Action</b> taken by Policy Makers within the market	3 Policy Approaches x 3 Policy Activities	9 Points
E	<b>Stakeholders' Contributions</b> towards adoption in the market	8 Player Types x 5 Contribution Levels	40 points
101 points providing a comprehensive Macro BIM Adoption snapshot			

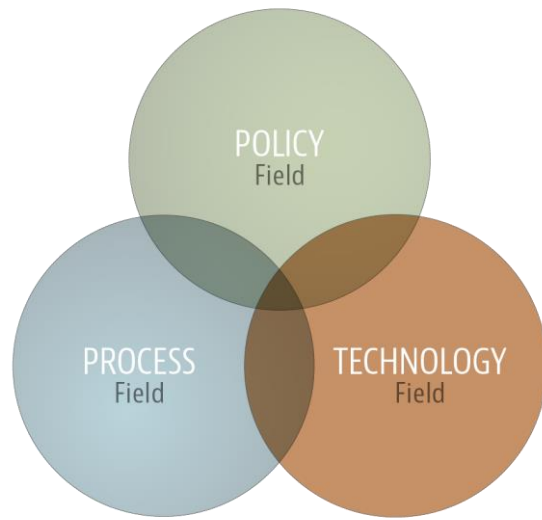


# Model A: Diffusion Areas Model



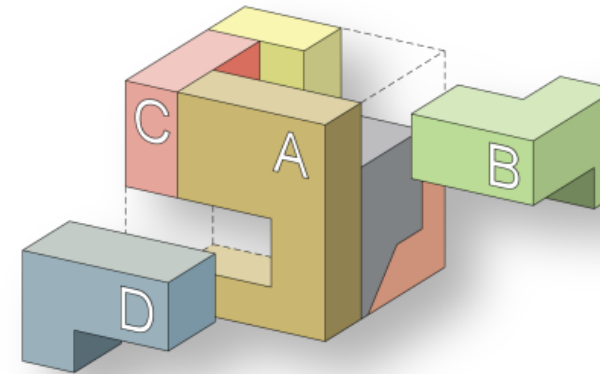
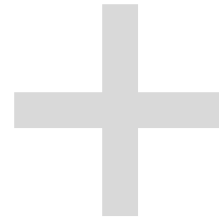
## FIELDS

BIM Fields refer to all topics, activities, and actors across the BIM domain



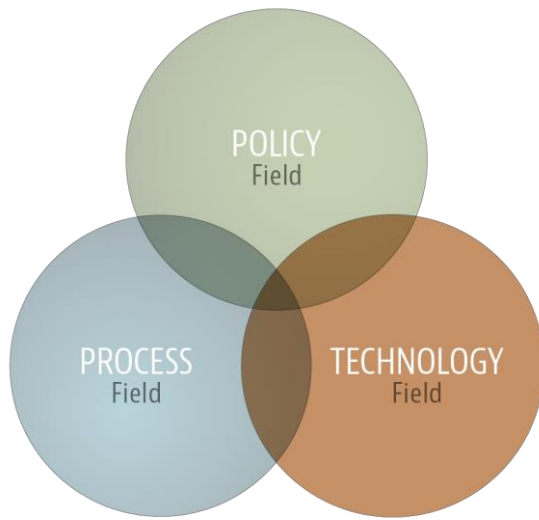
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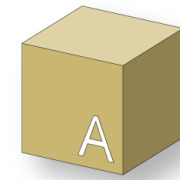
## STAGES

BIM Stages refer to the performance milestones to be crossed across the BIM domain

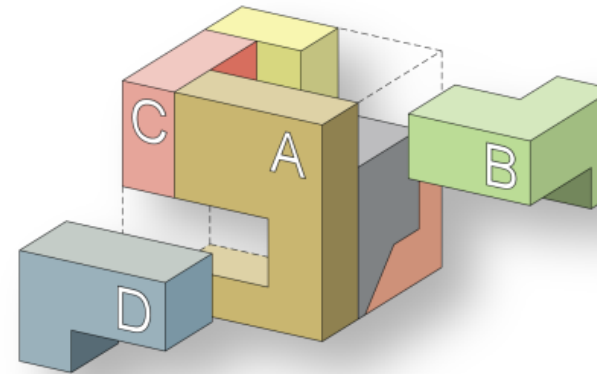
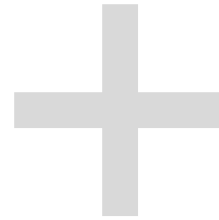


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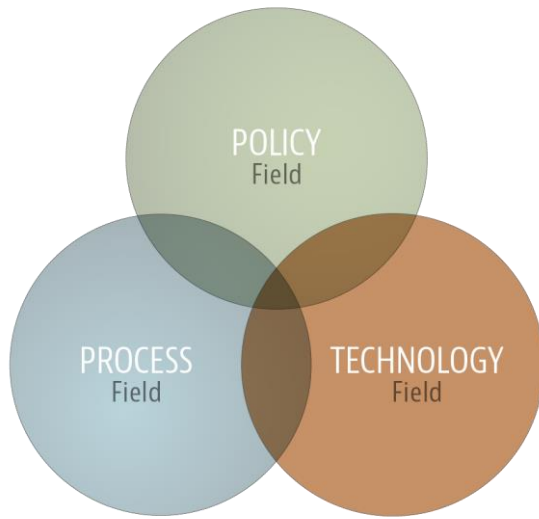


modelling



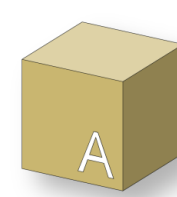
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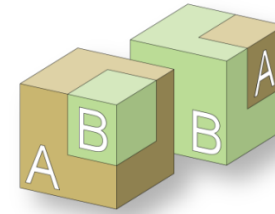


## FIELDS

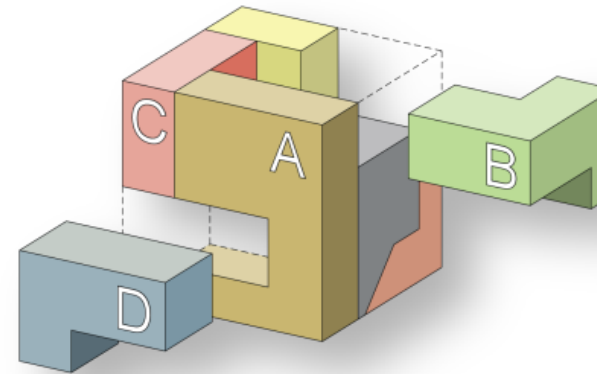
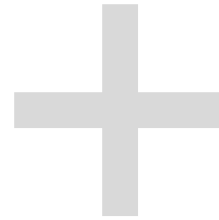
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modelling



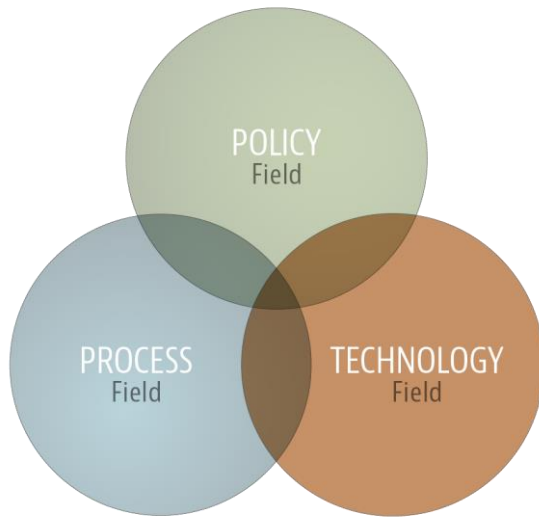
collaboration



## STAGES

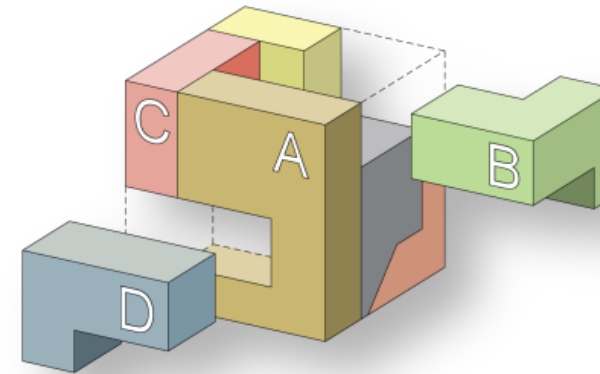
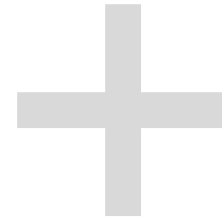
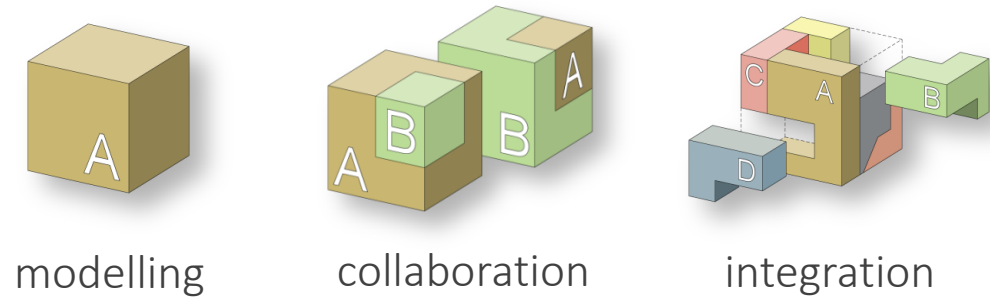
BIM Stages refer to the performance milestones to be crossed across the BIM domain





## FIELDS

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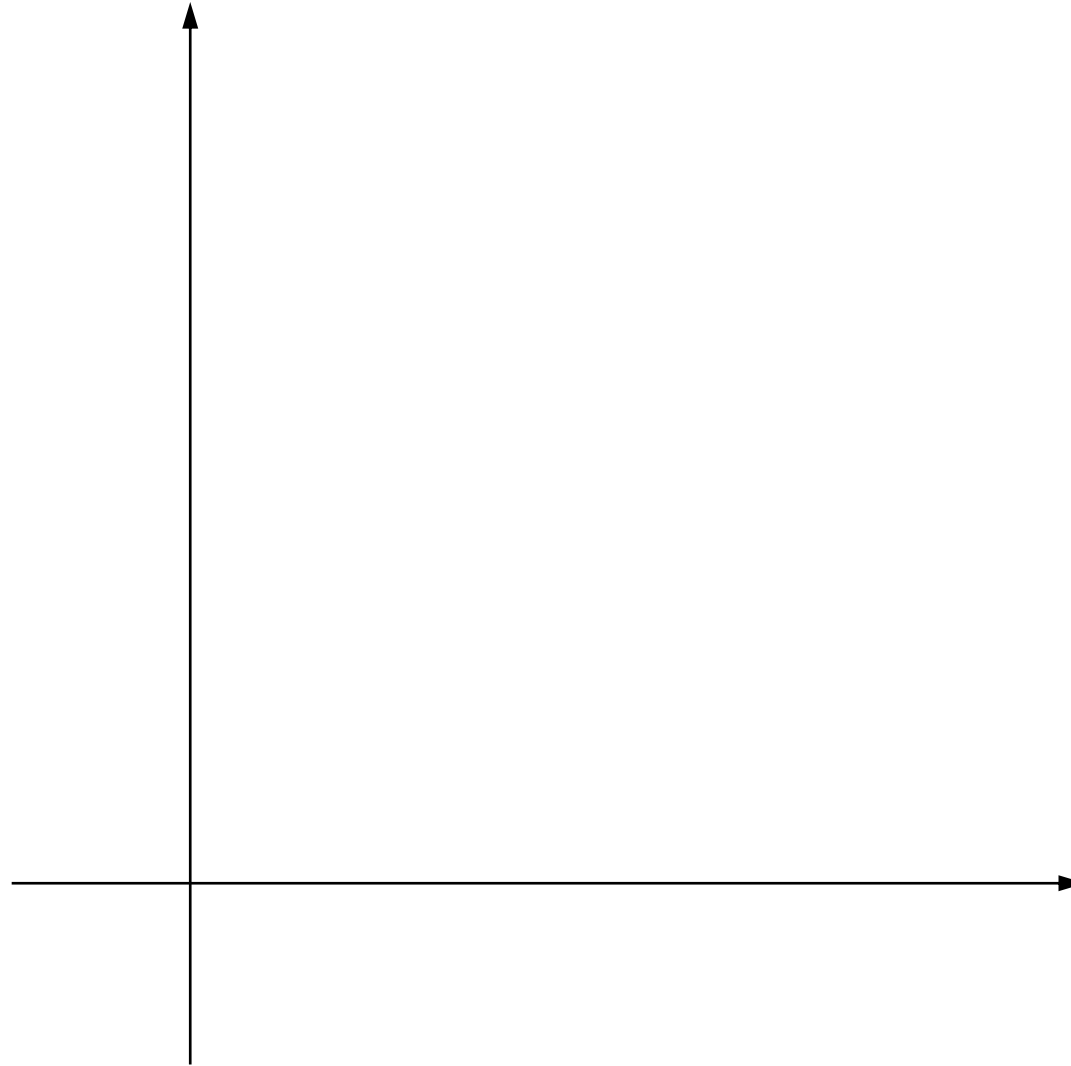


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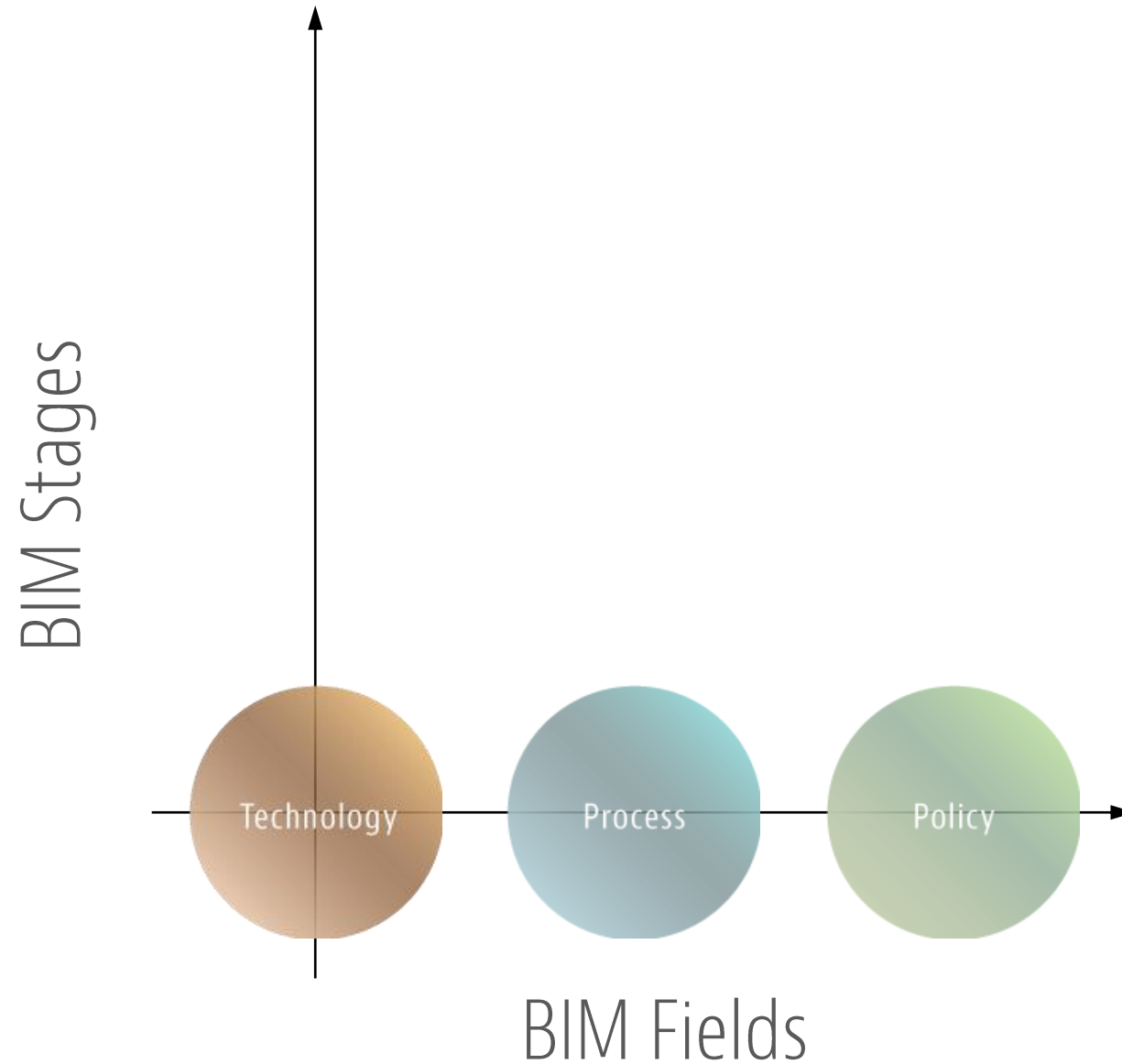
# Diffusion Areas Model

BIM Stages

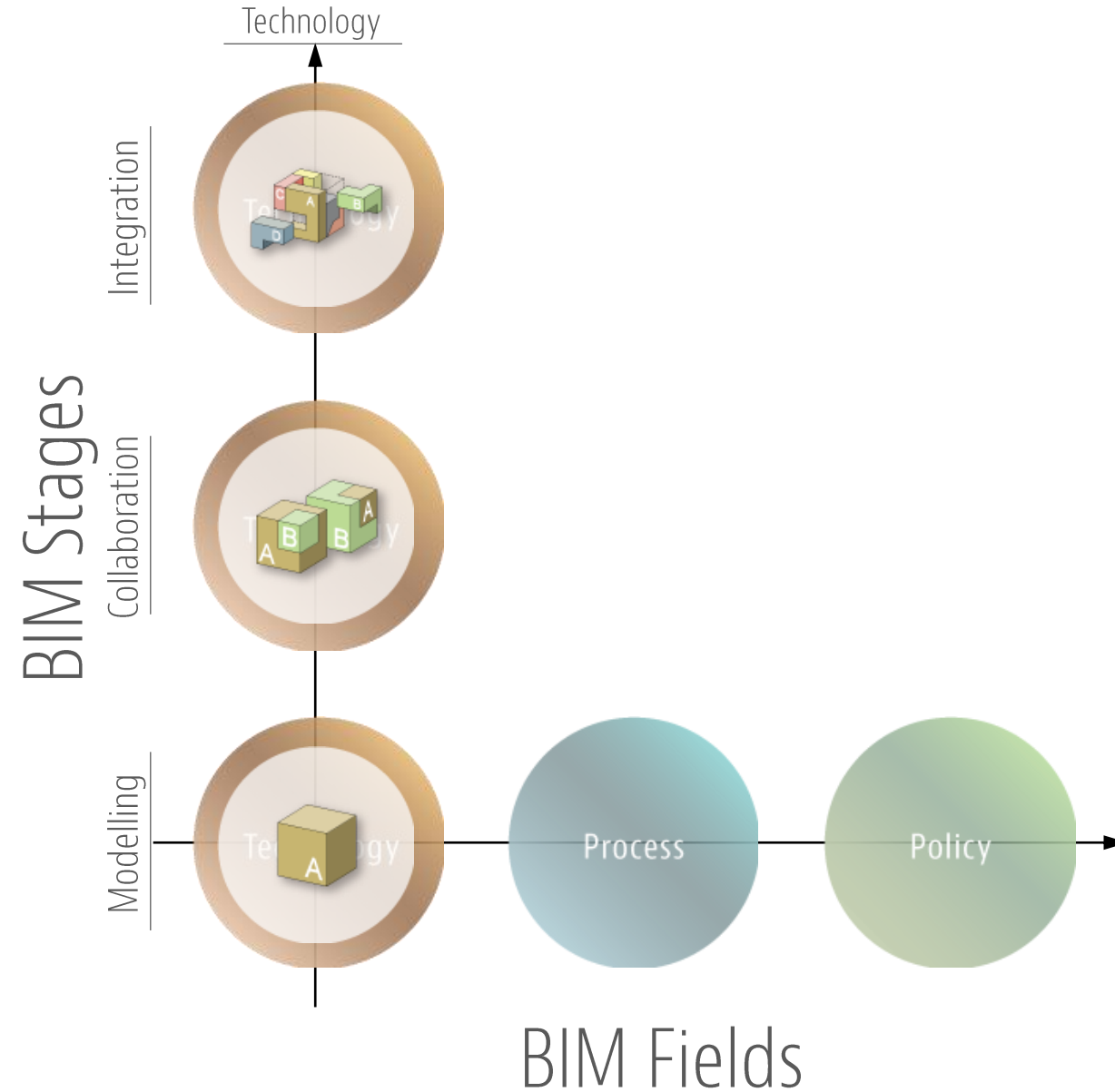


BIM Fields

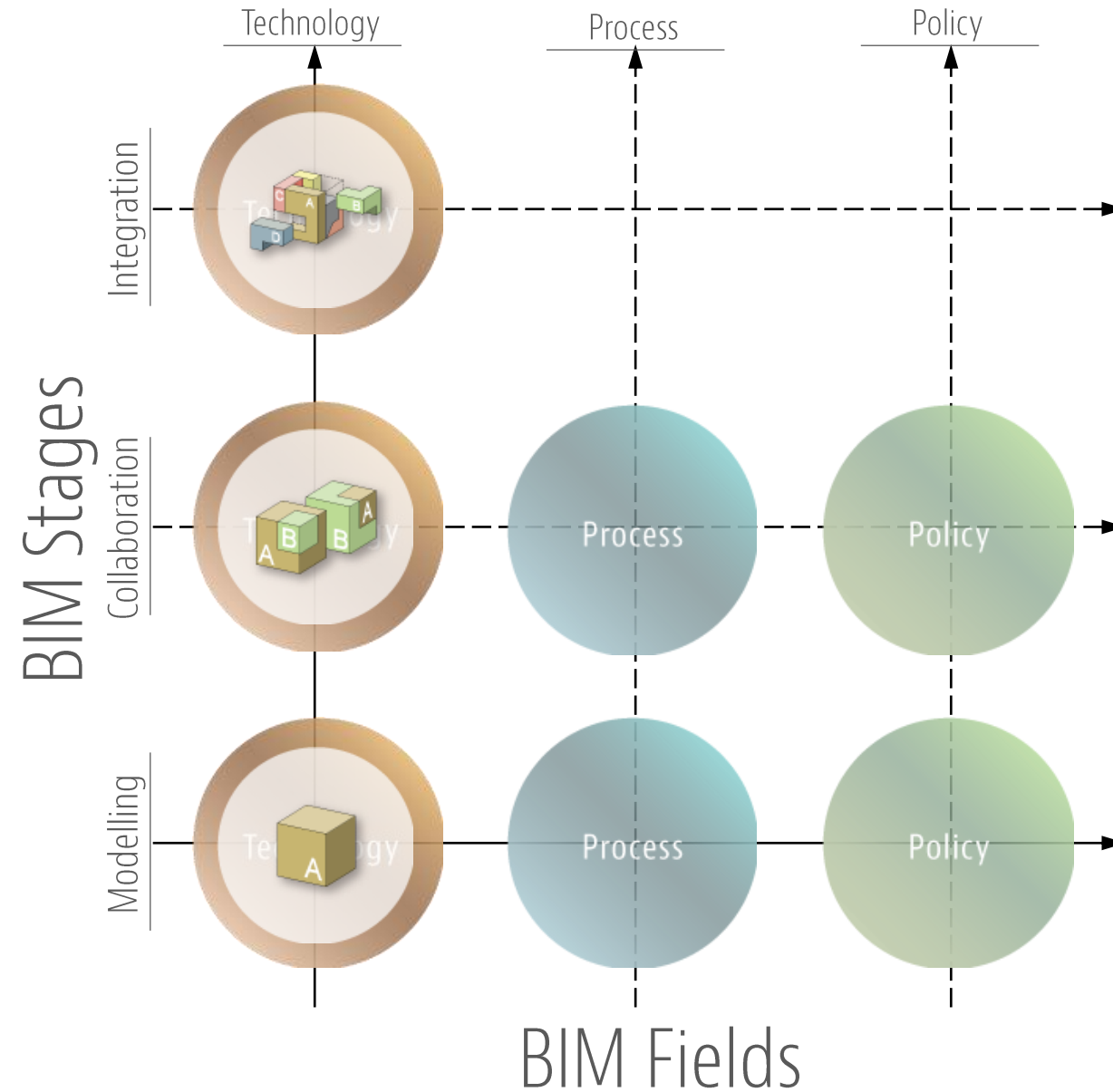
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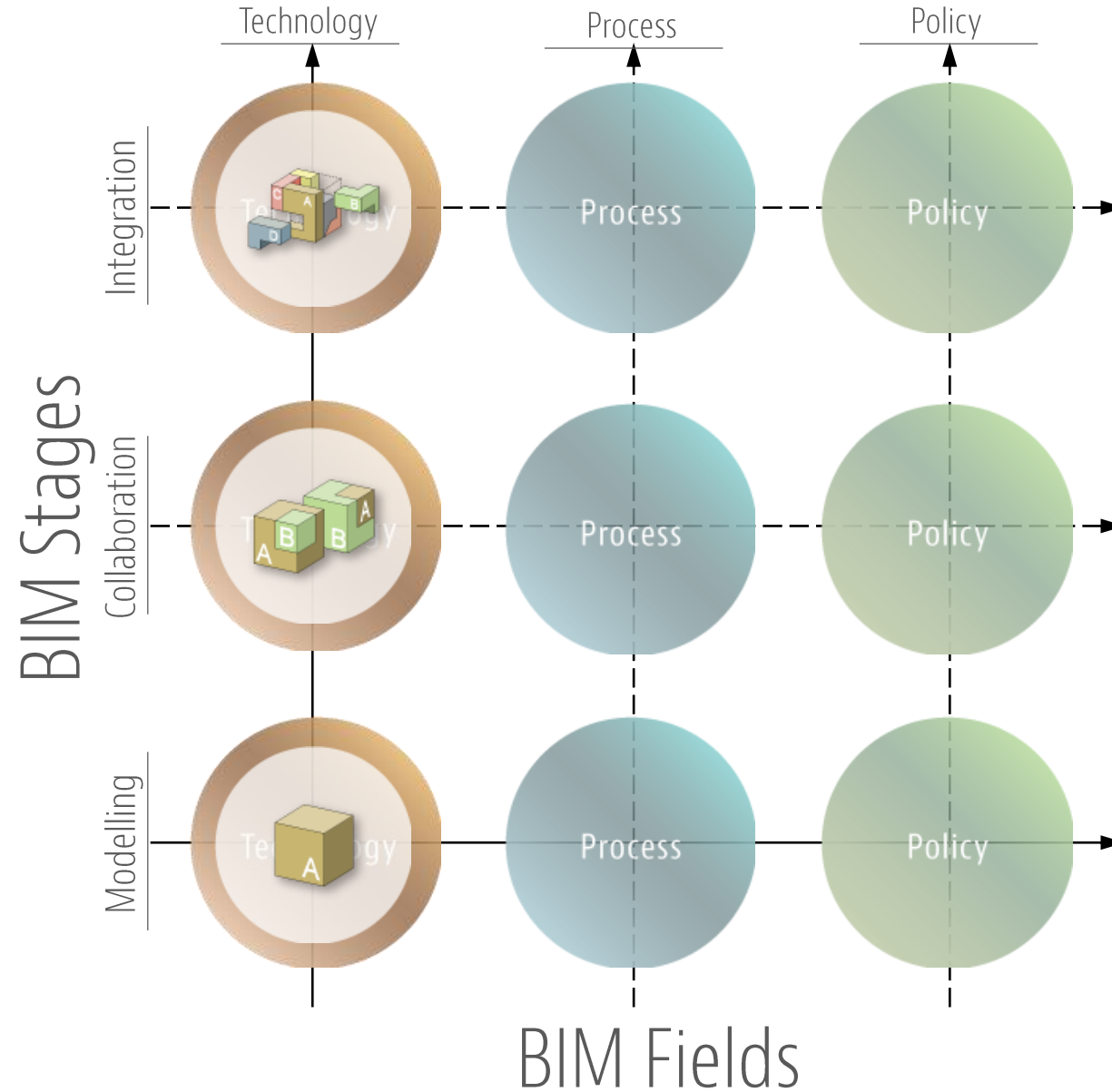
# Diffusion Areas Model



