



Waar staan we met prefab bouwen? Link met andere trends

Dinsdag 12 oktober 2021


12-13-14 OKT. 2021
BRABANTHALLEN

USP Marketing Consultancy



Introductie USP



Digitalisering binnen
de bouw



Prefab binnen de
bouw



Digitalisering EN
Prefab in de bouw



Toekomst/
Conclusie

Wie is USP Marketing Consultancy?

- Marktspecialist Bouw, Installatie, DHZ en Woon & Vastgoed vanaf oprichting
- Exclusief en multi-client onderzoek
- Bijna 30 jaar actief





Wie is USP Marketing Consultancy?

Research in
34
countries annually



78
focus groups



1,162
in-depth
interviews



58,653
B2B CATI
interviews



56,750
B2C online
interviews



Wie is Henri Busker?

- **Werkzaam bij USP sinds 2004**
- **Consultant binnen het team Construction (Ruwbouw + Afbouw)**
- **Veel onderzoeken gedaan naar BIM/ Digitalisering en Prefab bouwen**



De USP Monitoren (multi-client onderzoeken)

	European  Architectural Barometer	European  Contractor Monitor	European  Mechanical Installation Monitor	European  Electrical Installation Monitor	European  Painter Insight Monitor	European  Home Improvement Monitor
Target group	Architects	Building contractors	HVAC installers	Electrical installers	Professional painters	Consumers
Methodology						
Annual sample size	5,800 interviews	2,050 interviews	3,200 interviews	3,800 interviews	2,300 interviews	26,400 interviews
Country scope	• Germany • United Kingdom • France • Netherlands • Belgium • Poland • Spain • Italy	• Germany • United Kingdom • France • Netherlands • Belgium • Poland • Spain • Italy	• Germany • United Kingdom • France • Netherlands • Belgium • Poland	• Germany • United Kingdom • France • Netherlands • Belgium • Poland • Spain	• Germany • United Kingdom • France • Netherlands • Belgium • Poland • Spain • Italy • Denmark • Sweden • Austria	• Germany • United Kingdom • France • Netherlands • Belgium • Poland • Spain • Italy • Denmark • Sweden • Austria
Way of reporting	Quarterly	Bi-annually	Quarterly	Quarterly	Annually	Quarterly
2020 Theme topics	• Q1: Media orientation & consumption • Q2: Shifts in building methods • Q3: City of the future • Q4: Circularity & sustainability	• H1: Circularity & sustainability • H2: Decision-making	• Q1: BIM & calculation tools • Q2: Prefab • Q3: DMU • Q4: Media orientation & consumption	• Q1: Electrification • Q2: Services in installation sector • Q3: Certification & circularity • Q4: Pricing	• Trend tracking • Sustainability • Labour shortage • Online buying • Future expectations • Innovation needs	• Q1: Orientation & smart homes • Q2: Purchase channels • Q3: Branding (A vs. Private) • Q4: DIFM vs. DIY



Introductie USP



Digitalisering binnen
de bouw



Prefab binnen de
bouw



Digitalisering EN
Prefab in de bouw



Toekomst/
Conclusie

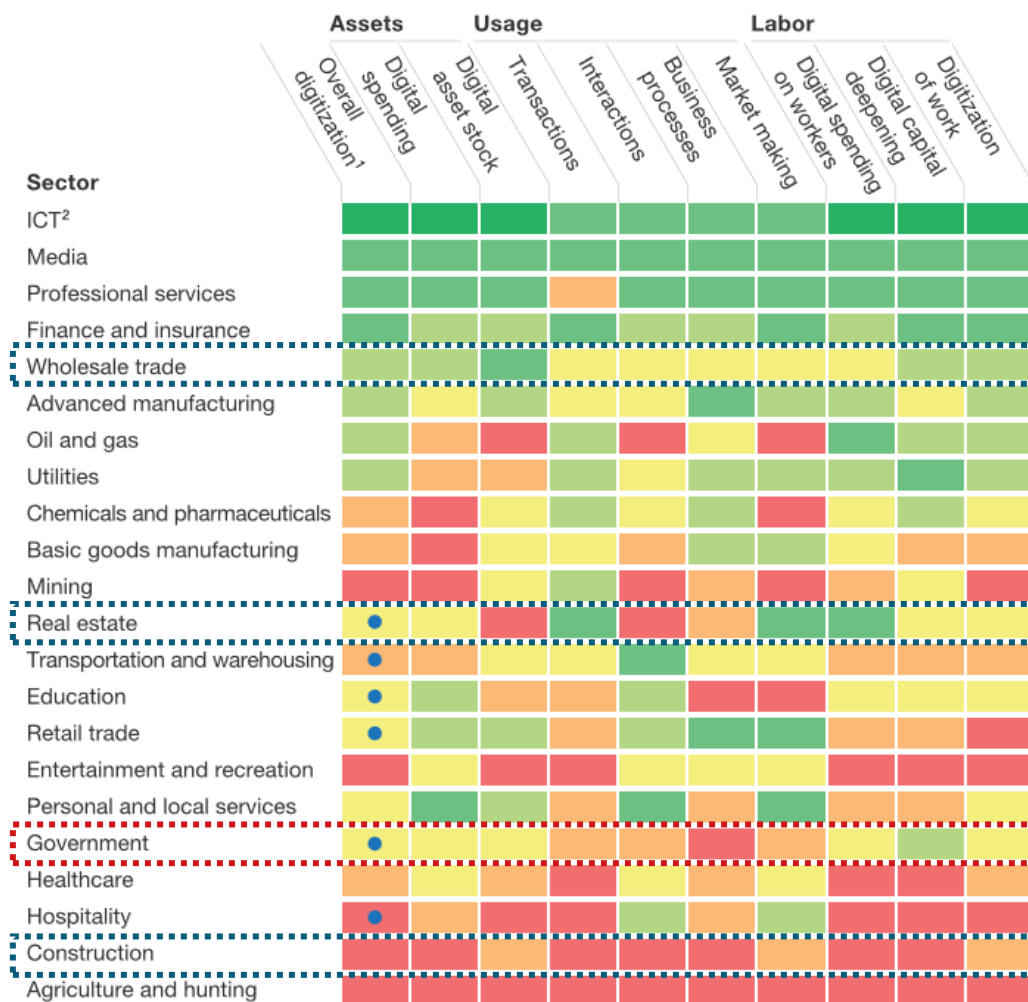
Wat verstaat u onder digitalisering?



Waar staan we met digitalisering in algemene zin?

McKinsey Global Institute industry digitization index; 2015 or latest available data

Relatively low digitization Relatively high digitization
● Digital leaders within relatively undigitized sectors



De bouw is wereldwijd één van de sectoren die het minst digitaal is

- Aangrenzende sectoren als de (bouw- en installatie) groothandel en vastgoed scoren beter.
- Belangrijke opdrachtgevers voor de sector, zoals de overheid, scoren ook laag.

Exhibit 13

The same sectors tend to be at the frontier—and lagging behind—in the United States and Europe

MGI Industry Digitisation Index,
United States vs. European nations¹
Select sectors²

Relatively low digitisation  Relatively high digitisation

Sector	United States	United Kingdom	Germany	France	Netherlands	Italy	Sweden
ICT	Dark Green	Dark Green	Light Green	Dark Green	Dark Green	Light Green	Light Green
Professional services	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Media	Light Green	Dark Green	Light Green	Light Green	Light Green	Light Green	Light Green
Finance and insurance	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Wholesale trade	Light Green	Light Green	Light Green	Light Green	Light Green	Yellow	Light Green
Advanced manufacturing	Light Green	Light Green	Yellow	Light Green	Light Green	Yellow	Light Green
Real estate	Yellow	Yellow	Orange	Yellow	Yellow	Yellow	Yellow
Government	Yellow	Yellow	Orange	Yellow	Yellow	Yellow	Orange
Retail trade	Yellow	Light Green	Light Green	Orange	Yellow	Orange	Light Green
Basic goods manufacturing	Orange	Light Green	Yellow	Yellow	Yellow	Yellow	Light Green
Health care	Orange	Orange	Yellow	Orange	Yellow	Yellow	Yellow
Construction	Red	Yellow	Yellow	Yellow	Yellow	Orange	Orange

¹ Index is based only on asset and labour components and thus may not align with heat maps displayed elsewhere.

² Due to accounting differences between the United States and Europe, not all sectors can be fairly compared.

SOURCE: McKinsey Global Institute analysis

Geen grote verschillen tussen USA en diverse Europese landen

Top 12 van barrières om optimaal gebruik te maken van de digitale ontwikkelingen



Uit internationaal onderzoek van MIT Sloan Management Review en Deloitte in meer dan 25 bedrijfstakken blijkt dat bijna de helft van de respondenten aangeeft dat men te veel andere prioriteiten heeft.

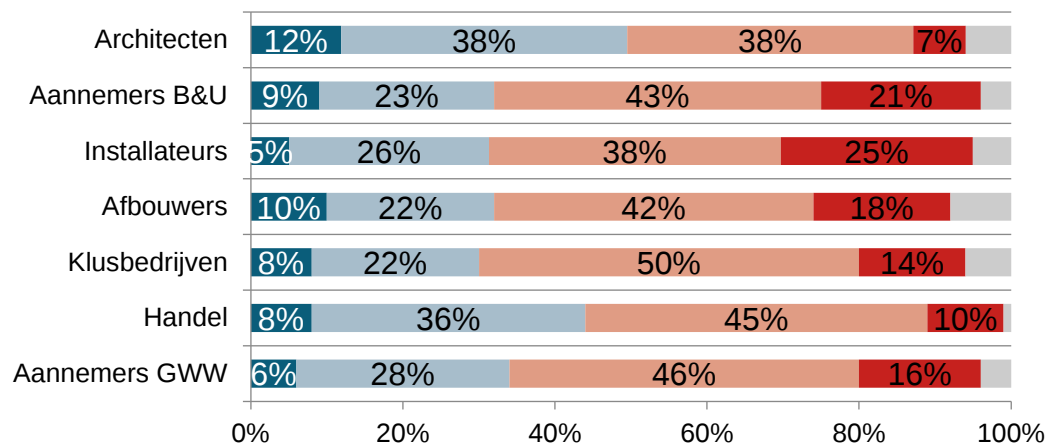
Bron: MIT Sloan Management Review en Deloitte, 2017, bewerkt door Marjet Rutten

Digitalisering

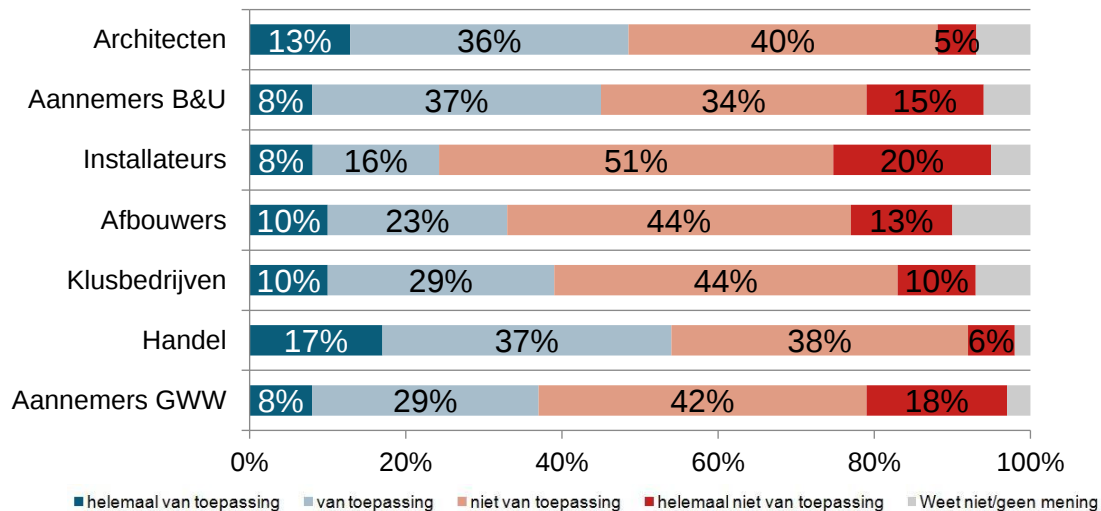
Waarom moeten we digitaliseren?

