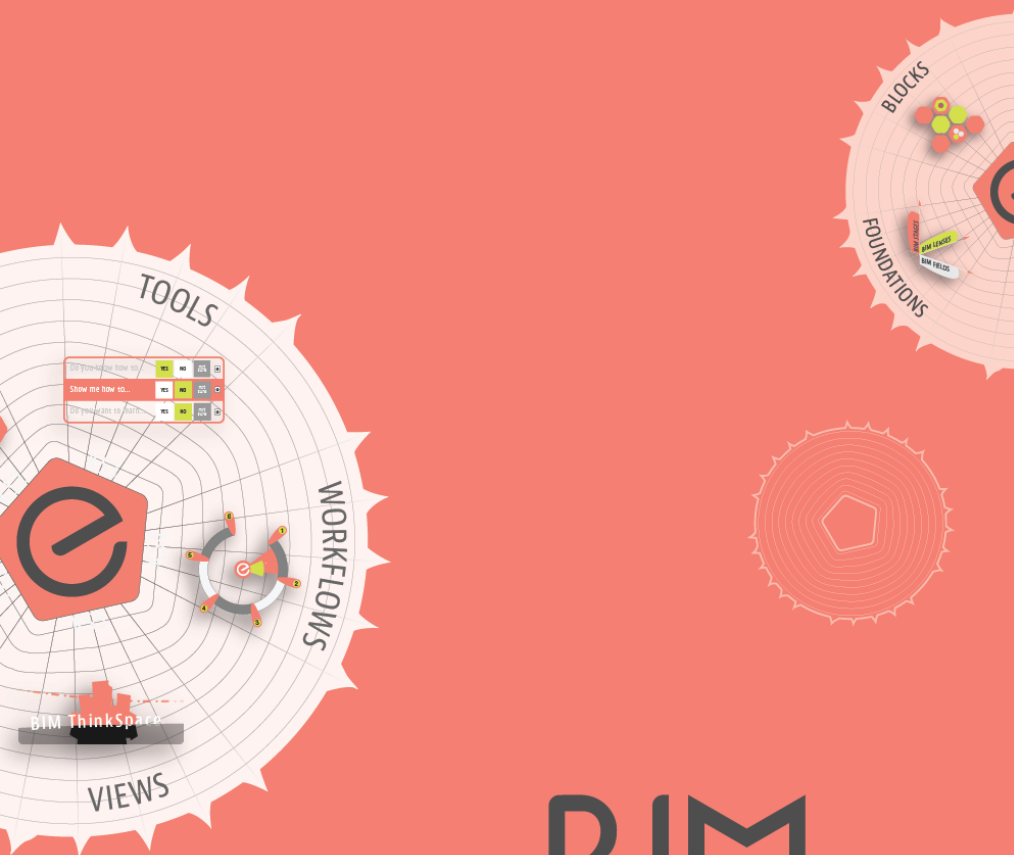


assess  
learn  
implement  
bimexcellence.org



BIM  
INITIATIVE 

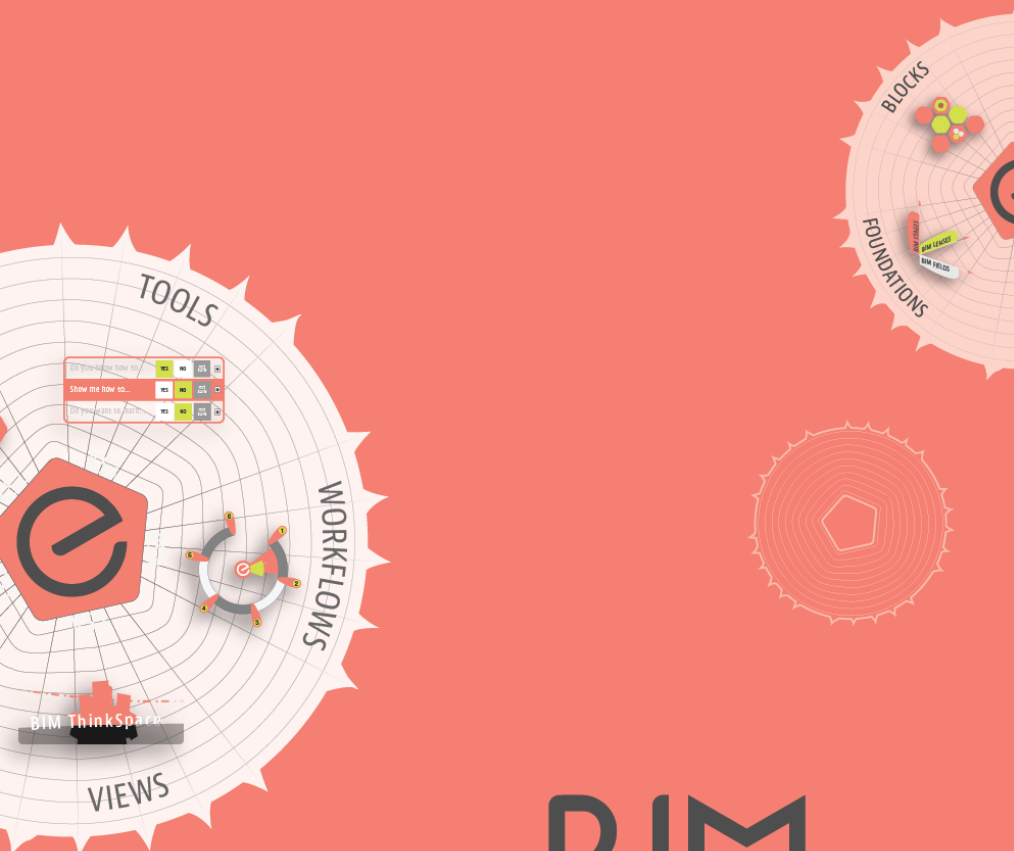
**BIM**  
LUX 2018

14/11/2018 · 9H00 - 17H00  
MAISON DU SAVOIR, BELVAL

imitate or innovate  
encouraging BIM adoption  
across whole markets

Dr. Bilal Succar | Founder, [BIMexcellence.org](http://BIMexcellence.org)

assess  
learn  
implement  
bimexcellence.org



BIM  
INITIATIVE 

**BIM**  
LUX 2018

14/11/2018 · 9H00 - 17H00  
MAISON DU SAVOIR, BELVAL

Part 1 The BIM Initiative – what is it?  
Sample BIME Initiative Projects

Part 2 BIM diffusion across countries  
What we know, what we don't

Part 3 Imitate or Innovate?  
What can we do to encourage BIM adoption?

PART 1

# The BIMe Initiative

what is it, and why is it needed

The **BIMe Initiative** is a *not-for-profit* knowledge generation and open sharing effort undertaken by volunteer *researchers* from both industry and academia.

The **BIMe Initiative** is built upon 4 General Principles:

- Commitment to Openness;
- Grown around a Knowledge Structure;
- Peer-sourced and Peer-tested; and
- Open Innovation across boundaries.

# The Excellence Manifesto

[bimexcellence.org/principles/manifesto/](http://bimexcellence.org/principles/manifesto/)

# The Excellence Manifesto

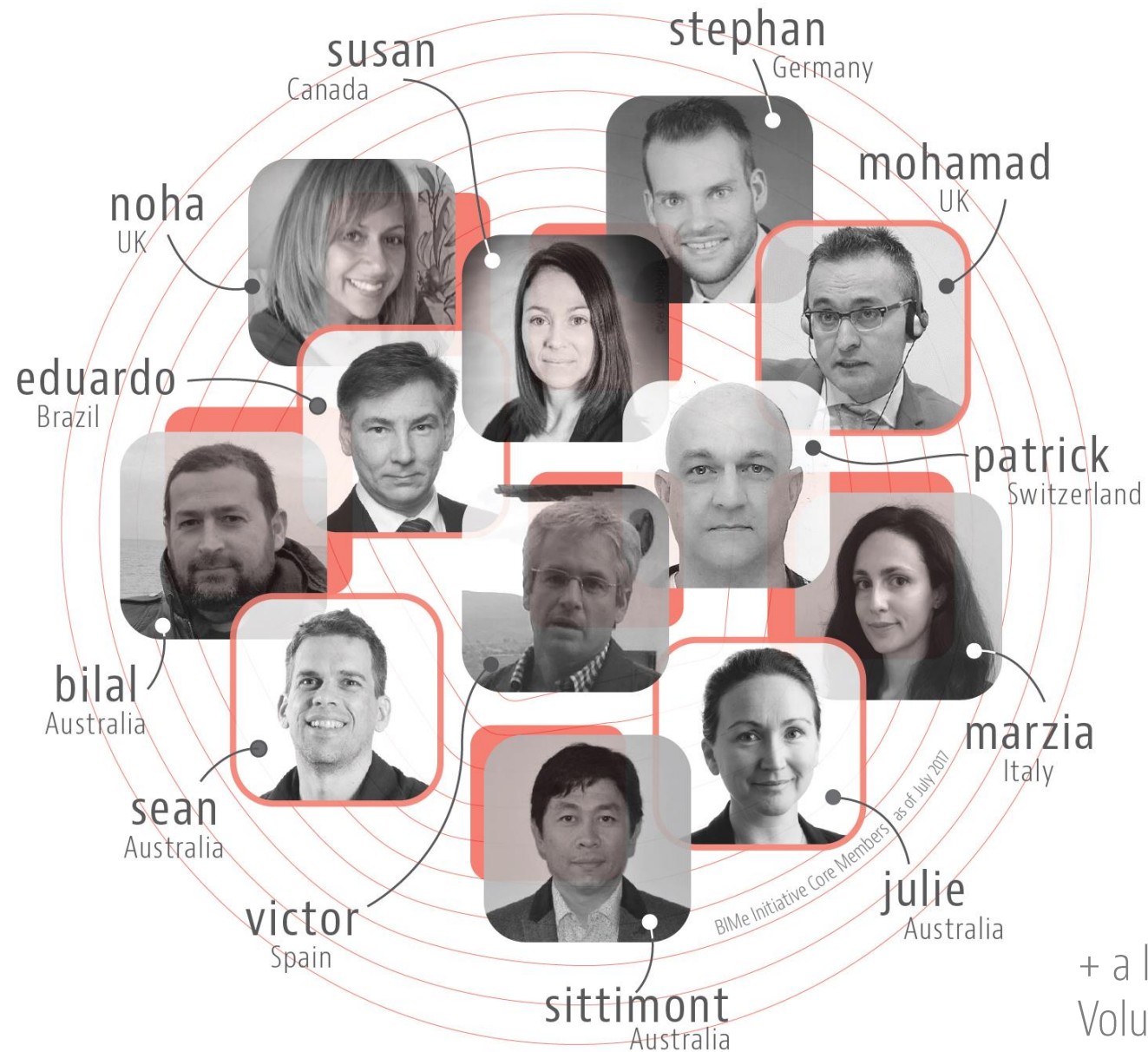
- Open** | We will share our knowledge through open channels for all to benefit
- Practical** | We will generate tools and guides of benefit to current and future practitioners
- Educational** | We will learn and educate others about ever-improving practices
- Collaborative** | We will collaborate with others in good faith
- Neutral** | We will avoid prejudice against any idea or solution
- Equal** | We will provide an equal-opportunity for all who wish to become members or volunteers
- Respectful** | We will respect existing knowledge by building upon it
- Structured** | We will follow a clear structure for collating, organising, and sharing knowledge
- Modular** | We will develop modular solutions for others to build their own
- Cohesive** | We will deliver products and components which are interconnected and interoperable

- Competent** | We will undertake activities when/if we are collectively competent to do so
- Honest** | We will be honest about our research and delivery abilities
- Innovative** | We will devise new solutions for new problems
- Informed** | We will investigate existing solutions before suggesting new ones
- Reliable** | We will harvest knowledge from reliable sources and informed peers
- International** | We will cater for the common requirements across national borders
- Tested** | We will test solutions before releasing them as such
- Testable** | We will make tested solutions available for others to test
- Efficient** | We will avoid digital, physical and financial waste
- Visual** | We will represent knowledge in a visual and colourful manner
- Free** | We will release all solutions for practitioners and researchers to freely use

[bimexcellence.org/principles/manifesto/](http://bimexcellence.org/principles/manifesto/)

The **BIMe Initiative Network**  
a community across borders





+ a large **Community** of  
Volunteers

The **BIMe Initiative Projects**  
community response to shared challenges





Project A | the **BIM Dictionary**  
a common language for shared goals

# BIMDICTIONARY

common language shared goals

This Open Source BIM Dictionary aims to provide a *reliable resource* for establishing a **common understanding** of frequently used terms across our industry

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

1 of +700

integrated search  
(by term abbreviations  
or description)

filters

term  
(link to the  
term's page)

inline terms  
(bubble)

concepts  
(for grouping  
and filtration)

version

acronym

flag!

unique code  
(click to copy  
to clipboard)

synonyms

extended  
description

available  
translations

Displaying 1 of 1 terms

BIM Management Plan

Country Concept Language Clear

BIM Management Plan (BMP) 234.1.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 Show More ...