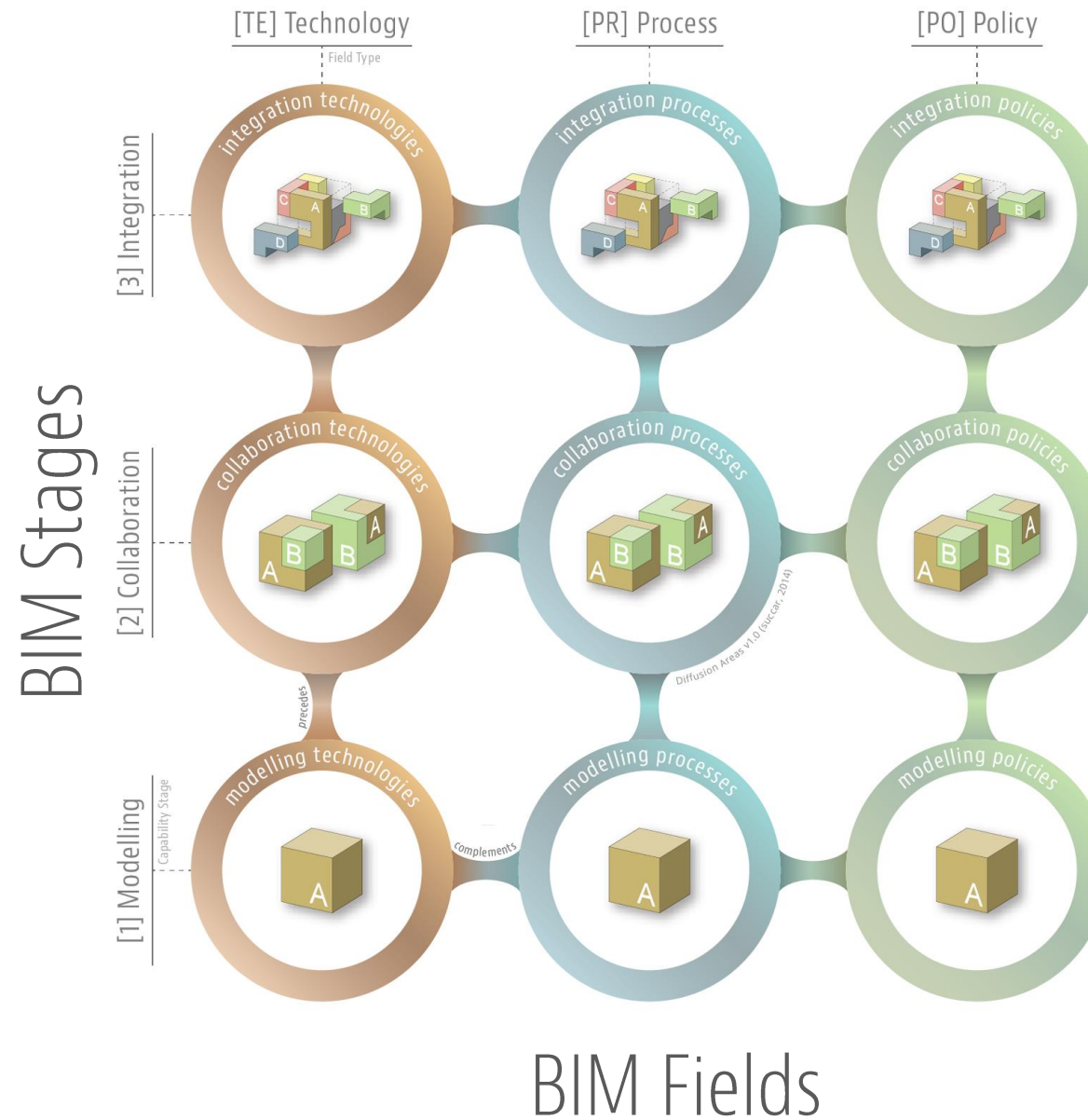
# Diffusion Areas Model



# Diffusion Areas Model



# Diffusion Areas Model





# Diffusion Areas Chart

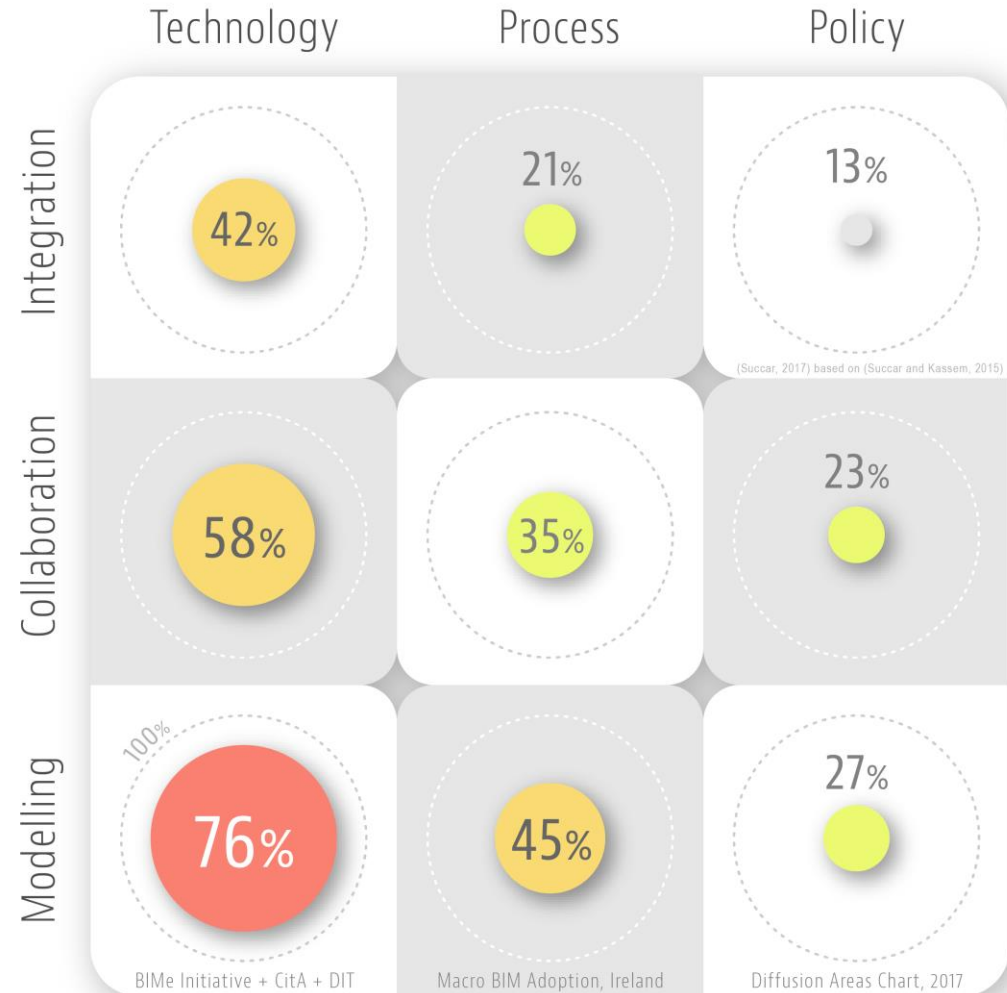
clarifying BIM diffusion  
within a market

## Ireland 2017

Macro BIM Adoption Snapshot  
conducted in collaboration with CitA and DIT

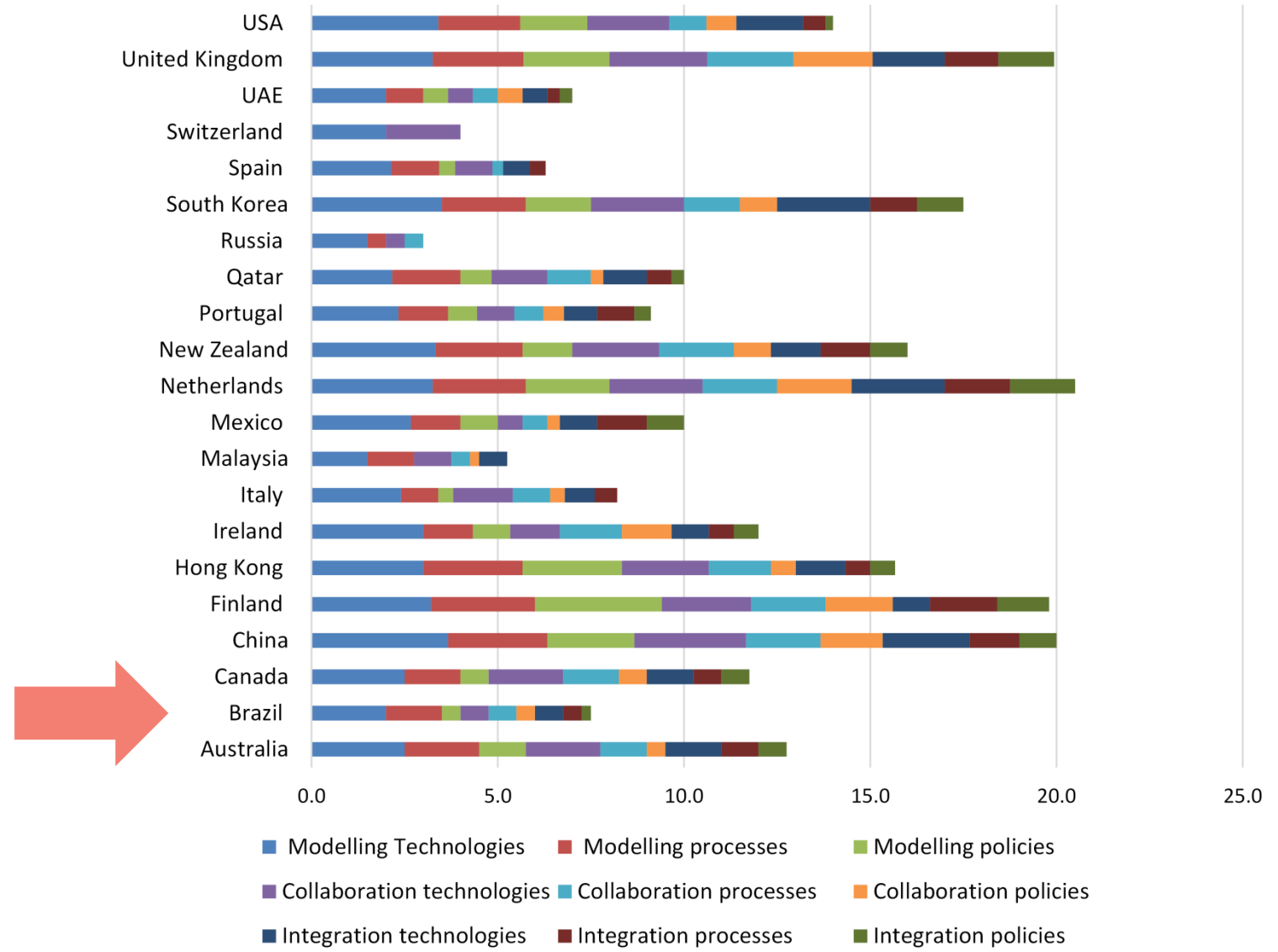
## BIM Fields

### BIM Stages



# Diffusion Areas

*Rating in 21 countries*

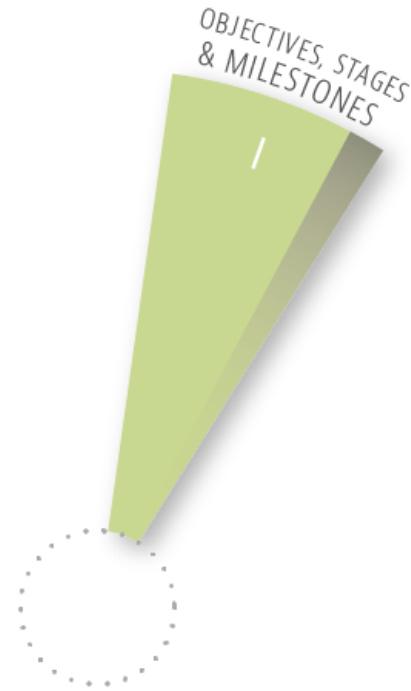




# Model B: Maturity Components Model

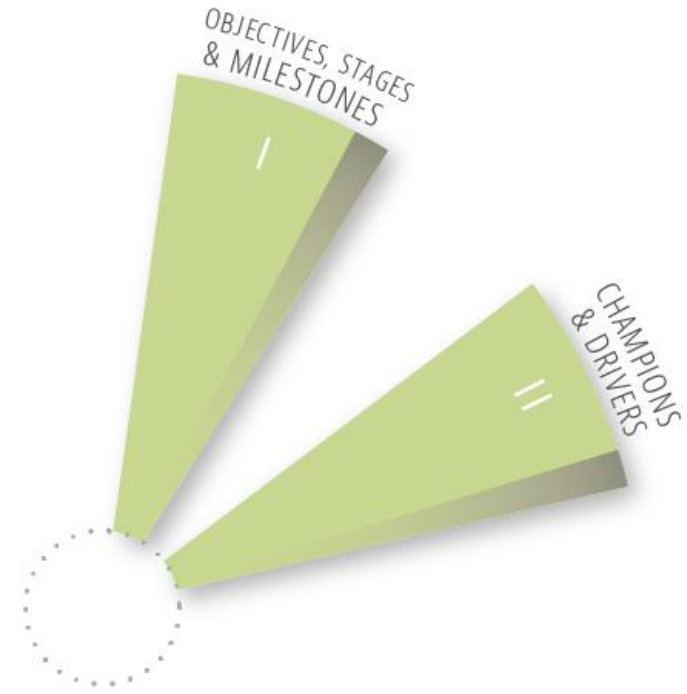
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



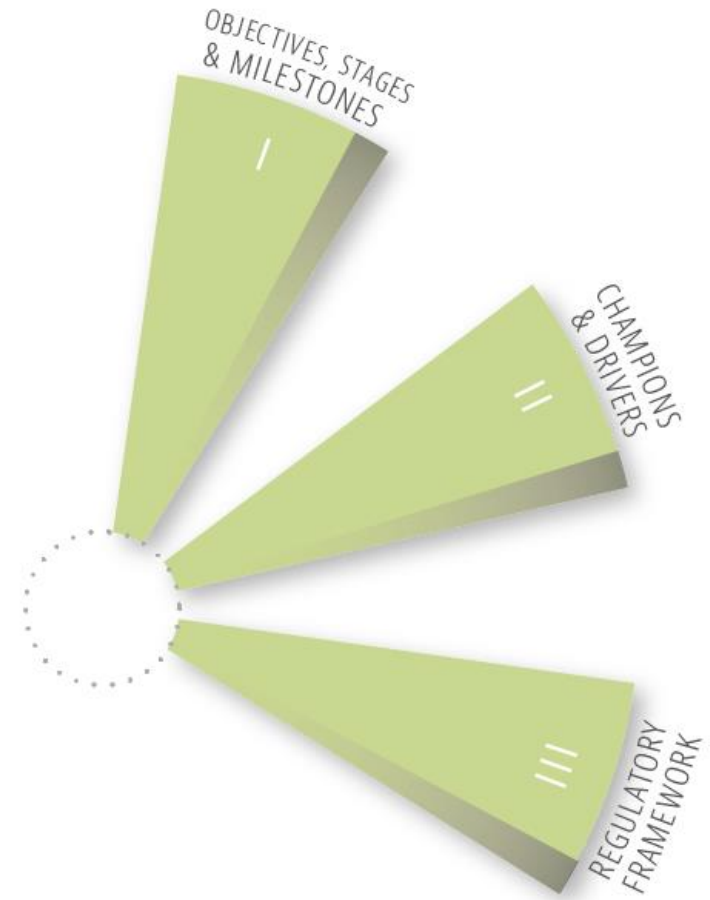
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



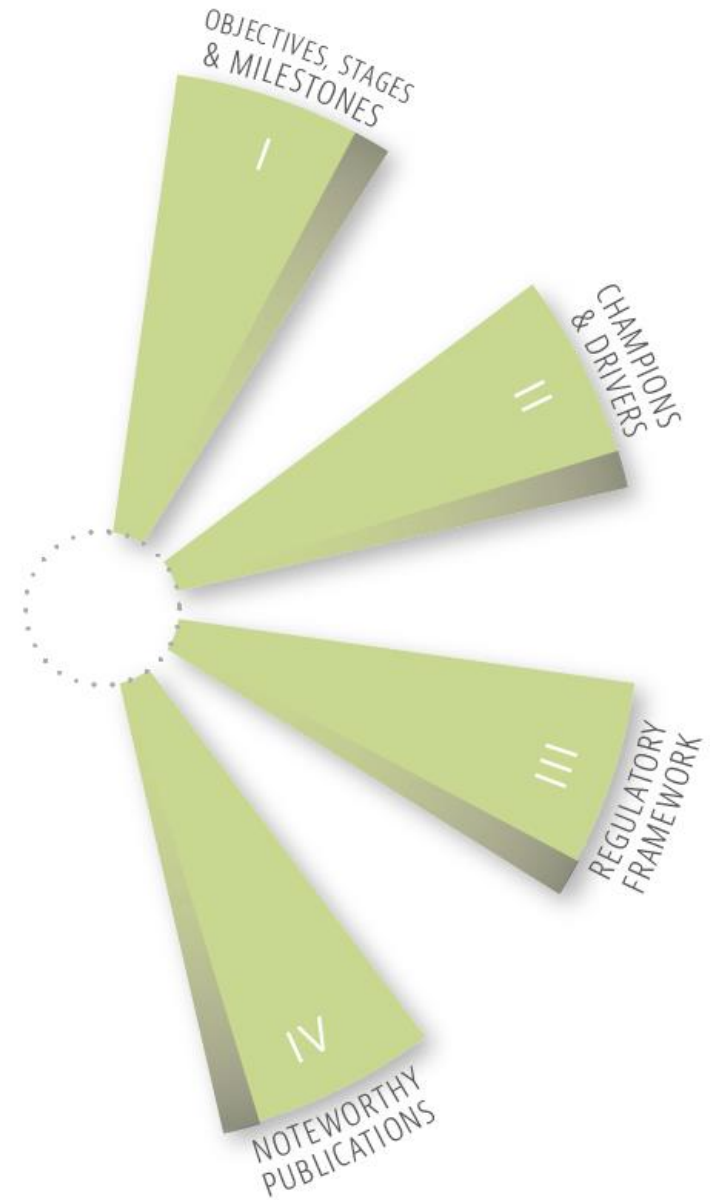
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*





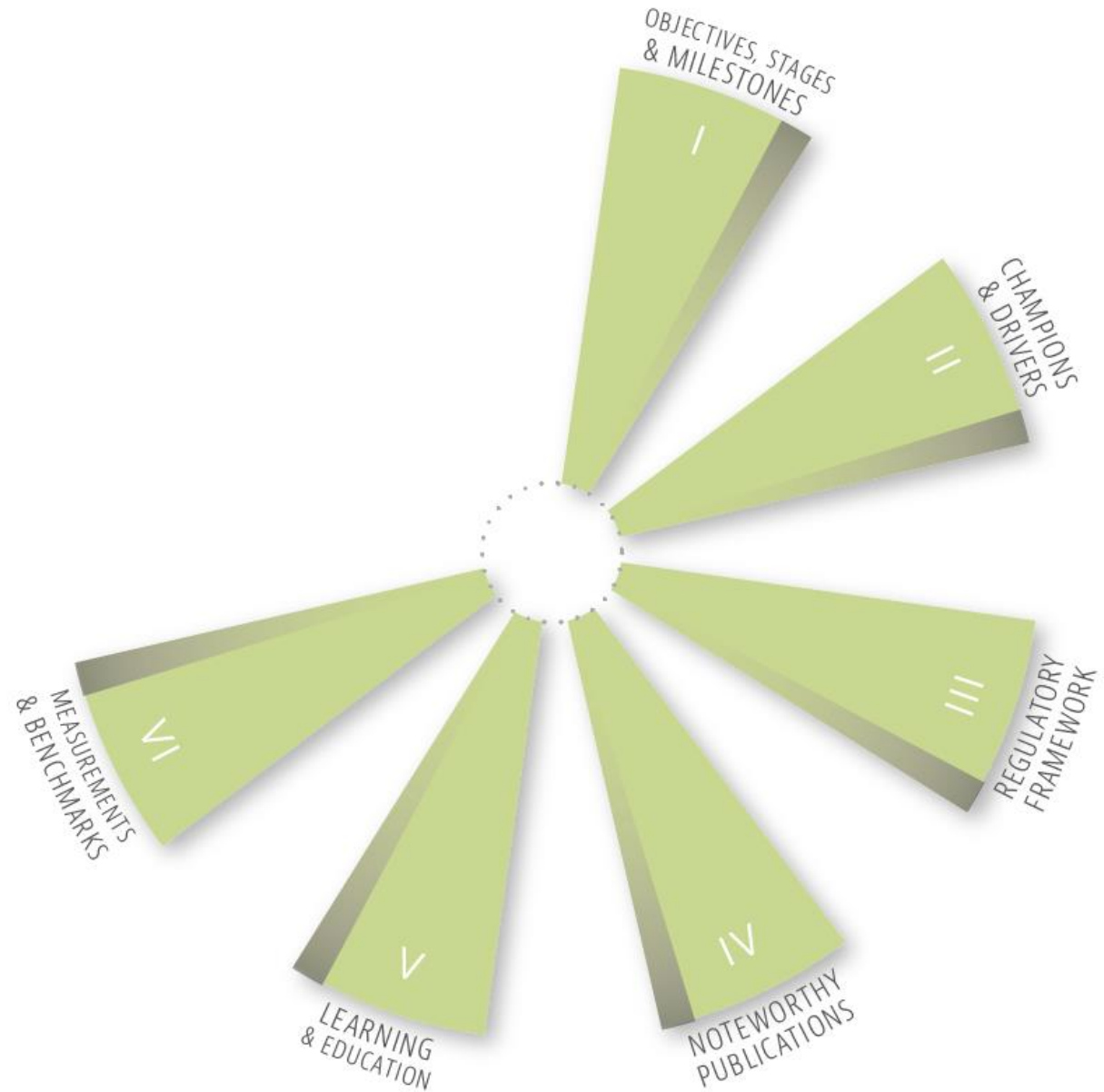
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