De bouw moet ...

... goedkoper bouwen



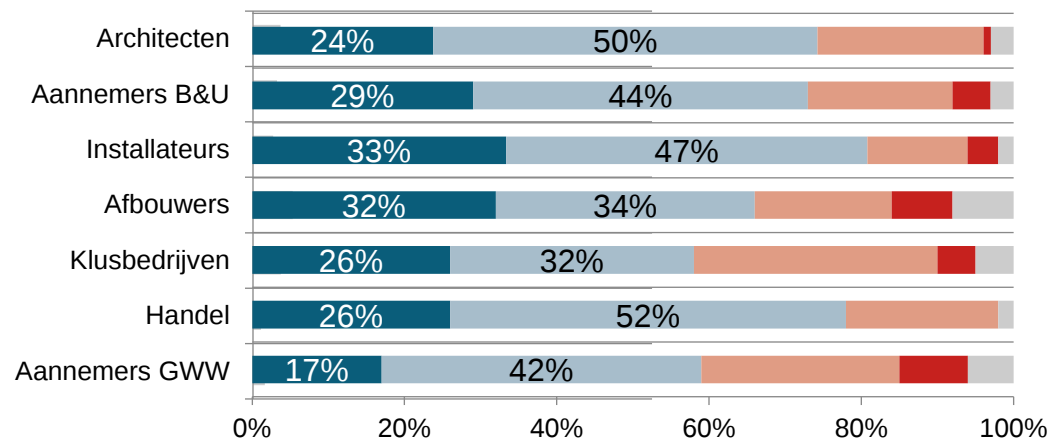
... sneller bouwen



Goedkoper en sneller was men 5 jaar geleden nog niet erg van overtuigd ...

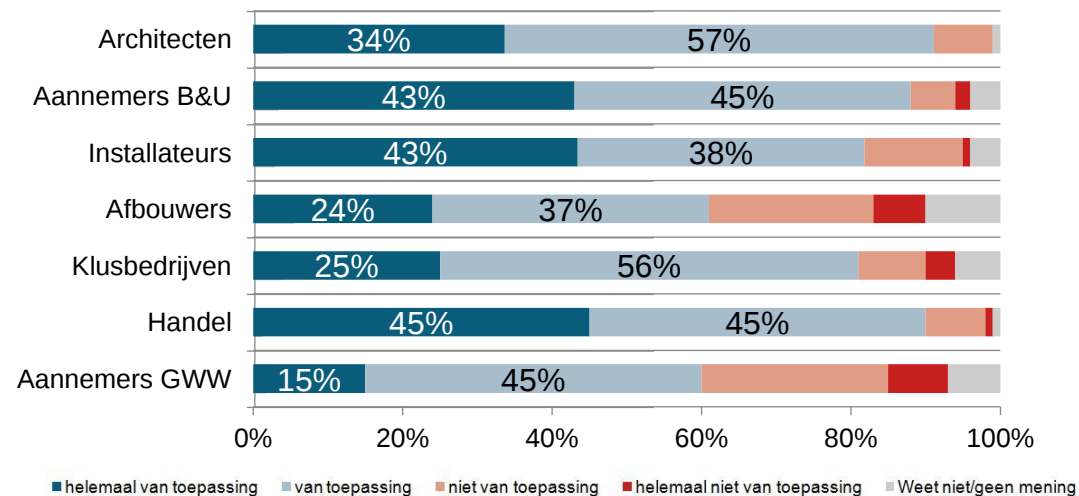
De bouw moet ...

... betere kwaliteit bouwen



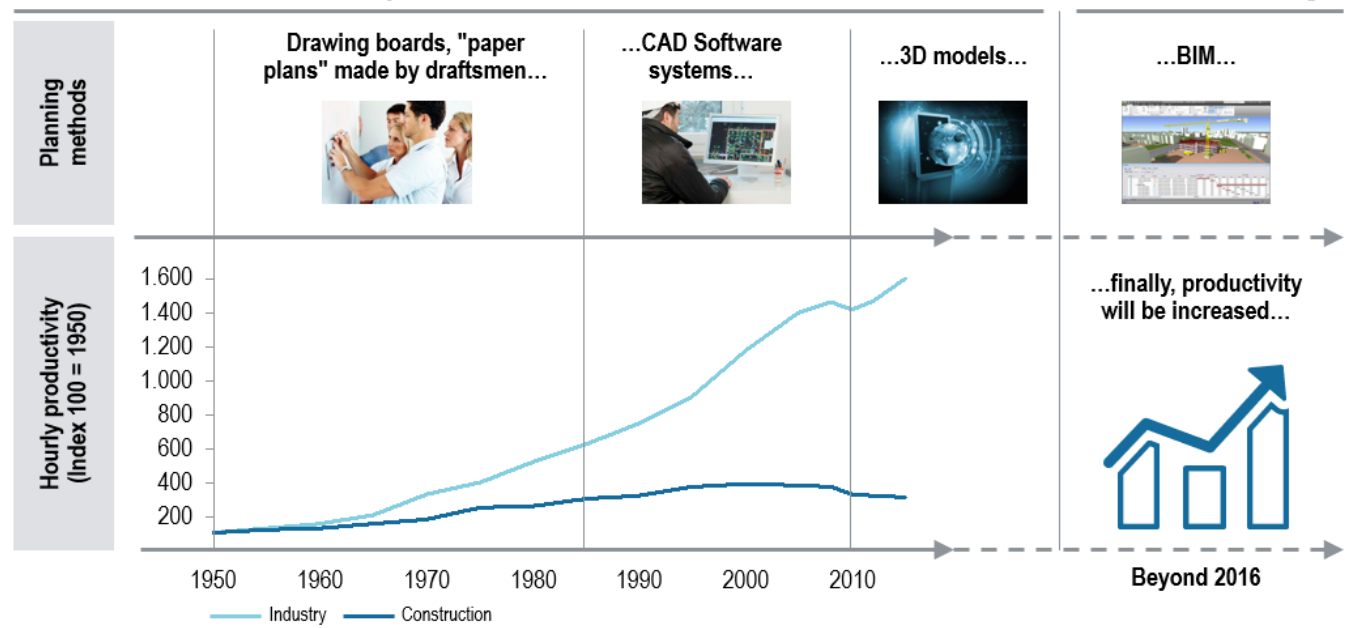
... maar dat het van betere kwaliteit zijn en slimmer gebouwd moest worden, wel!

... slimmer bouwen



Development of hourly productivity rates

Advances of the construction industry in the last decades...



...BIM will lead to changes

...finally, productivity will be increased...

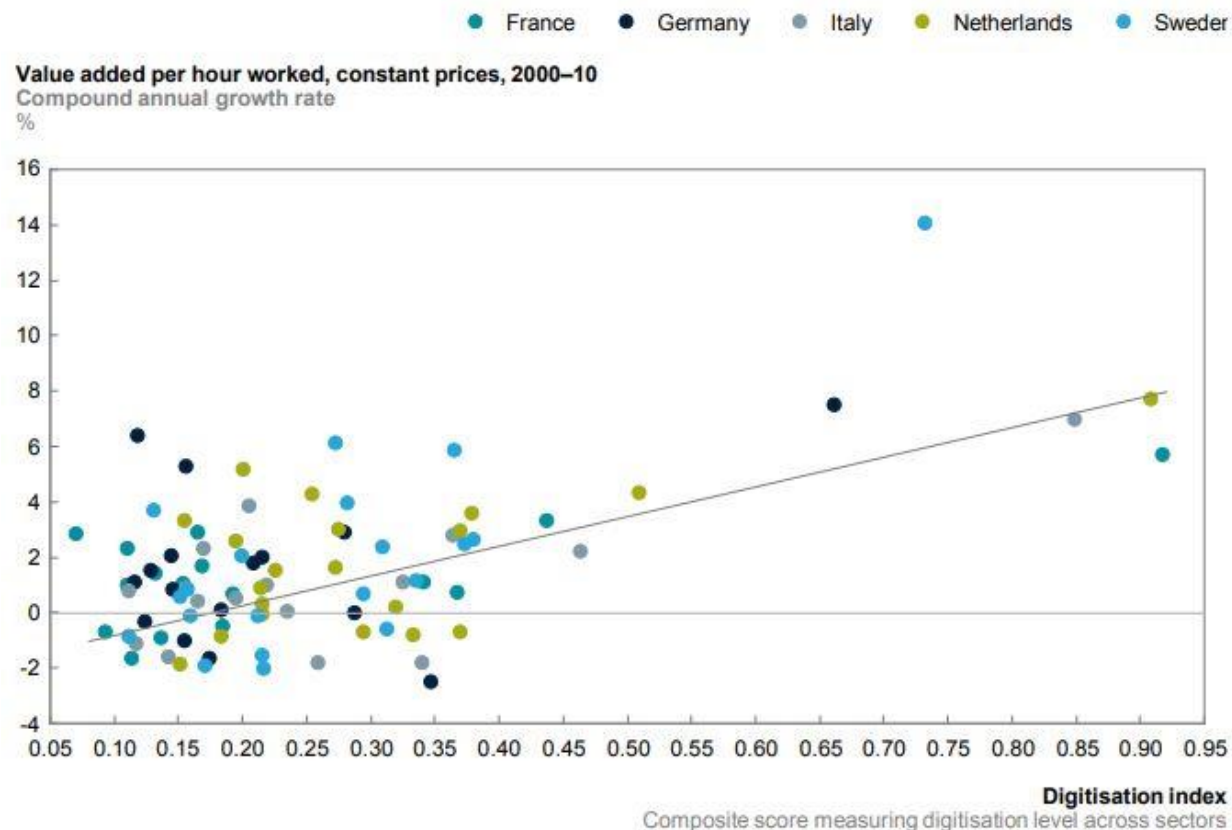


Beyond 2016

Lage arbeidsproductiviteit in de bouw

Exhibit 14

Most digitised sectors experience faster productivity growth compared to less digitised sectors