Version 1 ar bg ca cs de el en es fa fr hr it lt pt ru tr zh



## Project B | Knowledge Sharing

spreading knowledge, reducing complexity



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



[BIMframework.info](http://BIMframework.info)

General Principles  
our commitments


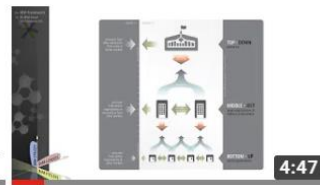

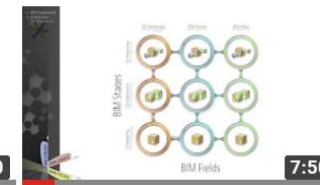


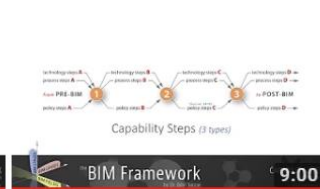
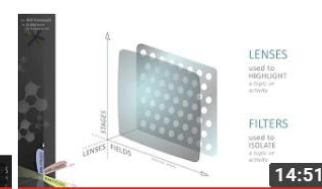
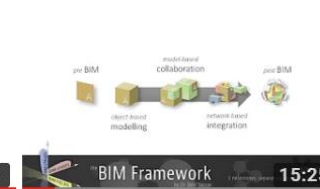
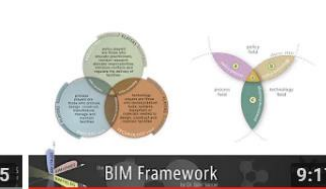
Resources  
free downloads

Projects  
ongoing efforts

Members and Volunteers  
the growing community

Sponsors  
supporters

[BIMexcellence.org](http://BIMexcellence.org)

				
<b>Policy Actions</b> 461 views • 2 years ago	<b>Diffusion Dynamics</b> 526 views • 2 years ago	<b>Macro Maturity Components</b> 432 views • 2 years ago	<b>Diffusion Areas</b> 682 views • 2 years ago	<b>Macro Adoption Models - Introduction</b> 1.5K views • 2 years ago
				
<b>BIM Maturity Index</b> 1.3K views • 2 years ago	<b>Capability Steps</b> 962 views • 2 years ago	<b>BIM Lenses</b> 849 views • 2 years ago	<b>BIM Stages</b> 3K views • 2 years ago CC	<b>BIM Fields</b> 1.2K views • 2 years ago CC

[youtube.com/c/bimframeworks](https://youtube.com/c/bimframeworks)



# Project C | Competency Development

benchmarking competency across the world

T01	General IT	Installing, managing and maintaining general IT infrastructure
T02	Software Systems	Selecting, deploying and maintaining software systems in a multi-user environment
T03	Hardware and Equipment	Specifying, recommending or procuring computer hardware and equipment
T04	Modelling	Generating BIModels based on pre-defined Modelling Standards and protocols
T05	Documentation	Generating drawings and construction documents using standardized details and workflows
T06	Presentation and Animation	Generating professional-quality renderings or 3D animation using Specialized Software Tools

o01	General model use	Using model-based deliverables to improve design, construction and operation of facilities
o02	Capturing and Representing	Using software tools and specialized equipment to capture and represent physical spaces and environments
o03	Planning and Designing	Using software tools for conceptualization, planning and design
o04	Simulating and Quantifying	Using software tools to conduct various types of model-based simulations and estimations
o05	Constructing and Fabricating	Using BIModels for the specific purposes of construction and fabrication
o06	Operating and Maintaining	Using models to operate, manage and maintain a facility



Available Online: <http://bimexcellence.org/201in/>

### Administration Set

**Summary:** the day-to-day organizational activities required to meet and maintain strategic objectives. Administration competencies include tendering and procurement, contract management, and human resource management.

CODE	COMPETENCY TOPIC	DESCRIPTION
A01	Administration, Policies and Procedures	Developing managerial initiatives into policies and procedures to facilitate the adoption of BIM tools and workflows
A02	Finance, Accounting and Budgeting	Planning, allocating and monitoring the costs associated with <a href="#">BIM Adoption</a>
A03	Performance Management	Assessing organizational BIM capability/maturity, <a href="#">Individual Competency</a> and project performance using standardized metrics
A04	Human Resource Management	Planning, developing and managing human resources as to align staff competencies to organizational BIM goals
A05	Marketing	Promoting an organization's <a href="#">BIM Capability</a> to its clients and business partners
A06	Tendering and Procurement	Developing the necessary specifications and documents to pre-qualify, recommend or procure BIM products and services
A07	Contract Management	Administering the contractual documentation underlying <a href="#">Collaborative BIM Projects</a> and workflows
A08	Risk Management	Managing the risks associated with using BIM tools and collaborative workflows
A09	Quality Management	Establishing, managing and controlling the quality of models, documentation and other <a href="#">Project Deliverables</a>

### Functional Set

**Summary:** the non-technical, overall abilities required to initiate, manage and deliver projects. Functional competencies include collaboration, facilitation and project management.

CODE	COMPETENCY TOPIC	DESCRIPTION
F01	Functional Basics	Identifying the basic requirements and main deliverables expected from using BIM tools and workflows
F02	Collaboration	Preparing the documentation necessary to enable <a href="#">Model-based Collaboration</a> between <a href="#">Project Participants</a>
F03	Facilitation	Facilitating the process of BIM collaboration between <a href="#">Project Participants</a>
F04	Project Management	Managing projects where <a href="#">BIM Workflows</a> are used, and <a href="#">BIM deliverables</a> are specified
F05	Team and Workflow Management	Managing teams involved in the delivery of <a href="#">BIM Projects</a>

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BIM Excellence by Change Agents AEC, pt.  
Melbourne, Australia | Phone: +61 (0) 3 933 556 071  
[Email: info@changeagents.com.au](#)  
201in Competency Table.docx (Page 3 of 4)

## Competency Table



## Project D | Performance Improvement

self-assessment tools for organisations and teams

Zones de Maturité Clée au niveau de Granulométrie 1		a INITIAL (score 0)	b DÉFINI (score max. 10)	c GÉRÉ (score max. 20)	d INTÉGRÉ (score max. 30)	e OPTIMISÉ (score max. 40)
TECHNOLOGIE basé sur l'ensemble de Capacités v5.0	Logiciel: applications, livrables et données	L'utilisation des logiciels n'est ni surveillée ni réglementée. Les modèles 3D servent principalement à générer des représentations/livrables 2D exacts. L'utilisation des données, leur stockage et les échanges ne sont pas définis dans l'organisation ou les équipes de projet. Les échanges souffrent d'un manque cruel d'interopérabilité.	L'utilisation/introduction des logiciels est unifiée dans l'organisation ou les équipes de projet (organisations multiples). Les modèles 3D sont utilisés afin de générer des livrables 2D et également 3D. L'utilisation, le stockage et les échanges des données sont bien définis dans les organisations et les équipes de projet. Les échanges de données interopérables sont définis et privilégiés.	La sélection et l'utilisation des logiciels sont contrôlées et gérées selon des livrables définis. Les modèles sont à la base des vues 3D, représentations 2D, quantification, spécifications et études analytiques. L'utilisation, le stockage et les échanges de données sont surveillés et contrôlés. Les flux de données sont documentés et bien gérés. Les échanges de données interopérables sont mandatés et surveillés de près.	La sélection et le déploiement des logiciels suivent des objectifs stratégiques, et non uniquement des exigences opérationnelles. Les livrables de modélisation sont bien synchronisés à travers les projets et étroitement intégrés avec les processus d'affaires. L'utilisation, le stockage et les échanges de données sont régulés et exécutés comme partie d'une stratégie globale de l'organisation ou des équipes de projet.	La sélection/utilisation des logiciels est continuellement repensée afin d'améliorer la productivité et de l'aligner avec les objectifs stratégiques. Les livrables de modélisation sont révisés/optimisés de manière cyclique pour bénéficier des nouvelles fonctionnalités. Toutes les questions liées à l'utilisation, stockage et échanges de données sont bien documentées, contrôlées, pensées et améliorées pro-activement.
	Matériel Informatique: équipement, livrables et emplacement/mobilité	L'équipement BIM est inadéquat ; les spécifications sont trop basses ou inconsistantes dans l'organisation. Le remplacement ou la mise à jour de l'équipement est traité comme une dépense et réalisé que lorsque inévitable.	Les spécifications de l'équipement – adéquat pour la fourniture de produits et services BIM – sont définies, budgétisées et standardisées dans toute l'organisation. Le remplacement et la mise à jour du matériel informatique sont des dépenses bien définies.	Une stratégie est en place pour documenter, gérer et maintenir de manière transparente les équipements BIM. L'investissement en matériel informatique est bien ciblé afin d'améliorer la mobilité des employés (si besoin) et augmenter la productivité BIM.	Le déploiement de l'équipement est traité comme facilitateur du BIM. Les investissements en équipement sont étroitement intégrés avec un plan financier, stratégies d'affaires et objectifs de performance.	L'équipement existant et des solutions innovantes sont continuellement testés, mis à jour, et déployés. L'équipement BIM devient un des avantages compétitifs des équipes de projet et de l'organisation.
	Réseau: solutions, livrables et sécurité/contrôle d'accès	Les solutions réseau sont inexistantes ou ad hoc. Les individus, organisations (locations uniques/dispersées) et les équipes de projet utilisent les outils disponibles pour communiquer et partager les données. Les utilisateurs n'ont pas l'infrastructure nécessaire pour récolter, stocker et partager les connaissances.	Les solutions réseau pour le partage des informations et le contrôle d'accès sont identifiées dans et entre les organisations. Au niveau projet, les intervenants identifient leurs exigences de partage des données et informations. Les organisations et les équipes de projet dispersées sont reliées via des connexions à faible bande passante.	Les solutions réseau pour récolter, stocker et partager les connaissances dans et entre les organisations sont bien gérées via des plateformes (intranets ou extranets). Des outils de gestion de contenu et d'actif sont déployés afin de réguler les données (structurées ou non) partagées via des connexions à haute bande passante.	Les solutions réseau permettent aux multiples facettes du BIM d'être intégrées au travers du partage homogène en temps réel des données, informations et connaissances. Les solutions incluent des portails/réseaux spécifiques à un projet qui permettent l'échange intensif de données (interopérabilité) entre les intervenants.	Les solutions réseau sont continuellement évaluées et remplacées par les dernières innovations testées. Les réseaux facilitent l'acquisition, le stockage et le partage des connaissances entre tous les intervenants. L'optimisation des données, processus et canaux de communication intégrés est continue.

## La Matrice de Maturité BIM



Available Online: <http://bimexcellence.org/301in/>



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2558	2558
2559	2559</

# CR

Figure 1: Western blot analysis of p53 and p21 expression. The figure shows two panels of Western blots. The left panel shows p53 protein levels, and the right panel shows p21 protein levels. Each panel has three lanes: 'Control' (no treatment), 'p53' (p53 overexpression), and 'p21' (p21 overexpression). Molecular weight markers are indicated on the left of each panel. In the p53 panel, p53 protein is present in the 'p53' lane but absent in the 'Control' and 'p21' lanes. In the p21 panel, p21 protein is present in the 'p21' lane but absent in the 'Control' and 'p53' lanes.