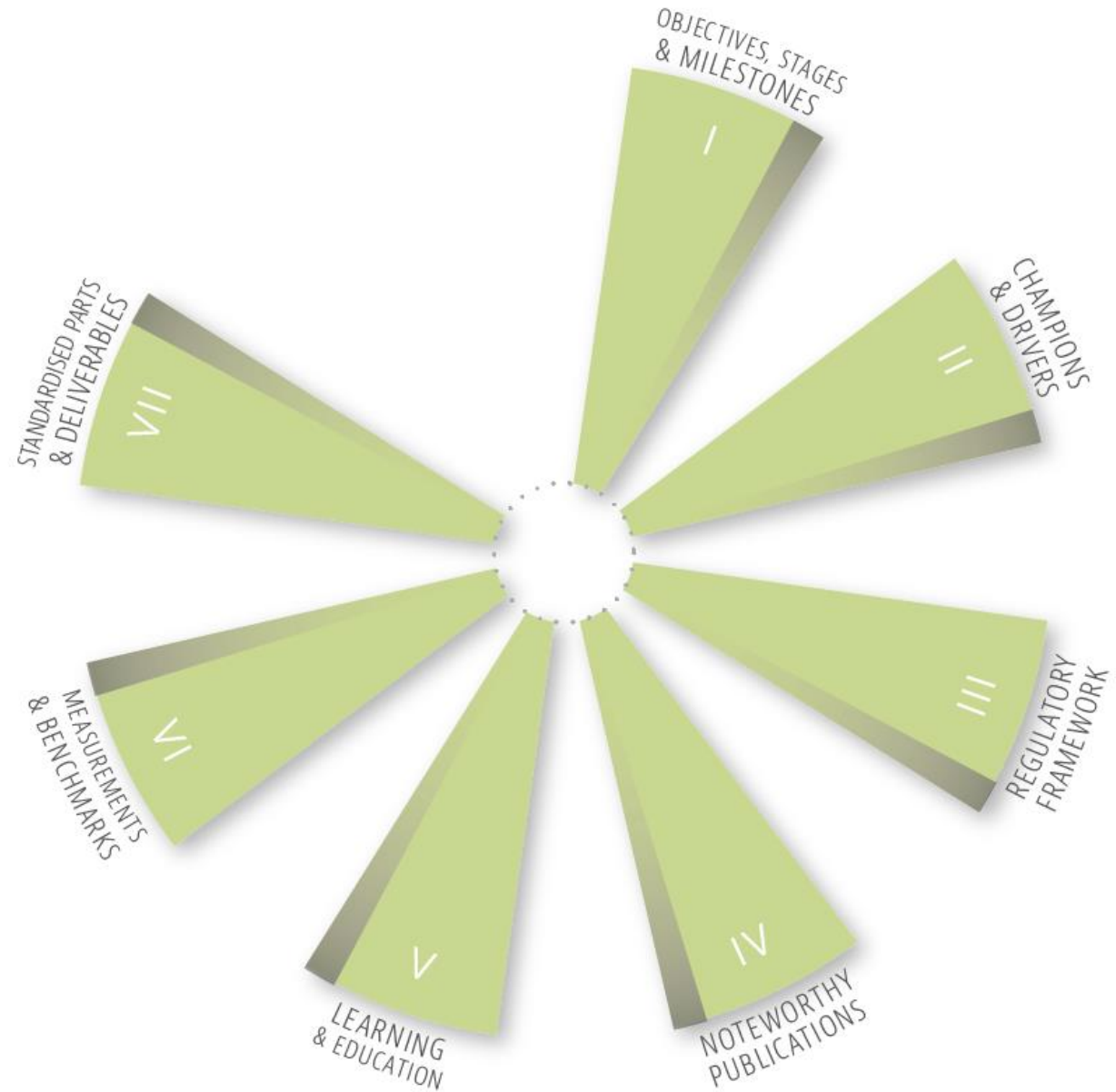
# Maturity Components Model

*Measures the maturity of key enablers across the market*



# Maturity Components Model

*Measures the maturity of key enablers across the market*



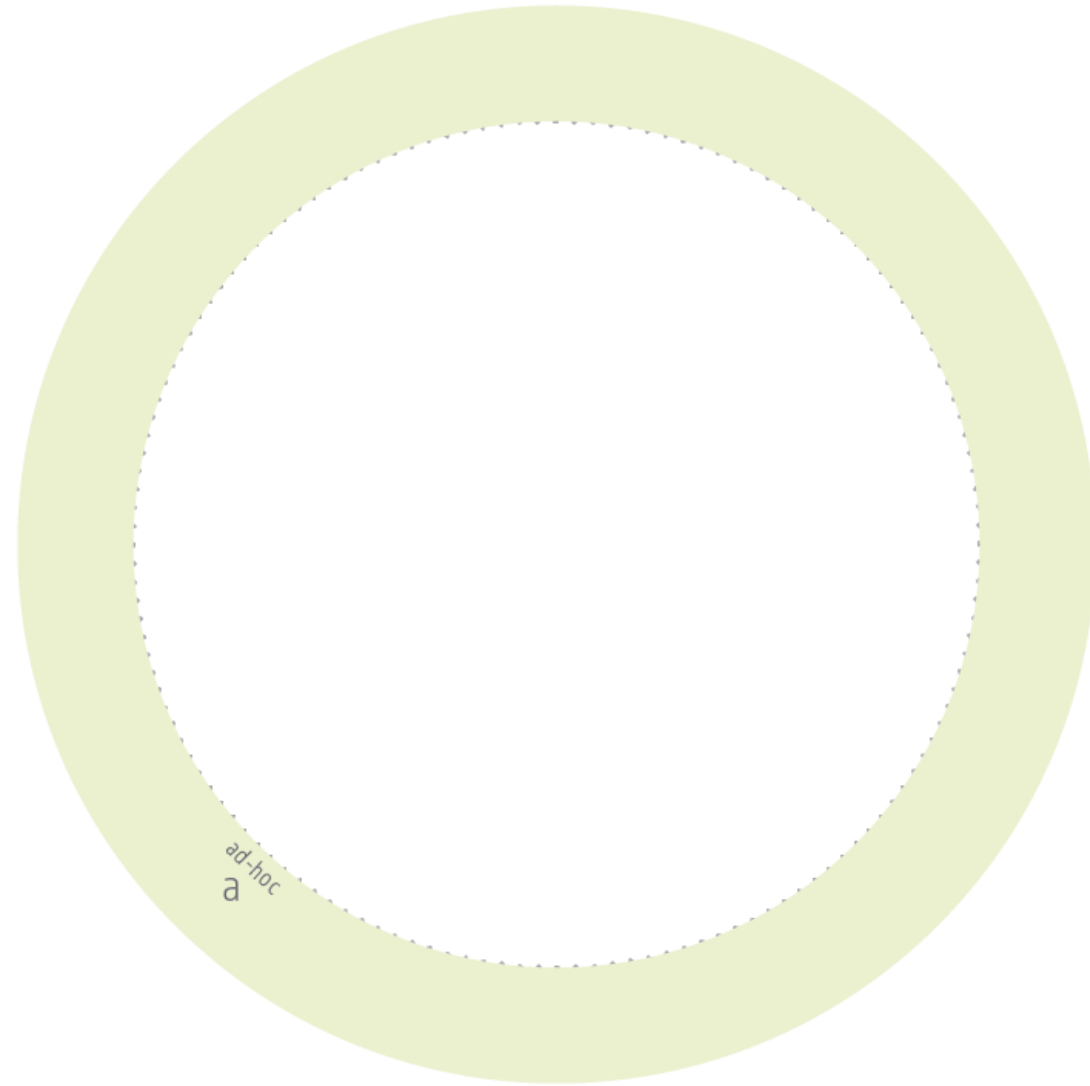
# Maturity Components Model

*Measures the maturity of key enablers across the market*



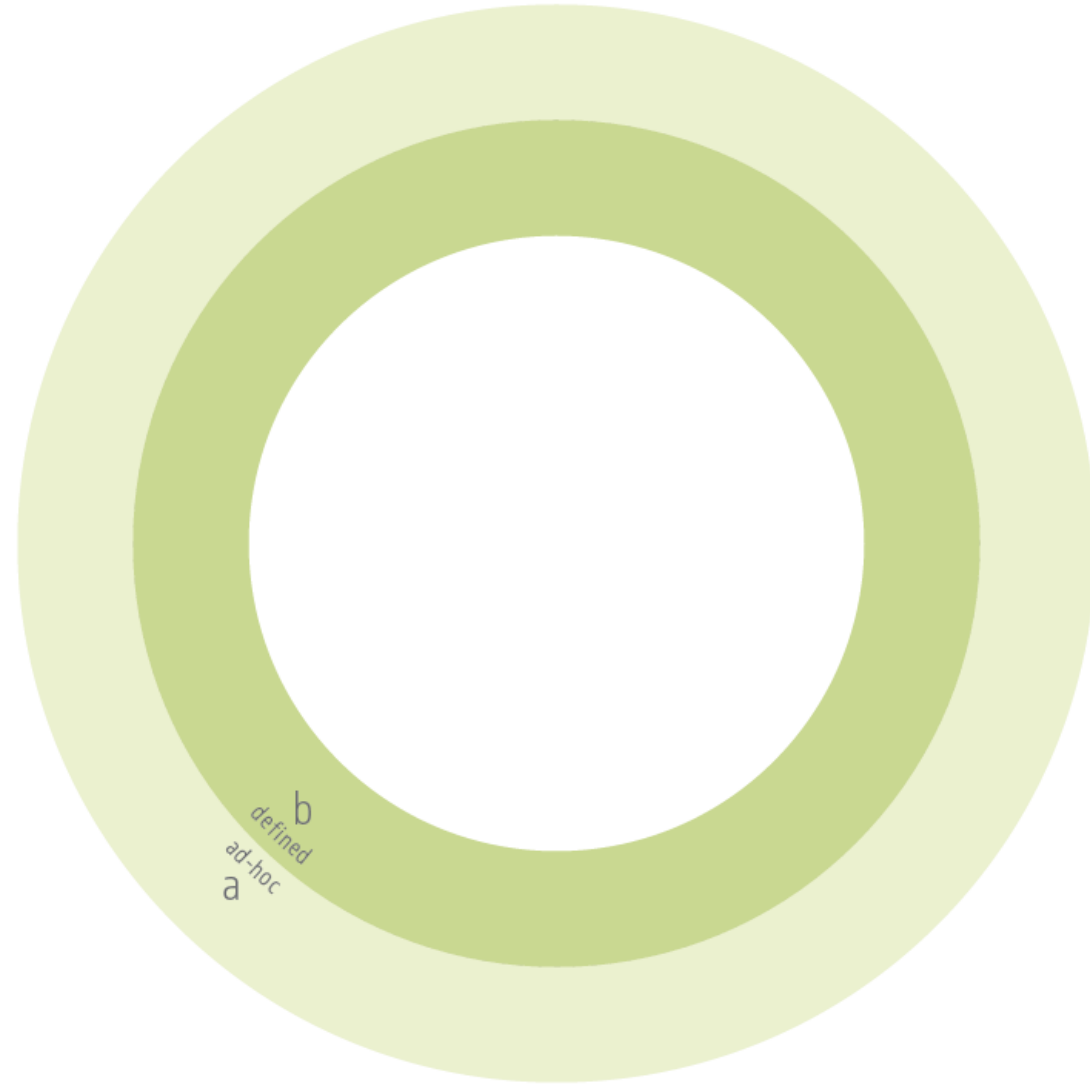
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



# Maturity Components Model

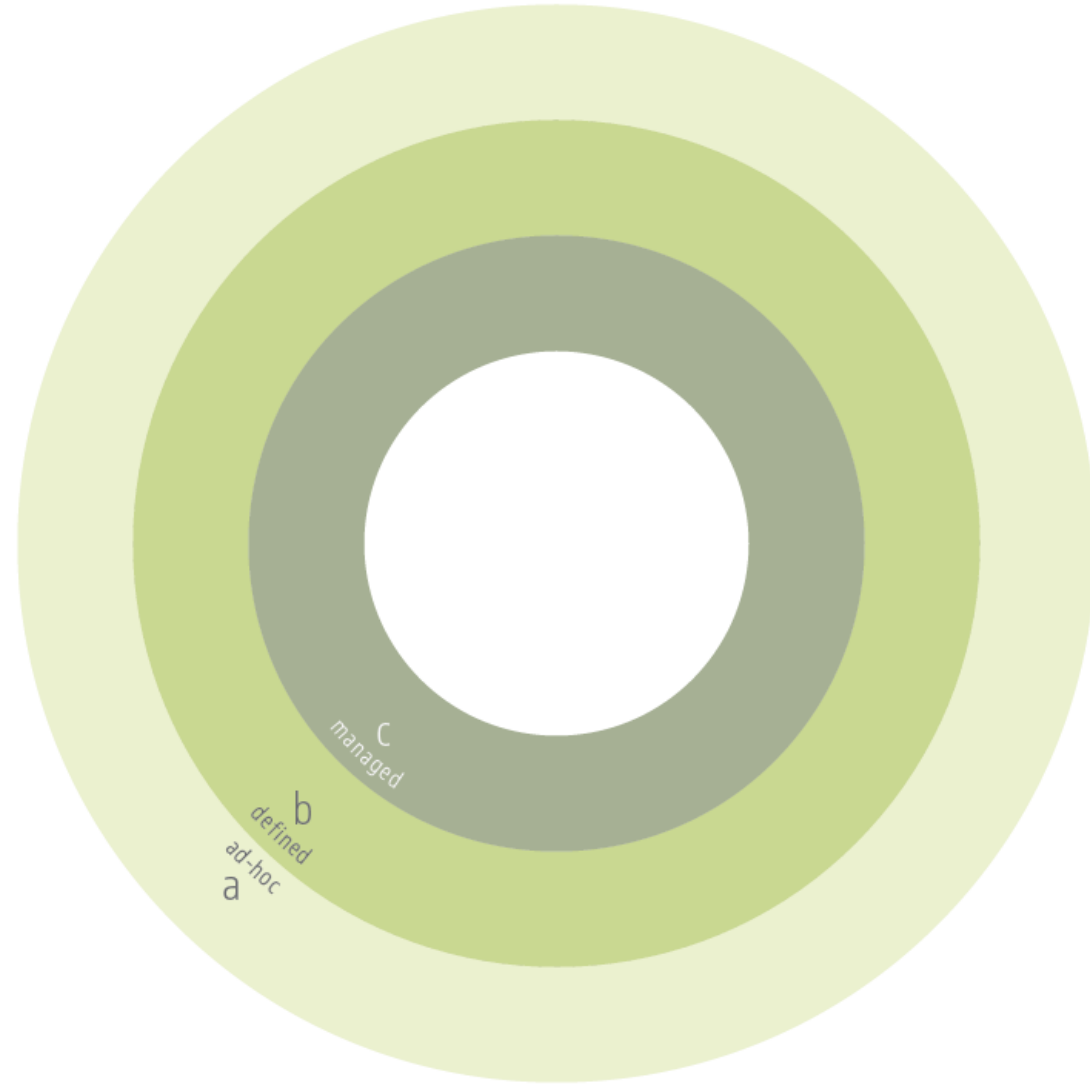
*Measures the  
maturity of key  
enablers across  
the market*





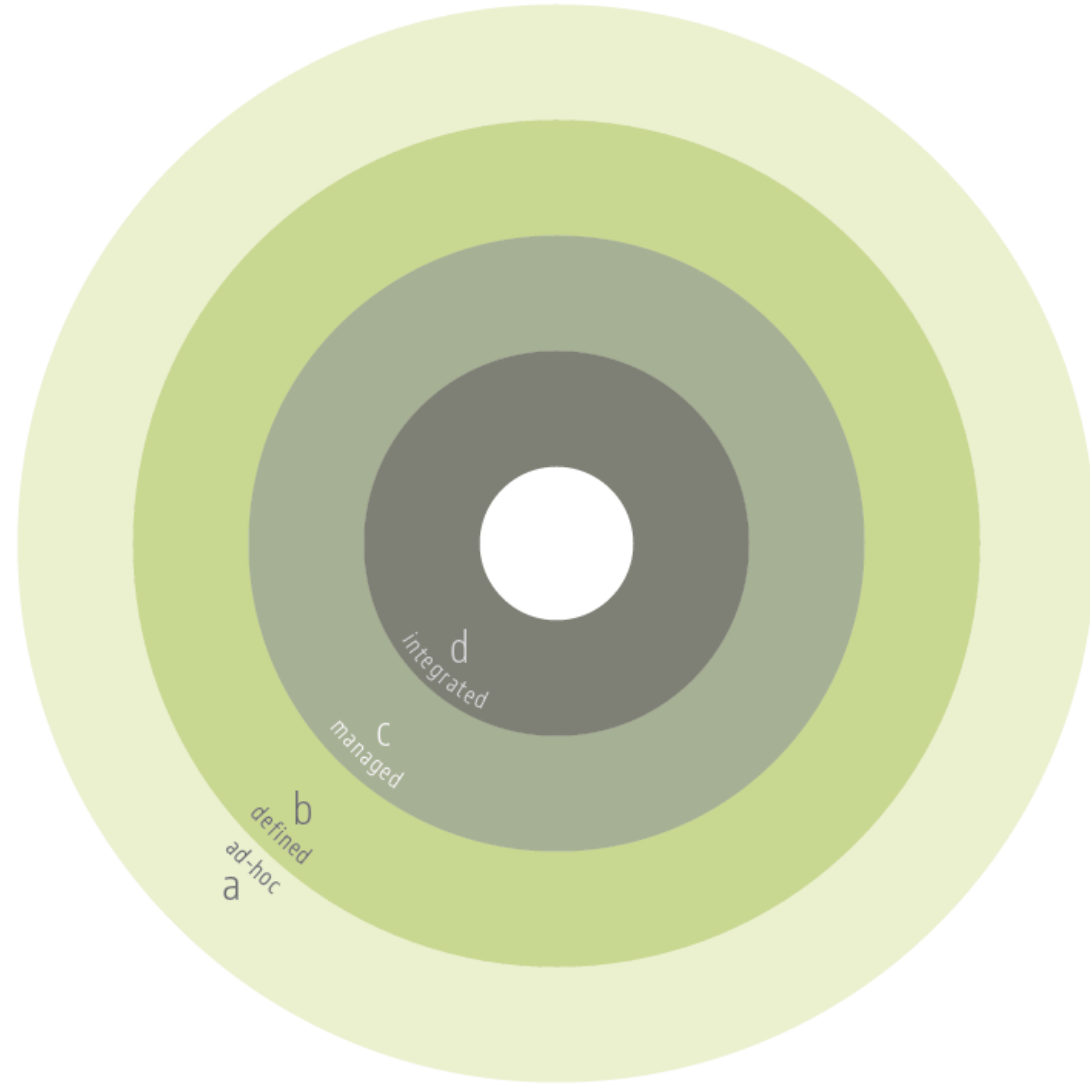
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



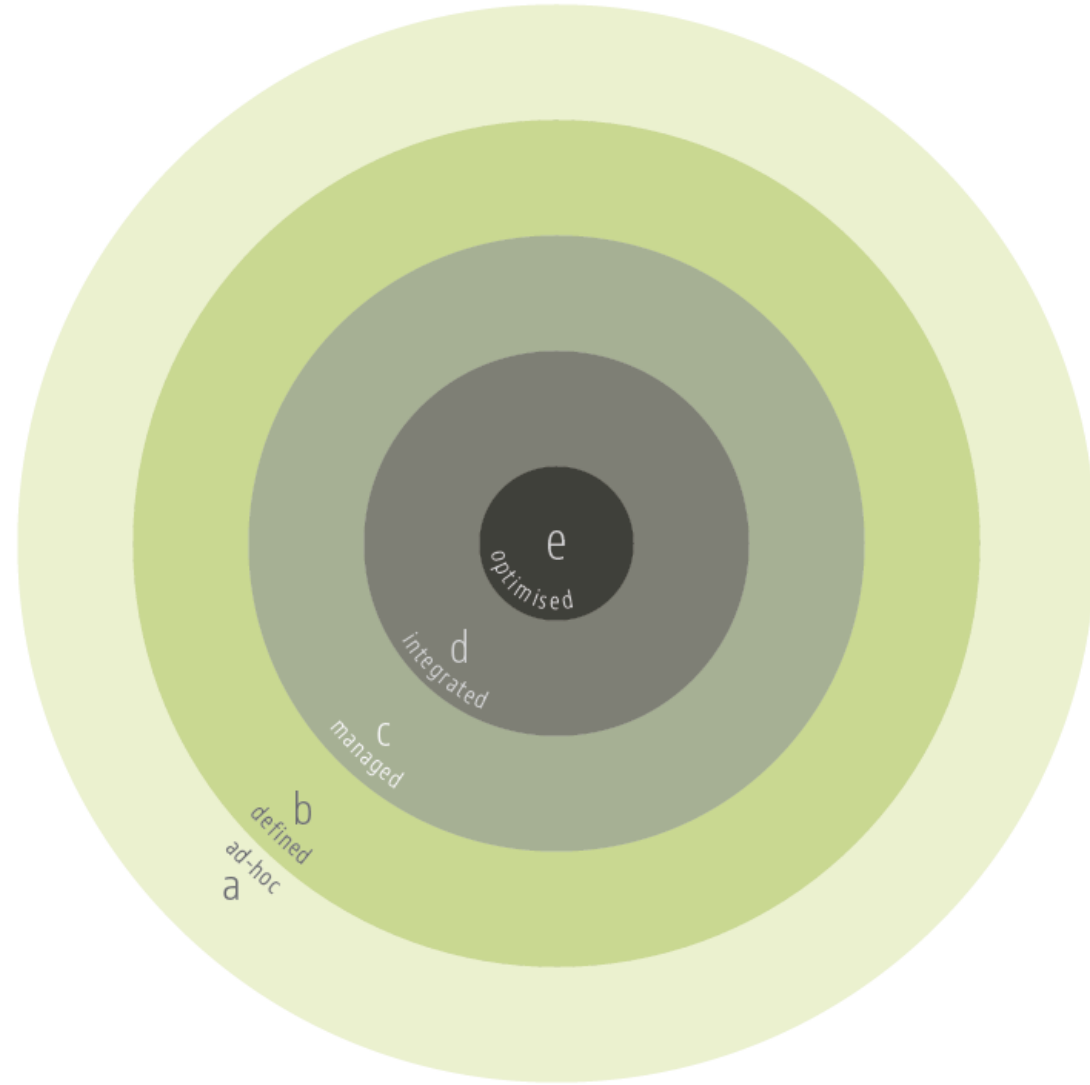
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



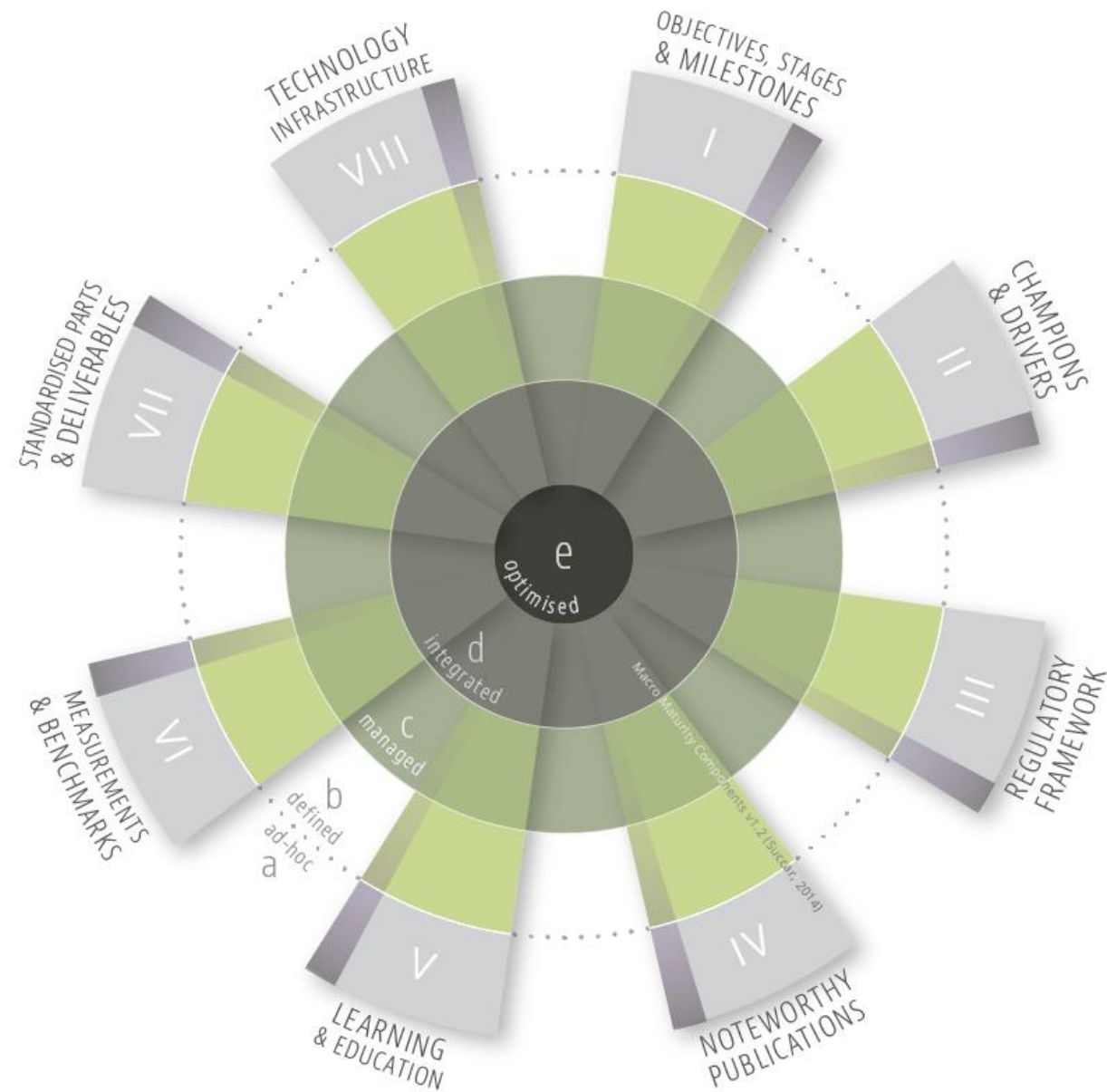
# Maturity Components Model

*Measures the  
maturity of key  
enablers across  
the market*



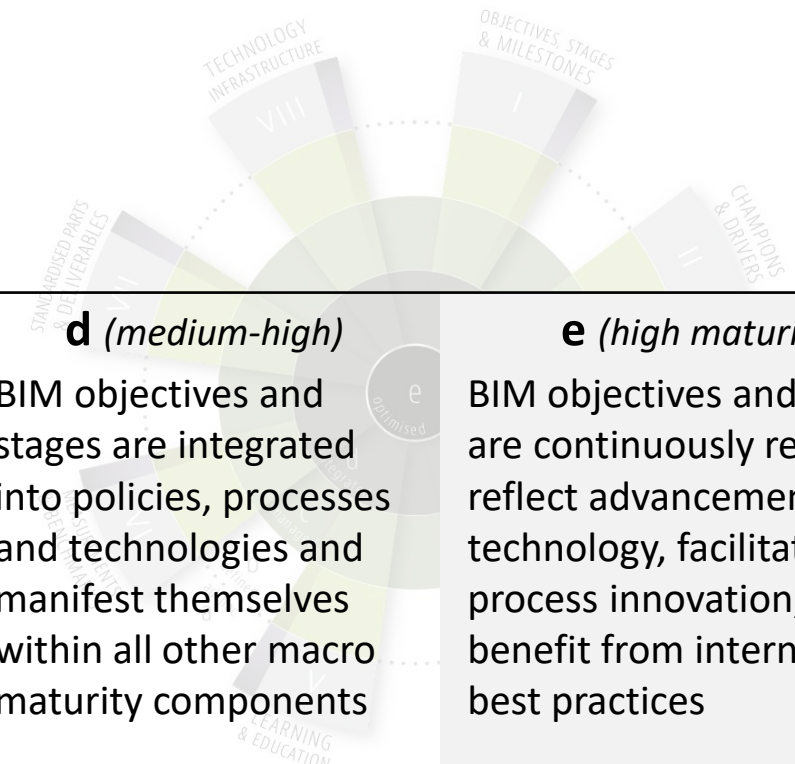
# Maturity Components Model

*Measures the maturity of key enablers across the market*



# Maturity Component I

## Objectives, stages and milestones

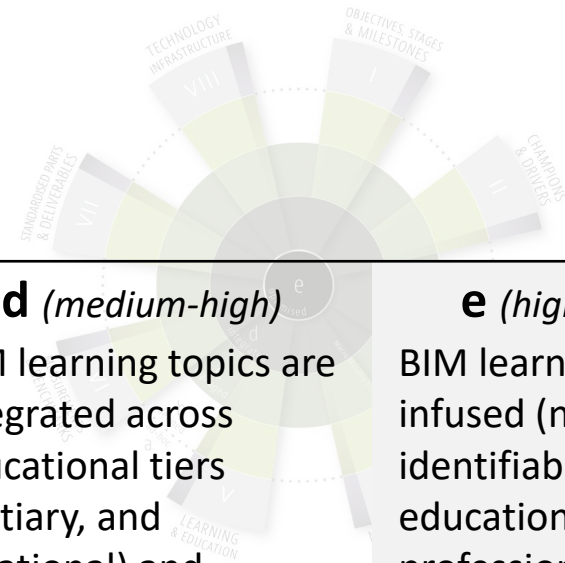


<p><b>a</b> (<i>low maturity</i>)</p> <p>There are no market-scale BIM objectives or well-defined BIM implementation stages or milestones</p>	<p><b>b</b> (<i>medium-low</i>)</p> <p>There are well-defined macro BIM objectives, implementation milestones and capability stages</p>	<p><b>c</b> (<i>medium maturity</i>)</p> <p>BIM objectives, stages and milestones are centrally managed and formally monitored</p>	<p><b>d</b> (<i>medium-high</i>)</p> <p>BIM objectives and stages are integrated into policies, processes and technologies and manifest themselves within all other macro maturity components</p>	<p><b>e</b> (<i>high maturity</i>)</p> <p>BIM objectives and stages are continuously refined to reflect advancements in technology, facilitate process innovation, and benefit from international best practices</p>
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**Other component-specific metrics include:** The Availability of Long-term Objectives to Guide Market Adoption; Availability of Capability Stages to Guide Market Adoption; The Availability of Maturity Milestones to Guide Market Adoption; ...