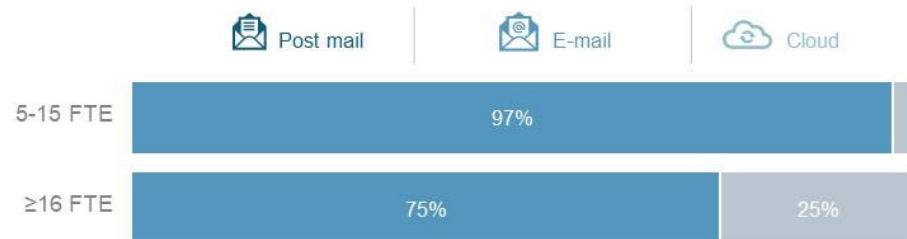


SOURCE: STAN Database for Structural Analysis (ISIC Rev. 4); OECD; McKinsey Global Institute analysis

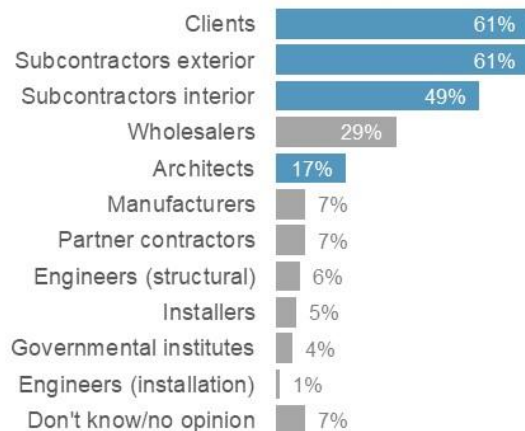
Meest gedigitaliseerde sectoren kennen sterkere groei in productiviteit



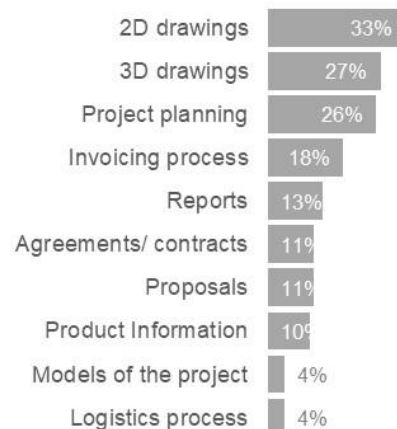
How do you mainly **exchange information** with external stakeholders?



Which stakeholders do you share the information with by **E-mail**?



What kind of information is shared by **E-mail**?



Aannemers wisselen veel informatie uit, met veel verschillende partijen

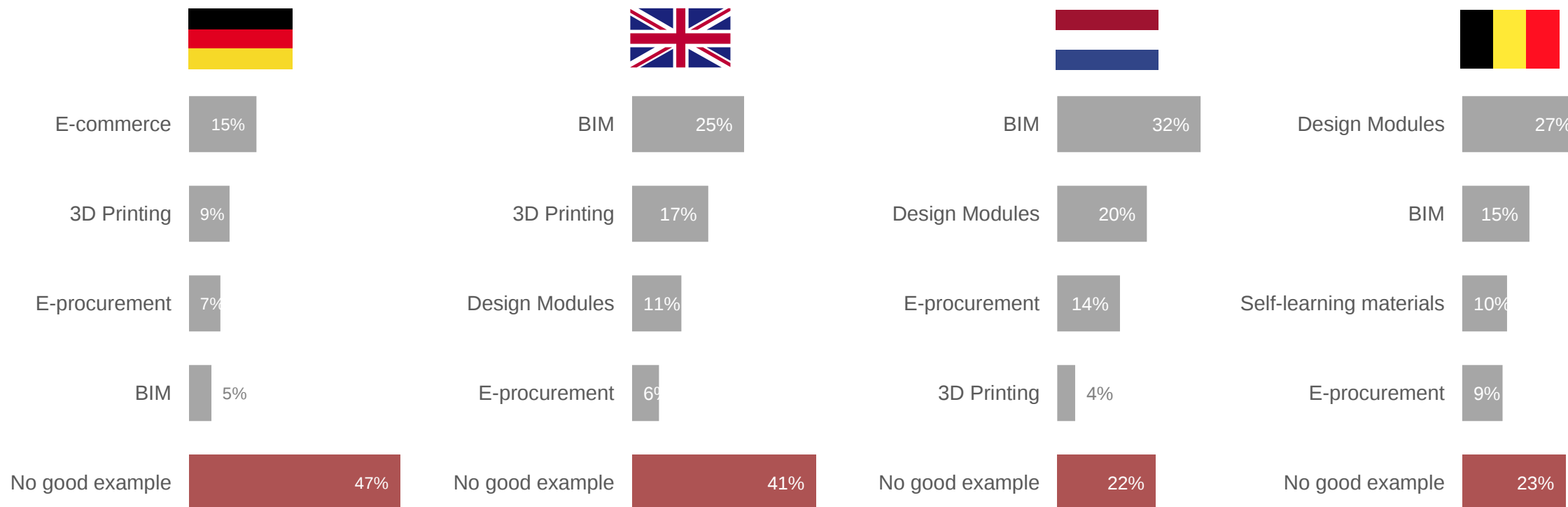
Waar staan we met digitalisering in specifieke zin?

**Wat vindt u de beste voorbeelden
van digitalisering in de bouw?**





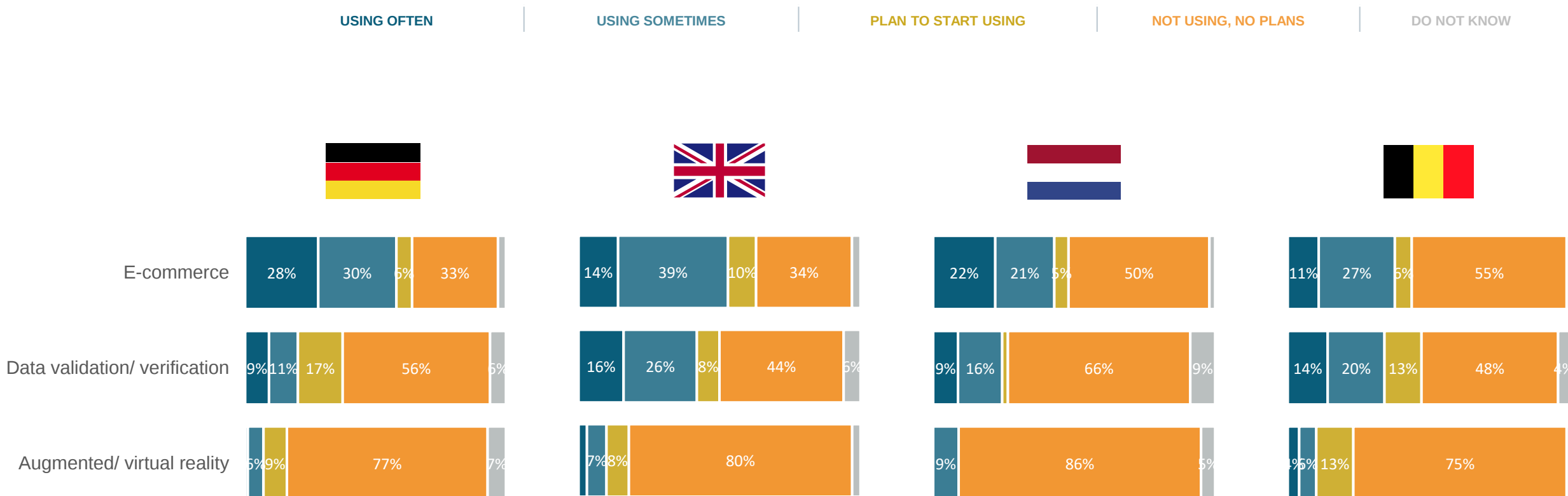
What are the best examples of digitalisation?



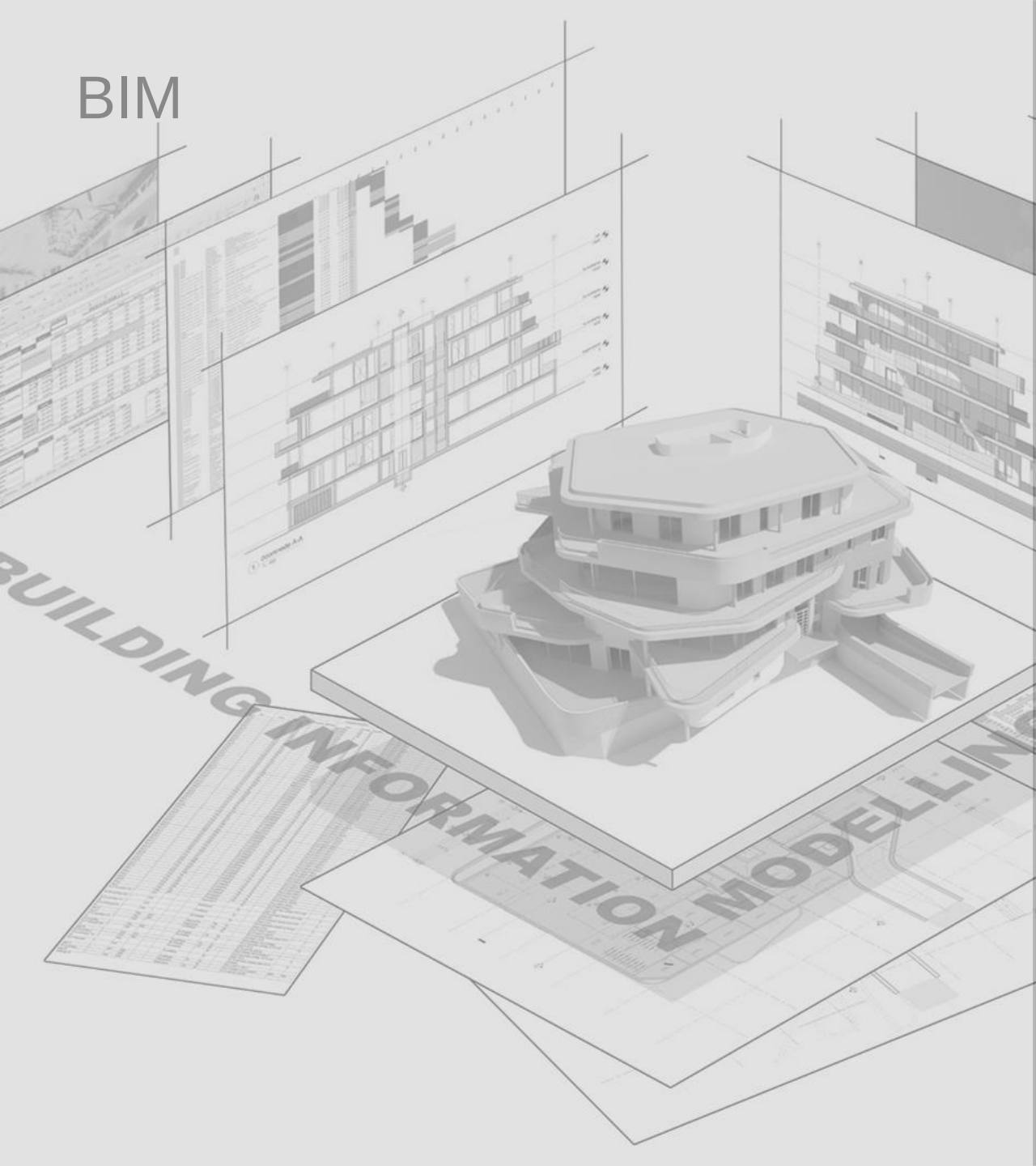
**“Digitalisering is meer
dan alleen BIM”**



How often do you use the following examples of digitalisation?