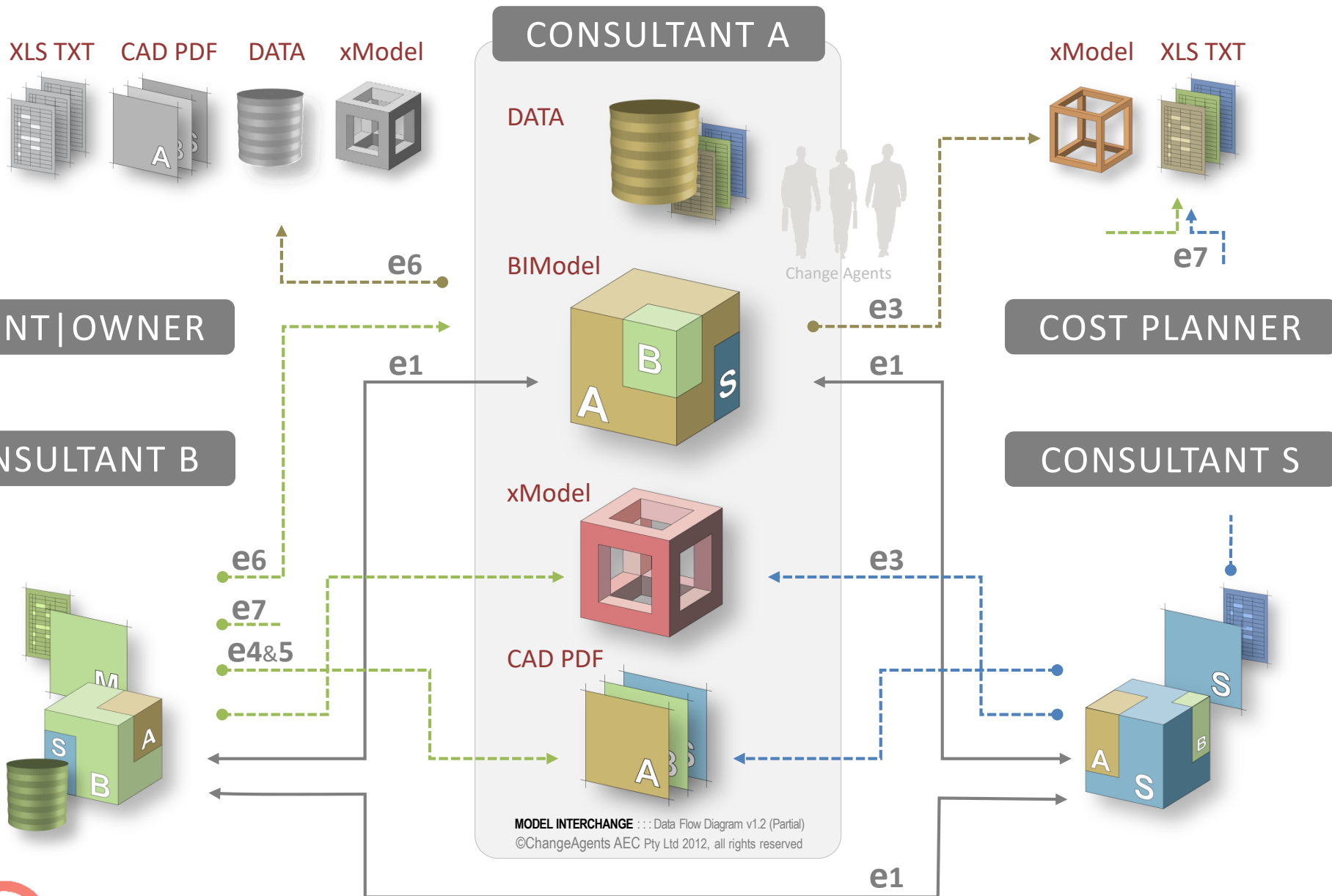
## Project D | Macro BIM Adoption

benchmarking and developing macro BIM policies



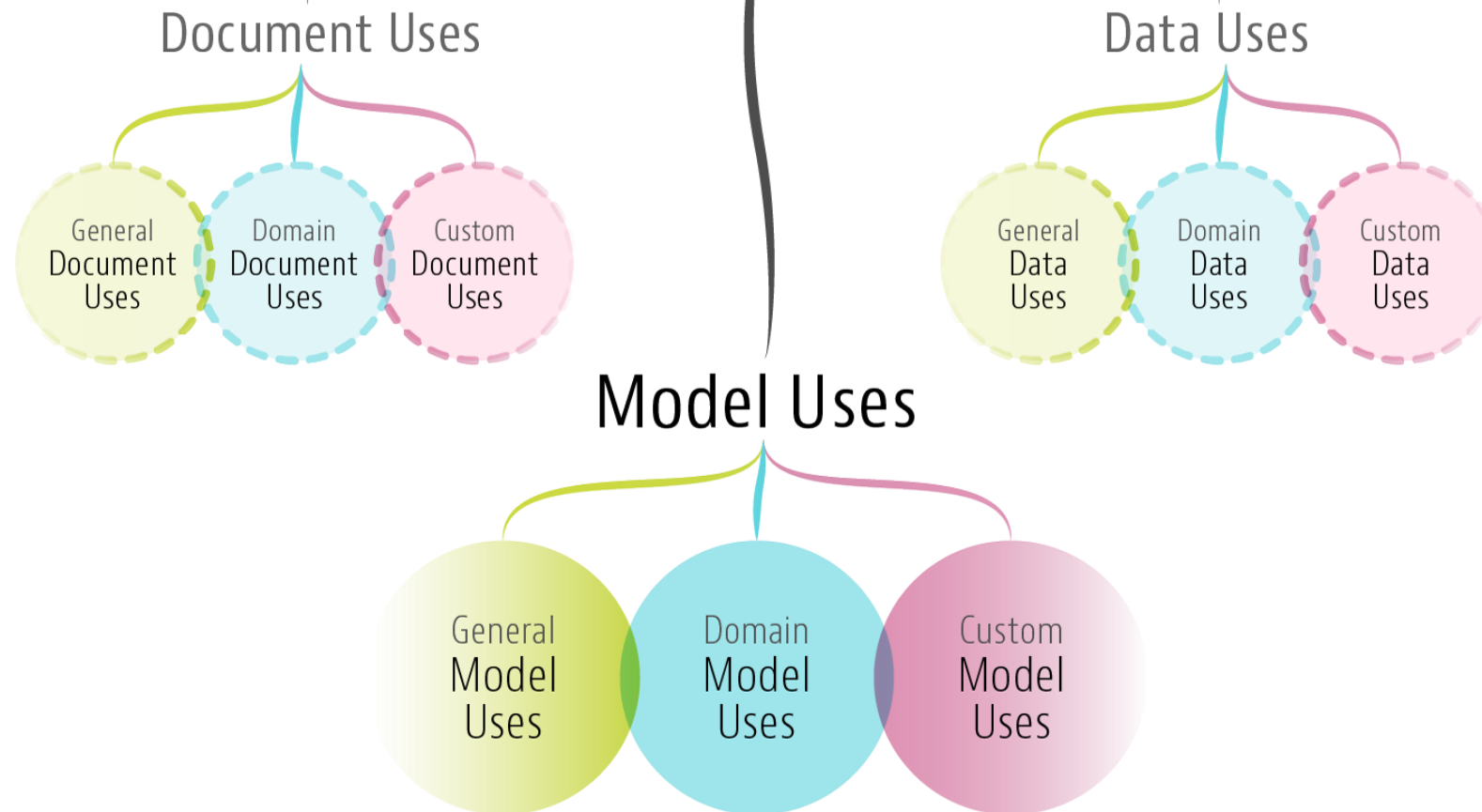
# Project F | Integrated Information Platform

improving information flow and management



# Information Uses

*Information Uses Taxonomy v0.1 (Succar, 2016)*



## Simulating and Quantifying

4010	<a href="#">Accessibility Analysis</a>
4020	<a href="#">Acoustic Analysis</a>
4030	<a href="#">Augmented Reality Simulation</a>
4040	<a href="#">Clash Detection</a>
4050	<a href="#">Code Checking &amp; Validation</a>
4060	<a href="#">Constructability Analysis</a>
4065	<a href="#">Construction Operation Analysis</a>
4070	<a href="#">Cost Estimation</a>
4080	<a href="#">Egress and Ingress</a>
4090	<a href="#">Energy Use</a>
4100	<a href="#">Finite Element Analysis</a>
4110	<a href="#">Fire and Smoke Simulation</a>
4120	<a href="#">Lighting Analysis</a>
4130	<a href="#">Quantity Take-off</a>
4140	<a href="#">Reflectivity Analysis</a>
4150	<a href="#">Risk and Hazard Assessment</a>
4160	<a href="#">Safety Analysis</a>
4170	<a href="#">Security Analysis</a>
4180	<a href="#">Site Analysis</a>
4190	<a href="#">Solar Analysis</a>
4200	<a href="#">Spatial Analysis</a>
4210	<a href="#">Structural Analysis</a>
4220	<a href="#">Sustainability Analysis</a>
4230	<a href="#">Thermal Analysis</a>
4240	<a href="#">Virtual Reality Simulation</a>
4250	<a href="#">Life Cycle Assessment</a>
4260	<a href="#">Wind Studies</a>

### CATEGORY II: Model Uses > Domain Model Uses

Domain Model Uses are industry-specific. The ones identified below are *Construction Domain Model Uses* (or BIM Uses for short). The naming format for each Domain Model Use is either a Noun + Adjective (or just an Adjective). There are currently 73 Domain MUs, organized in seven MU Series.

CODE	MODE USE SERIES	MODEL USE (SYNONYMS NOT SHOWN)
2010	<a href="#">Capturing and Representing</a>	<a href="#">2D Documentation</a>
2020		<a href="#">3D Detailing</a>
2030		<a href="#">As-constructed Representation</a>
2040		<a href="#">Generative Design</a>
2050		<a href="#">Laser Scanning</a>
2060		<a href="#">Photogrammetry</a>
2070		<a href="#">Record Keeping</a>
2080		<a href="#">Surveying</a>
2090		<a href="#">Visual Communication</a>
3010	<a href="#">Planning and Designing</a>	<a href="#">Conceptualization</a>
3020		<a href="#">Construction Planning</a>
3030		<a href="#">Demolition Planning</a>
3040		<a href="#">Design Authoring</a>
3050		<a href="#">Disaster Planning</a>
3060		<a href="#">Lean Process Analysis</a>
3070		<a href="#">Lift Planning</a>
3080		<a href="#">Operations Planning</a>
3090		<a href="#">Selection and Specification</a>
3100		<a href="#">Space Programming</a>
3110	<a href="#">Simulating and Quantifying</a>	<a href="#">Urban Planning</a>
3120		<a href="#">Value Analysis</a>
4010		<a href="#">Accessibility Analysis</a>
4020		<a href="#">Acoustic Analysis</a>
4030		<a href="#">Augmented Reality Simulation</a>
4040		<a href="#">Clash Detection</a>
4050		<a href="#">Code Checking &amp; Validation</a>
4060		<a href="#">Constructability Analysis</a>
4065		<a href="#">Construction Operation Analysis</a>
4070		<a href="#">Cost Estimation</a>
4080		<a href="#">Egress and Ingress</a>
4090		<a href="#">Energy Utilisation (replaces Energy Use)</a>
4100		<a href="#">Finite Element Analysis</a>
4110		<a href="#">Fire and Smoke Simulation</a>
4120		<a href="#">Lighting Analysis</a>
4130		<a href="#">Quantity Take-off</a>
4140		<a href="#">Reflectivity Analysis</a>
4150		<a href="#">Risk and Hazard Assessment</a>
4160		<a href="#">Safety Analysis</a>

## Model Uses Table

Available Online: <http://bimexcellence.org/211in/>

PART 2

# BIM diffusion across countries

## investigating 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*

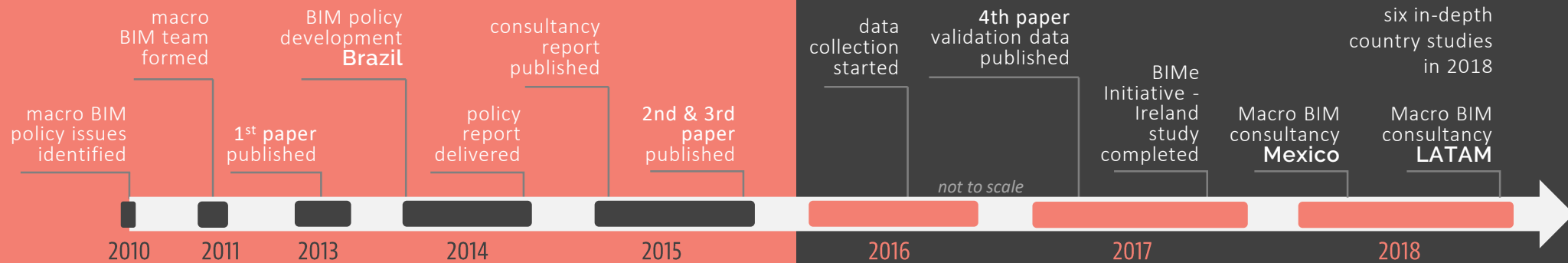
## Dr. Bilal Succar

Industry Research Fellow, University  
of Technology Sydney, Australia  
[bsuccar@changeagents.com.au](mailto:bsuccar@changeagents.com.au)



## Dr. Mohamad Kassem

Associate Professor at Northumbria  
University, United Kingdom  
[mohamad.kassem@northumbria.ac.uk](mailto:mohamad.kassem@northumbria.ac.uk)