# Maturity Component V

## Learning and education

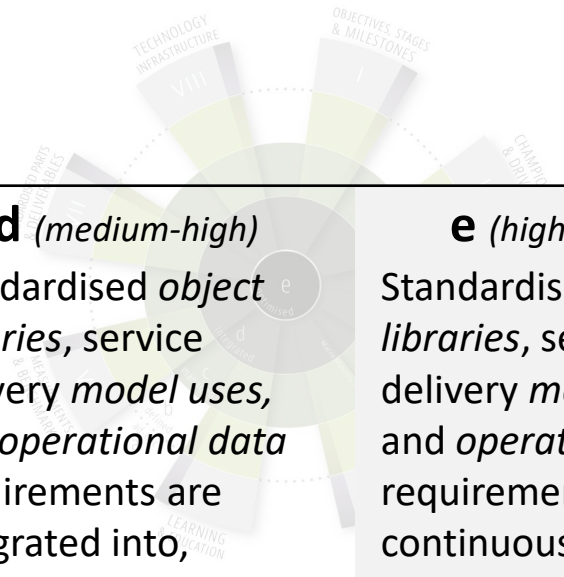


<b>a</b> ( <i>low maturity</i> )	<b>b</b> ( <i>medium-low</i> )	<b>c</b> ( <i>medium maturity</i> )	<b>d</b> ( <i>medium-high</i> )	<b>e</b> ( <i>high maturity</i> )
BIM learning topics are neither identified nor included within legacy education/training programs; learning providers lack the ability to deliver BIM-infused education	BIM learning topics are identified and introduced into education/training programs; BIM learning providers are available across a number of disciplines and specialties	BIM learning topics are mapped to current and emergent roles; BIM learning providers deliver accredited programs across disciplines and specialties	BIM learning topics are integrated across educational tiers (tertiary, and vocational) and address the learning requirements of all industry stakeholders	BIM learning topics are infused (not separately identifiable) into education, training and professional development programs

**Other component-specific metrics include:** *BIM Infusion into Tertiary Curricula; Multi-disciplinary Integration of Curricula; Use of Simulated Design, Construction and Operation Environments; Expertise of Learning Providers; ...*

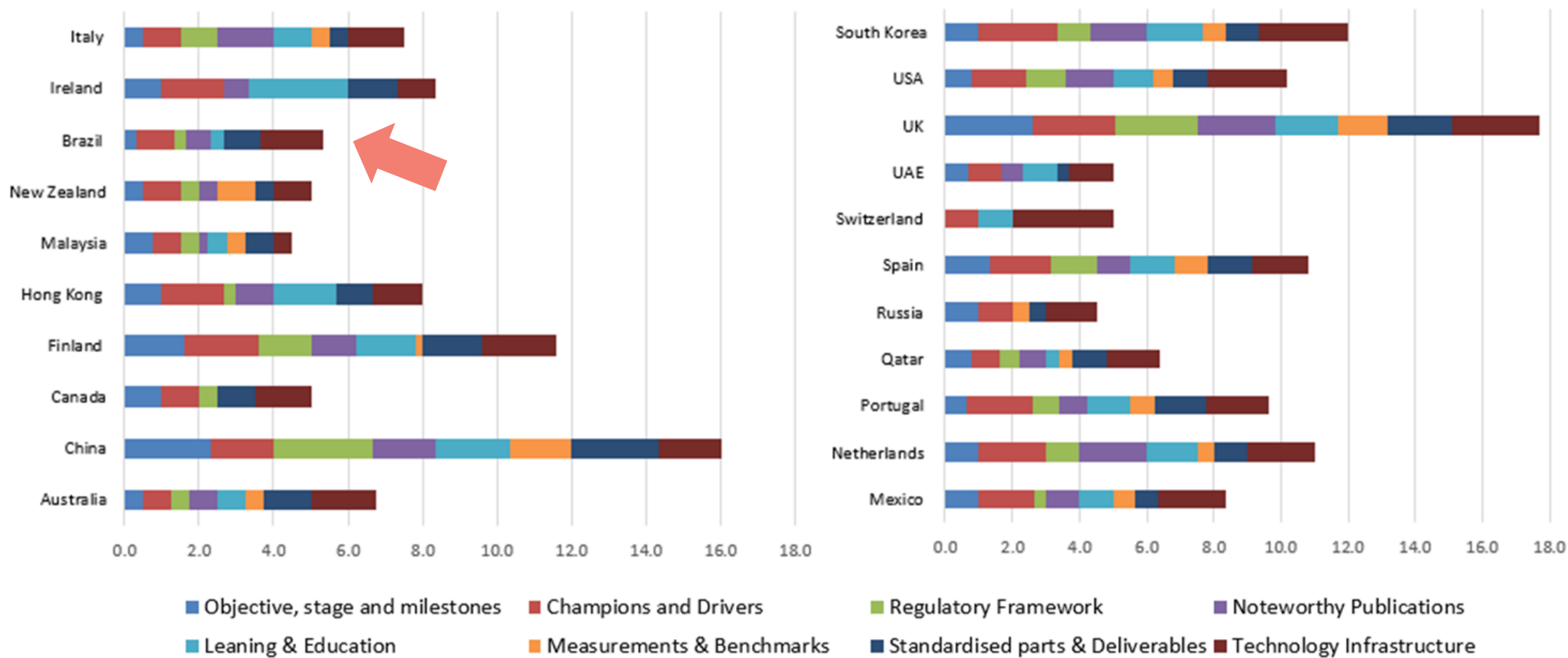
# Macro Maturity Component VII

## Standardised parts and deliverables



<b>a</b> ( <i>low maturity</i> )	<b>b</b> ( <i>medium-low</i> )	<b>c</b> ( <i>medium maturity</i> )	<b>d</b> ( <i>medium-high</i> )	<b>e</b> ( <i>high maturity</i> )
<p>There no market-specific <i>object libraries</i> (e.g. doors and windows); service delivery <i>model uses</i> (e.g. clash detection) and <i>operational data</i> requirements (e.g. COBie)</p>	<p><i>Object libraries</i> are available yet follow varied modelling and classification norms; service delivery <i>model uses</i> and <i>operational data</i> requirements are informally defined and partially used</p>	<p>Standardised <i>object libraries</i> are available and used; service delivery <i>model uses</i> and <i>operational data</i> requirements are formally defined and used across all project lifecycle phases</p>	<p>Standardised <i>object libraries</i>, service delivery <i>model uses</i>, and <i>operational data</i> requirements are integrated into, procurement mechanisms, project workflows and lifecycle facility operations</p>	<p>Standardised <i>object libraries</i>, service delivery <i>model uses</i> and <i>operational data</i> requirements are continuously optimised and realigned to improve usage, accessibility, interoperability and connectivity</p>

**Other component-specific metrics include:** Availability of an Elemental Classification System; Availability of National Object Libraries; Availability of Standardised Model Uses; ...



Comparative rating of macro maturity across the 2015 sample

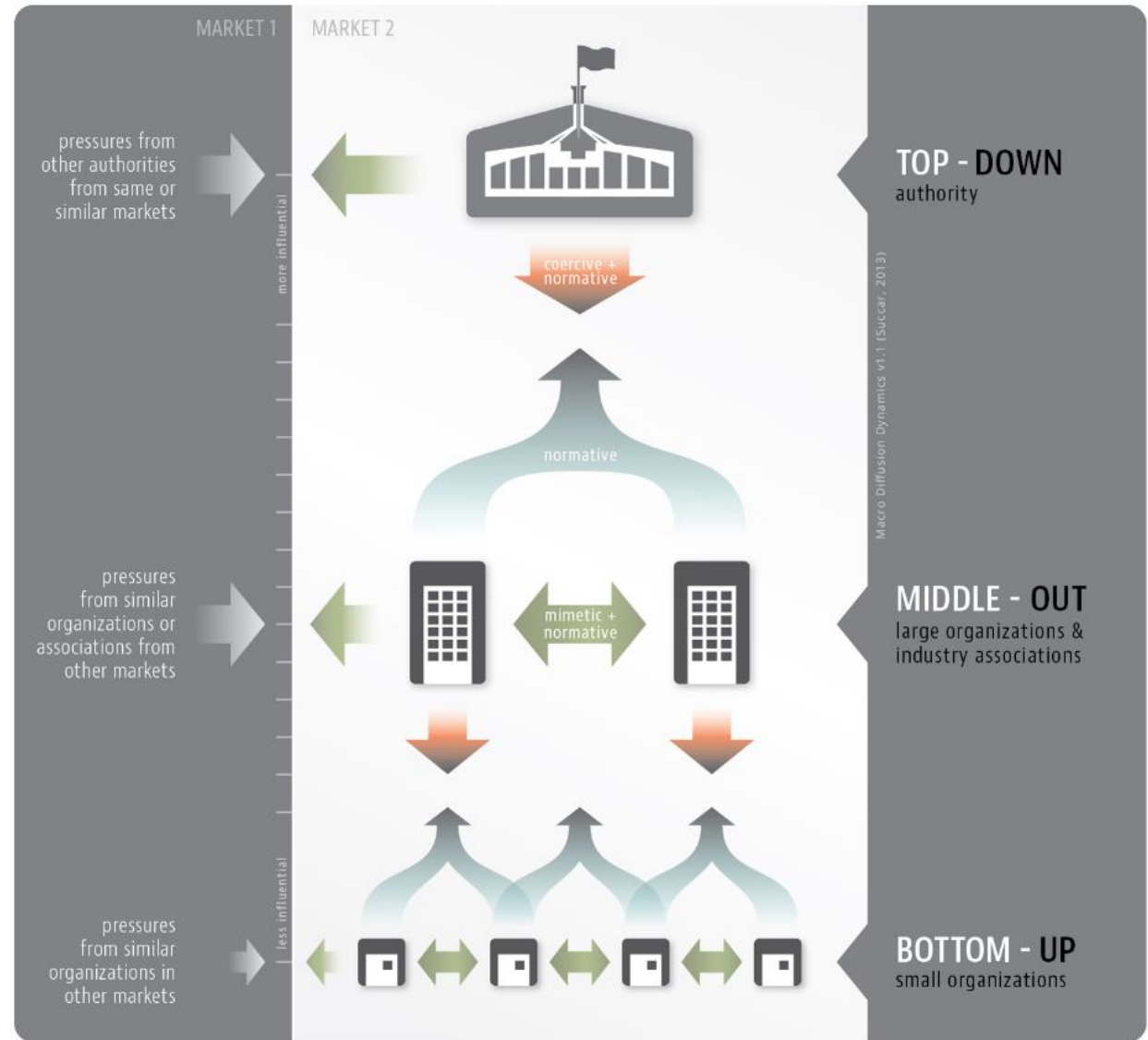




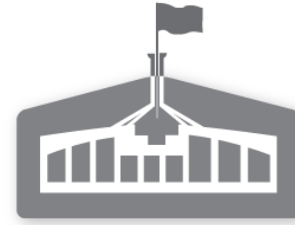
# Model C: Diffusion Dynamics Model

# Diffusion Dynamics Model

clarifies *how* BIM adoption is diffusing across a market



# Diffusion Dynamics Model



Government



Large Organizations

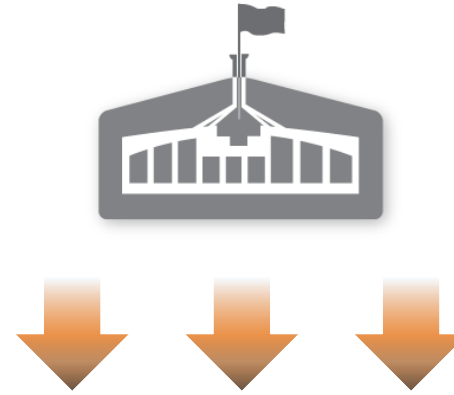


Small Organizations

# Diffusion Dynamics Model

TOP-down

Government

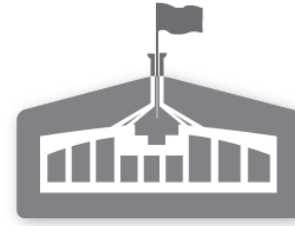


Large Organizations



Small Organizations

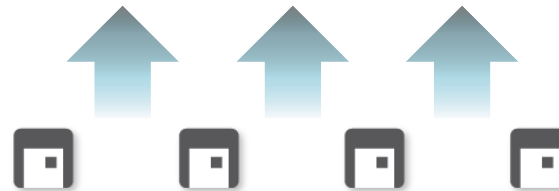
# Diffusion Dynamics Model



Government



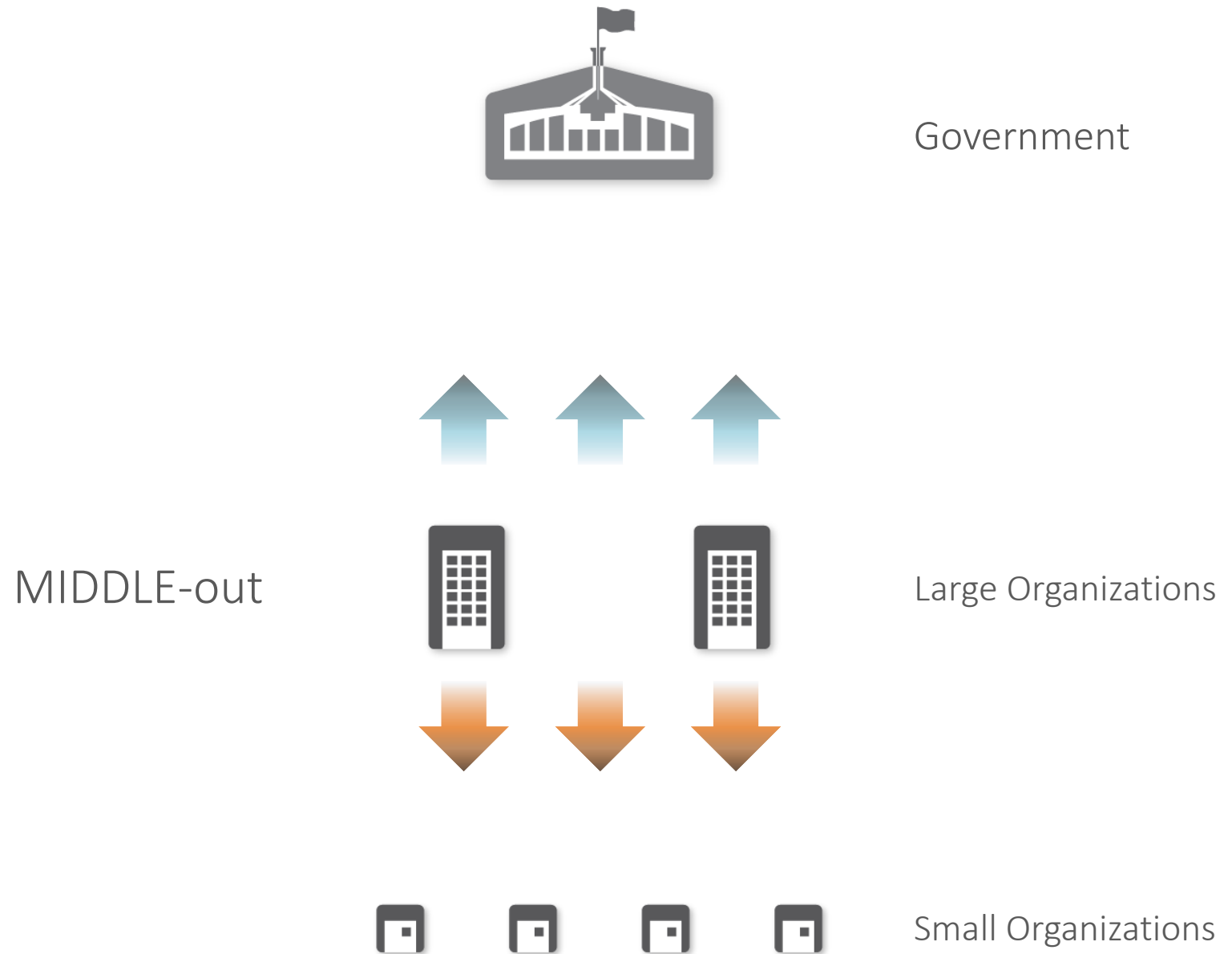
Large Organizations



BOTTOM-up

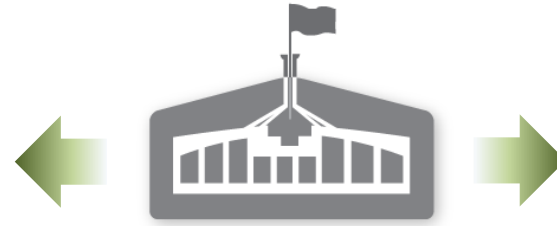
Small Organizations

# Diffusion Dynamics Model



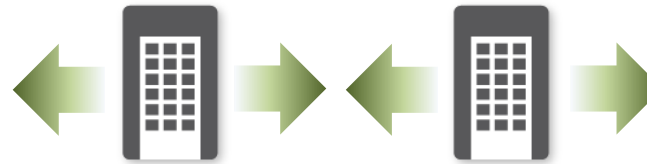
# Diffusion Dynamics Model

TOP-down



Government

MIDDLE-out



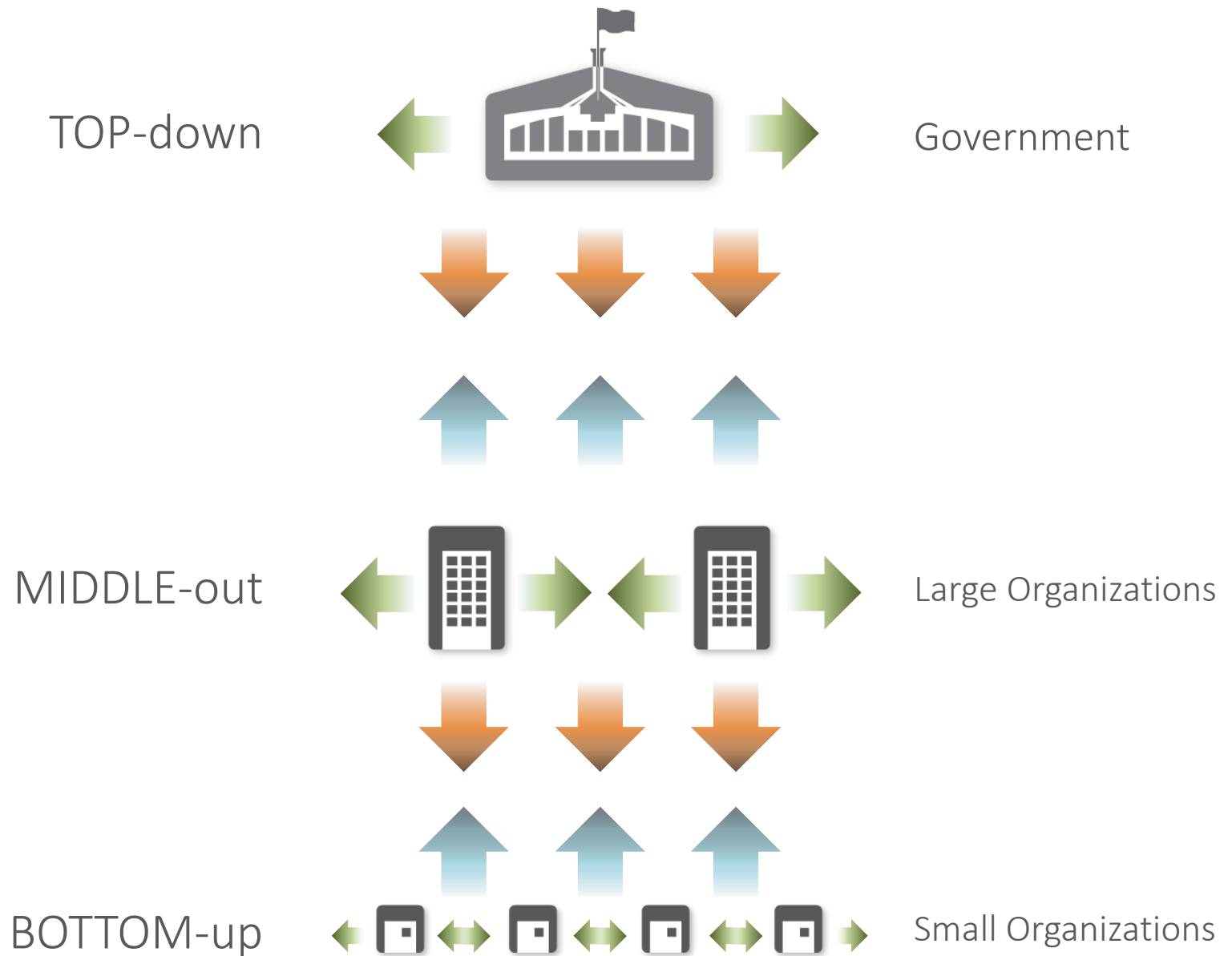
Large Organizations

BOTTOM-up



Small Organizations

# Diffusion Dynamics Model





	Top Down	Middle- out	Bottom- up
Australia		•	
Brazil		•	
Canada		•	
China		•	
Finland		•	
Hong Kong	•		
Ireland		•	
Italy		•	
Malaysia		•	
Mexico		•	
Netherlands		•	



	Top Down	Middle- out	Bottom- up
New Zealand			•
Portugal		•	
Qatar		•	
Russia		•	
South Korea		•	
Spain			•
Switzerland		•	
UAE	•		
UK	•		
USA		•	