BIM



Building Information Modelling (BIM)

BIM

Wie zijn de voorlopers in Europa?

- Landen
- Marktpartijen



Are you **familiar** with the term **BIM** and do you use it?

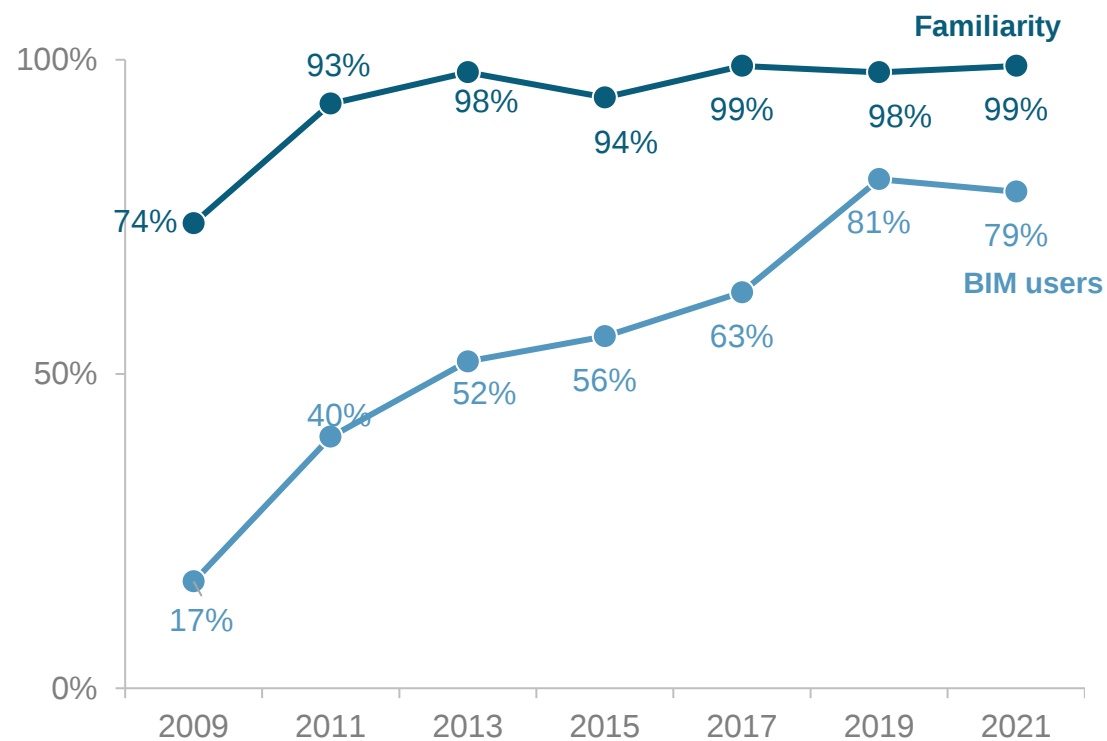
Doelgroep		 Duitsland	 UK	 Nederland	 België
Architect 		86%	91%	99%	86%
Aannemer B&U 		26%	52%	79%	39%
W-installateur 		16%	42%	63%	32%
E-installateur 		18%	46%	60%	17%

Are you familiar with the term **BIM** and do you **use** it?

Doelgroep		 Duitsland	 UK	 Nederland	 België
Architect 		37%	41%	79%	42%
Aannemer B&U 		7%	21%	42%	7%
W-installateur 		1%	7%	19%	14%
E-installateur 		1%	13%	17%	0%



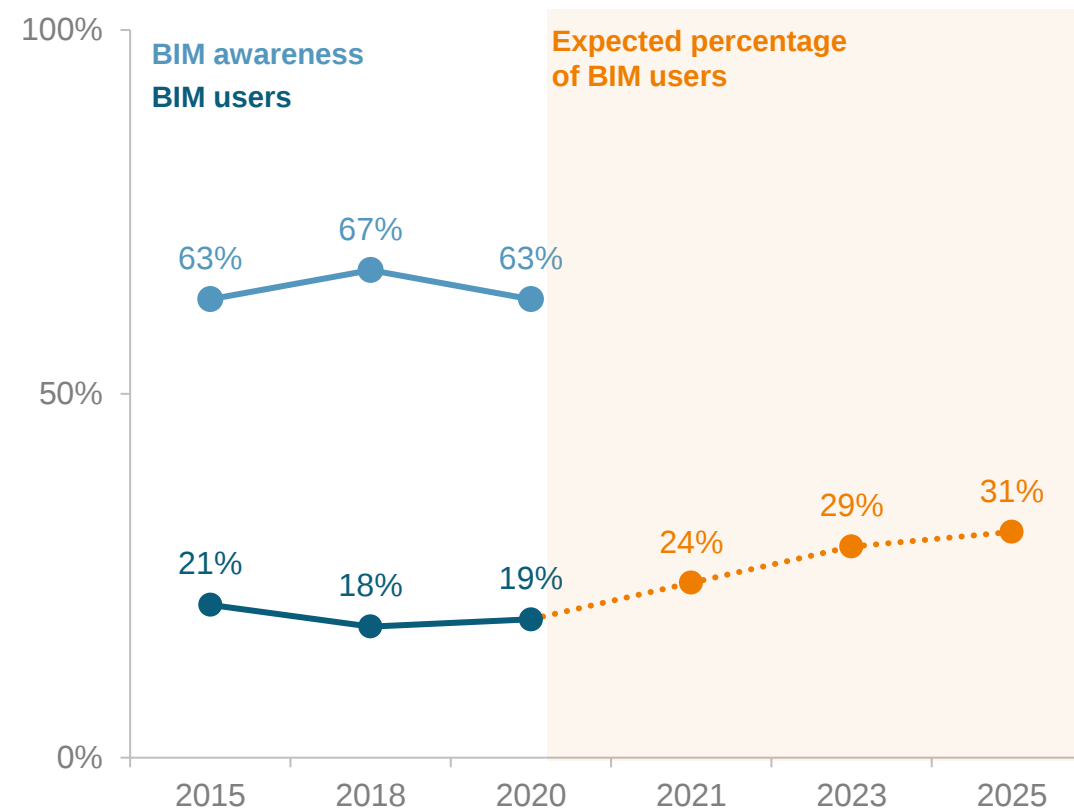
Familiarity with BIM
Are you familiar with BIM?
What is the share of BIM users?



Bronnen:
European Architectural Barometer Q2 2021, Theme: Building Information Modelling
European Mechanical Installation Monitor Q4 2019, Theme: Calculation Tools & BIM



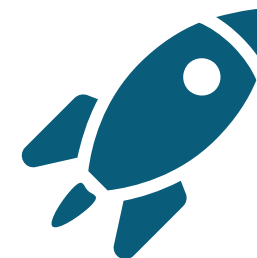
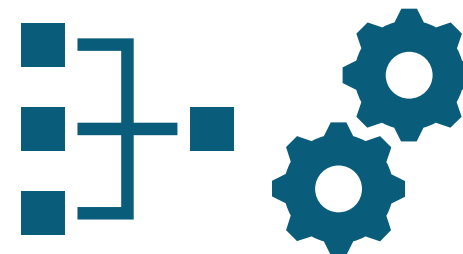
BIM awareness and usage



BIM

Waarom beginnen met BIM?





Redenen waarom organisatie **begonnen** is met BIM



Redenen

Duitsland

UK

Nederland

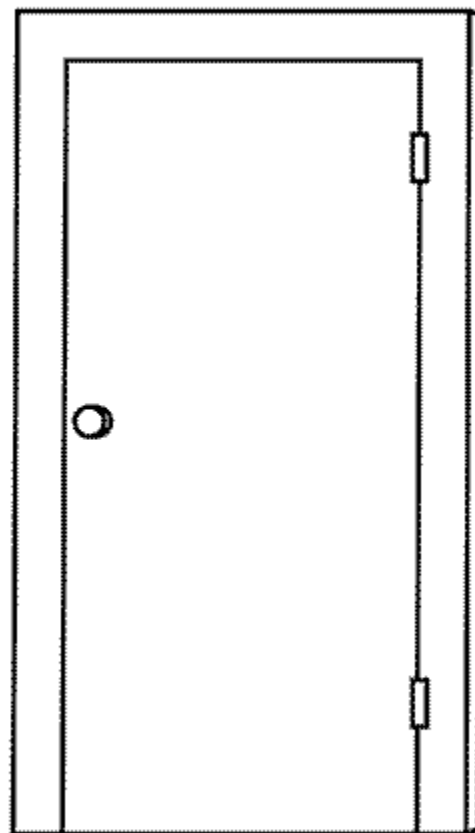
België

								
Interne organisatie optimaliseren 	23%	-	35%	3%	-0%	50%	-0%	-
Eigen bedrijfsproces optimaliseren 	33%	-	17%	13%	-0%	24%	18%	-
Toekomst-verwachtingen 	49%	-	37%	19%	23%	17%	35%	-
Gedwongen door de markt/ andere partijen 	36%	-	46%	70%	35%	38%	40%	-

BIM

Waarom niet beginnen met BIM?







Redenen waarom organisatie (nog) niet is gestart met BIM



Redenen

Duitsland

UK

Nederland

België

									
Het kost tijd		38%	19%	17%	2%	11%	3%	36%	9%
Het kost geld	€	20%	28%	23%	12%	25%	11%	29%	6%
BIM levert niets op		-	16%	26%	26%	29%	16%	11%	6%
Te kleine projecten		32%	19%	29%	18%	25%	32%	11%	42%





(Gepercipieerde) beperkingen van BIM



Pijnpunten

Architecten

Aannemers

Te complex

9%

19%

Vergt meer tijd

21%

25%

Niet iedereen
werkt in BIM

13%

38%

Te veel informatie

17%

0%

Weet niet

15%

6%



**HOUD DIT
BEELD VAST!**



Introductie USP



Digitalisering binnen
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Digitalisering EN
Prefab in de bouw



Toekomst/
Conclusie

Prefab

Wat is prefab?