BIM Leadership Forum, 2015 | Brazil



Future BIM Implementation , 2015 | Qatar



EU BIM Summit, 2015 | Spain



Geospatial World Forum, 2015 | Portugal

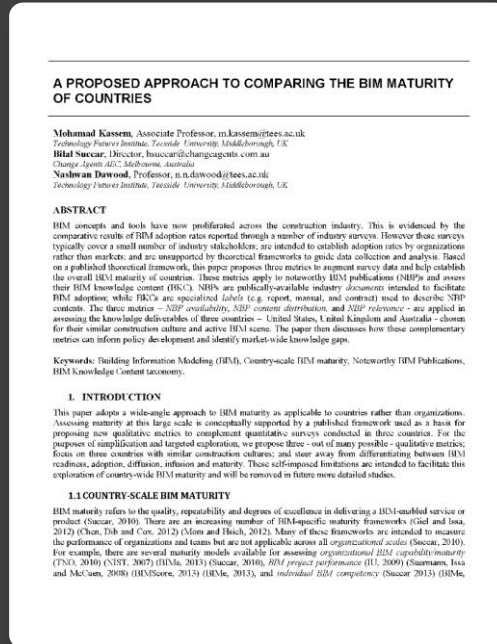
## 2015 – 2018

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



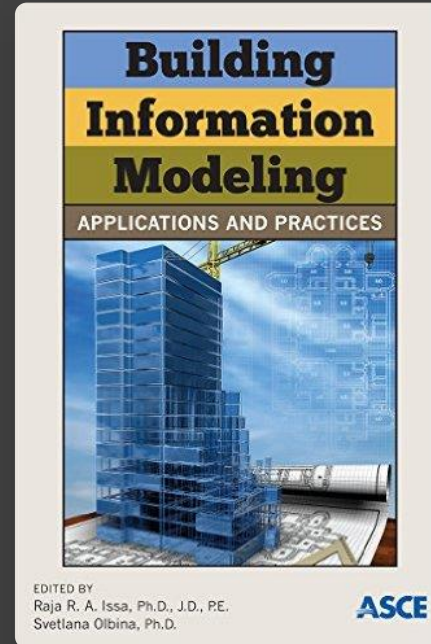
GEOBIM, 2014 | Netherlands

## A Proposed Approach To Comparing the BIM Maturity of Countries



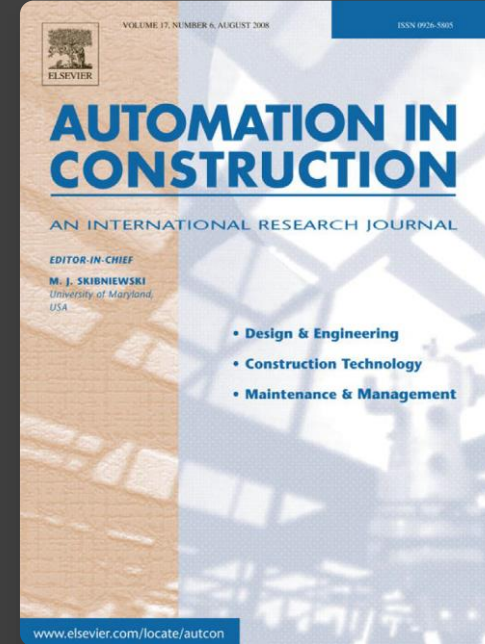
2013

## Analyzing Noteworthy Publications of Eight Countries Using a Knowledge Content Taxonomy



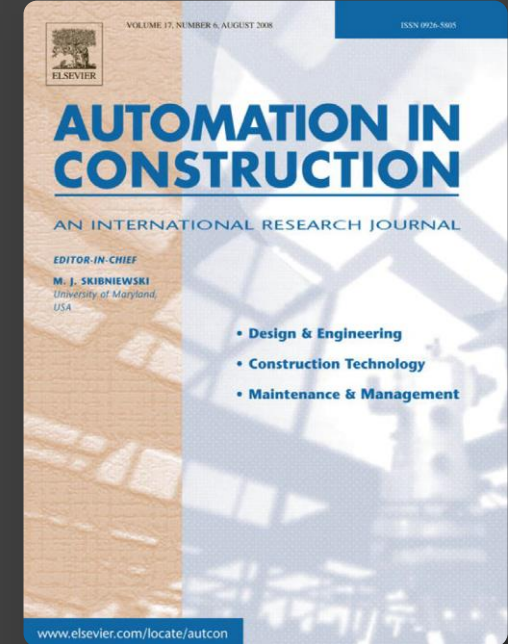
2015

## Macro BIM Adoption: Conceptual Structures



2015

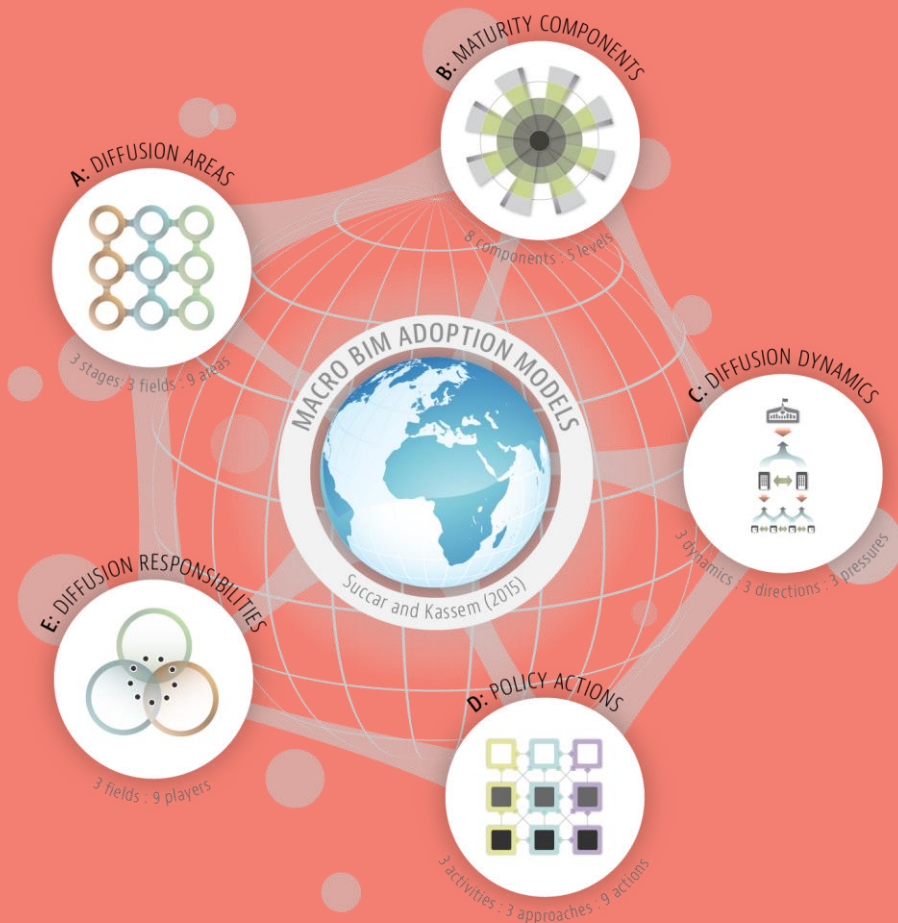
## Macro BIM adoption: Comparative Market Analysis



2017

# 2015-2016

benchmarking study

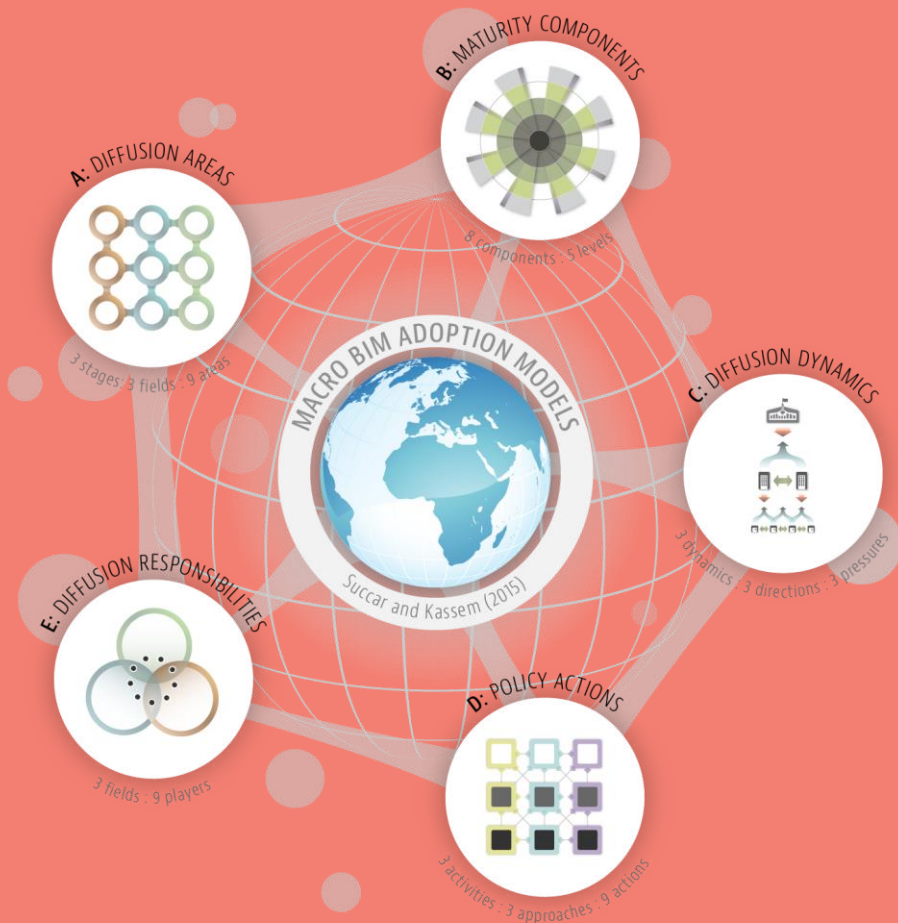


21 countries | 99 experts | Feb 2016  
macro adoption data collected from

Country	No.	Country	No.
Australia	4	Netherlands	4
Canada	4	Portugal	10
China	3	Qatar	6
Finland	5	Russia	2
Hong Kong	3	Spain	7
Malaysia	4	Switzerland	2
New Zealand	3	UAE	3
Brazil	4	UK	16
Ireland	3	US	5
Italy	5	South Korea	4
Mexico	3		

# 2017-2018

## In-depth Studies



11 countries | 100s of experts | 2017-2018  
*macro adoption data collected from*

Ireland 2017 - done

Egypt 2018 - completed

Russia 2018 - completed

Brazil 2018 - completed

Spain 2018 - completed

Hong Kong 2018 - ongoing

Latam 2018-2019

MODEL A  
Diffusion Areas



3 stages : 3 fields : 9 areas

MODEL B  
Maturity Components



8 components : 5 levels

MODEL C  
Diffusion Dynamics



3 directions : 3 pressures

MODEL D  
Policy Actions



3 activities : 3 approaches : 9 actions

MODEL E  
Diffusion Responsibilities



3 fields : 9 players

## Macro Adoption Models



*video  
available*

# common challenges

markets mature like humans do

# common challenges

markets mature like humans do

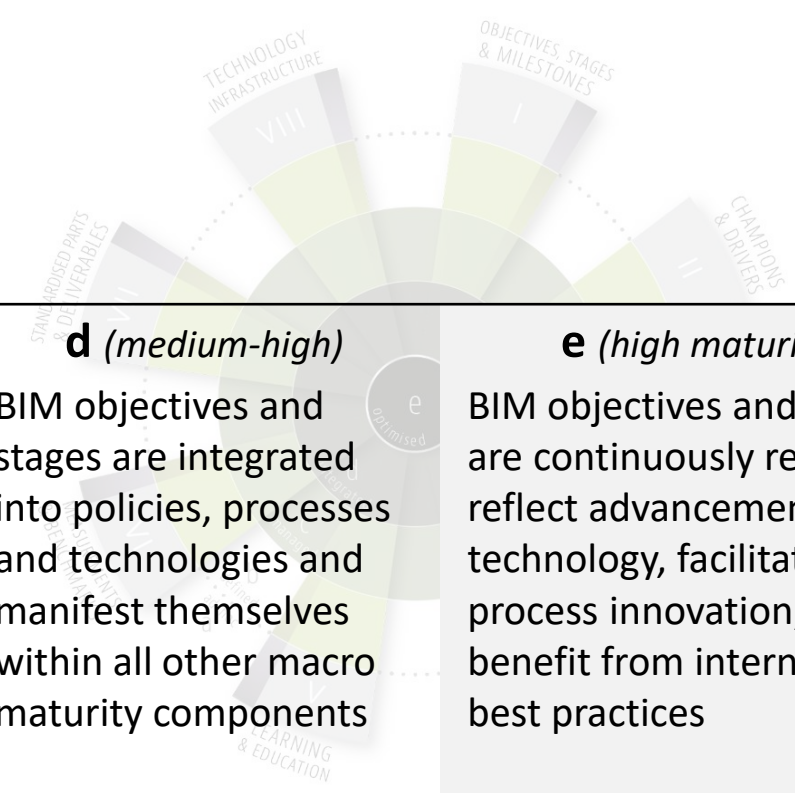
*slowly*



## Macro Maturity Components Model

## Component I

# Objectives, stages and milestones

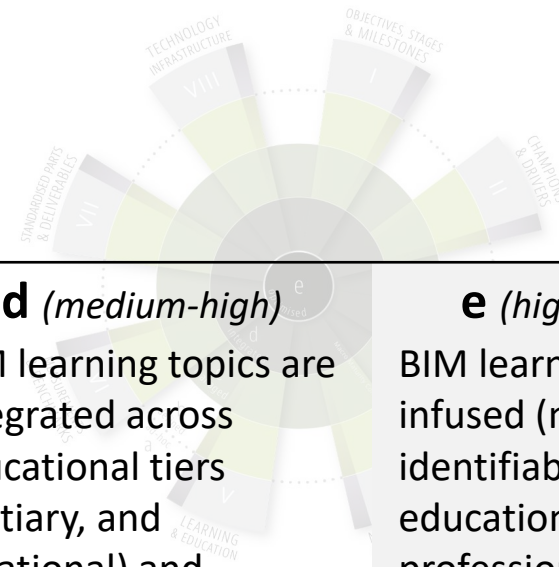


<b>a</b> ( <i>low maturity</i> )	<b>b</b> ( <i>medium-low</i> )	<b>c</b> ( <i>medium maturity</i> )	<b>d</b> ( <i>medium-high</i> )	<b>e</b> ( <i>high maturity</i> )
There are no market-scale BIM objectives or well-defined BIM implementation stages or milestones	There are well-defined macro BIM objectives, implementation milestones and capability stages	BIM objectives, stages and milestones are centrally managed and formally monitored	BIM objectives and stages are integrated into policies, processes and technologies and manifest themselves within all other macro maturity components	BIM objectives and stages are continuously refined to reflect advancements in technology, facilitate process innovation, and benefit from international best practices

**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; ...*

## Component V

### Learning and education



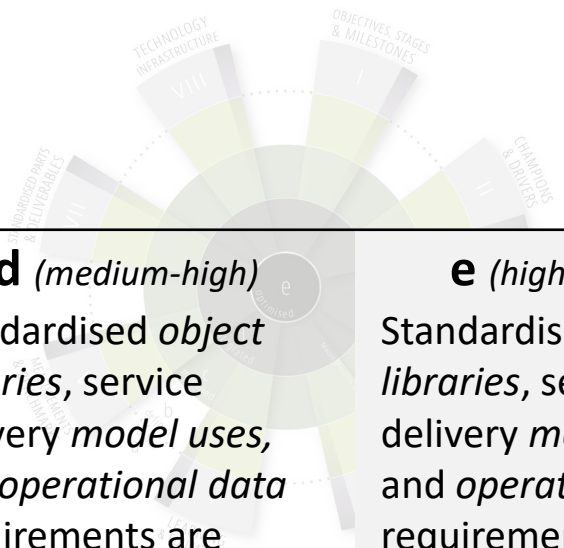
<b>a</b> ( <i>low maturity</i> )	<b>b</b> ( <i>medium-low</i> )	<b>c</b> ( <i>medium maturity</i> )	<b>d</b> ( <i>medium-high</i> )	<b>e</b> ( <i>high maturity</i> )
BIM learning topics are neither identified nor included within legacy education/training programs; learning providers lack the ability 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; ...*