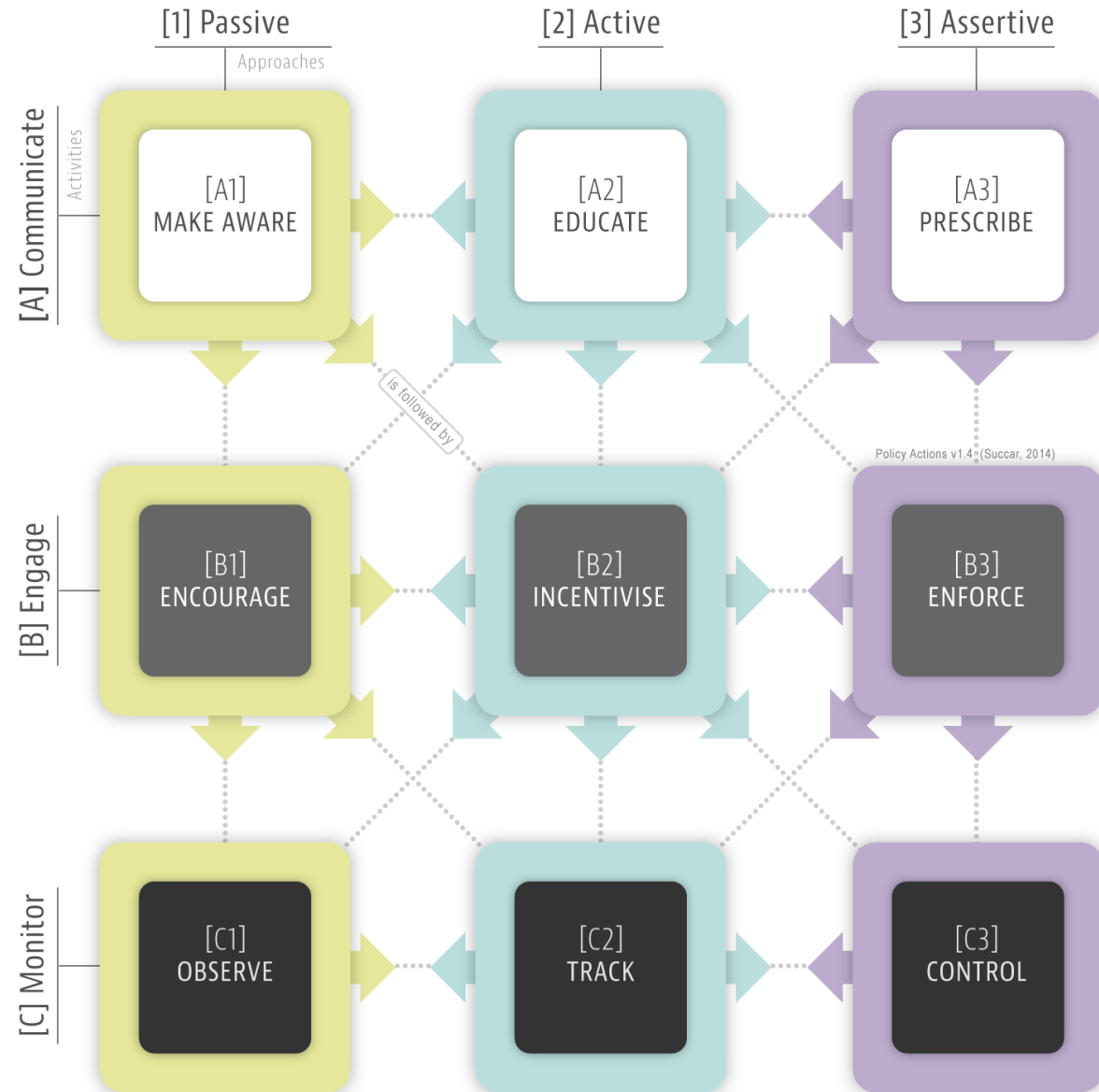
Diffusion dynamics across the 2015 sample



# Model D: Policy Actions Model

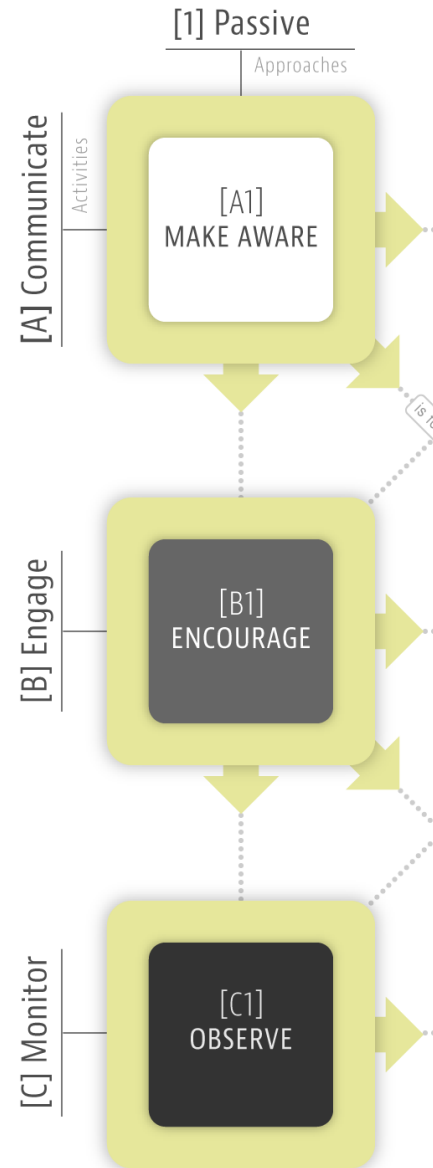
# Policy Actions Model

clarifies the approach taken by policy makers to influence adoption



# Policy Actions Model

clarifies the approach taken by policy makers to influence adoption



## Make Aware

policy player informs stakeholders of the importance of a new system/process

## Encourage

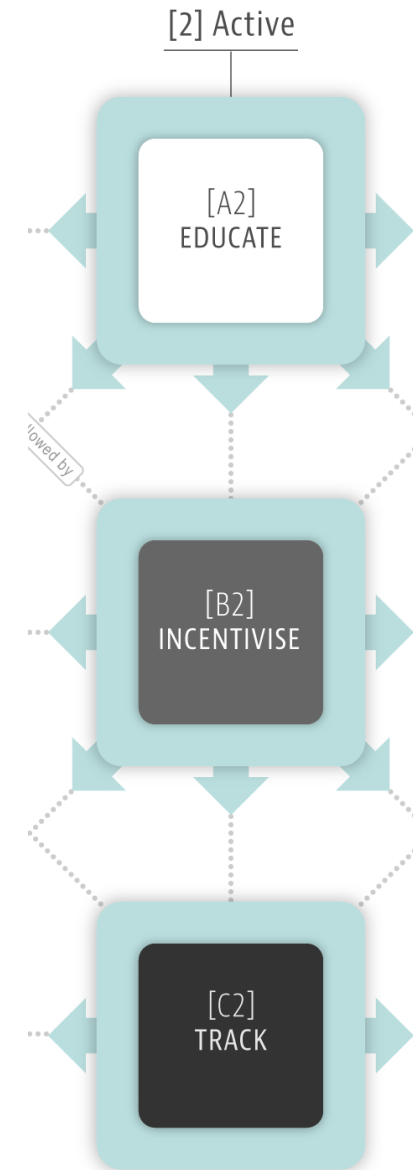
policy player conducts networking events to encourage stakeholders to adopt the system/ process

## Observe

policy player observes if stakeholders adopt the system/process

# Policy Actions Model

clarifies the approach taken by policy makers to influence adoption



## Educate

policy player generates informative guides to educate stakeholders of the system/process

## Incentivise

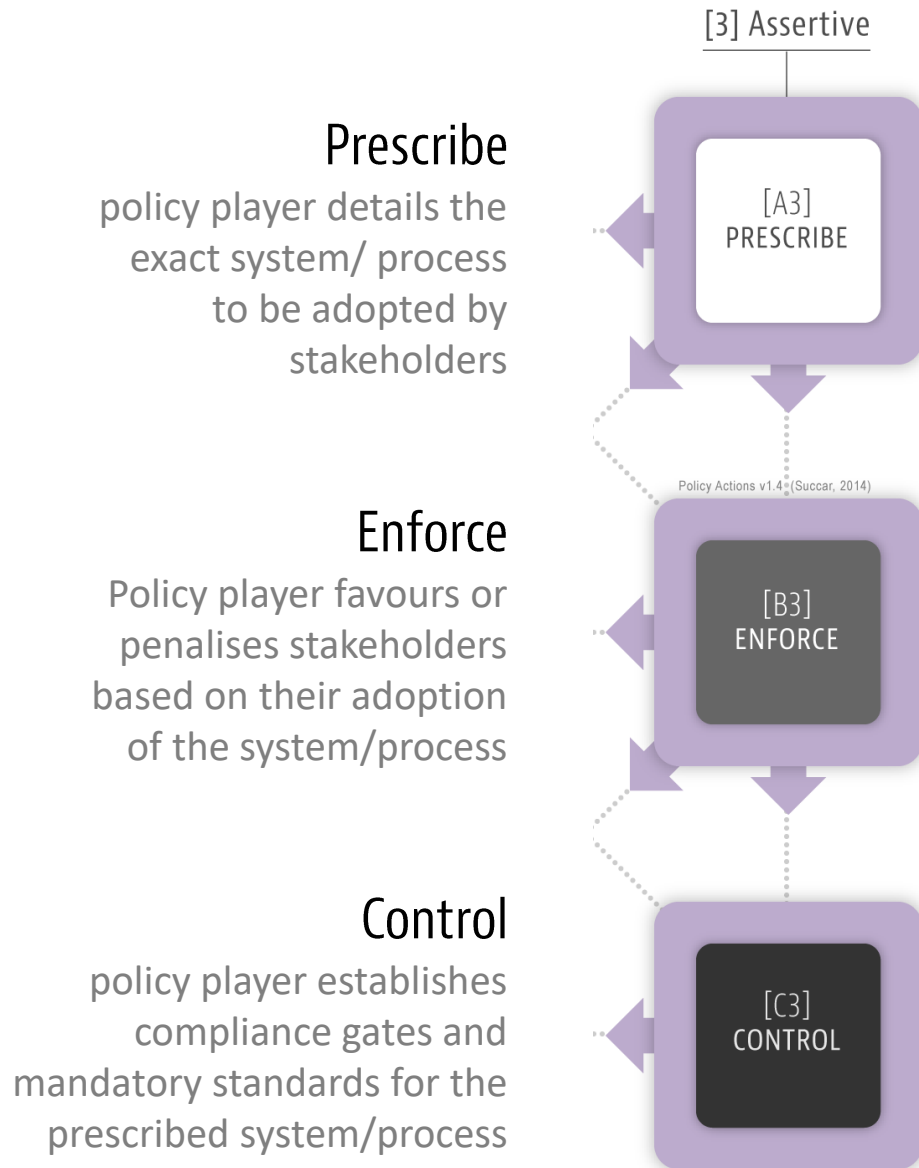
policy player provides incentives and to stakeholders adopting the system/process

## Track

policy player tracks how the system/process is adopted by stakeholders

# Policy Actions Model

clarifies the approach taken by policy makers to influence adoption



Make Aware

Incentivise

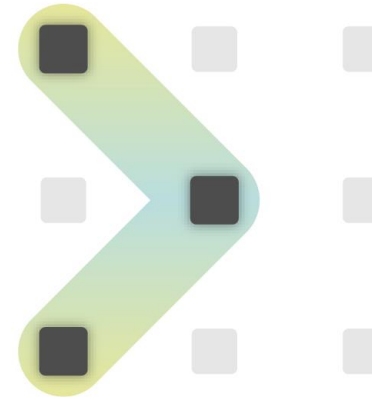
Control



Make Aware

Incentivise

Observe



Educate

Incentivise

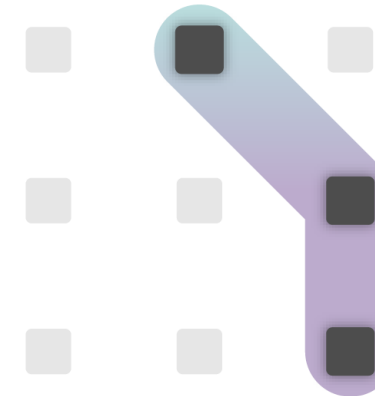
Control

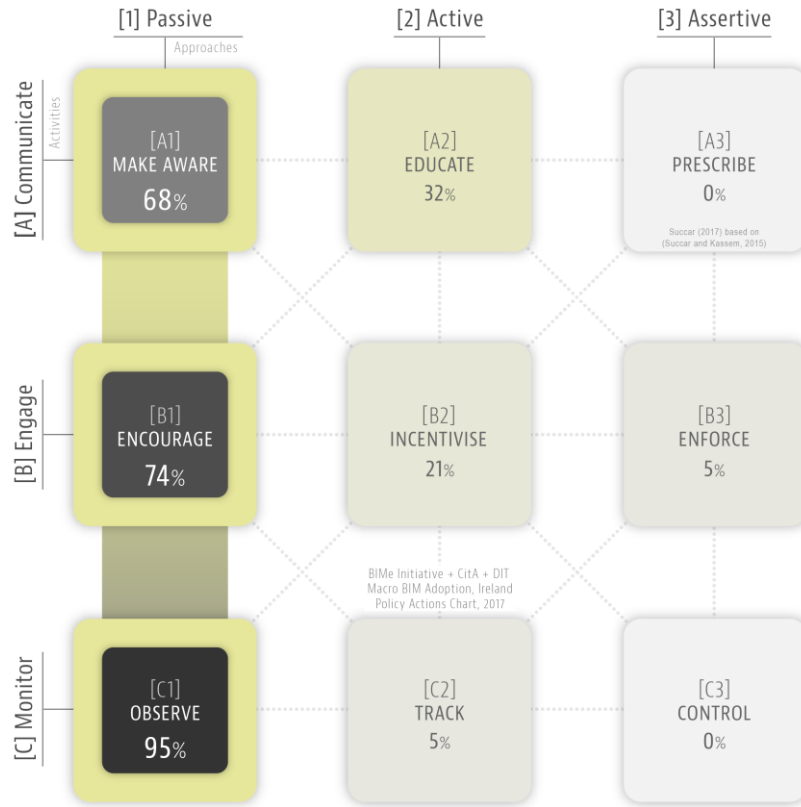


Educate

Enforce

Control





## Ireland 2017

Snapshot conducted in  
collaboration with CiTA and DIT

	Communicate - Passive Make Aware	Communicate - Active Educate	Communicate - Prescriptive Prescribe	Engage - Passive Encourage	Engage - Active Incentivise	Engage - Prescriptive Enforce	Monitor - Passive Observe	Monitor - Active Track	Monitor - Prescriptive Control
Australia	•			•			•		
Brazil	•			•			•		
Canada	•			•			•		
China		•		•			•		
Finland		•		•			•		
Hong Kong		•		•			•		
Ireland	•			•			•		
Italy	•			•			•		
Malaysia	•			•			•		
Mexico	•			•			•		
Netherlands		•			•		•		
New Zealand	•			•			•		
Portugal	•			•			•		
Qatar	•			•			•		
Russia	•			•			•		
South Korea		•		•			•		
Spain	•			•			•		
Switzerland	•			•			•		
UAE	•			•			•		
UK		•				•		•	
USA		•		•			•		
Frequency	14	7	0	20	1	1	20	1	0