JA

NEE



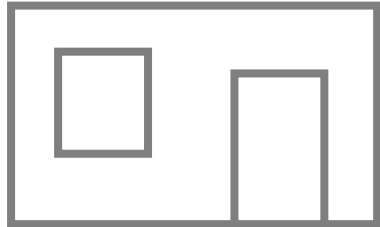
JA

NEE

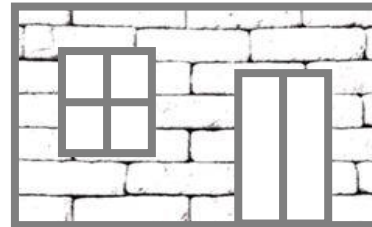


JA

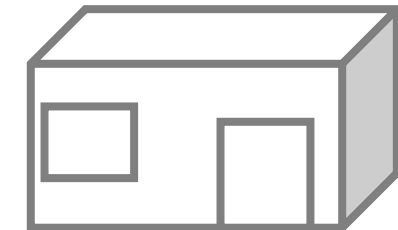
NEE



- **prefabricated plain unfinished elements;** elements without insulation, windows or installation (e.g. precast floors, facade or roof element without windows)



- **prefabricated panelised systems or elements;** examples are wall, floor, ceiling, roof and facade panels including insulation, windows or installation



- **prefabricated modular buildings or volumetric elements;** examples are dormers, bathroom pods or kitchen pods which are preassembled units before arriving on the construction site (3D prefab)

'UK housebuilding revolution': £65,000 prefab homes go into production

Two Yorkshire factories try to tackle housing crisis with modular two and three-bedroom homes

Patrick Collinson

Fri 30 Nov 2018 00:01 GMT



754



▲ The like homes are bolted together on site, with the record for assembling a property standing at 36 hours.
Photograph: Ilke Homes

The UK is entering a new era of prefab homes with the opening of a Yorkshire factory that will build fully-fitted three-bedroom homes with a price tag as low as £65,000.

Eight houses fitted with kitchens and bathrooms will roll off the production line every day in Knaresborough, to be loaded on to lorries for delivery across the country. Experts have hailed it a **revolution in British housebuilding** that would slash the 40 weeks it could take to build a traditional home to just 10 days.

The factory cost of a two or three-bedroom home would be from £65,000 to £79,000, although that excludes the cost of land, on-site assembly and connecting the home to services, which could double or triple the final price.

The plant, operated by the UK company Ilke Homes, said it would produce 2,000 houses a year, rising eventually to 5,000, which would catapult it into the top echelon of volume housebuilders in the country.

Meanwhile, the insurance company Legal & General has built a vast factory outside Leeds which it said would build 3,500 homes a year, with the first two and three-bedroom homes being delivered in the past few weeks. It said it intended to build similar factories in locations across the UK, which would turn L&G into a bigger builder than Persimmon or Barratt Developments.



Can prefab homes solve UK's housing crisis?

→ Read more

The term prefab has been shunned by the new housebuilders. The new buzz phrase, with its connotation of low-quality, postwar emergency housing, has instead been described as “modular construction”. Developers have been promising homes built to higher standards than those using traditional methods. They also claim energy bills would be half that of a conventional home due to better insulation.

“

The term prefab has been shunned by the new housebuilders. The new buzz phrase, with its connotation of low-quality, postwar emergency housing, has instead been described as “modular construction”. Developers have been promising homes built to higher standards than those using traditional methods. They also claim energy bills would be half that of a conventional home due to better insulation.

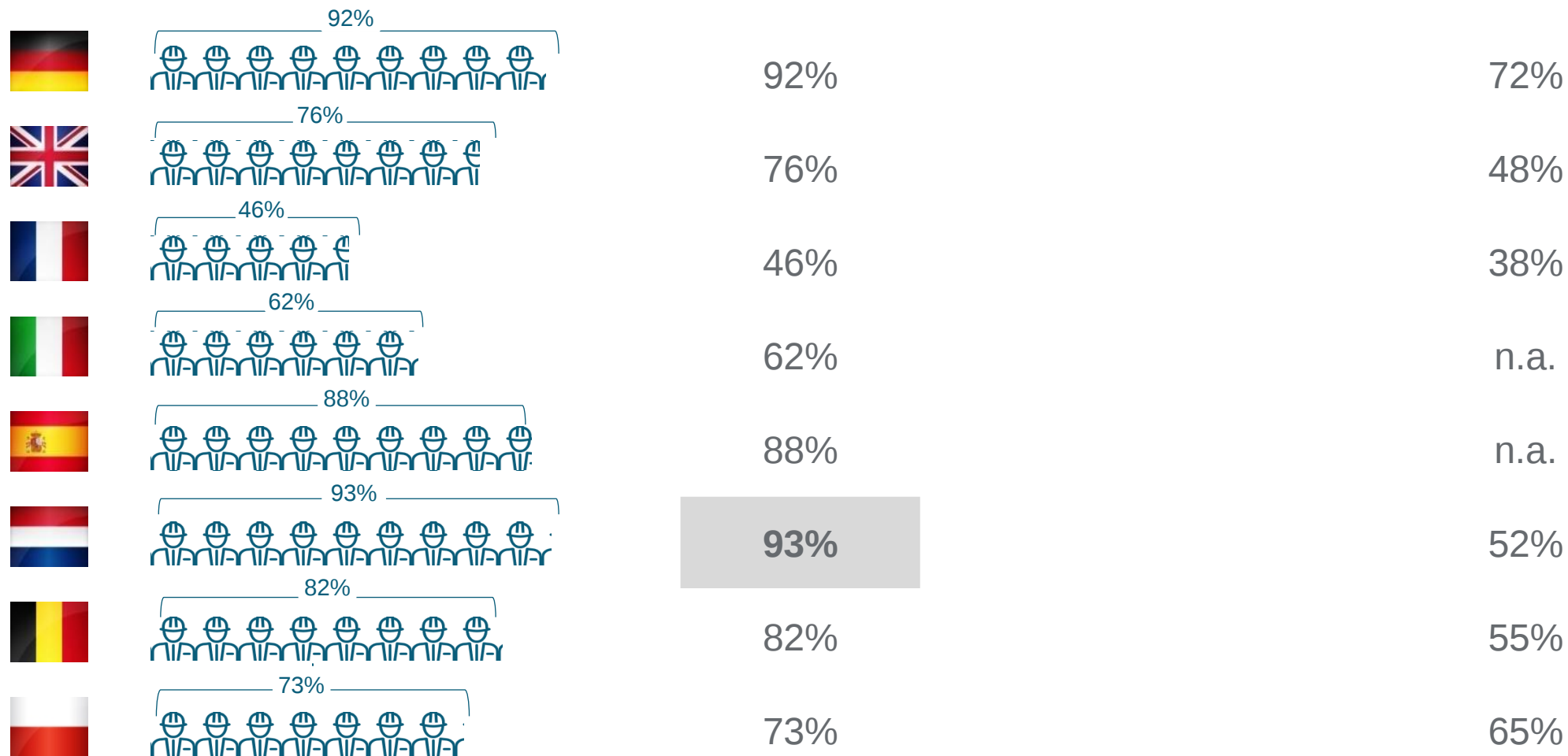
”

Prefab

Hoe vaak wordt prefab toegepast?



Aandeel **aannemers** die ooit eens prefab elementen hebben toegepast



Aandeel **projecten** met een bepaalde vorm van prefab elementen



2019 (vs. 2018)

38%

34% (+2%)

45%

37%

20% (+5%)

40%

16%

15% (+0%)

50%

18%

18% (+1%)

n.a.

35%

37% (+11%)

n.a.

62%

48% (+8%)

32%

37%

30% (+3%)

31%

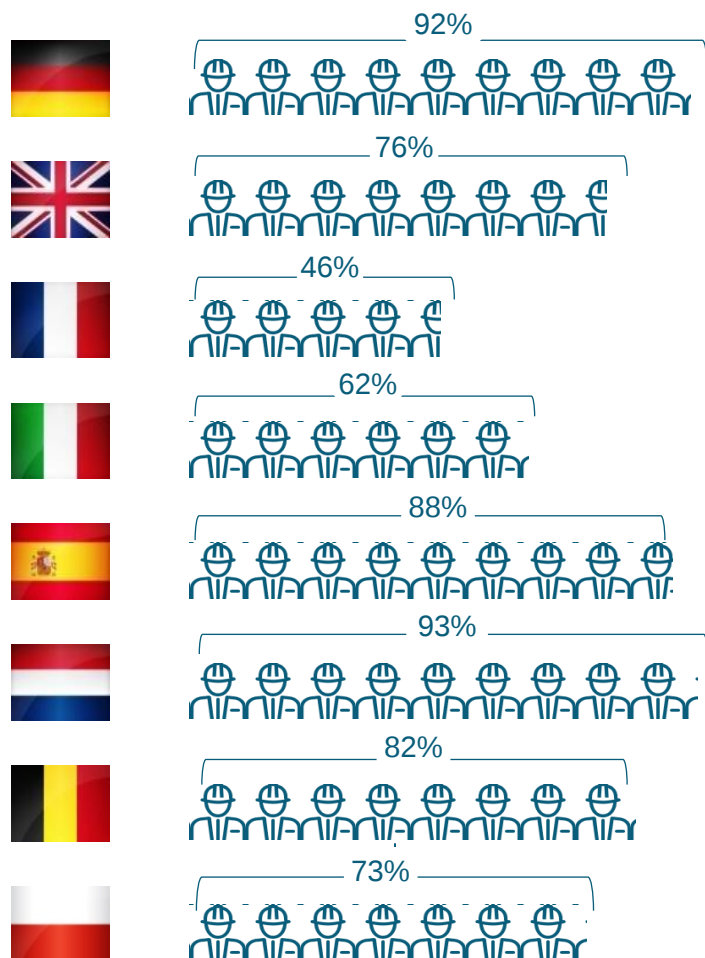
28%

31% (+0%)

31%

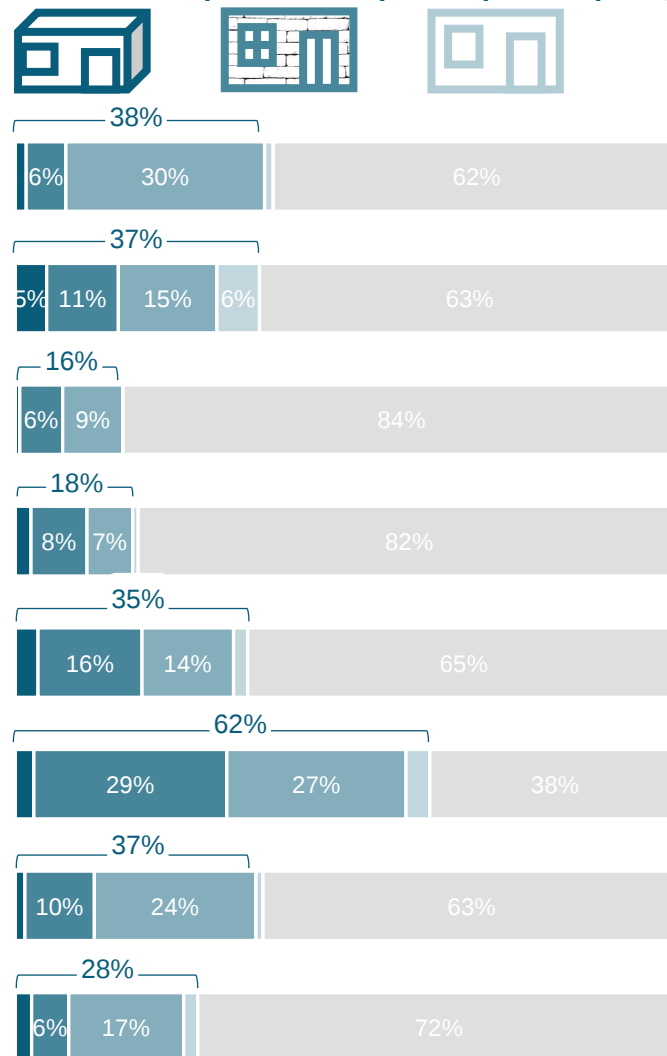
Bron:
European Architectural Barometer Q3 2019, Theme: Prefab
USP European Contractor Monitor H2 2018, Theme: Prefab