## Component VII

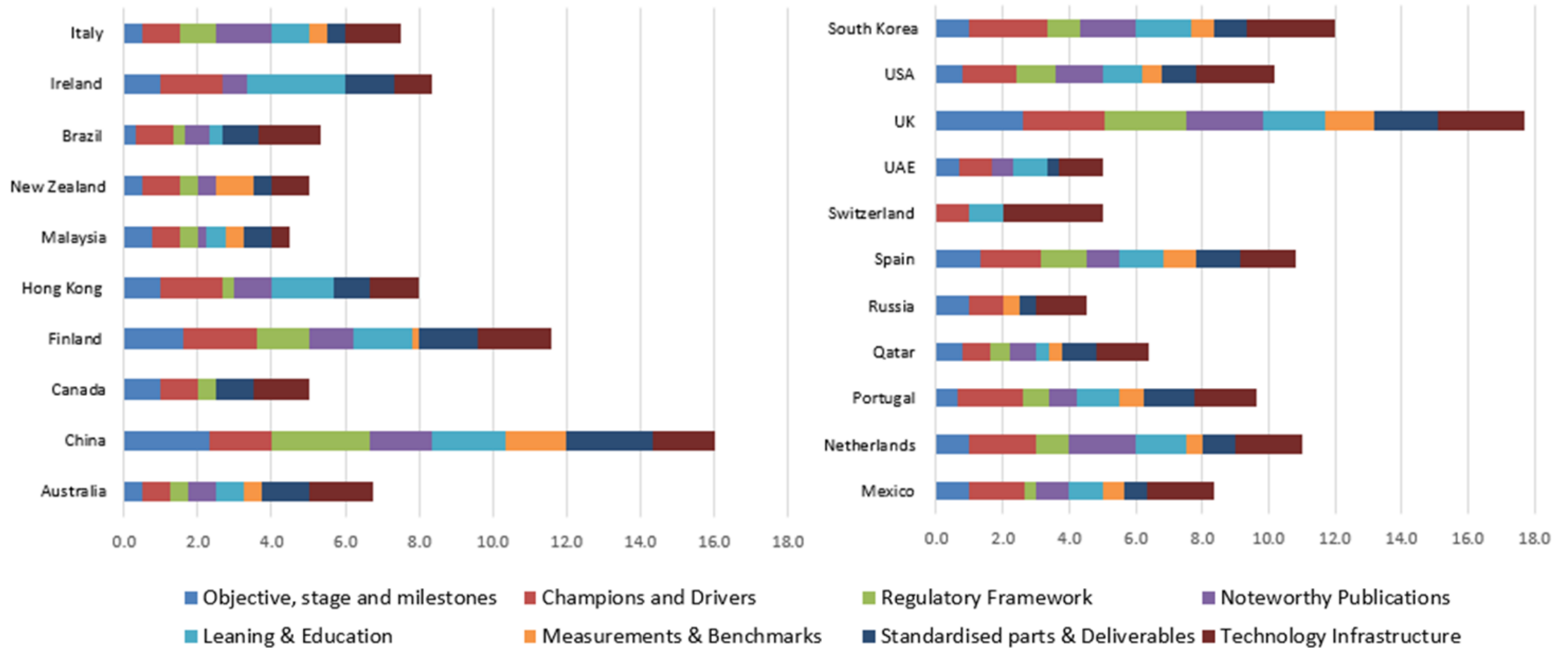
# Standardised parts and deliverables

[latest version or additional information](#)



<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> )
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)	<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	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	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	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

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

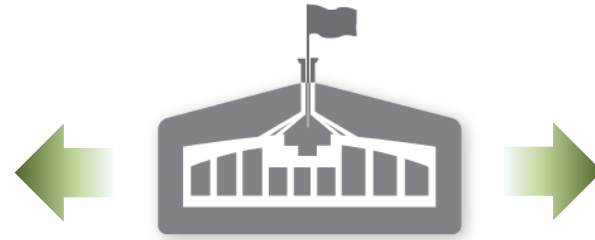


Comparative rating of macro maturity across the 2015 sample

# diffusion dynamics

different countries,  
different approaches

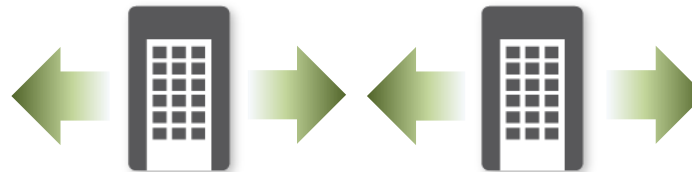
TOP-down



Government



MIDDLE-out



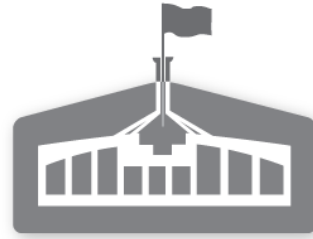
Large Organizations



BOTTOM-up



Small Organizations



Government



Downwards Pressures  
*coercive pressures*



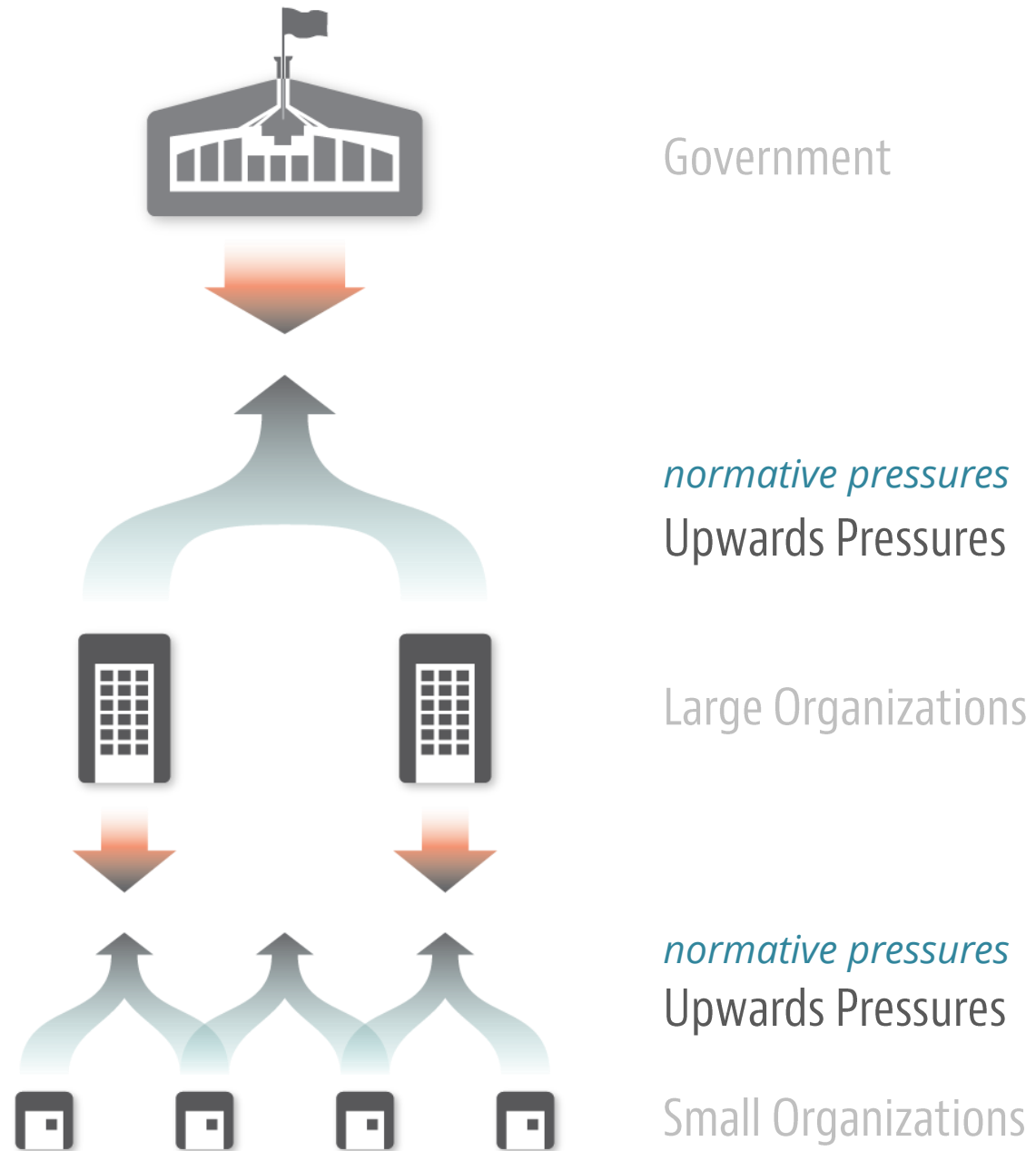
Large Organizations

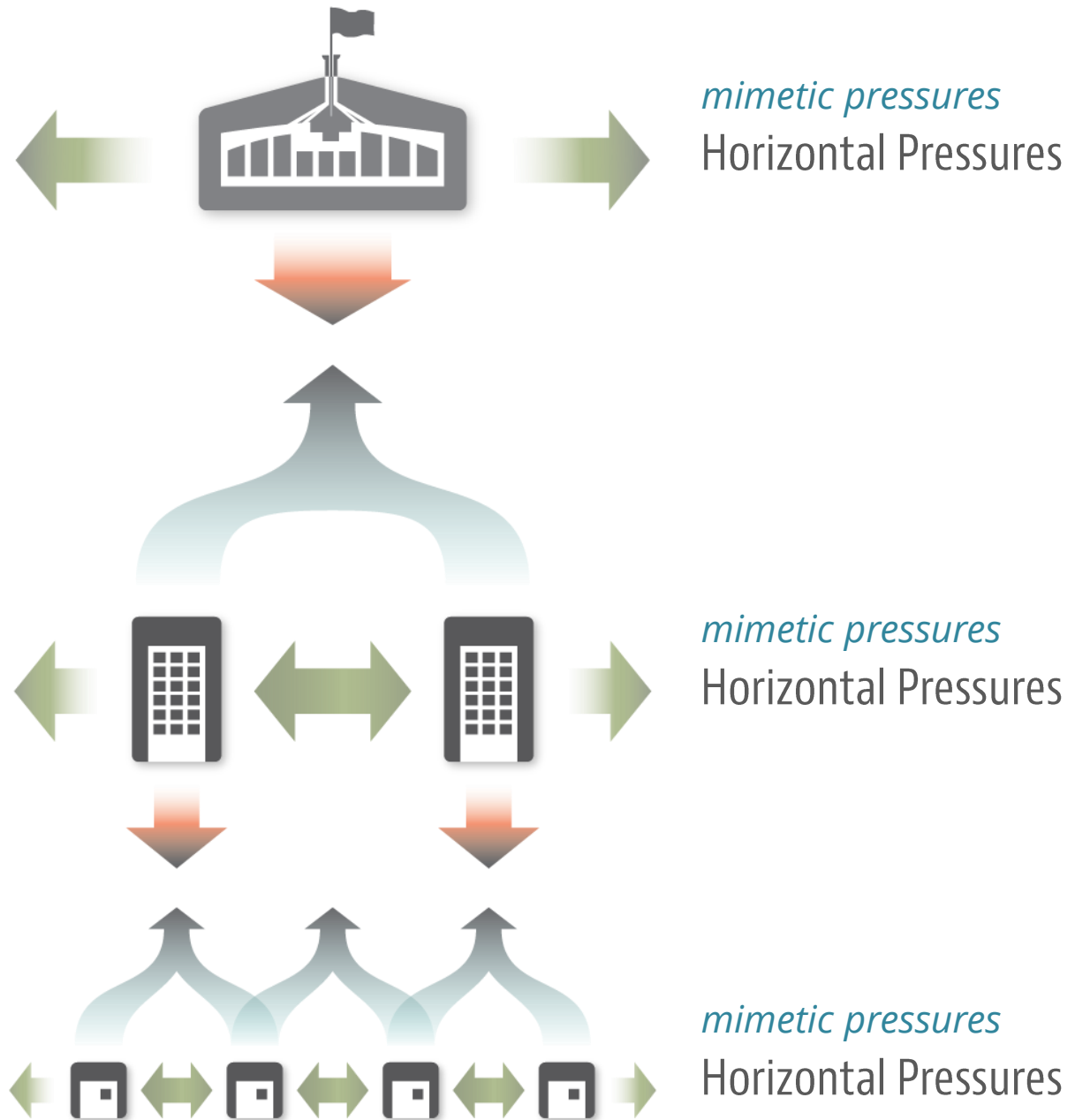


Downwards Pressures  
*coercive pressures*



Small Organizations





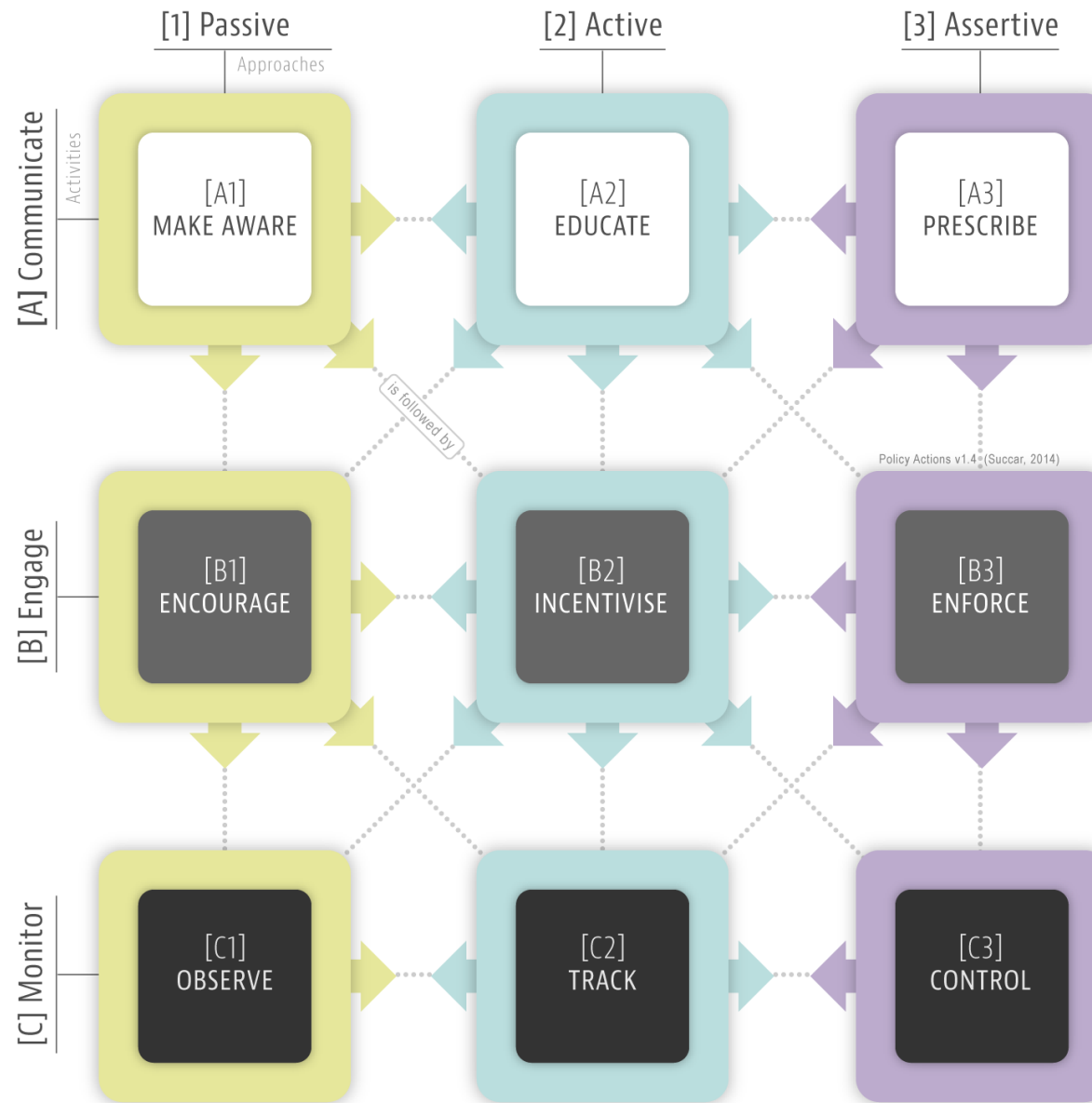
	Top Down	Middle- out	Bottom- up
Australia		•	
Brazil		•	
Canada		•	
China		•	
Finland		•	
Hong Kong	•		
Ireland		•	
Italy		•	
Malaysia		•	
Mexico		•	
Netherlands		•	

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

Diffusion dynamics across the 2015 sample

how policy makers act in  
different countries?

a rich picture!