Policy Actions | 2015 sample



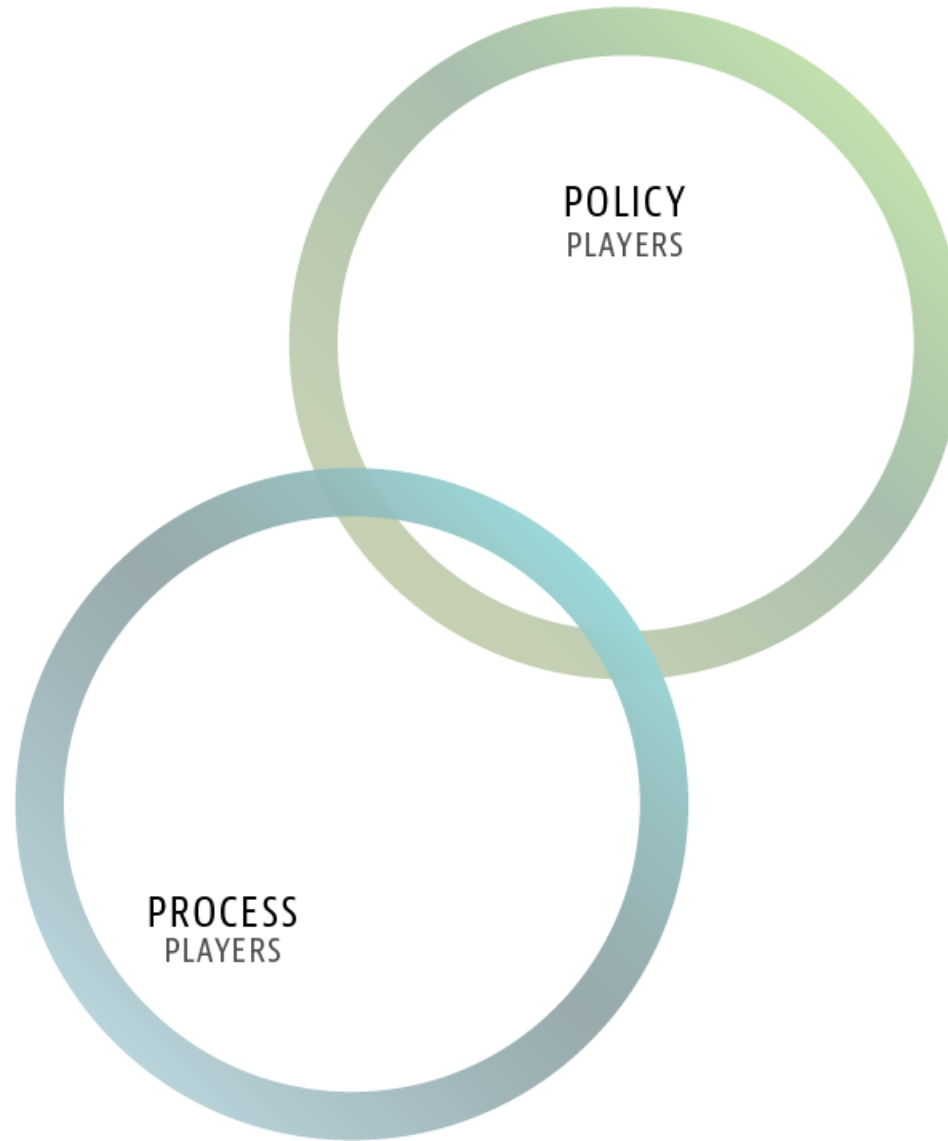


# Model E: Diffusion Responsibilities Model

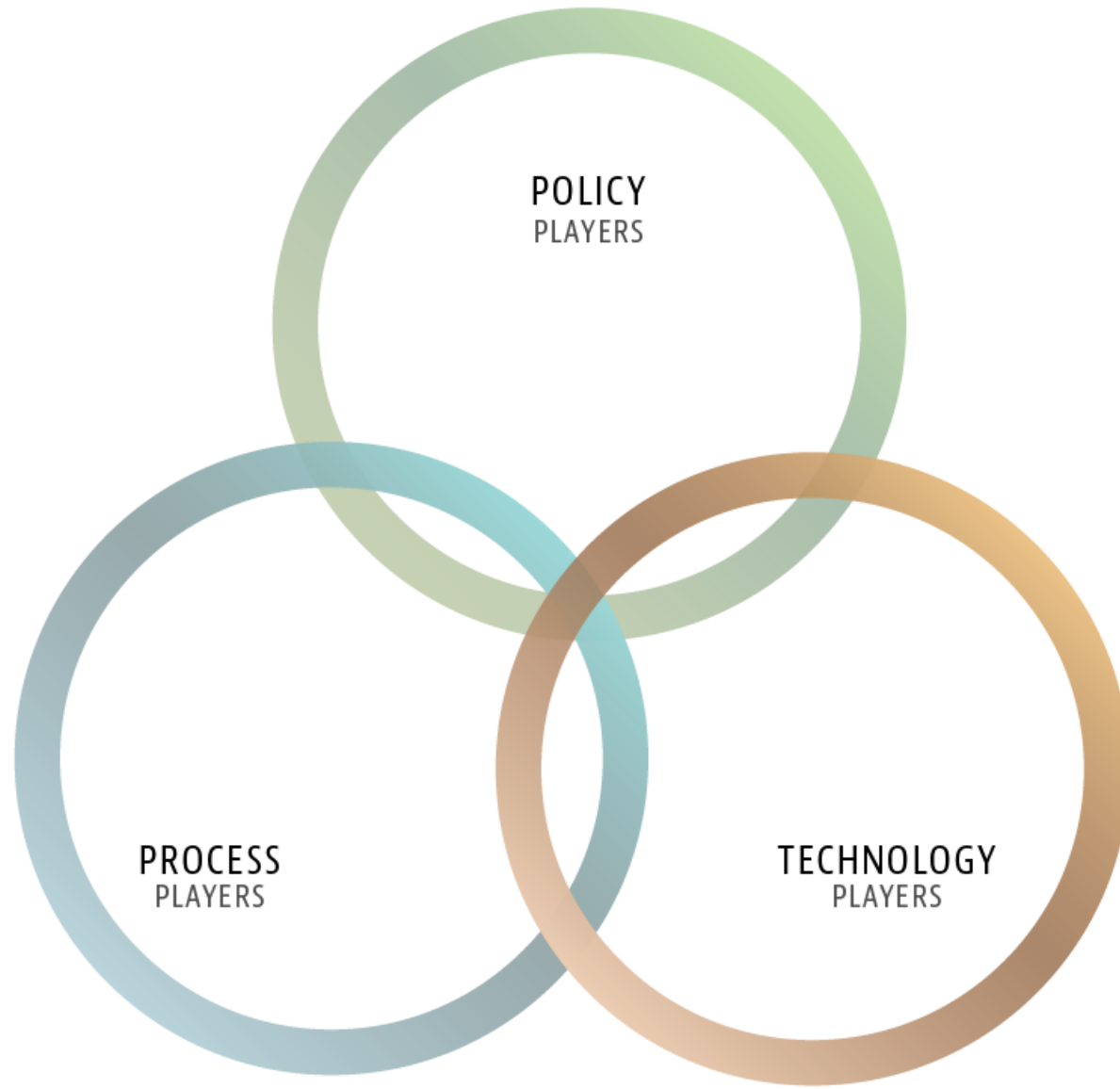
# Diffusion Responsibilities Model



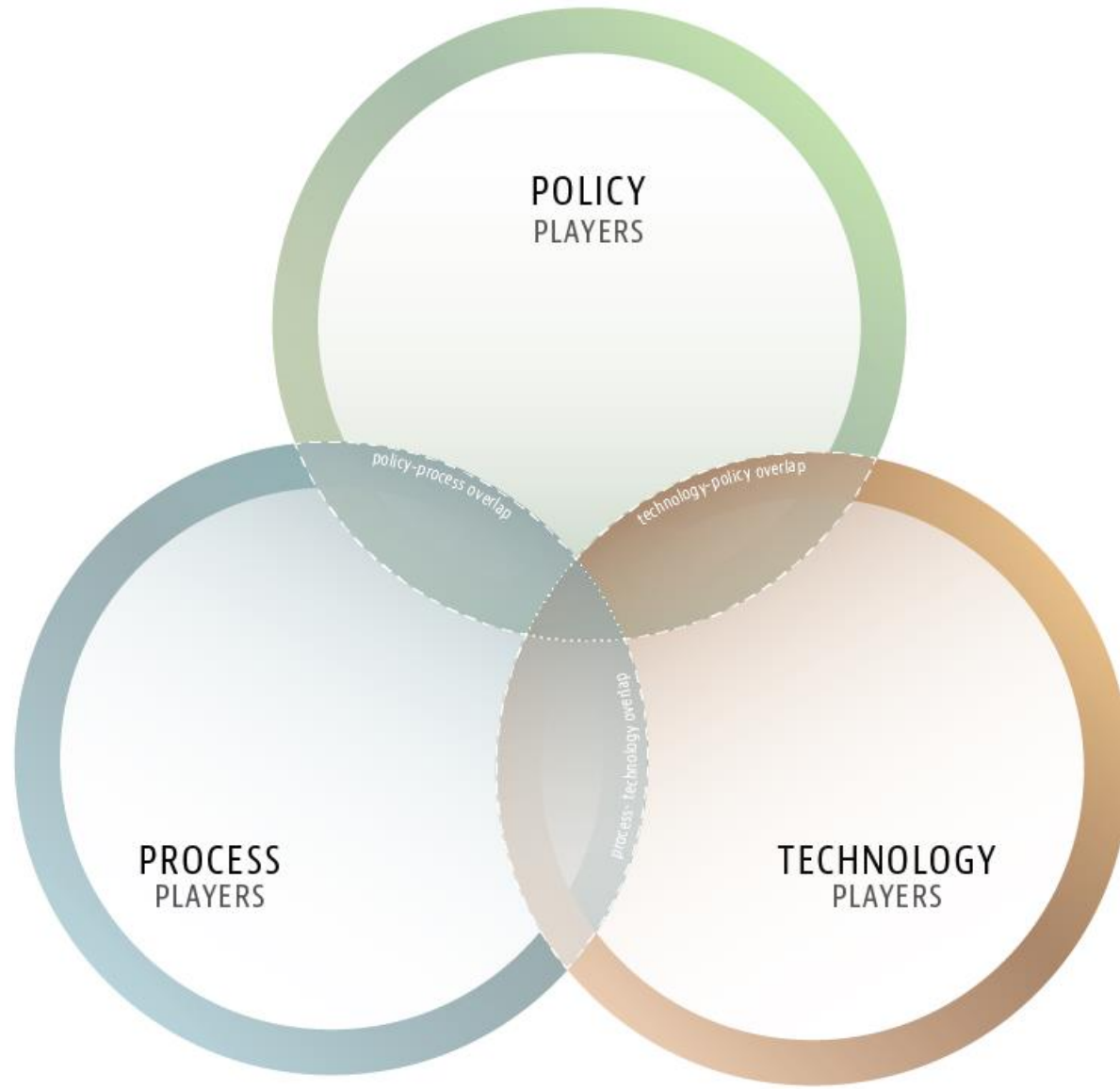
# Diffusion Responsibilities Model



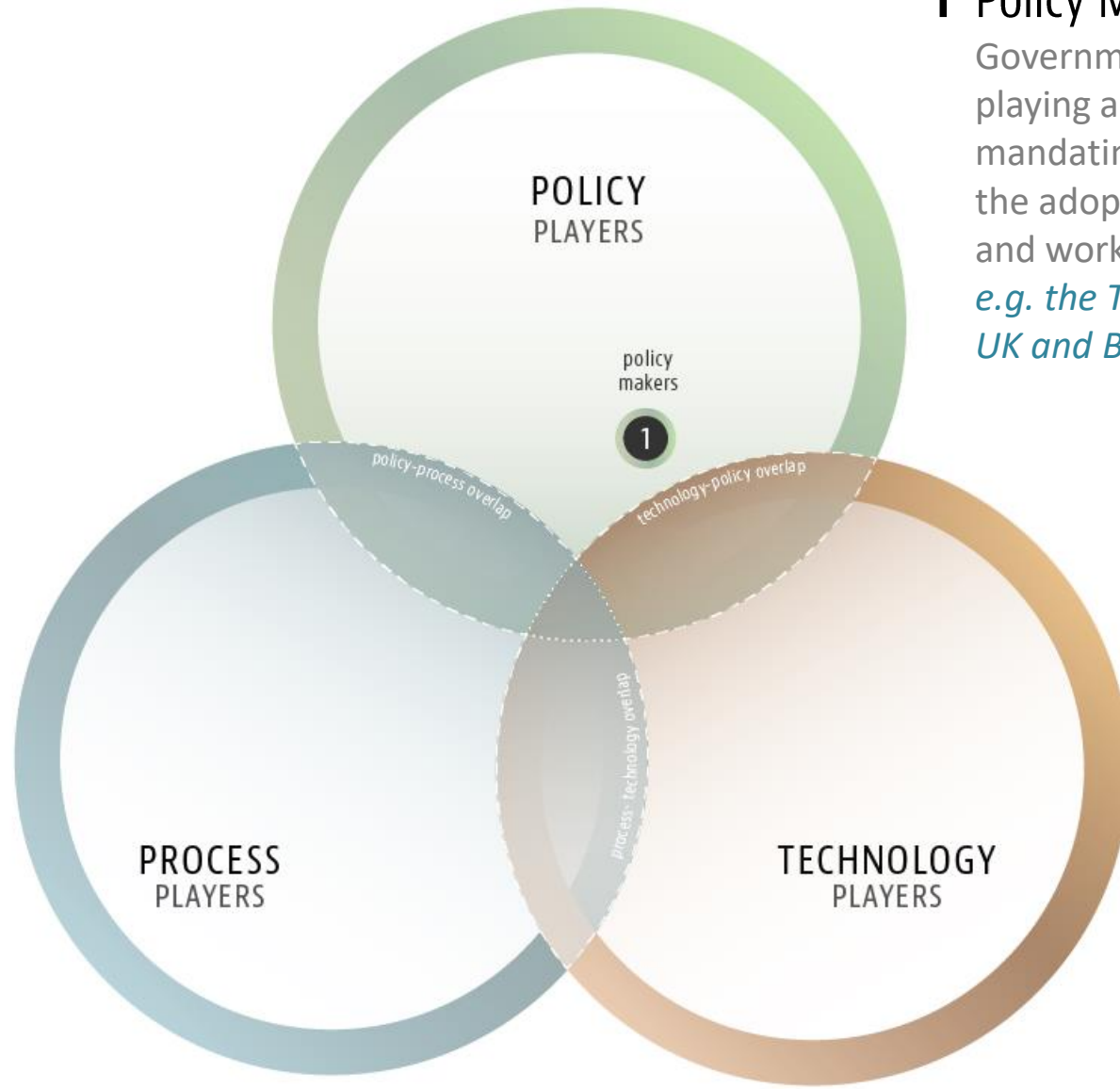
# Diffusion Responsibilities Model



# Diffusion Responsibilities Model



# Diffusion Responsibilities Model



## 1 Policy Makers

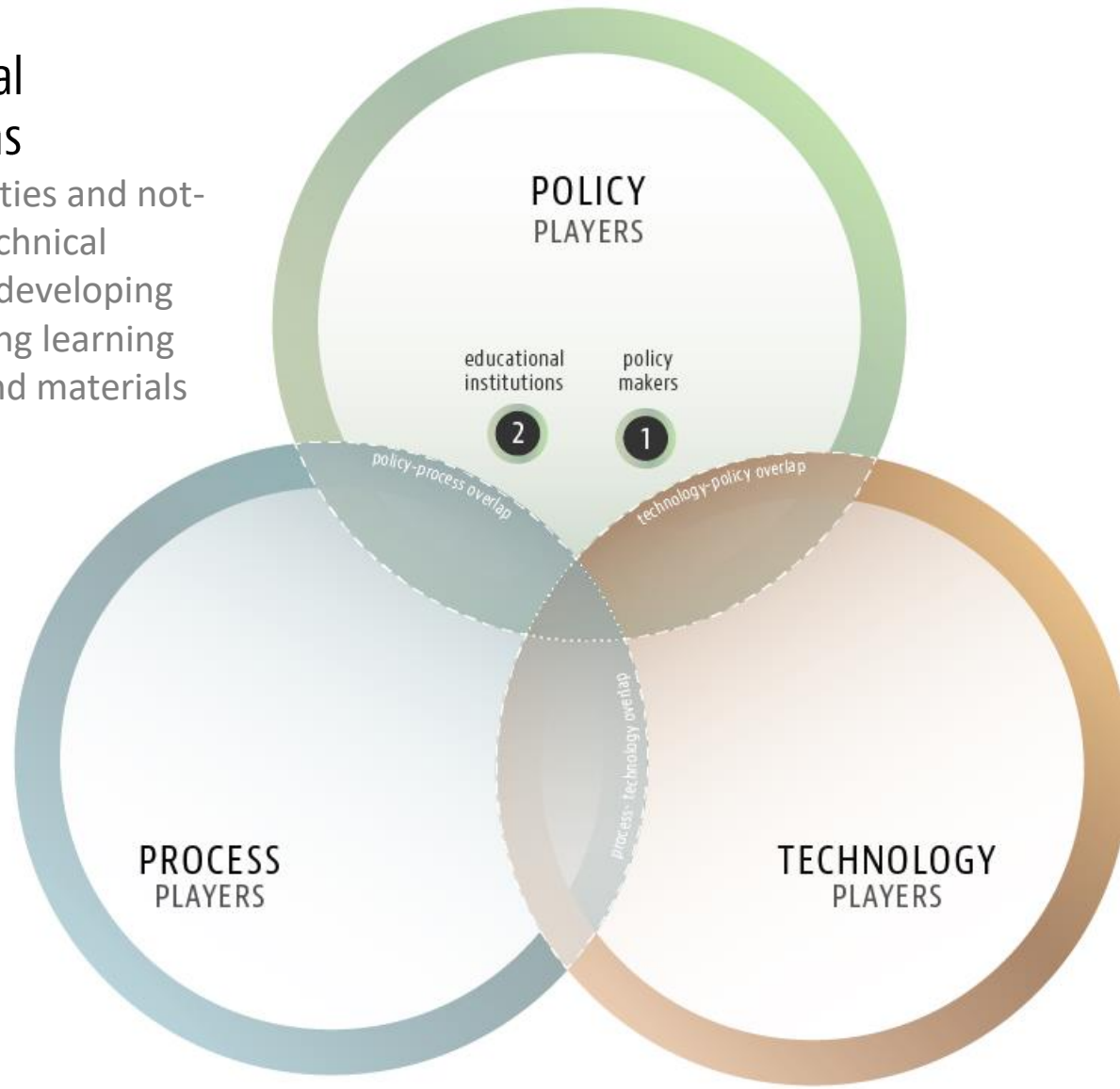
Governmental players playing an active role in mandating or encouraging the adoption of BIM tools and workflows

*e.g. the Task Group in the UK and BCA in Singapore*

# Diffusion Responsibilities Model

## 2 Educational Institutions

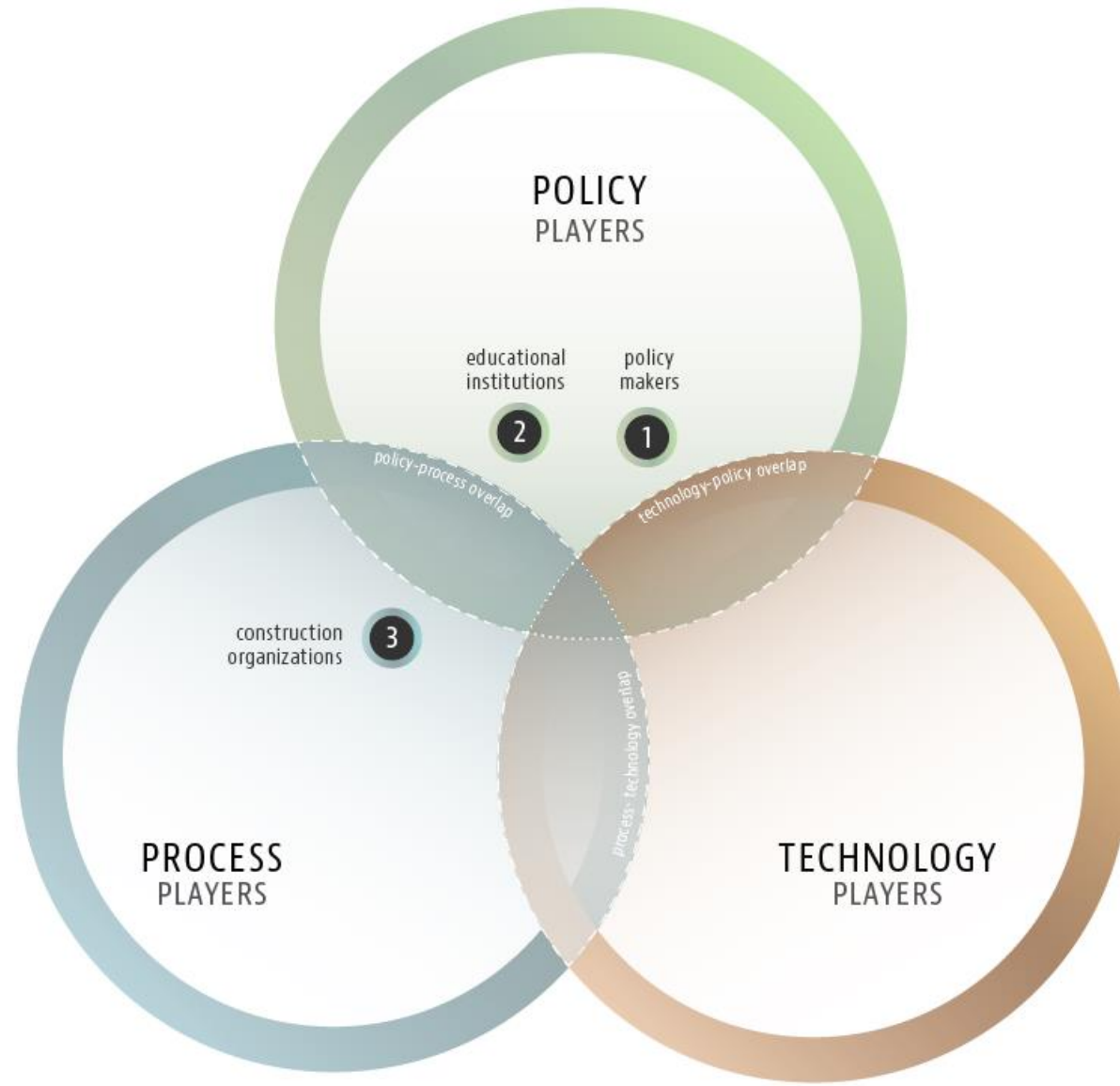
The universities and not-for-profit technical institutions developing and delivering learning programs and materials



# Diffusion Responsibilities Model

## 3 Construction Organizations

Designers, contractors, owners, operators and other organizational players involved in deploying BIM tools and workflows, training their staff and delivering BIM-enabled outcomes

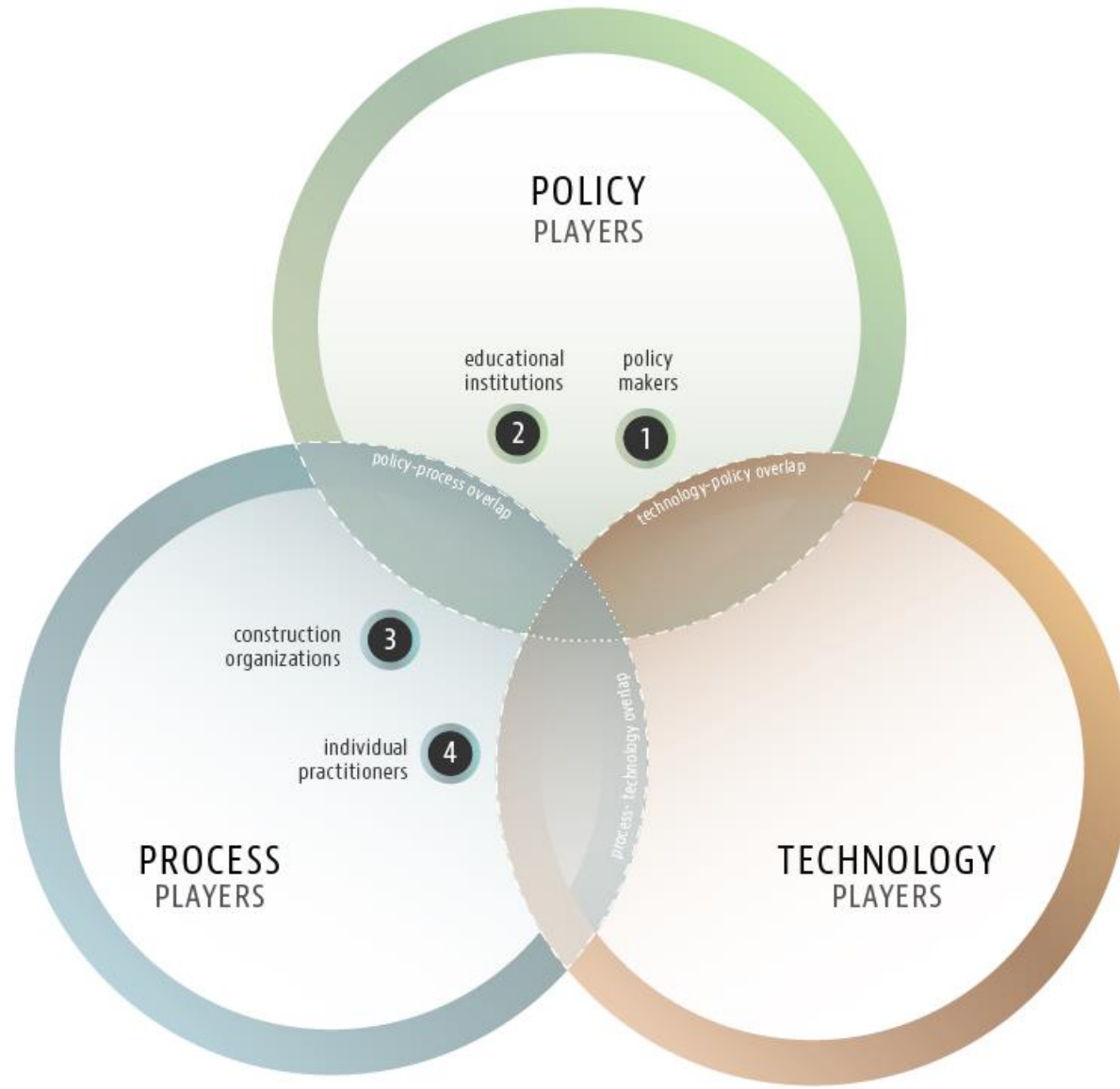




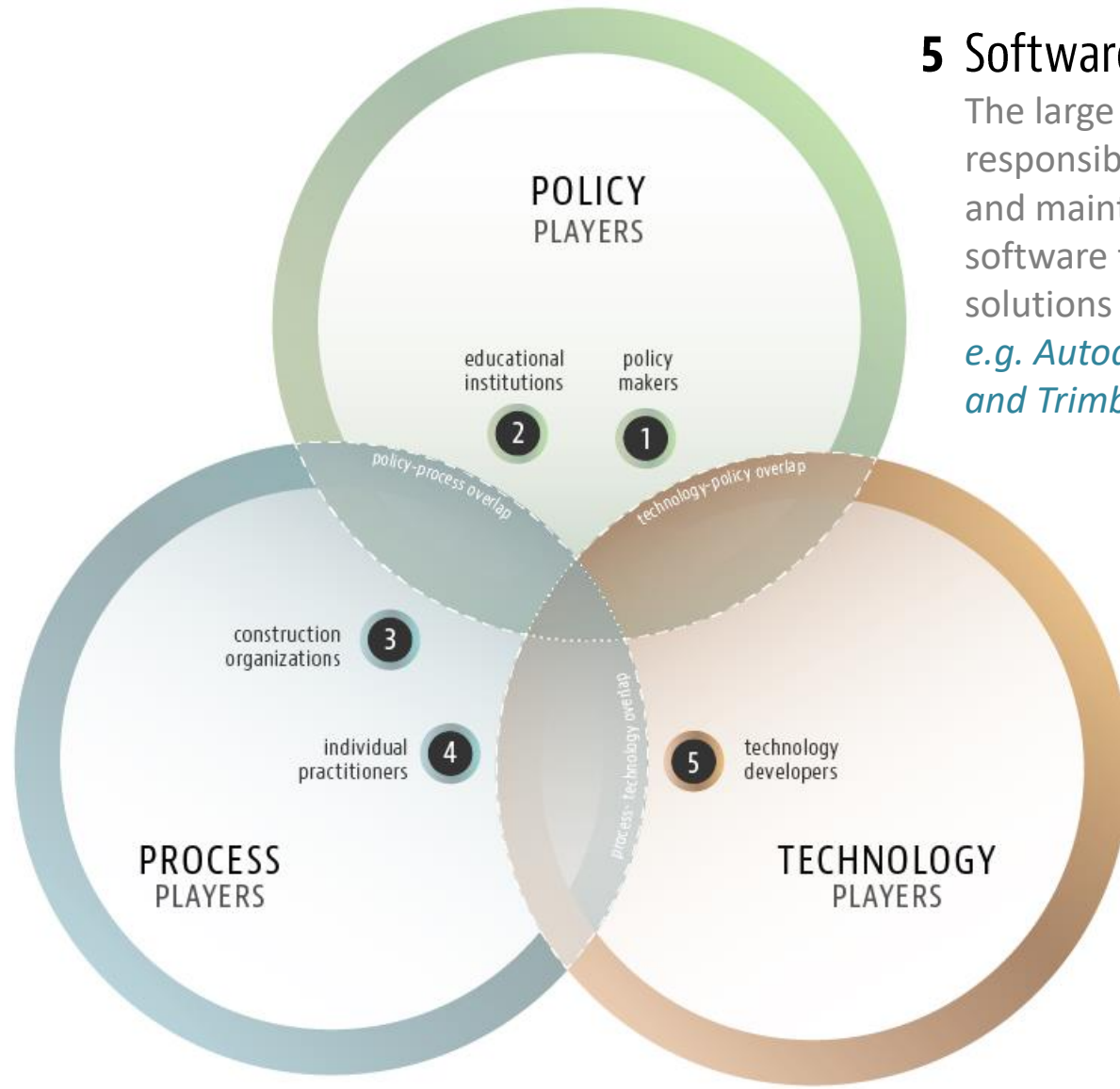
# Diffusion Responsibilities Model

## 4 Individuals

The individual practitioner, researcher, lecturer and student involved in learning, or actively implementing BIM tools and workflows



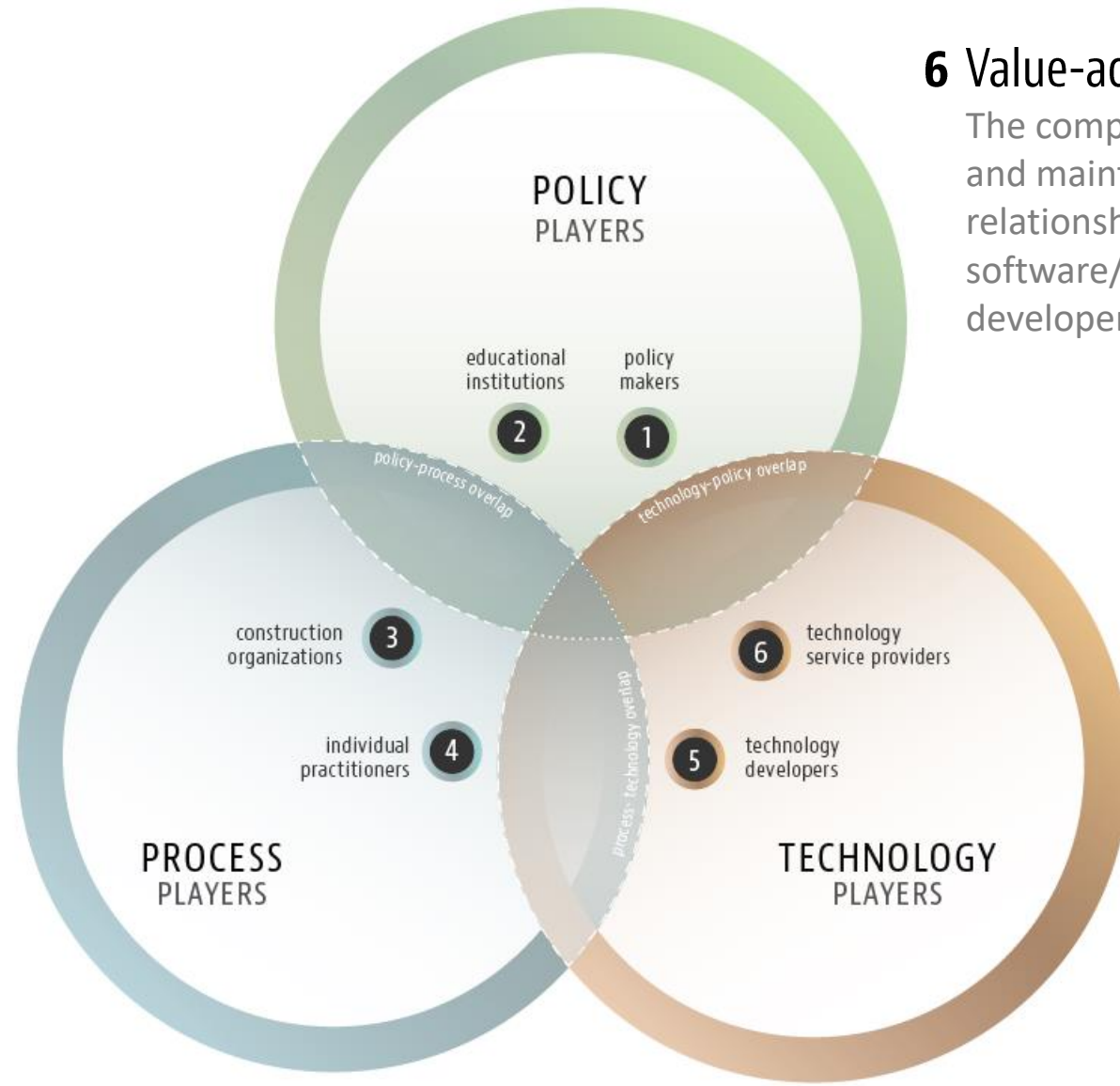
# Diffusion Responsibilities Model



## 5 Software Developers

The large software houses responsible for developing and maintaining BIM software tools, network solutions and middleware  
*e.g. Autodesk, Nemetschek and Trimble*

# Diffusion Responsibilities Model



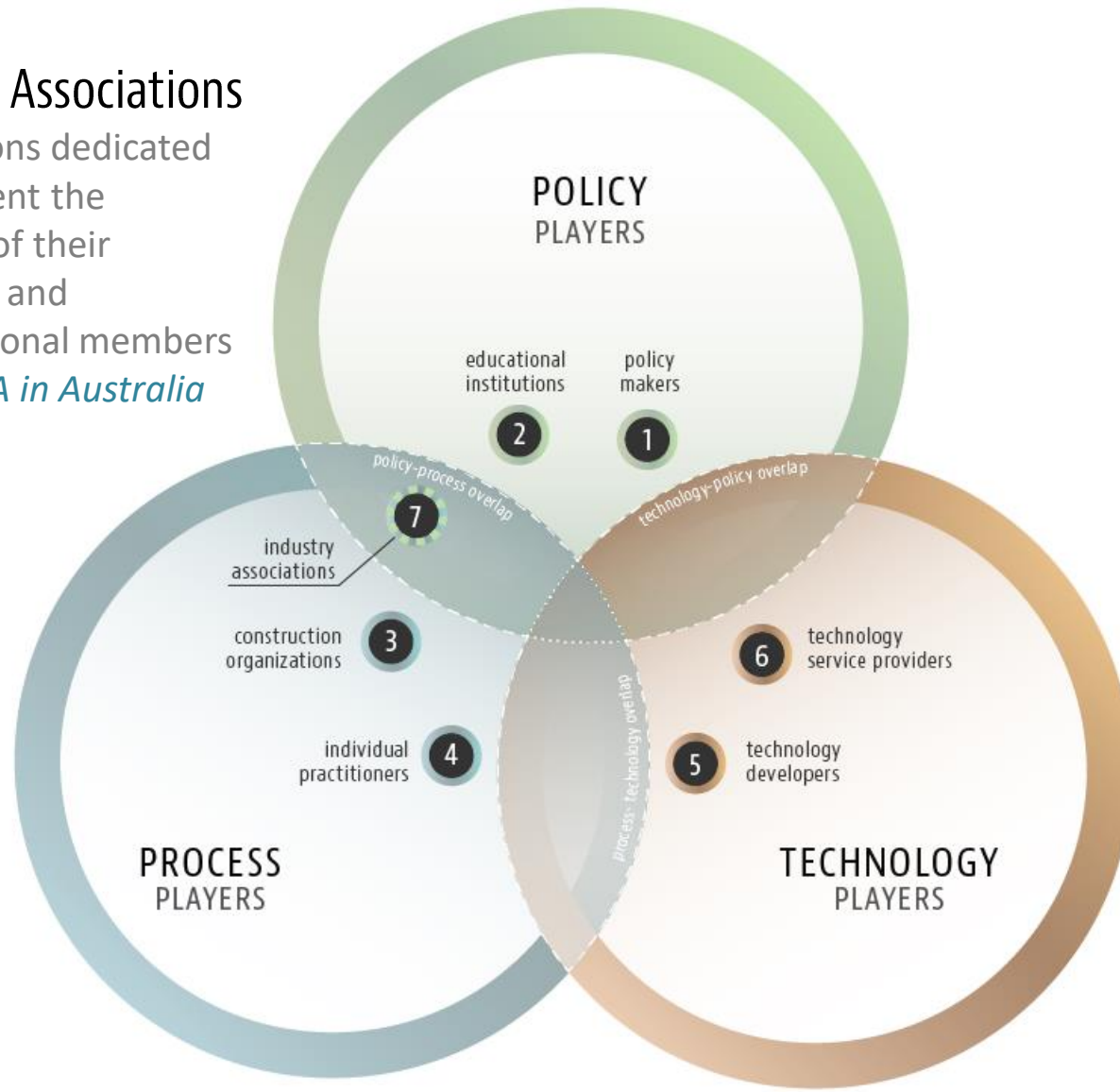
## 6 Value-adding Resellers

The companies bridging and maintaining the relationship between software/network solution developers and end users