Aandeel **aannemers** die ooit eens prefab elementen hebben toegepast



Aandeel **projecten** met een bepaalde vorm van prefab elementen

Modular | Panelized | Plain | Other | No prefab





Nu nog voornamelijk ‘unfinished elements’, ‘panelised systems’ wel meer groei verwacht

Percentage of projects containing prefabricated elements

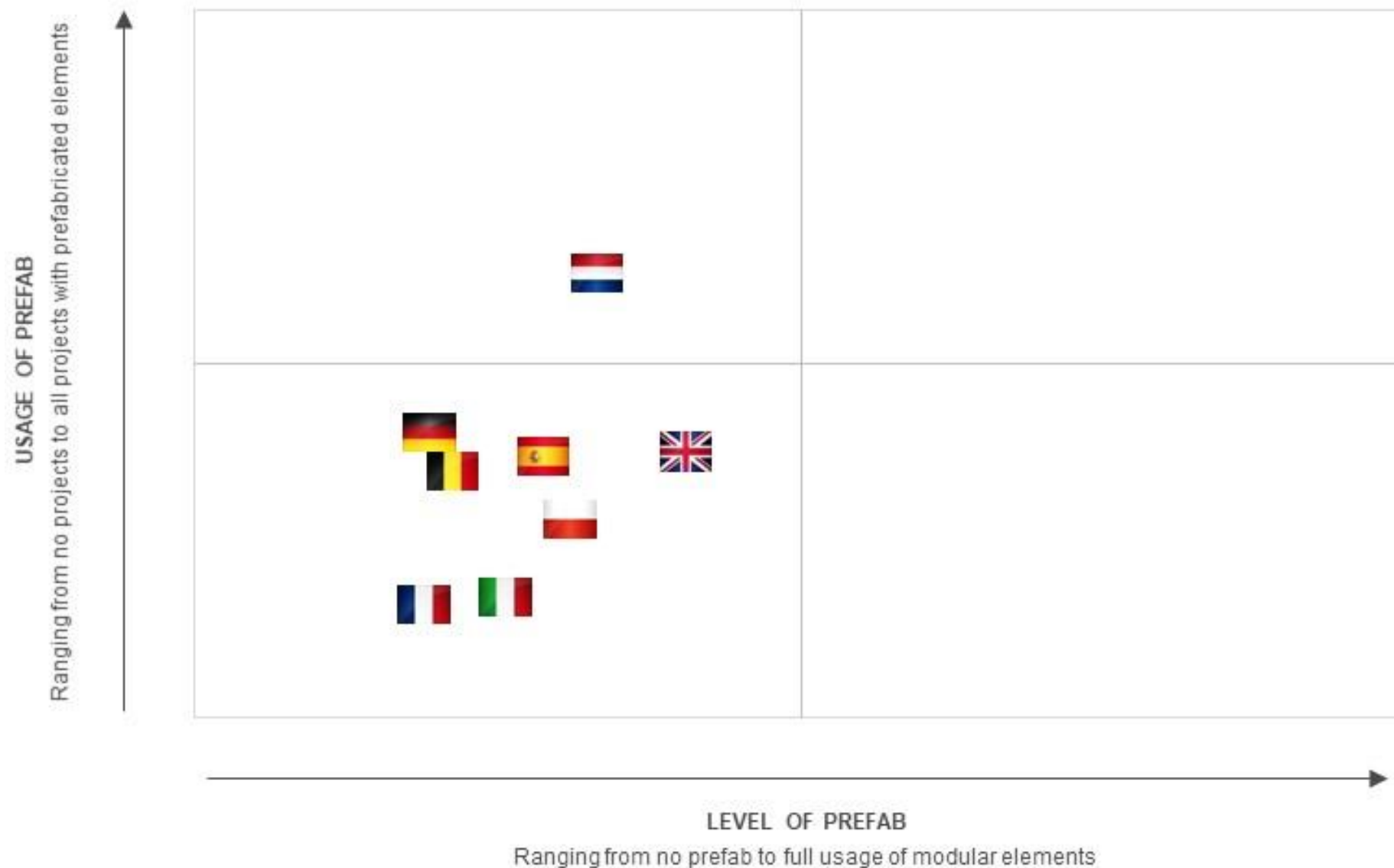
	Prefabricated unfinished elements	Prefabricated panelised systems	Prefabricated modular buildings
	39%	44%	18%
	67%	23%	10%
	46%	37%	17%
	47%	45%	8%
	27%	62%	11%
	43%	46%	11%
	62%	31%	7%
	72%	22%	6%

Expectation which type of prefabrication will grow most in the coming years

- Prefabricated panelised systems
- Prefabricated unfinished elements
- Prefabricated panelised systems
- Prefabricated panelised systems
- Prefabricated panelised systems
- Prefabricated panelised systems
- Prefabricated panelised systems
- Prefabricated unfinished elements/
Prefabricated modular buildings

Bron:
European Architectural Barometer Q3 2019, Theme: Future of Prefab

PENETRATION OF PREFAB IN EUROPE





Perceptie W-installateurs en prefab: met name prefab aangeleverde oplossingen vanuit de handel

Dealing with prefabrication

	The United Kingdom	Germany	France	Poland	Belgium	The Netherlands
Purchase prefab products/ solutions from wholesalers	51%	81%	58%	55%	53%	46%
Purchase prefab products/ solutions from manufacturers	48%	51%	45%	29%	38%	29%
Prefab yourself – buy and preassemble the separate products	40%	34%	45%	42%	44%	46%
Purchase prefab products/ solutions from dedicated prefab suppliers	36%	14%	32%	18%	45%	18%

Asked to all prefab users



Architect bepaalt meestal of ‘modular’ wordt ingezet, in Nederland belangrijke rol voor opdrachtgever en aannemer

Final decision whether prefabricated modular building elements are used

								
Architects	27%	48%	39%	27%	27%	20%	35%	23%
Project owner/ principal of the project	2%	5%	49%	58%	1%	31%	29%	2%
Building owner	58%	25%	9%	7%	53%	1%	17%	0%
Investor	1%	7%	1%	0%	14%	1%	0%	65%
Main contractor	9%	3%	2%	0%	3%	31%	14%	4%

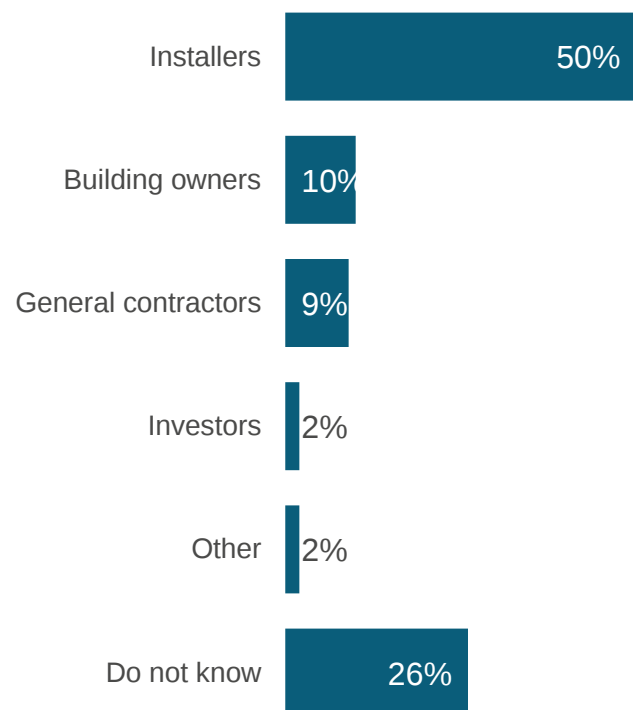
Bron:
European Architectural Barometer Q3 2019, Theme: Future of Prefab



W-installateurs bepalen veelal zelf of zij prefab toepassen

Main initiator and decision maker for using prefab in new build

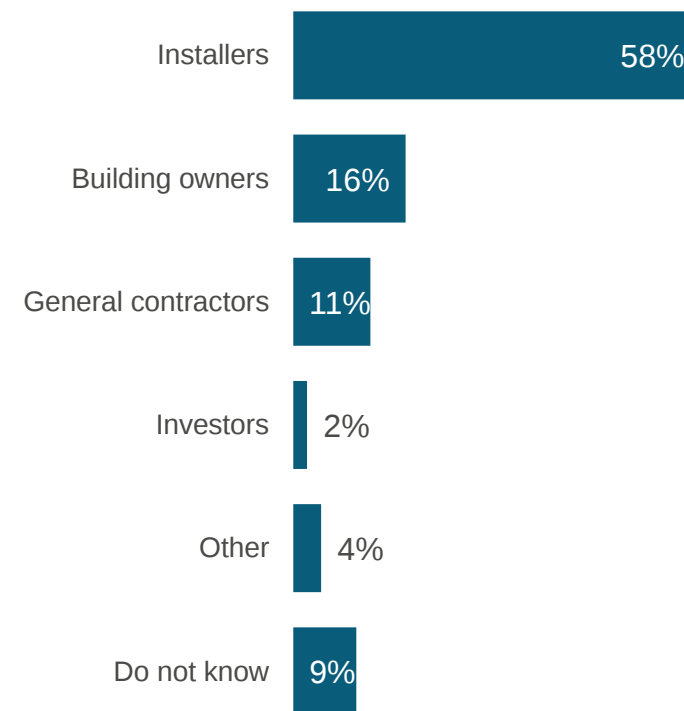
Who is normally the main initiator/ decision maker for using prefab in new-build projects and renovation projects?



Base: n=41, Asked to Prefab users

Main initiator and decision maker for using prefab in renovation

Who is normally the main initiator/ decision maker for using prefab in new-build projects and renovation projects?