## Policy Actions Model

Make Aware  
Incentivise  
Control



Educate  
Incentivise  
Control



Make Aware  
Incentivise  
Observe

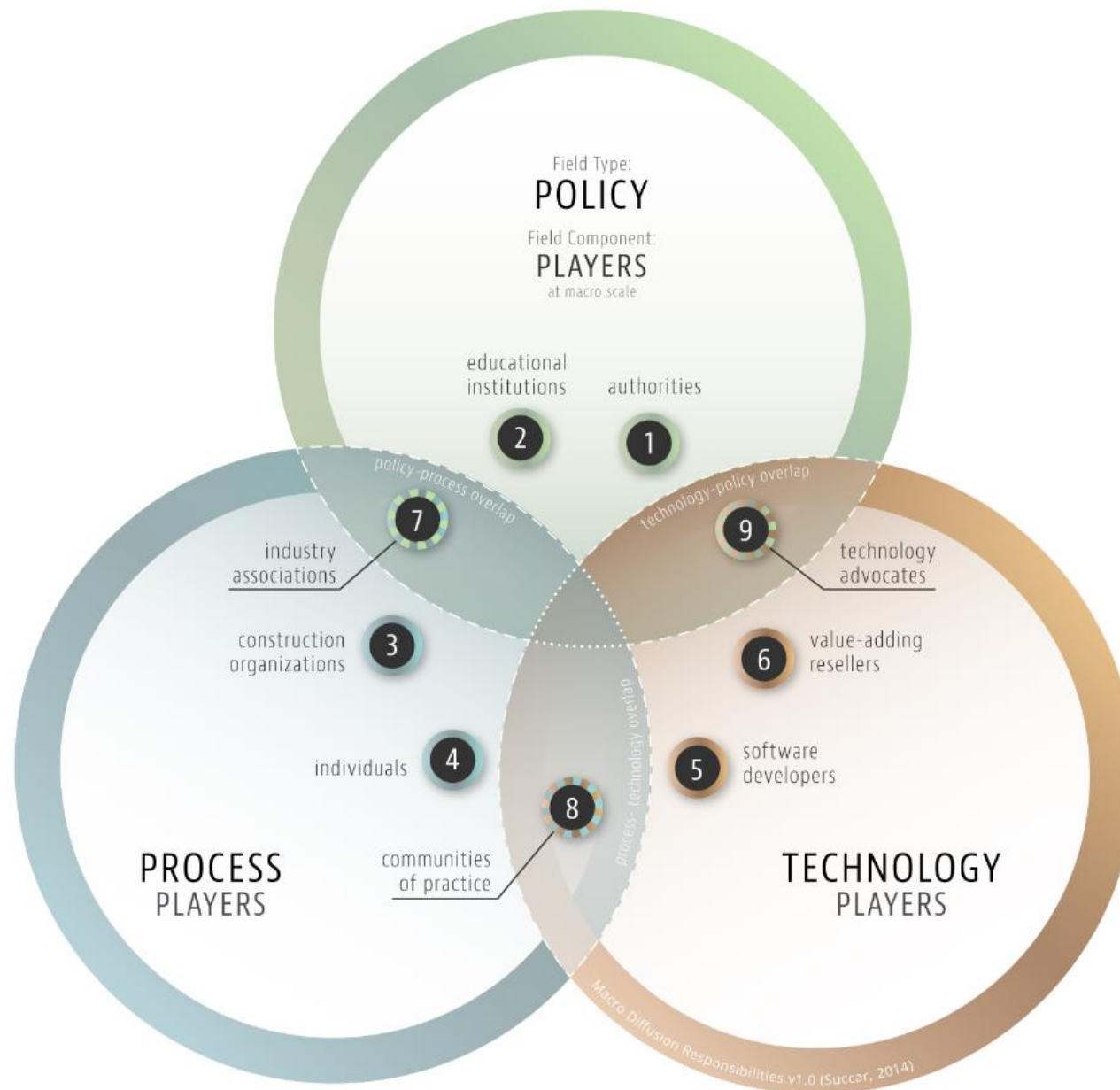


Educate  
Enforce  
Control

	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 Model (2015 data)

who is responsible  
for BIM diffusion?



## Diffusion Responsibilities Model

	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

### Index Legend

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

## Diffusion Responsibilities Model (2015 data)

what did we learn  
so far from all this?

key insights

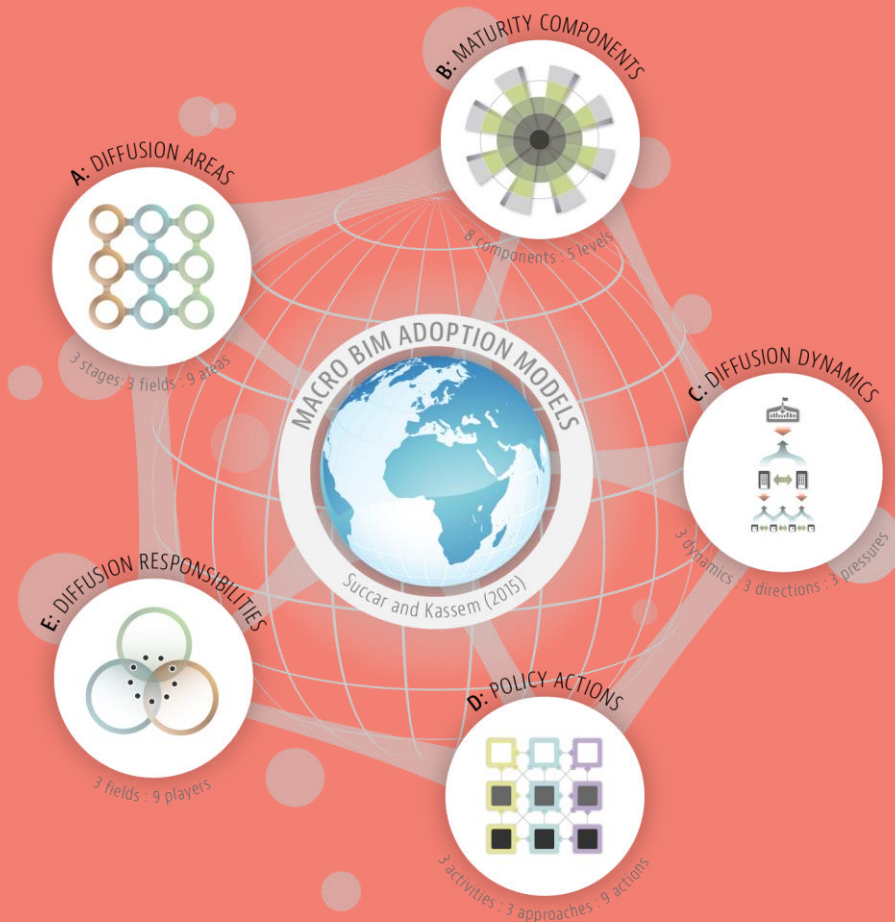
There is no *best way* to encourage BIM adoption across a country

Not every country has, or needs to have, a BIM mandate

It takes a long time for BIM adoption to proliferate across a market. It can be encouraged but not rushed.

Policy makers must be careful when copying BIM policies from other countries

Different countries have very different champions and drivers



## PART 3

# Imitate or innovate?

what can we do to encourage BIM  
adoption across our country?

if the question is, should we:  
**imitate or innovate?**

then the only valid answer is:

then the only valid answer is:  
**we need to do both!**

we need to imitate, adopt or adapt  
international standards but must also  
**innovate new processes**

we can improve BIM adoption  
across our country **by learning  
from the successes and  
mistakes of others**

but we need to chart  
our own unique way

we can start from where  
others have ended  
**we can innovate**

one way to start is to use  
**adoption templates**









sample









# Macro BIM Adoption

templates

*sample*

# BIM Adoption Roadmap

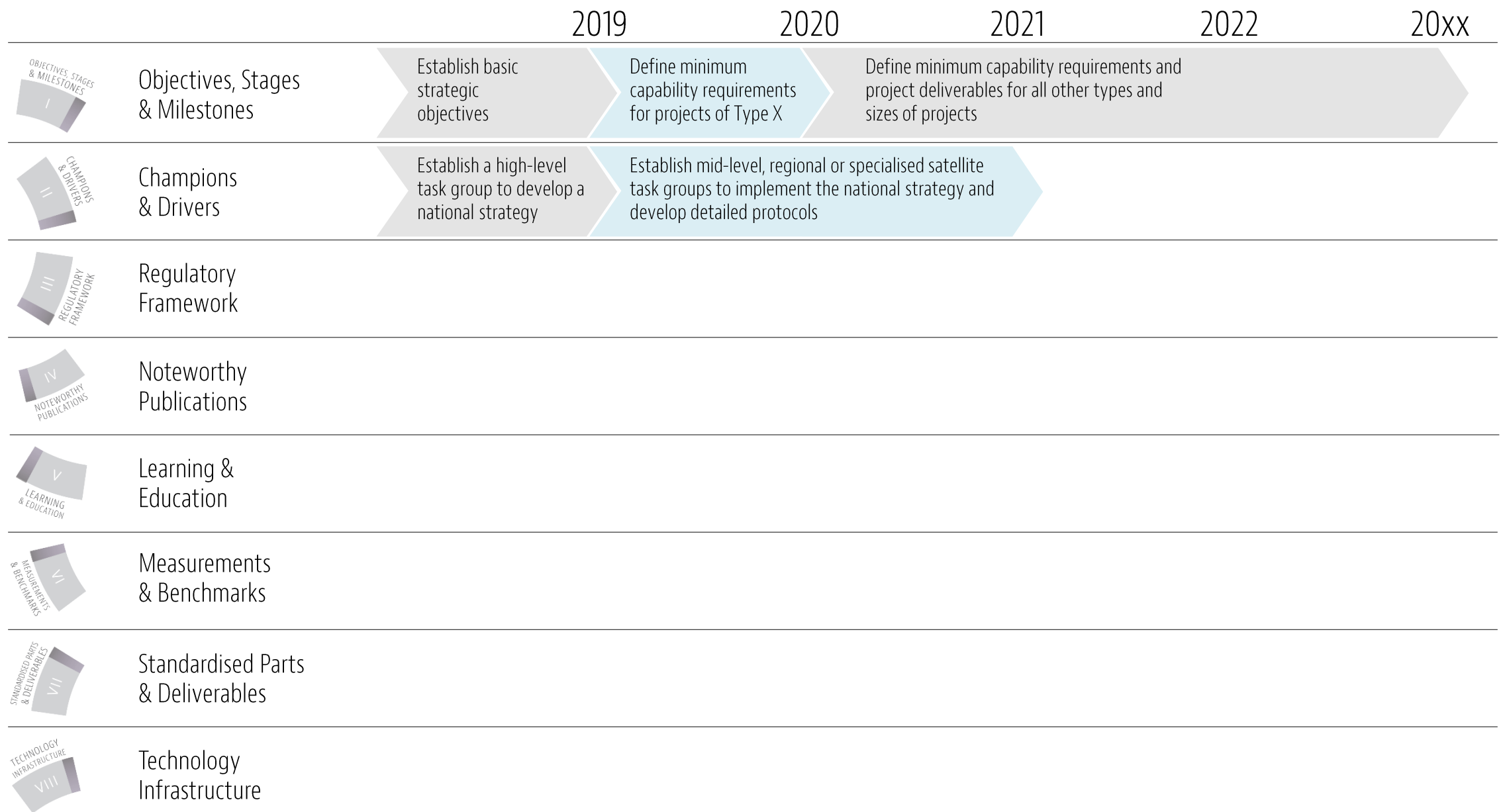
	2019	2020	2021	2022	20xx
	Objectives, Stages & Milestones				
	Champions & Drivers				
	Regulatory Framework				
	Noteworthy Publications				
	Learning & Education				
	Measurements & Benchmarks				
	Standardised Parts & Deliverables				
	Technology Infrastructure				