# Diffusion Responsibilities Model

## 7 Industry Associations

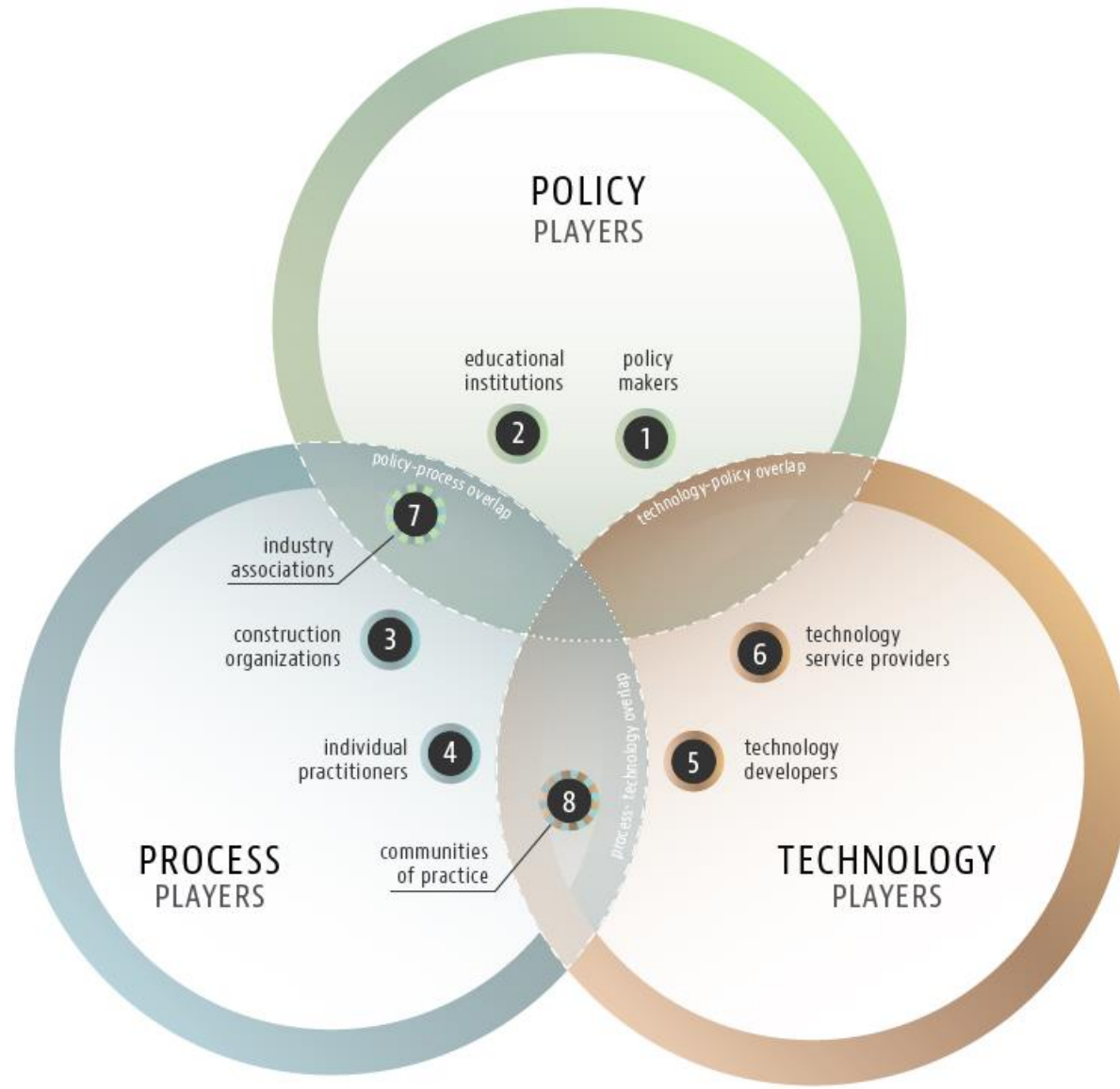
Associations dedicated to represent the interests of their individual and organizational members  
*e.g. AMCA in Australia*



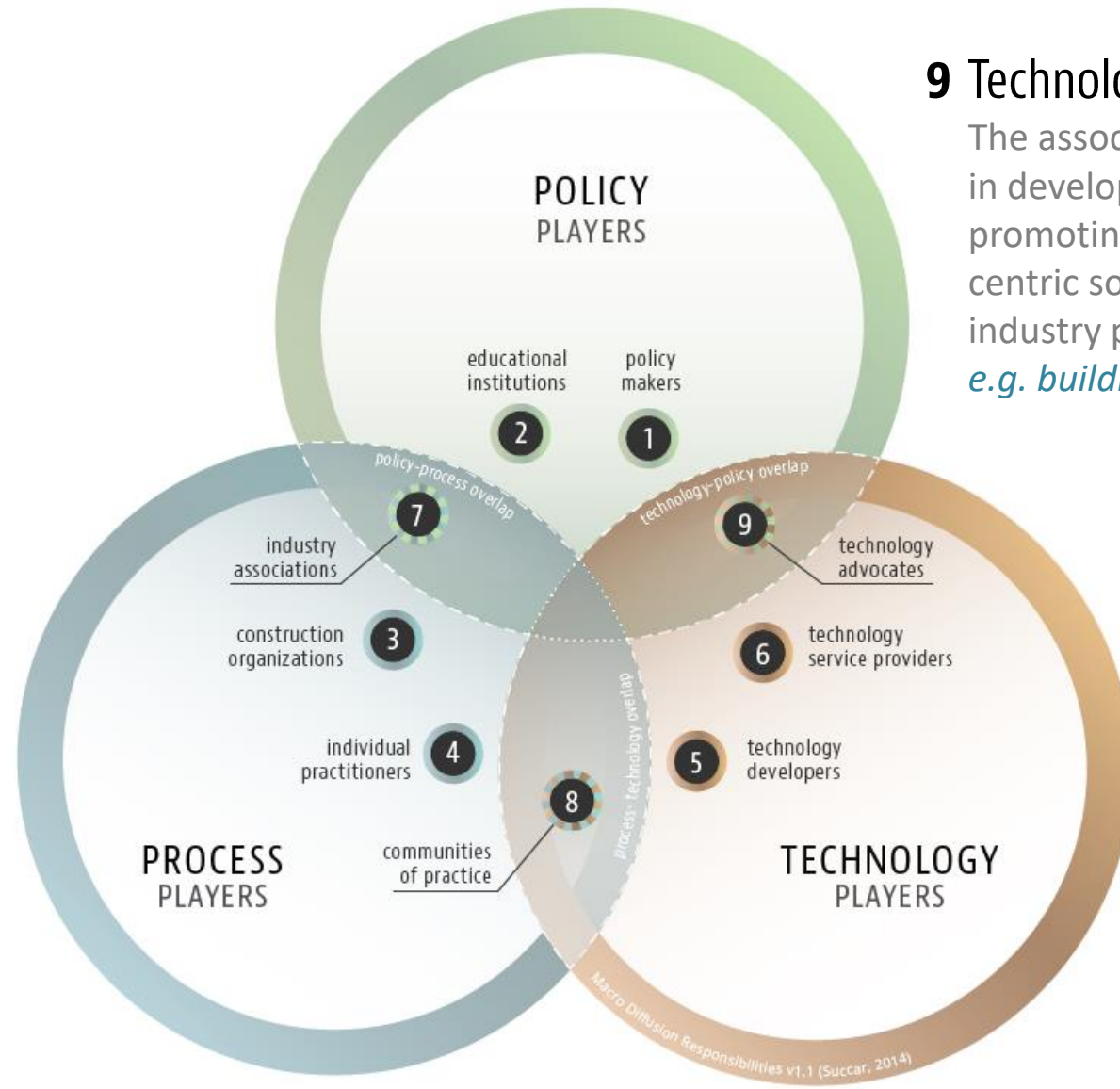
# Diffusion Responsibilities Model

## 8 Communities of Practice

The informal grouping of individuals with a shared interest in improving their own BIM performance  
*e.g. Revit user groups*



# Diffusion Responsibilities Model



## 9 Technology Advocates

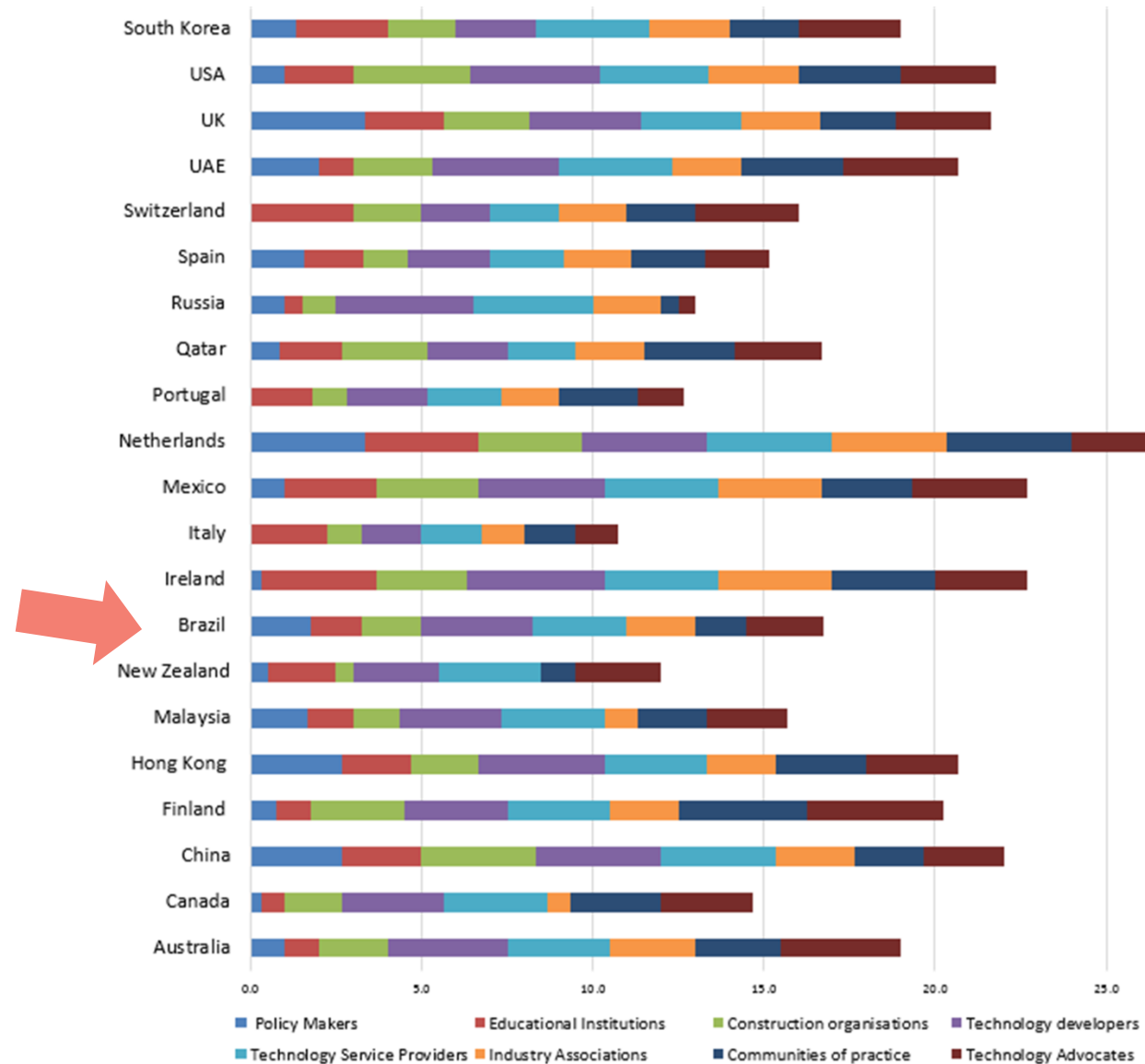
The associations involved in developing and promoting technology-centric solutions for industry problems

*e.g. buildingSMART*



# Diffusion Responsibilities

Comparing contribution of player groups within the same country



# Diffusion Responsibilities

Comparing contribution of player groups across countries

## Index Legend

75 - 100%	High
50 - 74%	Medium-high
25 - 49%	Low-medium
1 - 24%	Low
0	Non-existent

	Policy Makers	Educational Institutions	Construction Organisations	Technology Developers	Technology Service Providers	Industry Associations	Communities of Practice	Technology Advocates
Australia	25	25	50	88	75	63	63	88
Canada	8	18	43	75	75	18	68	68
China	68	58	83	93	83	58	50	58
Finland	20	25	70	75	75	50	95	100
Hong Kong	68	50	50	93	75	50	68	68
Malaysia	43	33	33	75	75	25	50	58
New Zealand	13	50	13	63	75	0	25	63
Brazil	45	38	45	83	70	50	38	58
Ireland	8	83	68	100	83	83	75	68
Italy	0	58	25	45	45	33	38	33
Mexico	25	68	75	93	83	75	68	83
Netherlands	83	83	75	93	93	83	93	83
Portugal	0	45	25	58	55	43	58	33
Qatar	20	45	63	58	50	50	68	63
Russia	25	13	25	100	88	50	13	13
Spain	40	43	33	60	53	50	53	48
Switzerland	0	75	50	50	50	50	50	75
UAE	50	25	58	93	83	50	75	83
UK	85	58	63	83	73	58	55	70
USA	25	50	85	95	80	65	75	70
South Korea	33	68	50	58	83	58	50	75





Helping Policy Makers – templates :  
sample **BIM Adoption Roadmap**

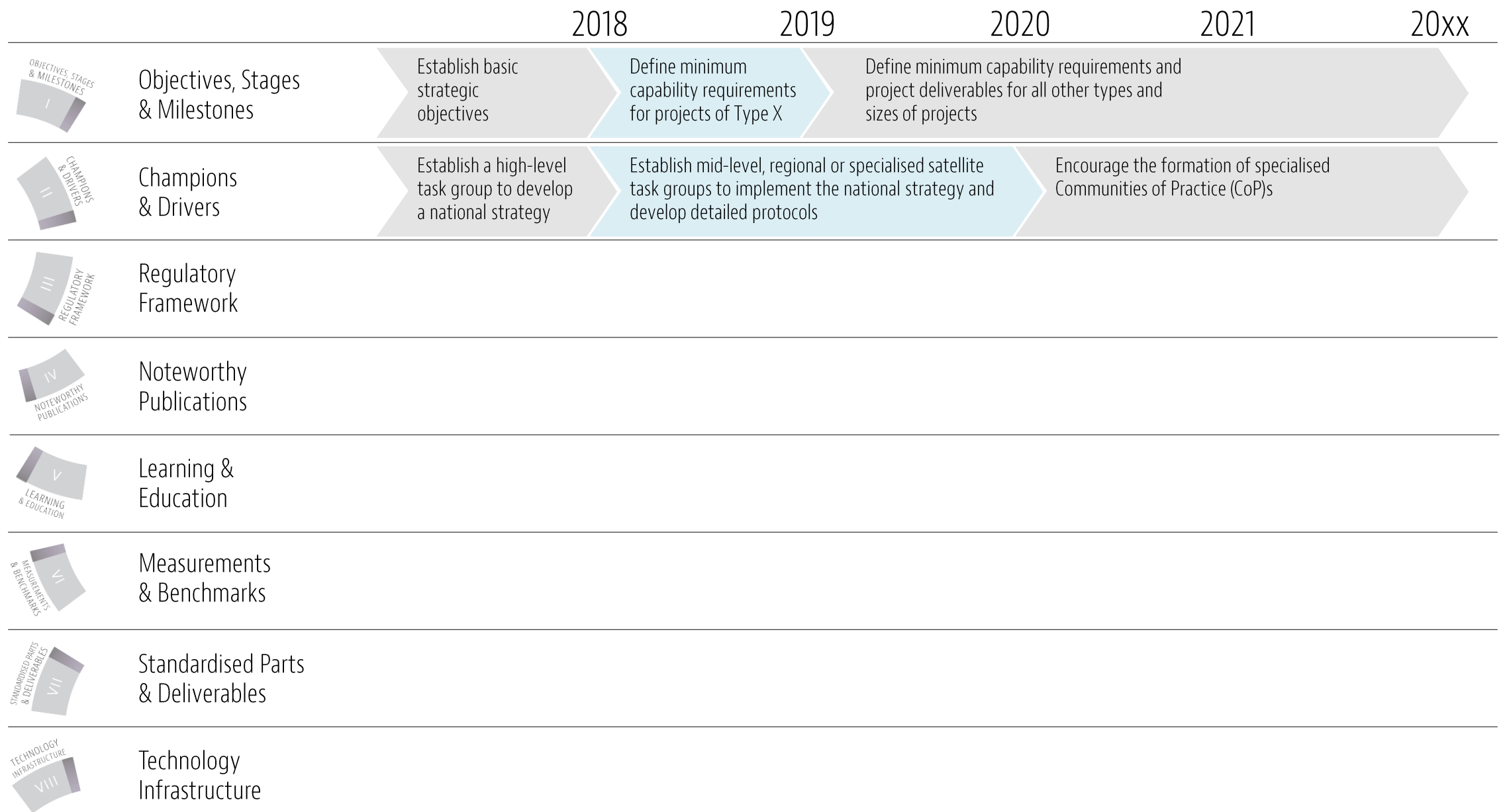
	2018	2019	2020	2021	20xx
	Objectives, Stages & Milestones				
	Champions & Drivers				
	Regulatory Framework				
	Noteworthy Publications				
	Learning & Education				
	Measurements & Benchmarks				
	Standardised Parts & Deliverables				
	Technology Infrastructure				