Base: n=41, Asked to Prefab users



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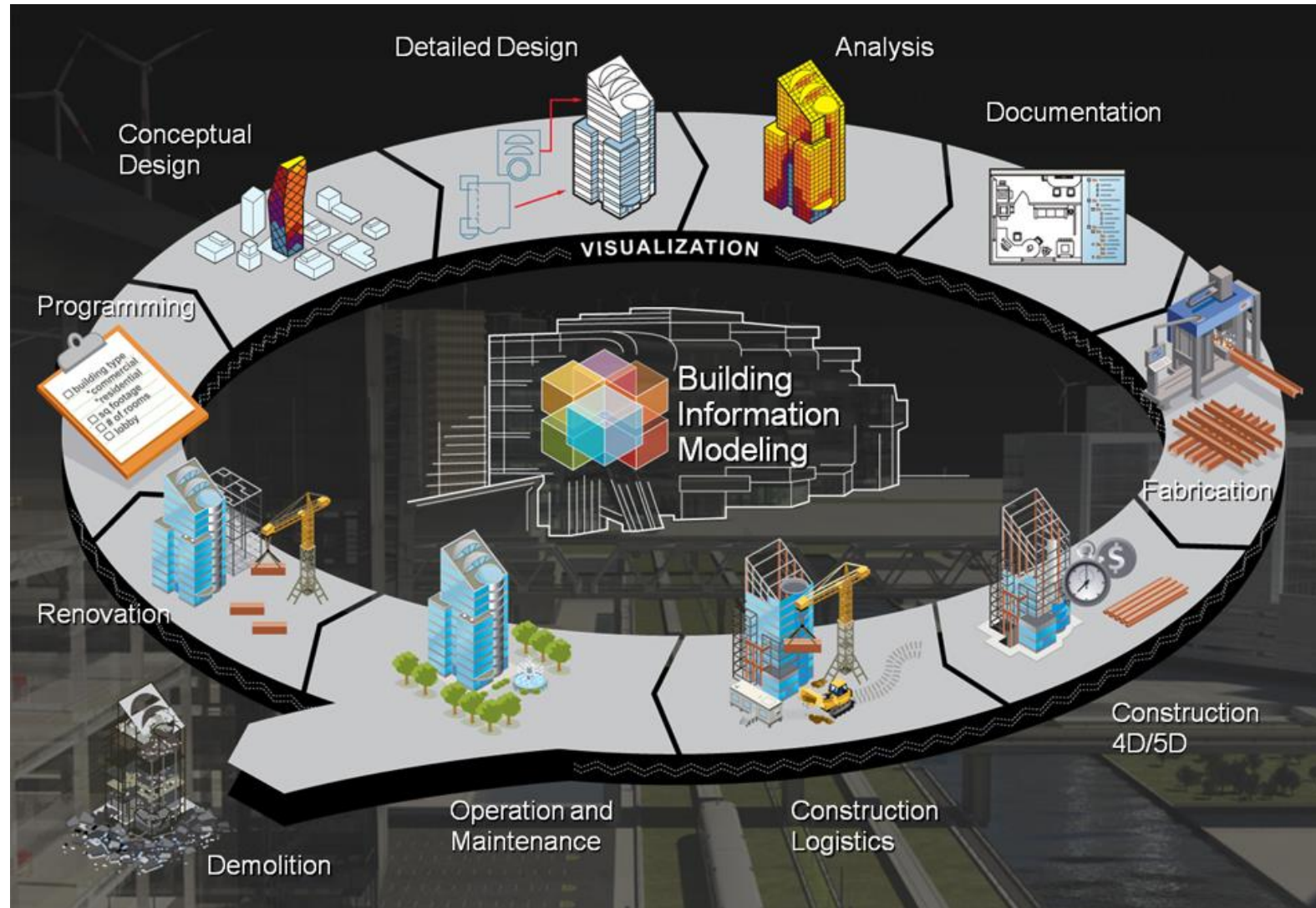


Toekomst/
Conclusie

BIM en prefab gaan hand in hand



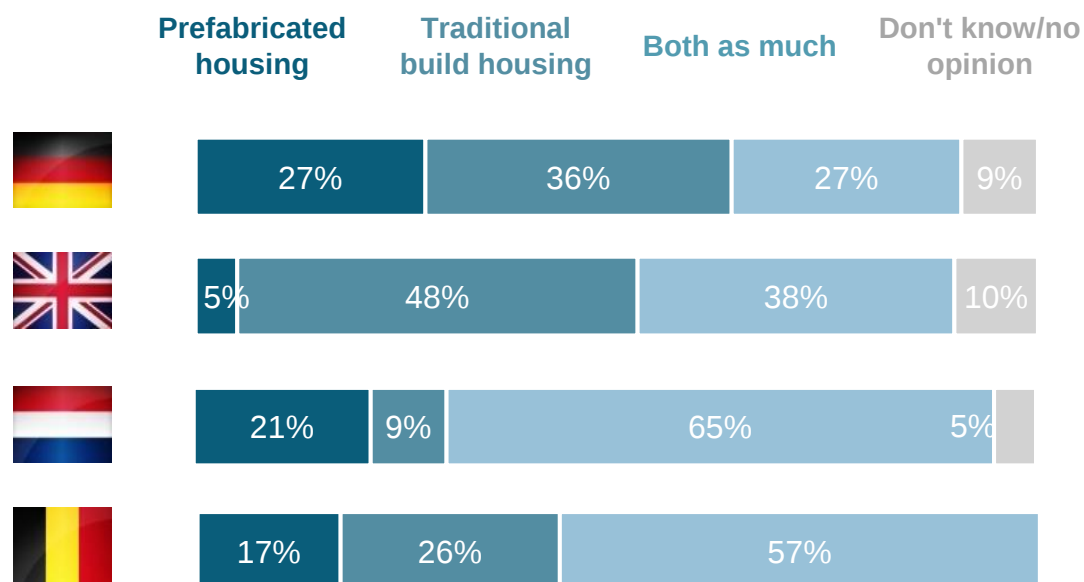
Waar kan BIM voor gebruikt worden?





BIM toegepast bij zowel prefabricage als bij traditionele bouw

Use of BIM depending on the type of housing
Is BIM more used for prefabricated housing or traditional build housing?



Bron:
 European Architectural Barometer Q2 2021, Theme: Building Information Modelling



Sterke samenhang tussen gebruik prefab en gebruik BIM

		TOTAAL	BIM		
			ONBEKEND	BEKEND	GEBRUIK
2018	AANDEEL AANNEMERS	75%	70%	76%	90%
	PREFAB AANDEEL	32%	26%	33%	48%
2025	AANDEEL AANNEMERS	81%	78%	82%	93%
	PREFAB AANDEEL	39%	33%	37%	58%

Obstakel 1:

**Prefab beperkt de ontwerpvrijheid
en is niet voor elk project
toepasbaar**



Stelling: “Prefab limits the freedom of design”



Mee eens

Mee oneens



Mee eens

Mee oneens



25%

42%



54%

22%



38%

34%

55%

19%



49%

26%



49%

22%



40%

21%



35%

33%



25%

39%



36%

30%



26%

49%



63%

18%



30%

39%

28%

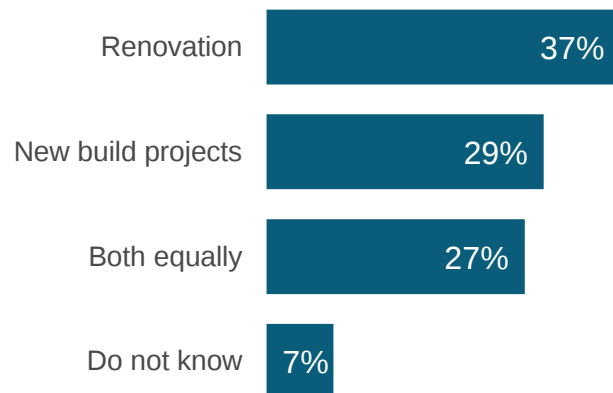
38%



Prefab is toepasbaar in zowel renovatie- als nieuwbouwprojecten

Usage of prefab in new-build and renovation projects

Do you use prefab products in new-build projects or renovation projects mainly?

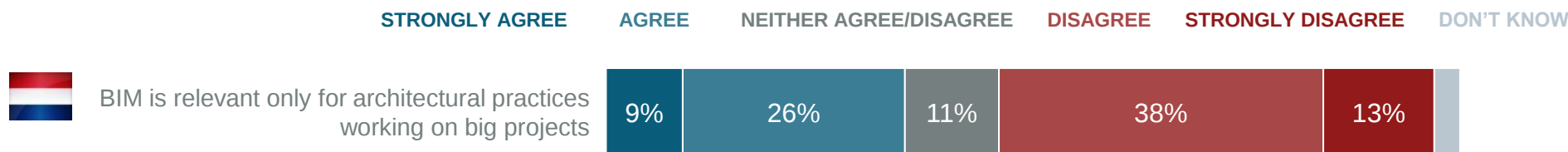
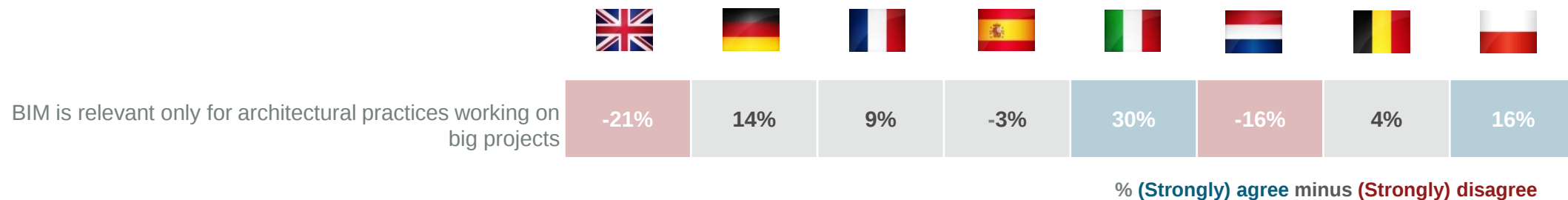


Base: n=41, Asked to Prefab users





BIM is niet alleen relevant voor grote projecten: volgens de architecten in UK en NL

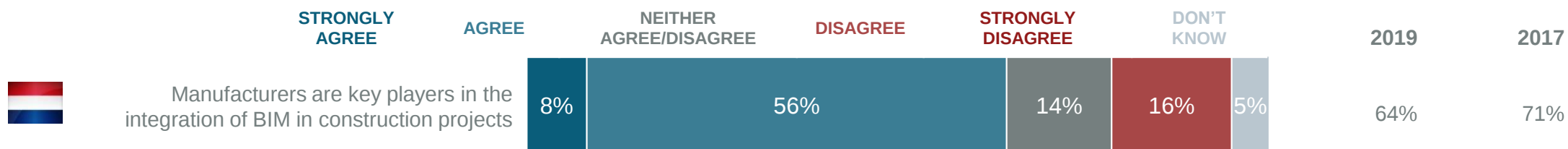
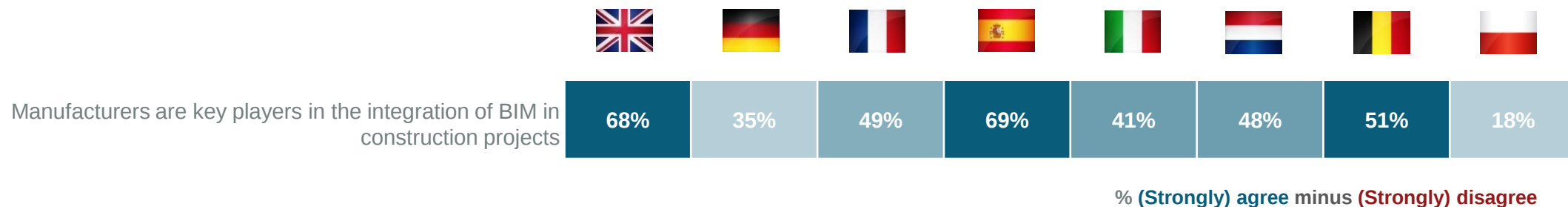