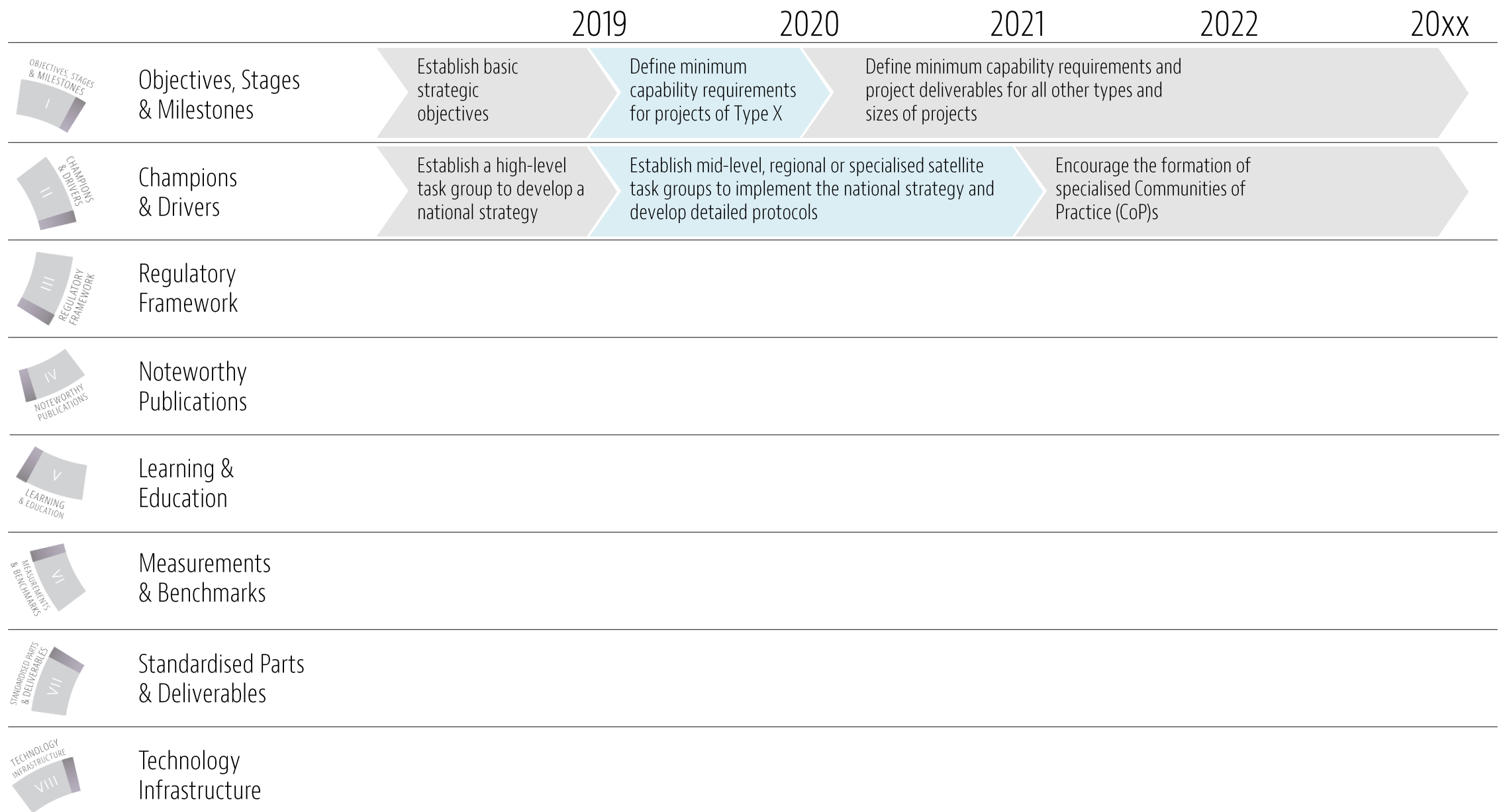
		2019	2020	2021	2022	20xx
	Objectives, Stages & Milestones	Establish basic strategic objectives				
	Champions & Drivers					
	Regulatory Framework					
	Noteworthy Publications					
	Learning & Education					
	Measurements & Benchmarks					
	Standardised Parts & Deliverables					
	Technology Infrastructure					