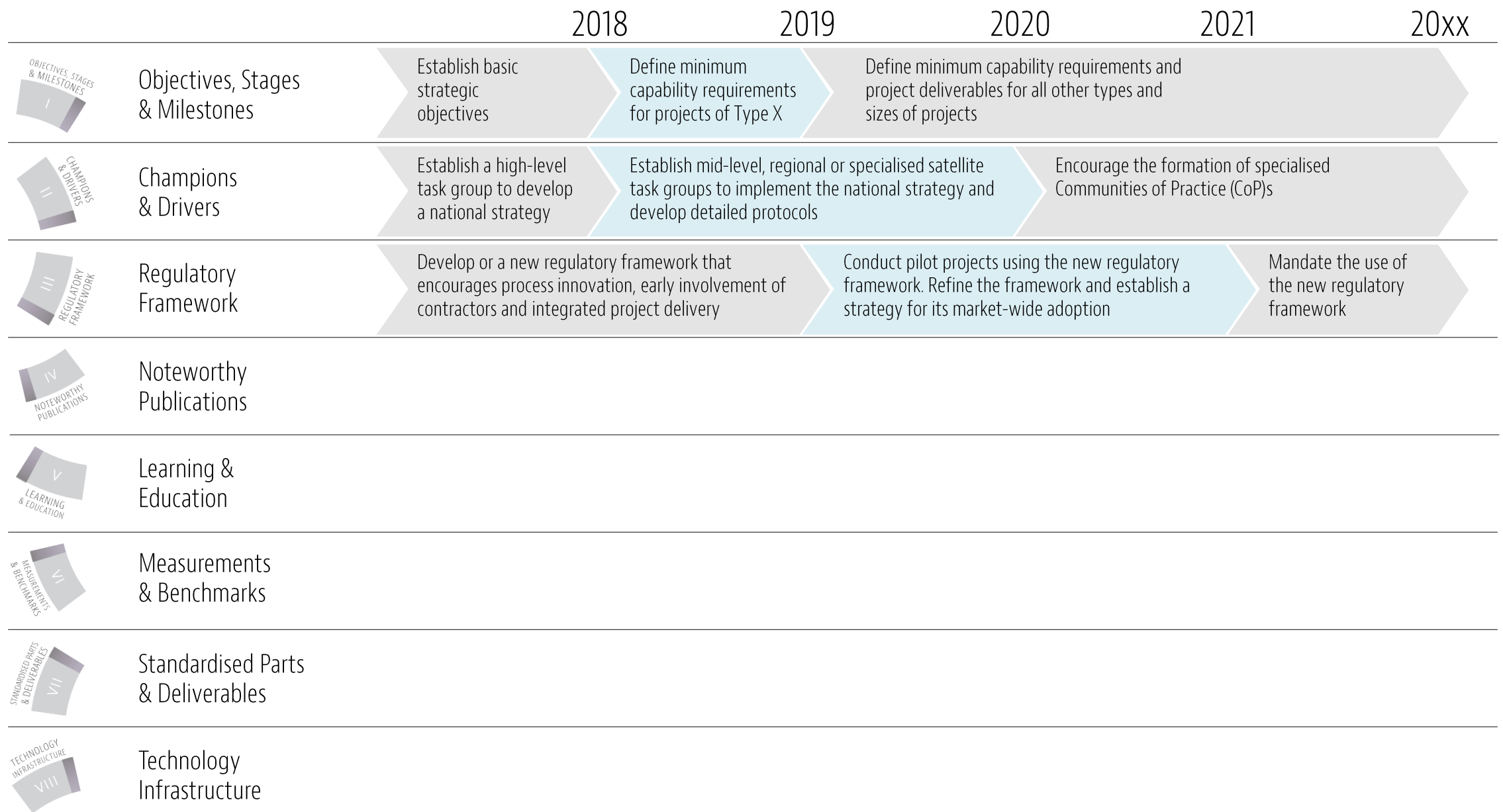




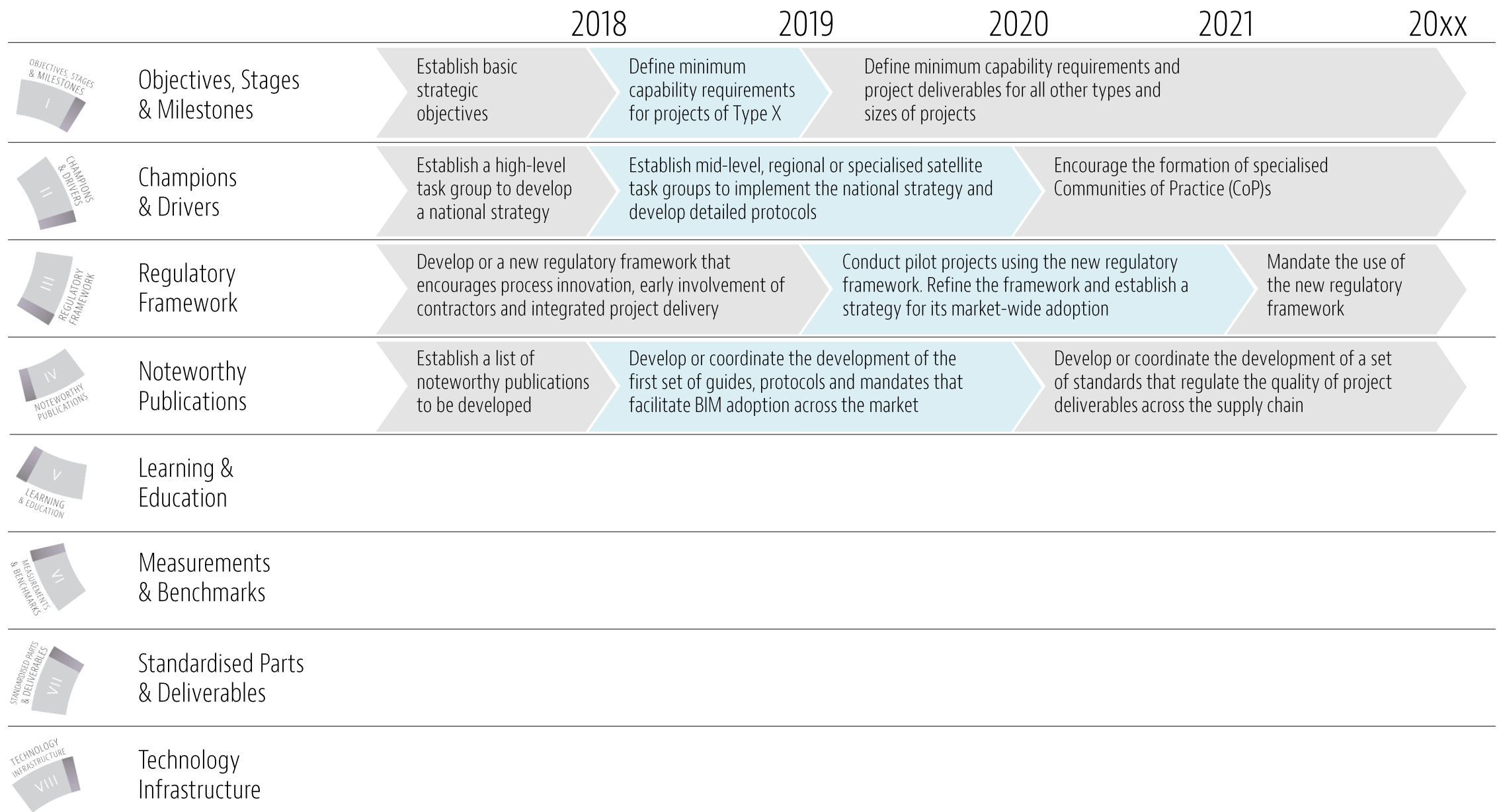


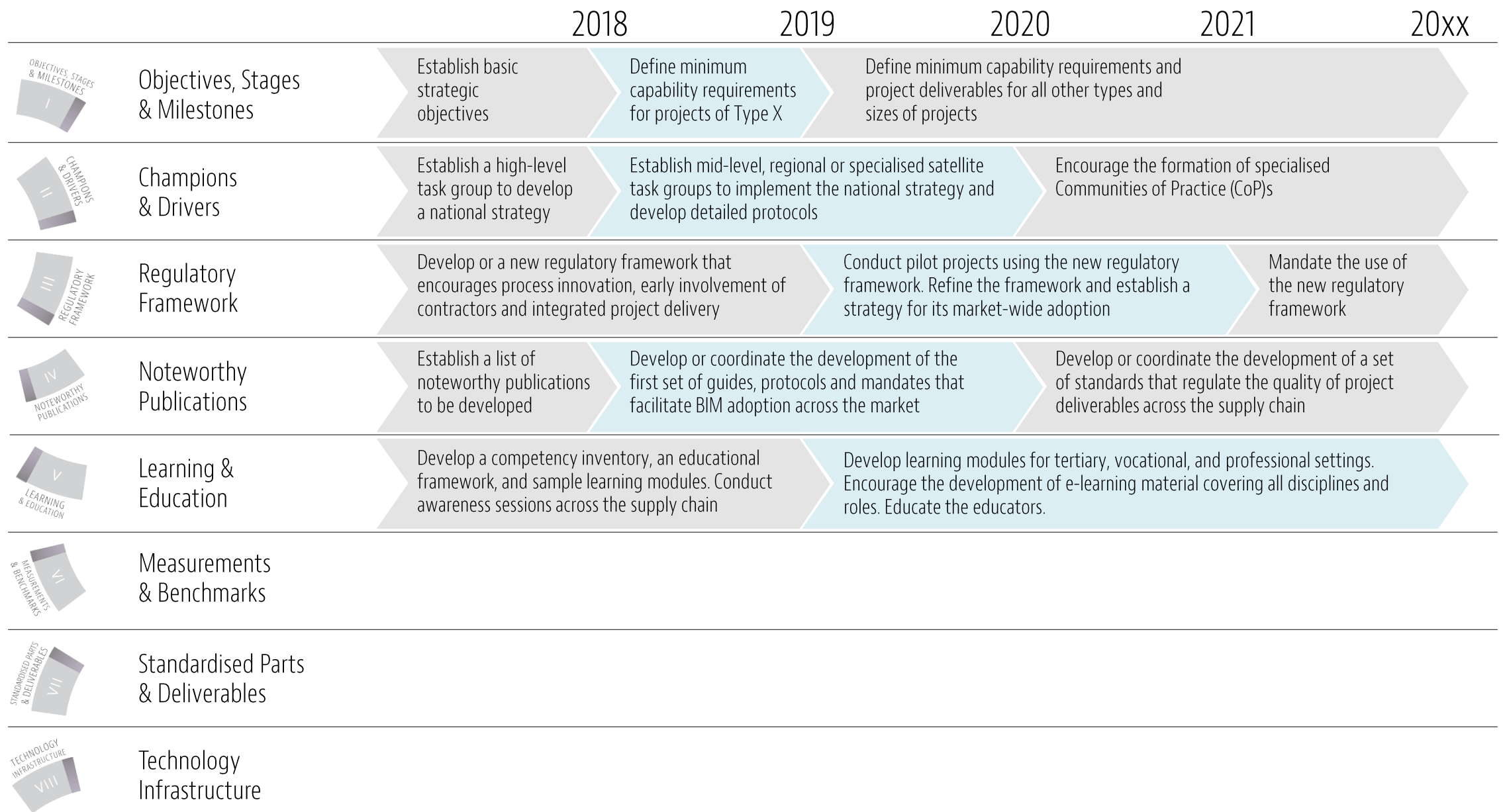


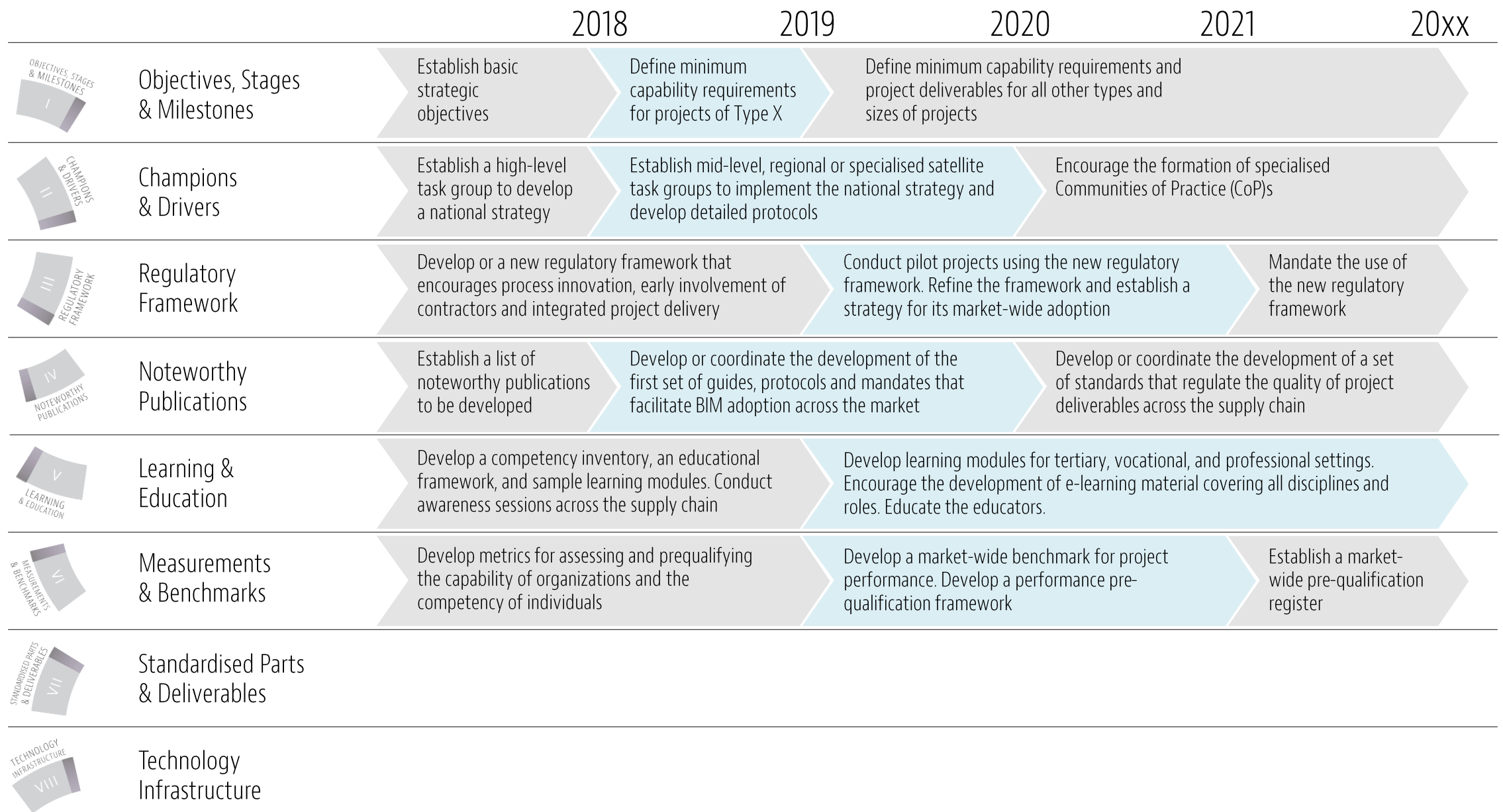


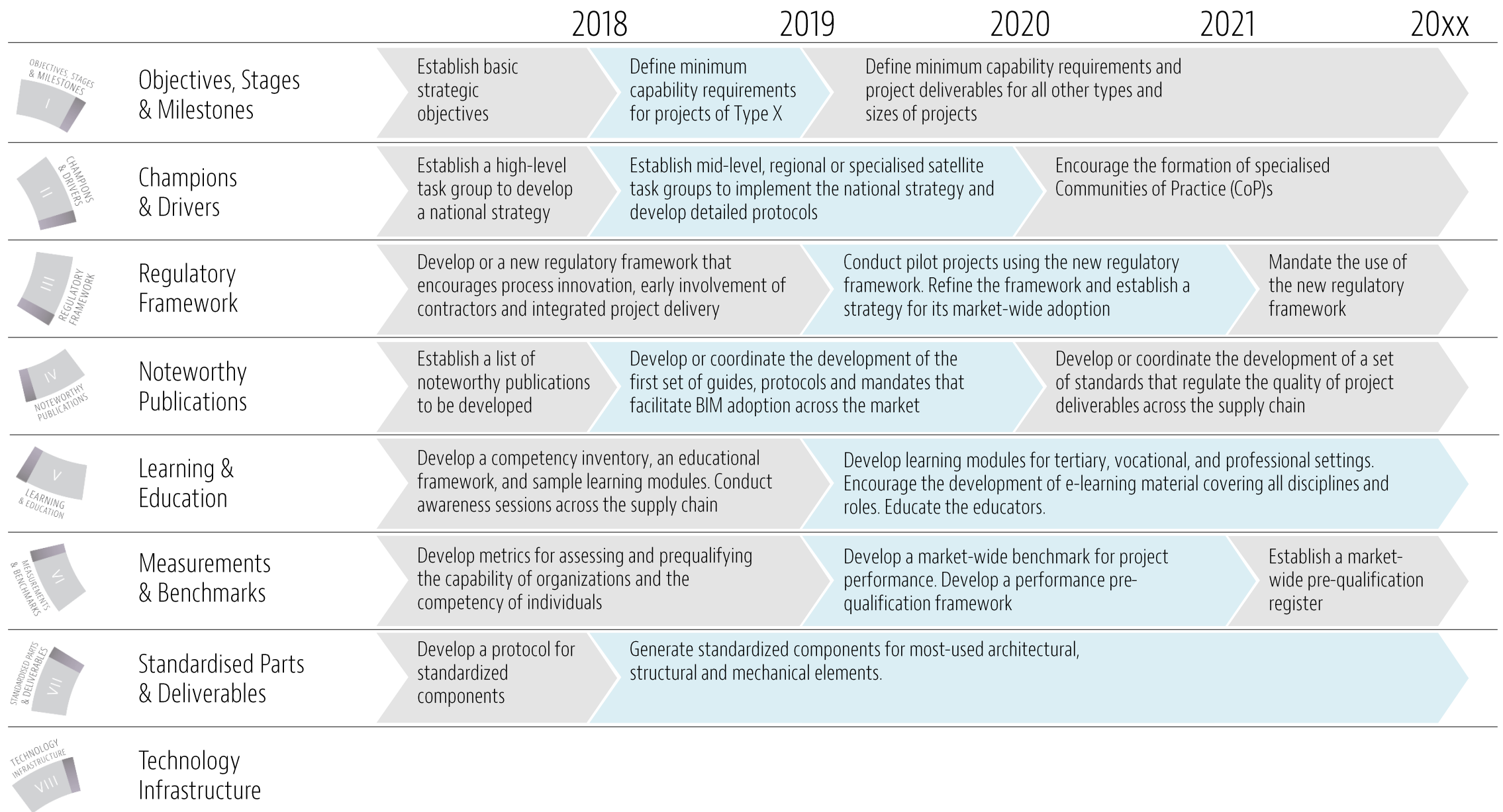


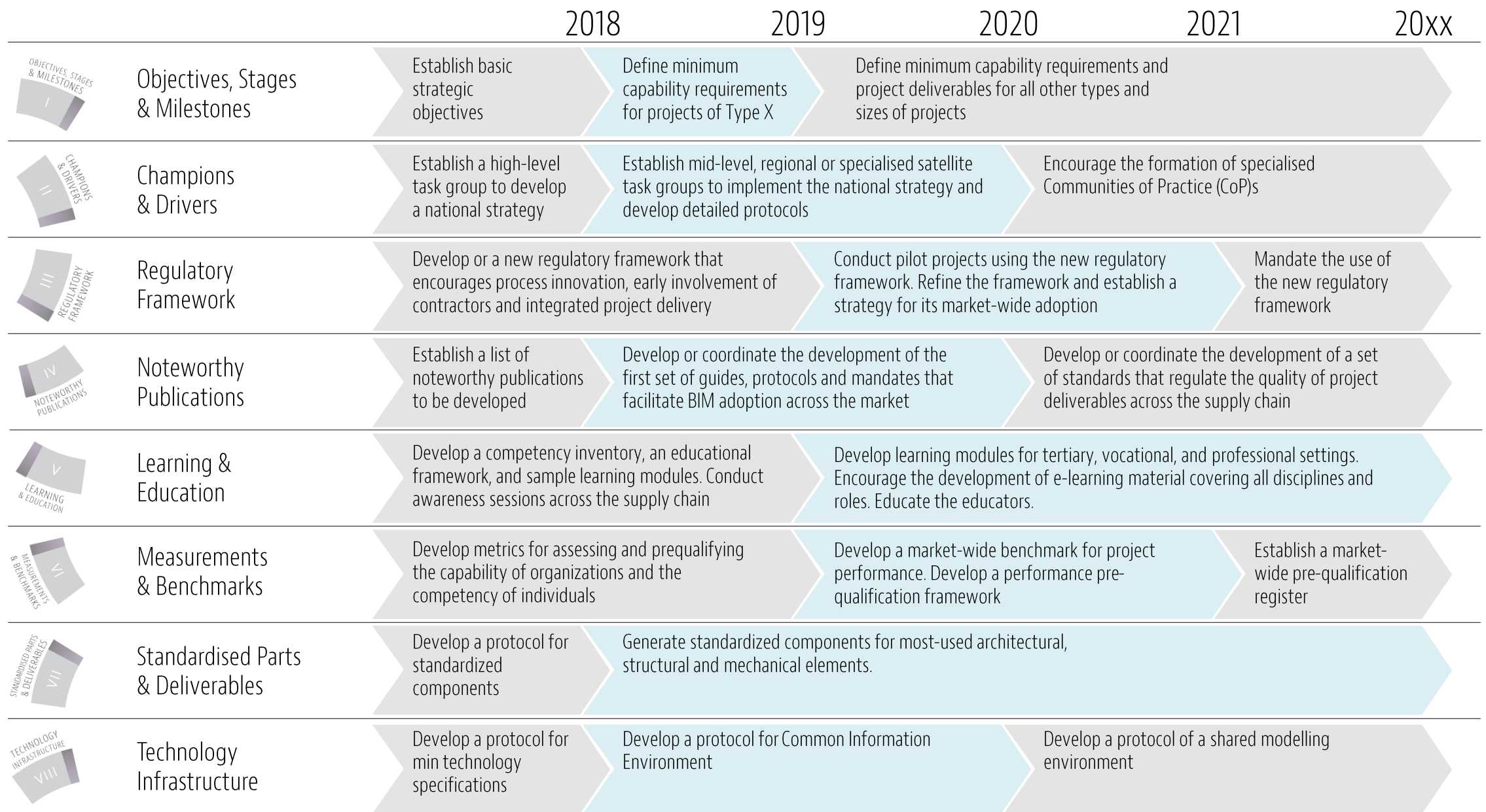














Helping Policy Makers – templates :  
sample **Adoption Responsibility Matrix**

## Macro Maturity Components

Diffusion-Role Matrix v1.0 *sample shown at GLevel 1 (Succar, 2015)*

Macro Player Groups	Objectives , Stages and...	Champions & Drivers	Regulatory Framework	Noteworthy Publications	Learning & Education	Measurements & Benchmarks	Standardised Parts and...	Technology Infrastructure
	A	A	A	B	B	A	B	C
	B	B	A	A	A	B	C	C
	B	A	B	B	B	A	A	B
	C	C	C	C	A	C	C	C
	C	C	C	C	B	C	B	A
	C	C	C	B	A	C	B	A
	B	B	A	A	B	A	C	C
	C	B	C	B	B	C	A	C
	A	A	B	A	B	B	A	B

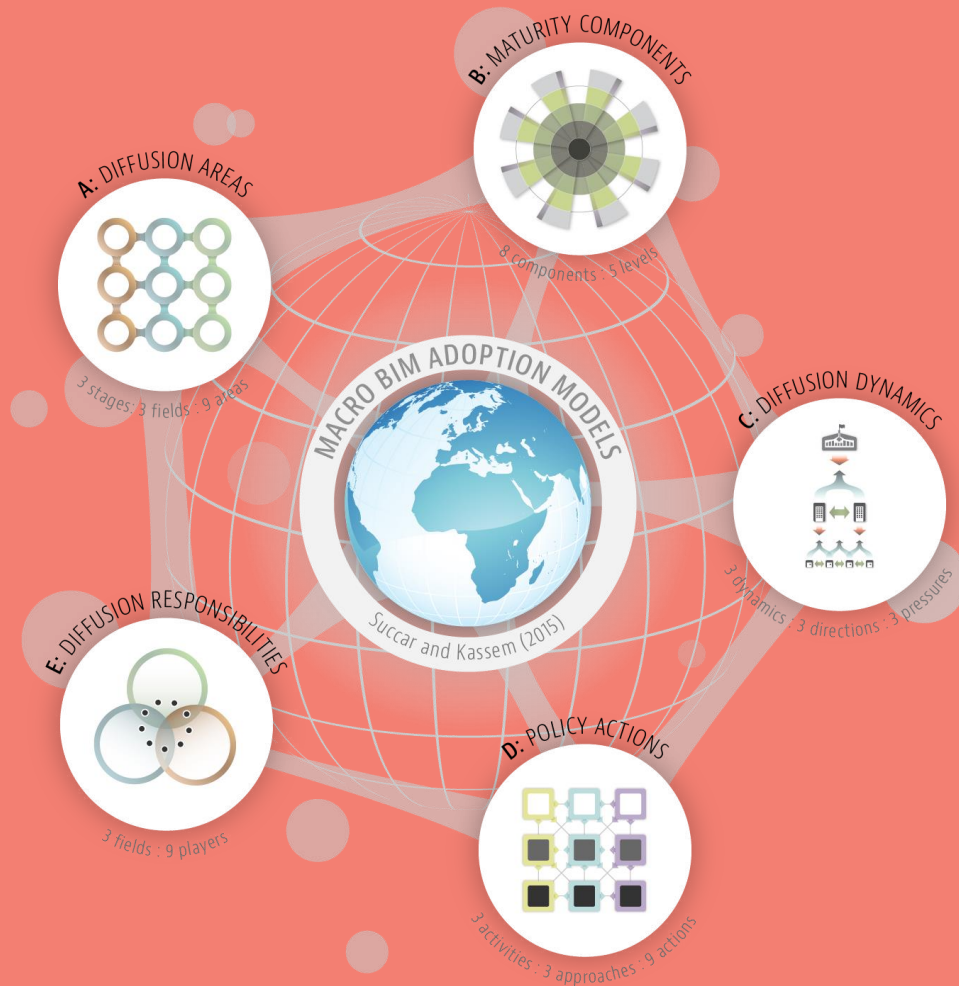
[A] Leading, [B] Supporting, & [C] Participating roles



# In Summary

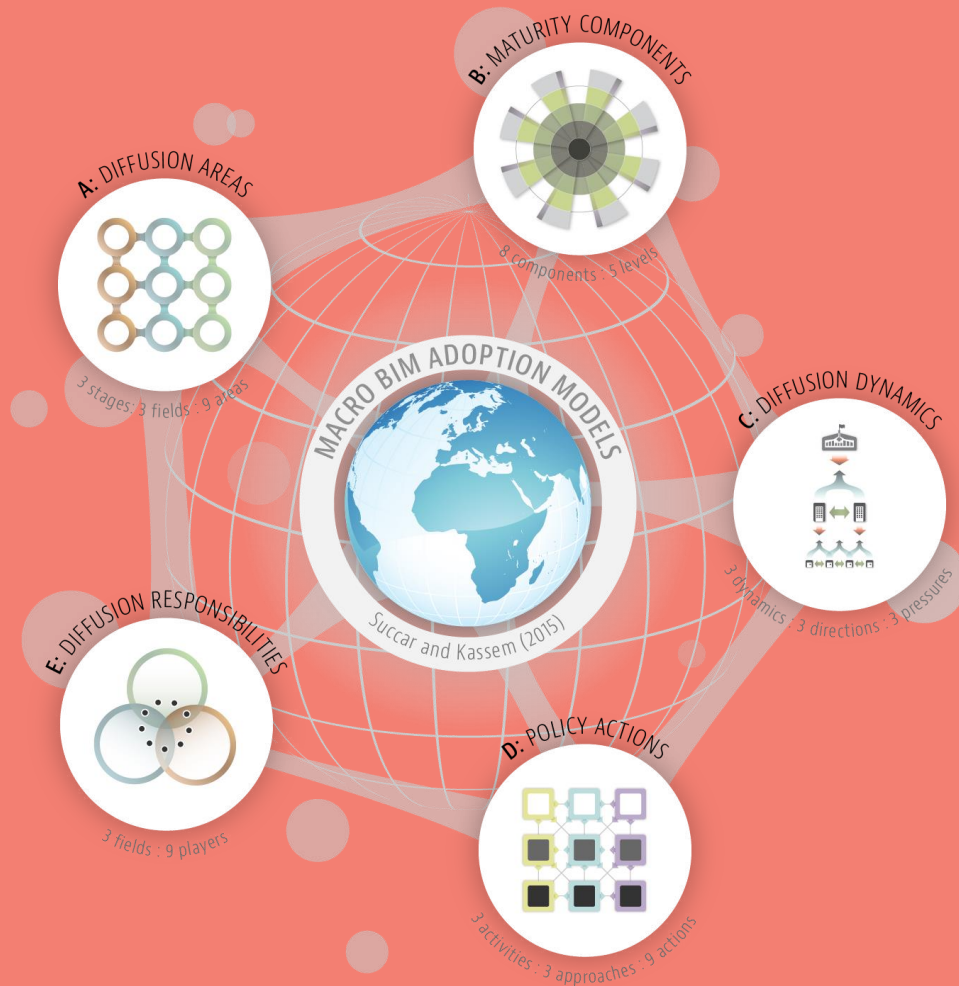


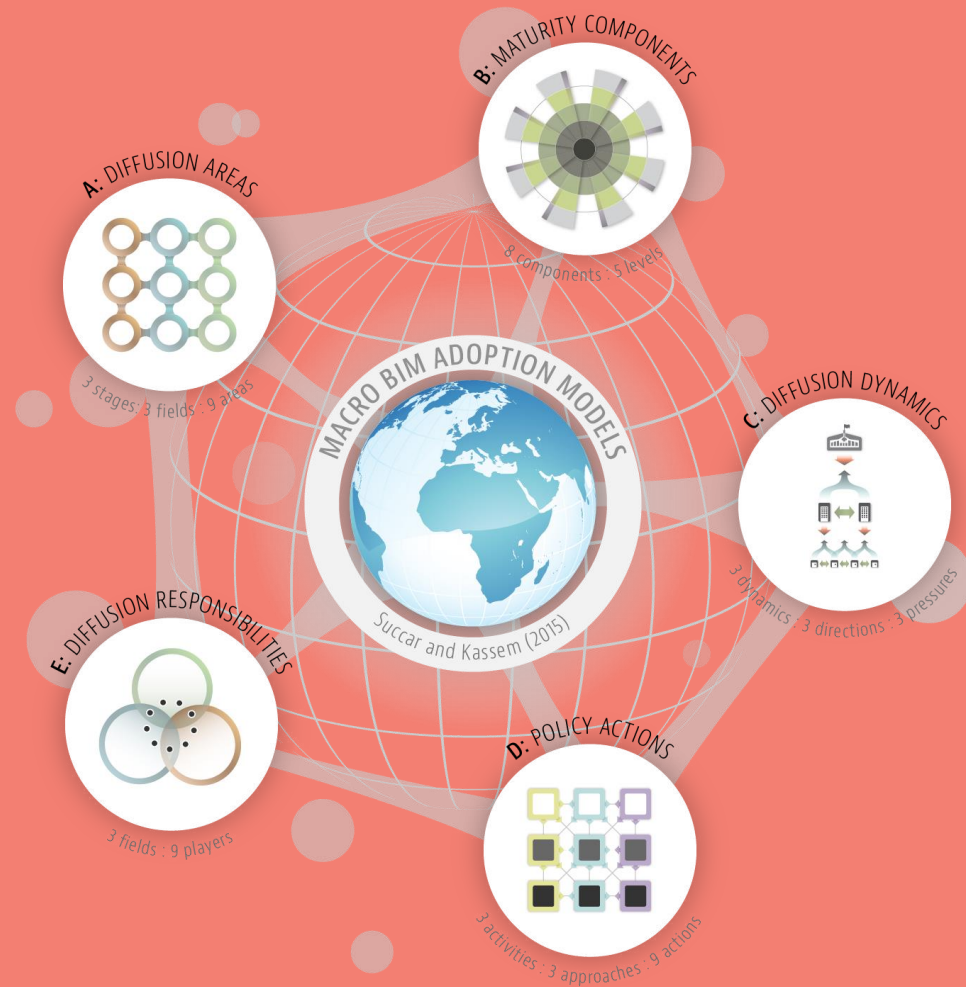
The **Three Questions** often asked when developing a BIM Adoption Strategy:



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1. Can policy makers **copy** BIM adoption strategies from other countries?
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3. Who is **responsible** for leading BIM adoption efforts across a market?



# Thank You



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