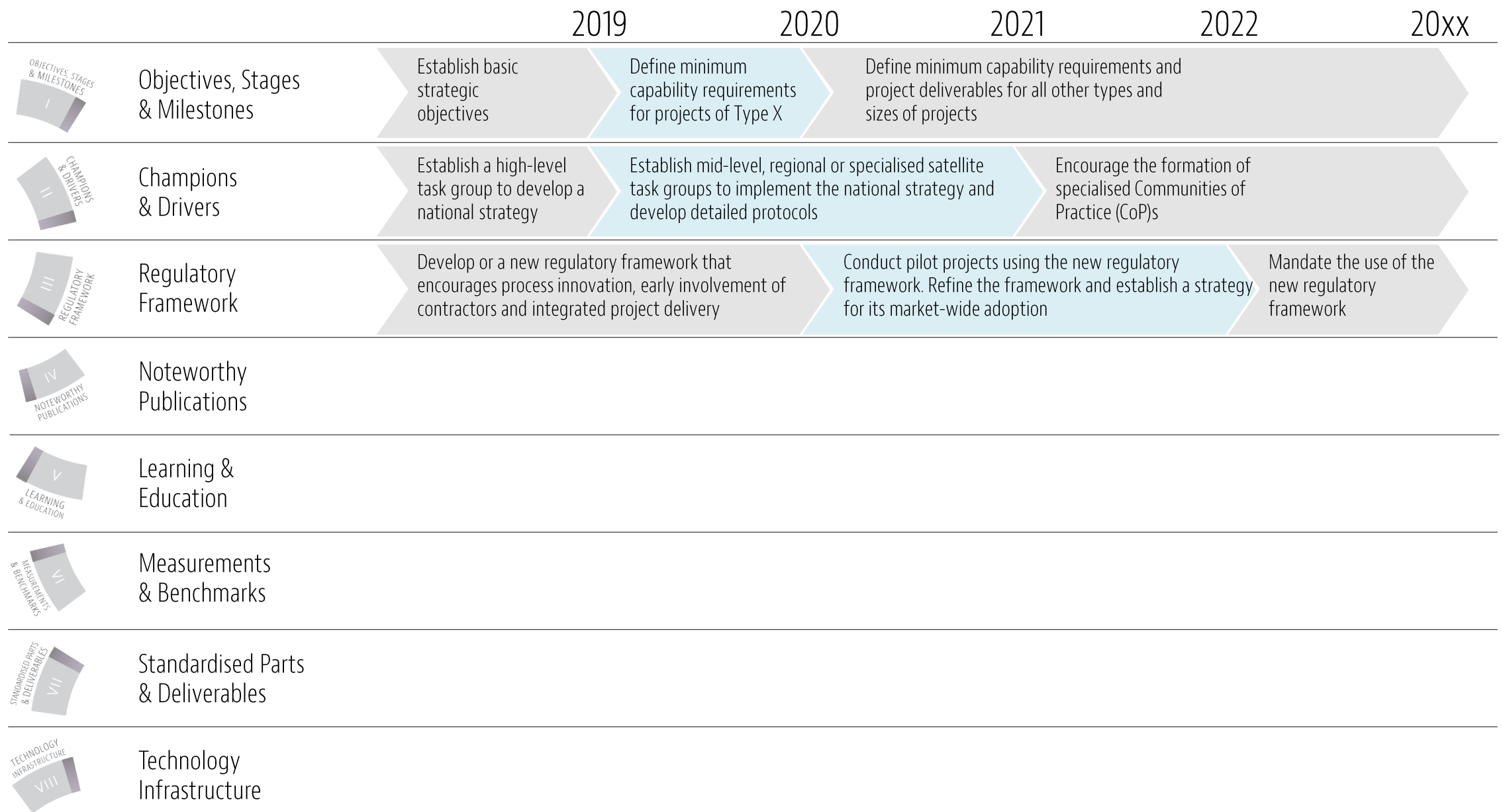


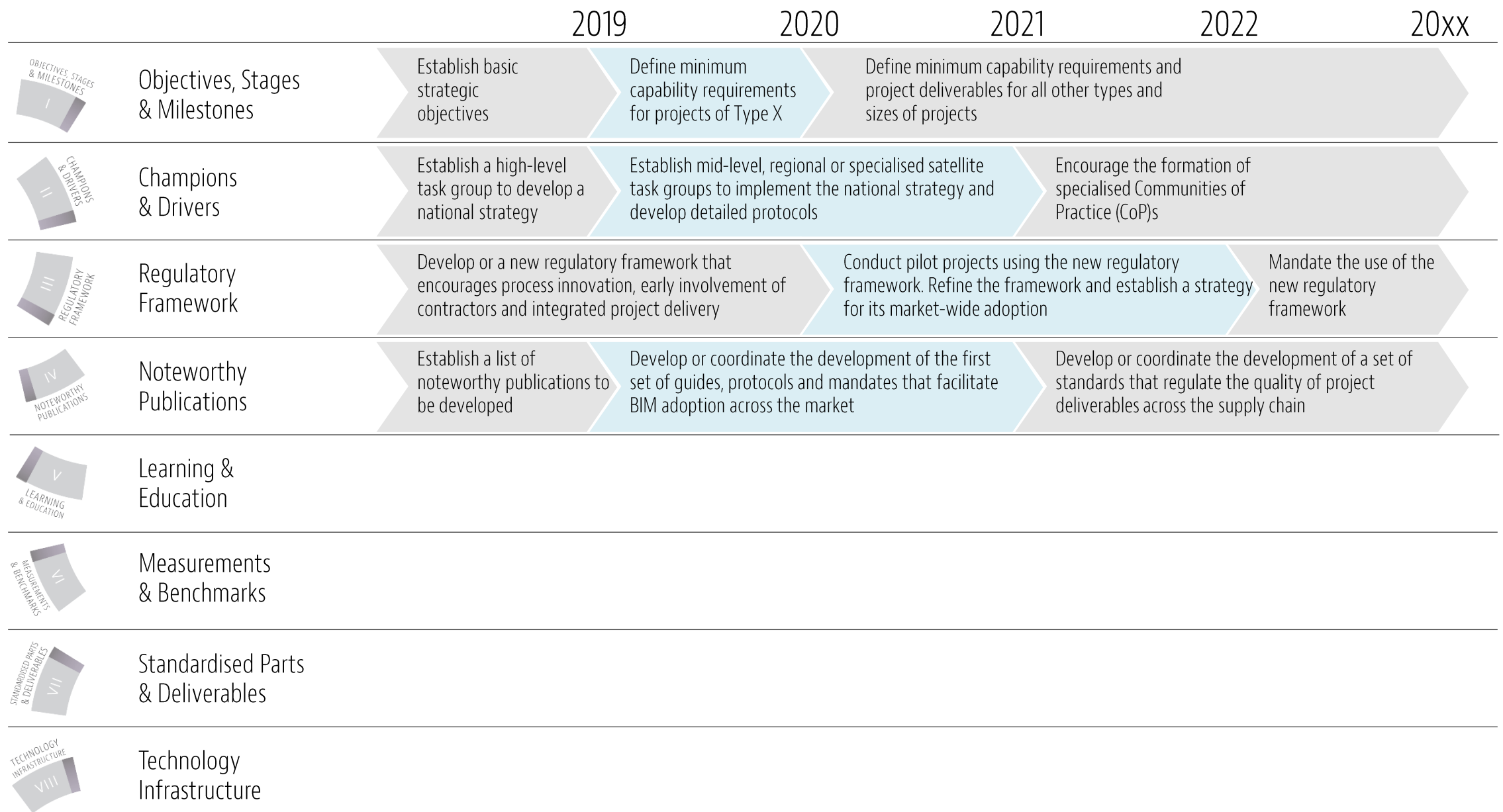


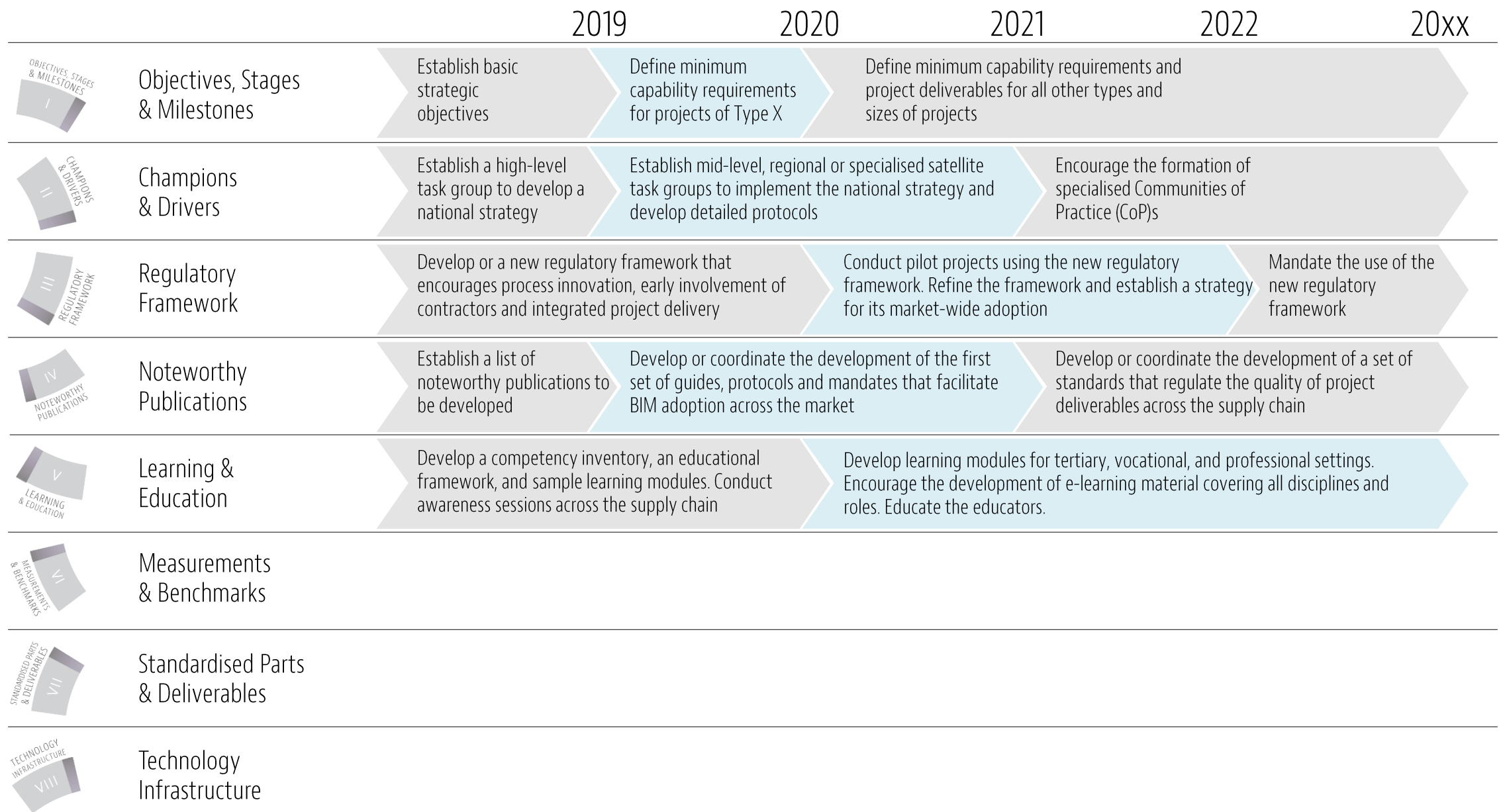


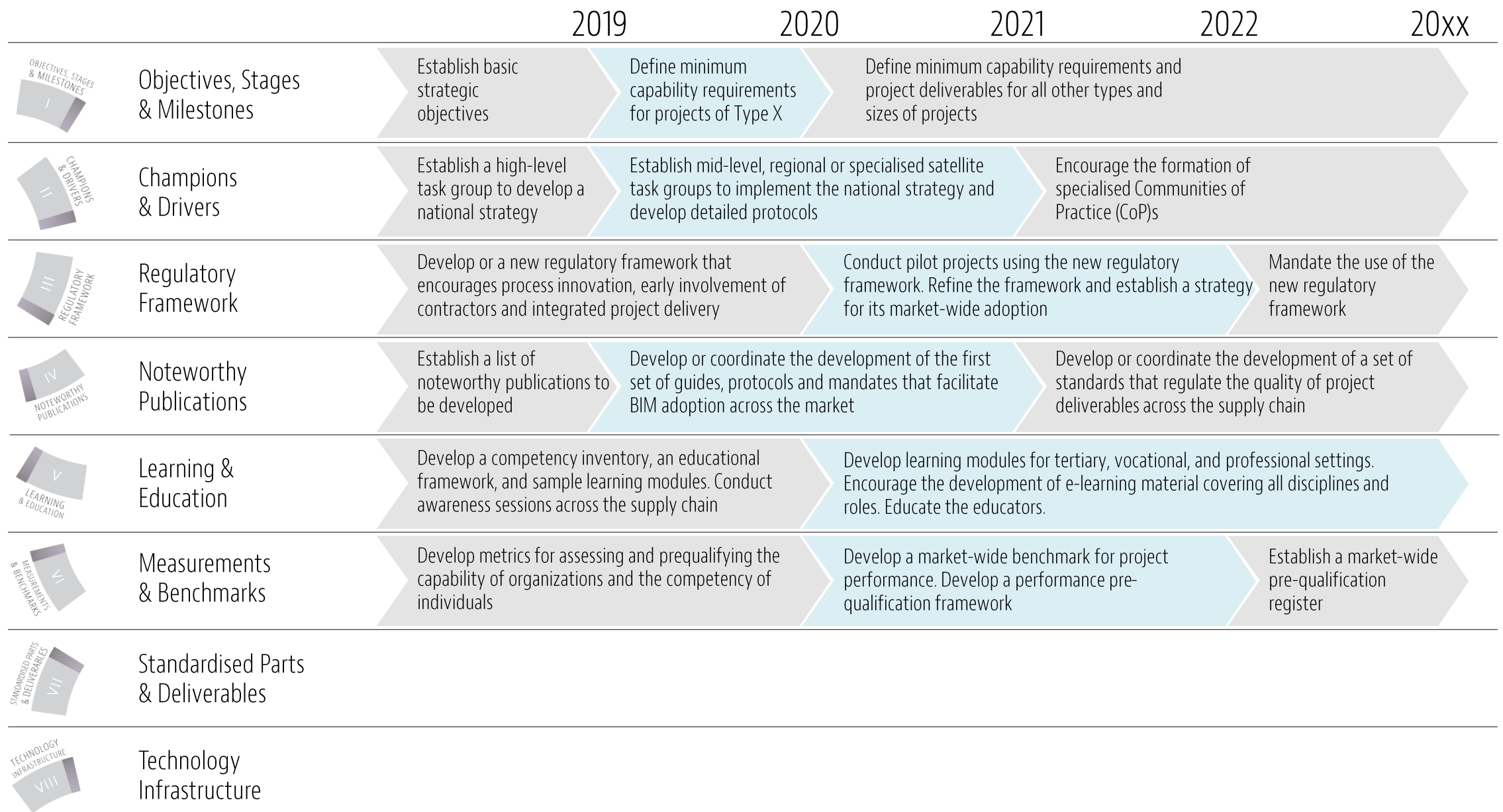


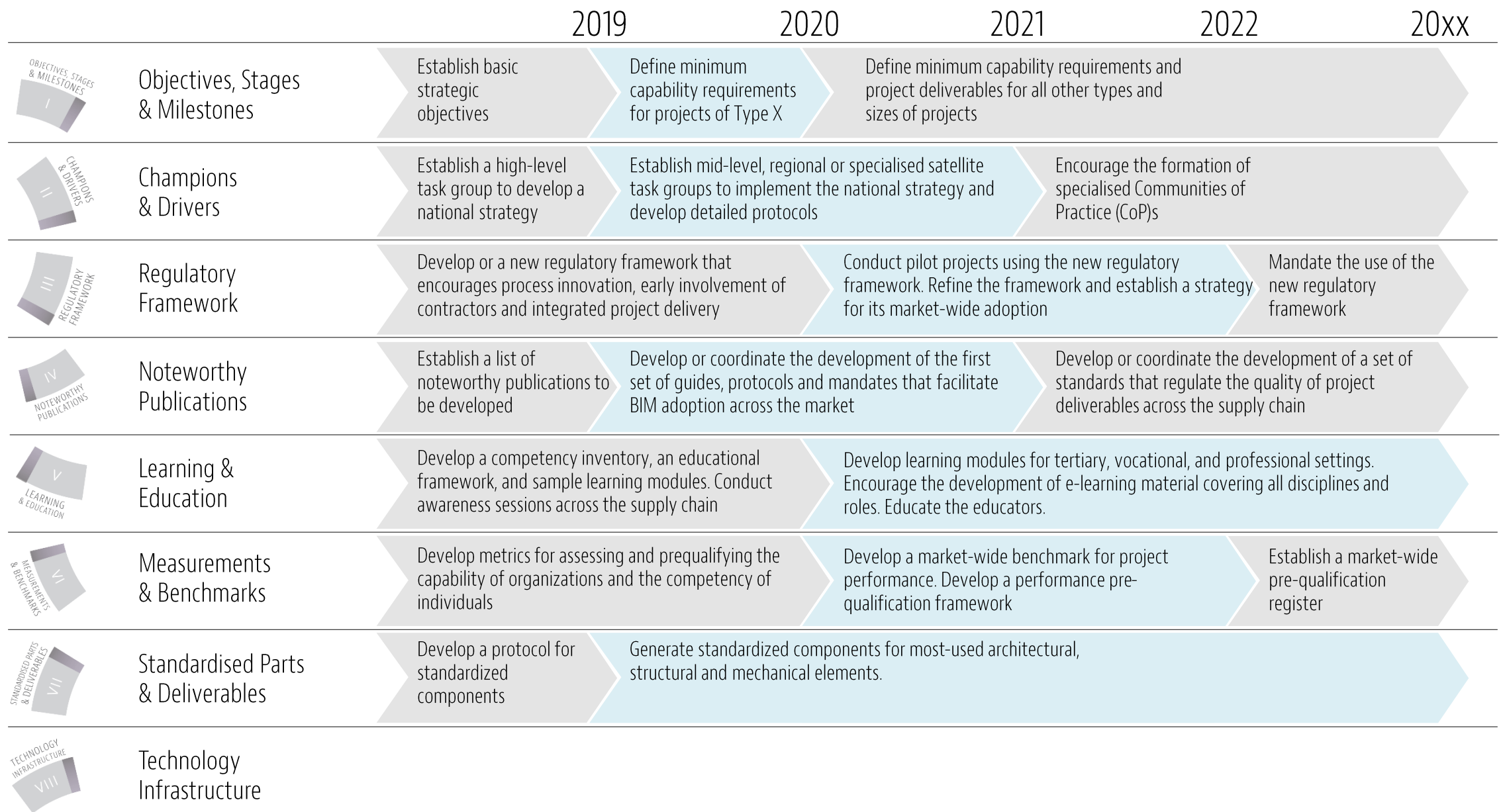


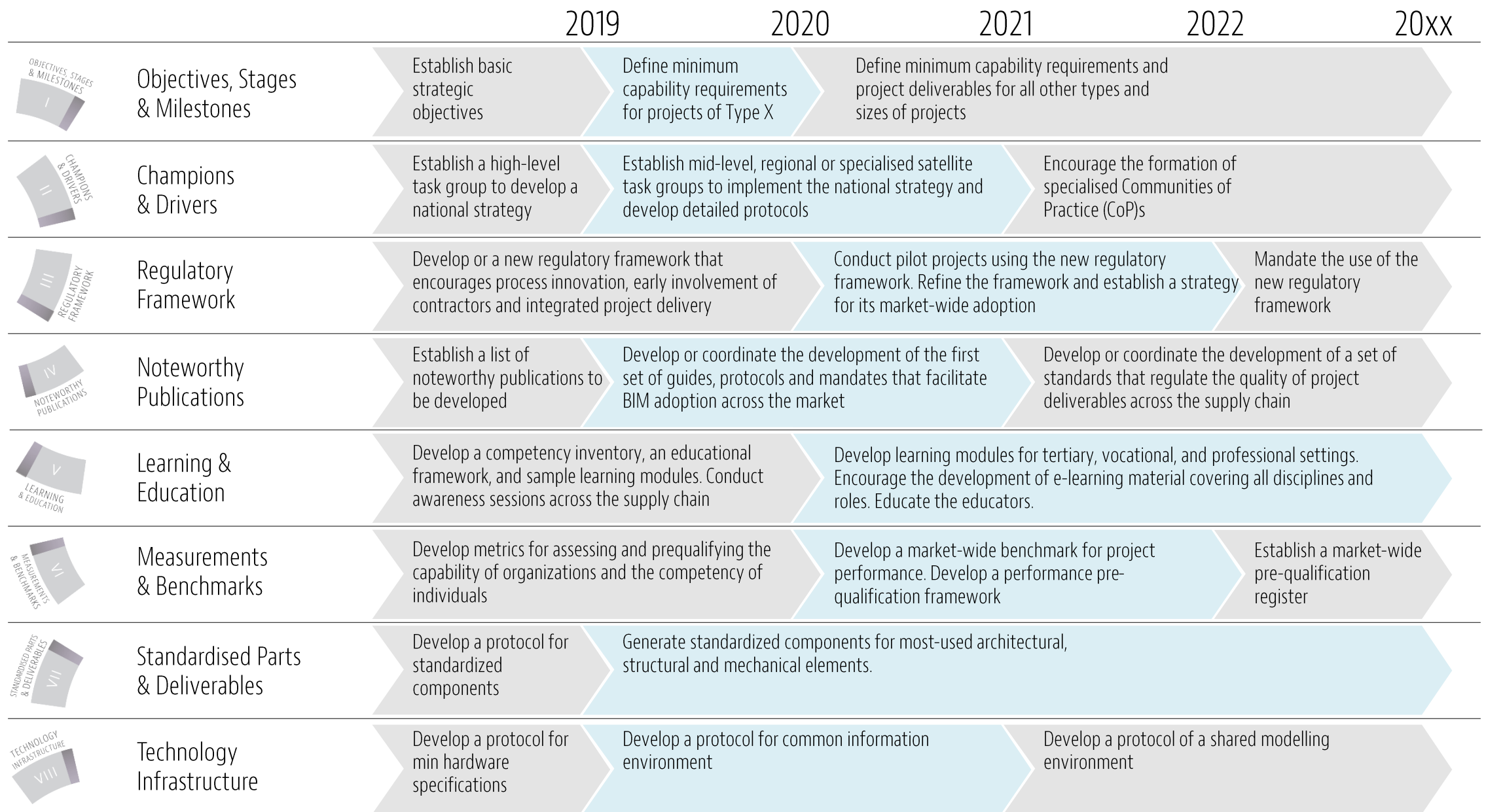












*sample*

# BIM Adoption Responsibilities 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
Policy Makers	A	A	A	B	B	A	B	C
Educational Institutions	B	B	A	A	A	B	C	C
Construction Organizations	B	A	B	B	B	A	A	B
Individual Practitioners	C	C	C	C	A	C	C	C
Technology Developers	C	C	C	C	B	C	B	A
Technology Service Providers	C	C	C	B	A	C	B	A
Industry Associations	B	B	A	A	B	A	C	C
Communities of Practice	C	B	C	B	B	C	A	C
Technology Advocates	A	A	B	A	B	B	A	B

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

*what these templates don't show*  
is the role that each one of us can play  
**to encourage BIM adoption**

do you know  
what **your role** is?



# Thank You



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