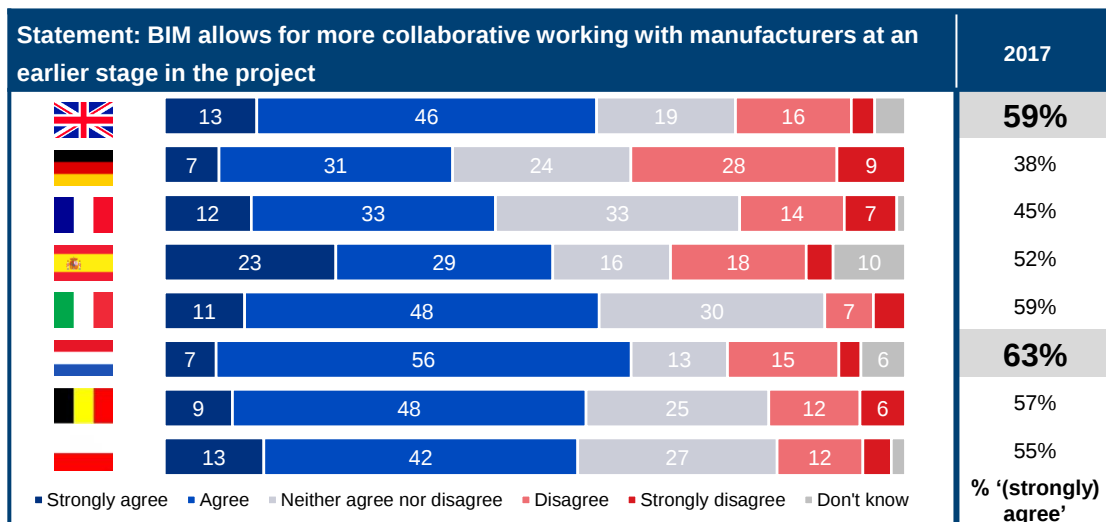
Obstakel 2:

De fabrikanten



Fabrikanten blijven een belangrijke rol houden om BIM te integreren in het bouwproces





- Door BIM kan er eerder in het bouwproces worden samengewerkt met fabrikanten

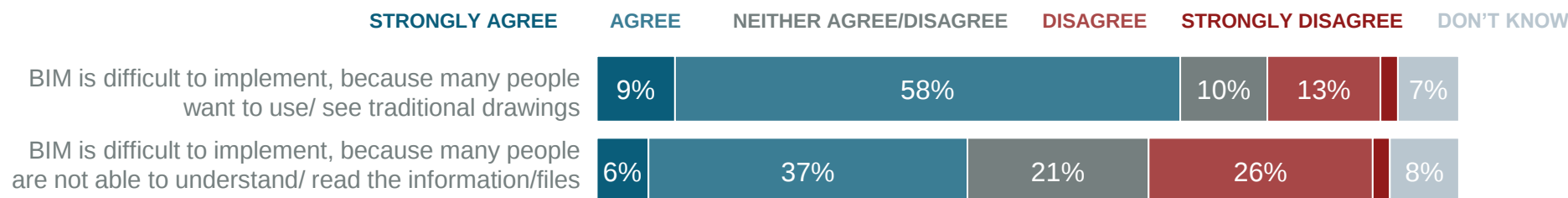
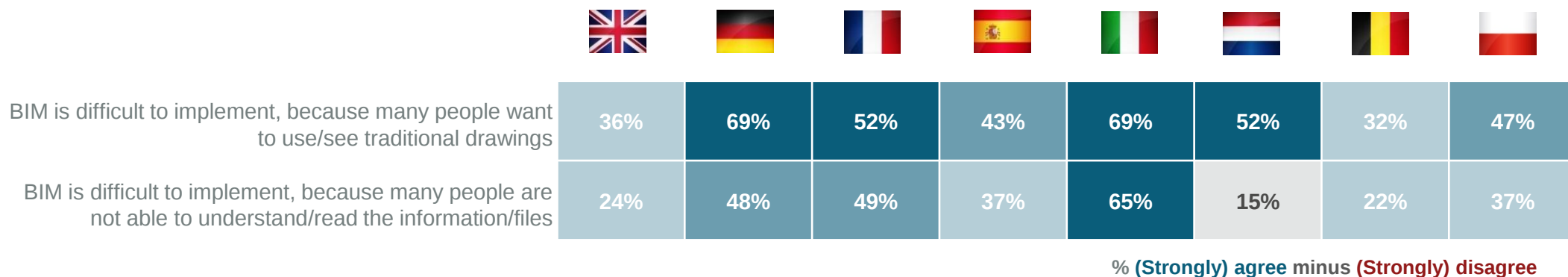
Obstakel 3:

**De markt in zijn algemeenheid/ De
bouwers en installateurs zelf**





Een groot deel blijft vasthouden aan tekeningen, waardoor BIM implementatie wordt belemmerd. Implementatie ook deels belemmerd door niet begrijpen van informatie.



Aannemer: “Our company is ready for the digital revolution in our industry”
Installateur: “We have enough knowledge about BIM and our role in BIM”

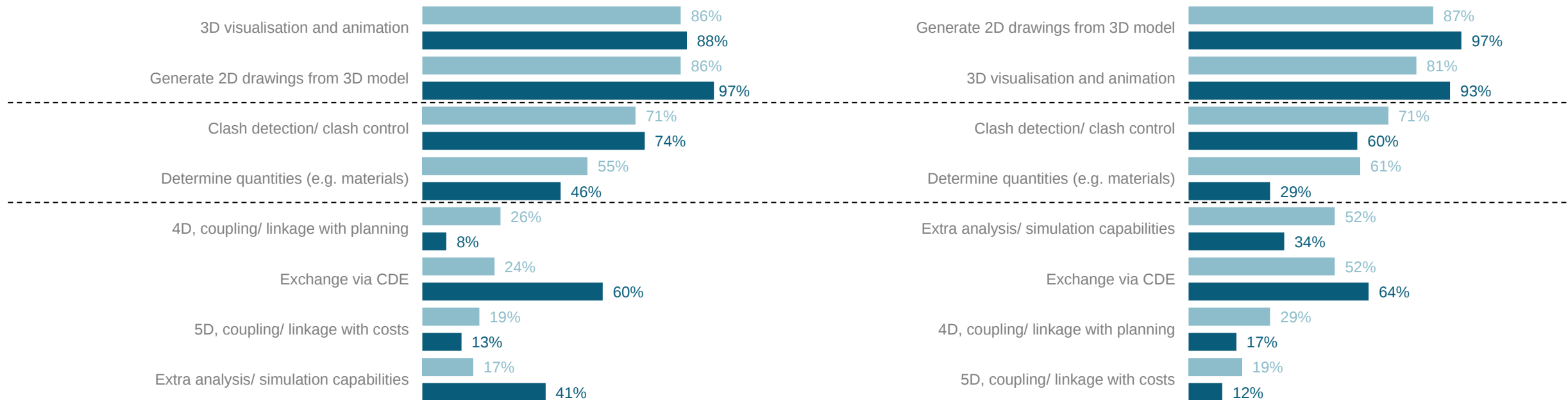
Doelgroep				
	Duitsland	UK	Nederland	België
Aannemer B&U 	36%	34%	42%	42%
W-installateur 	4%	17%	35%	25%
E-installateur 	3%	21%	24%	22%

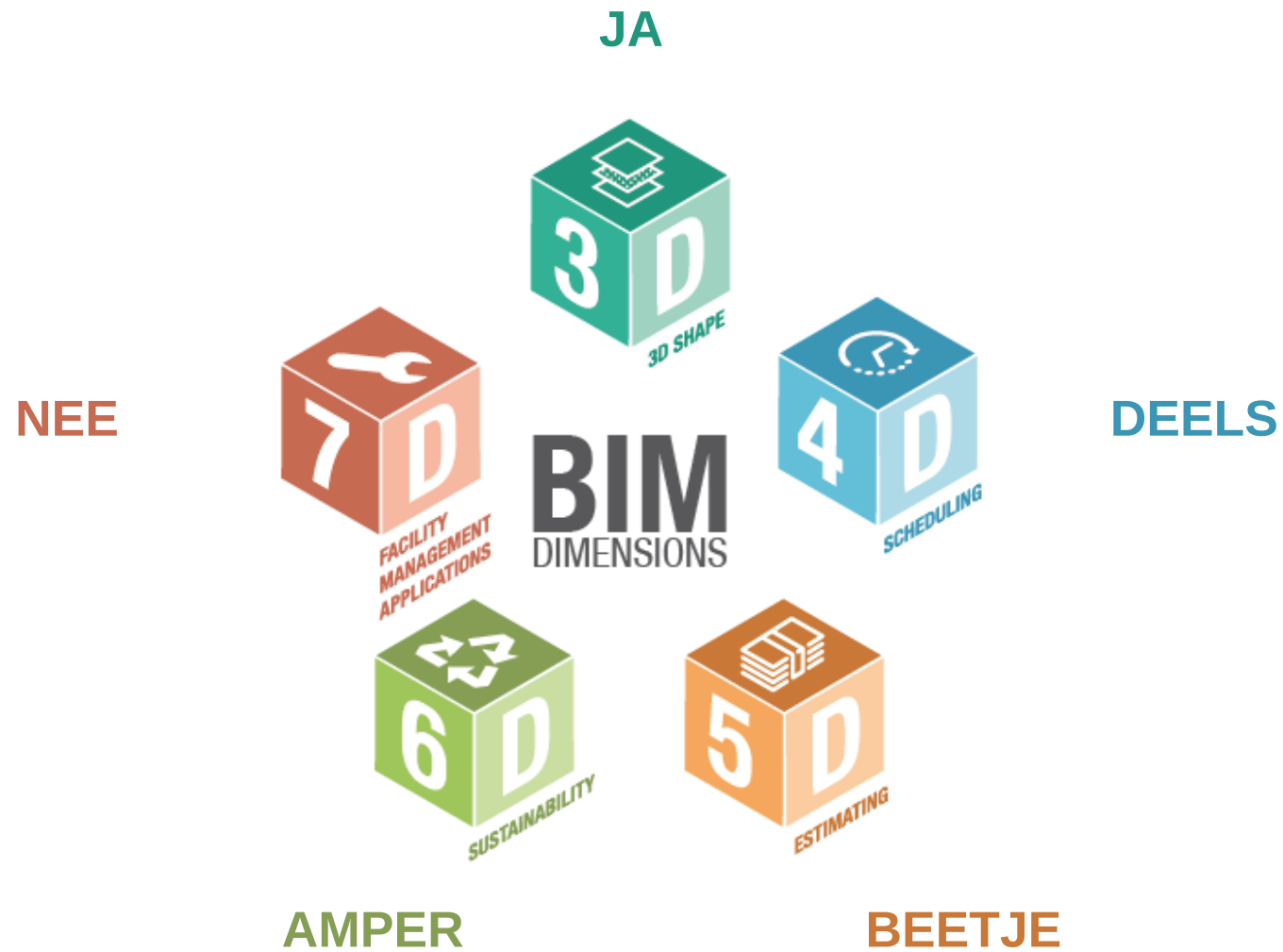
**“Aannemers en architecten zijn
verder dan de installateurs,
maar hoe ver zijn ze zelf?”**



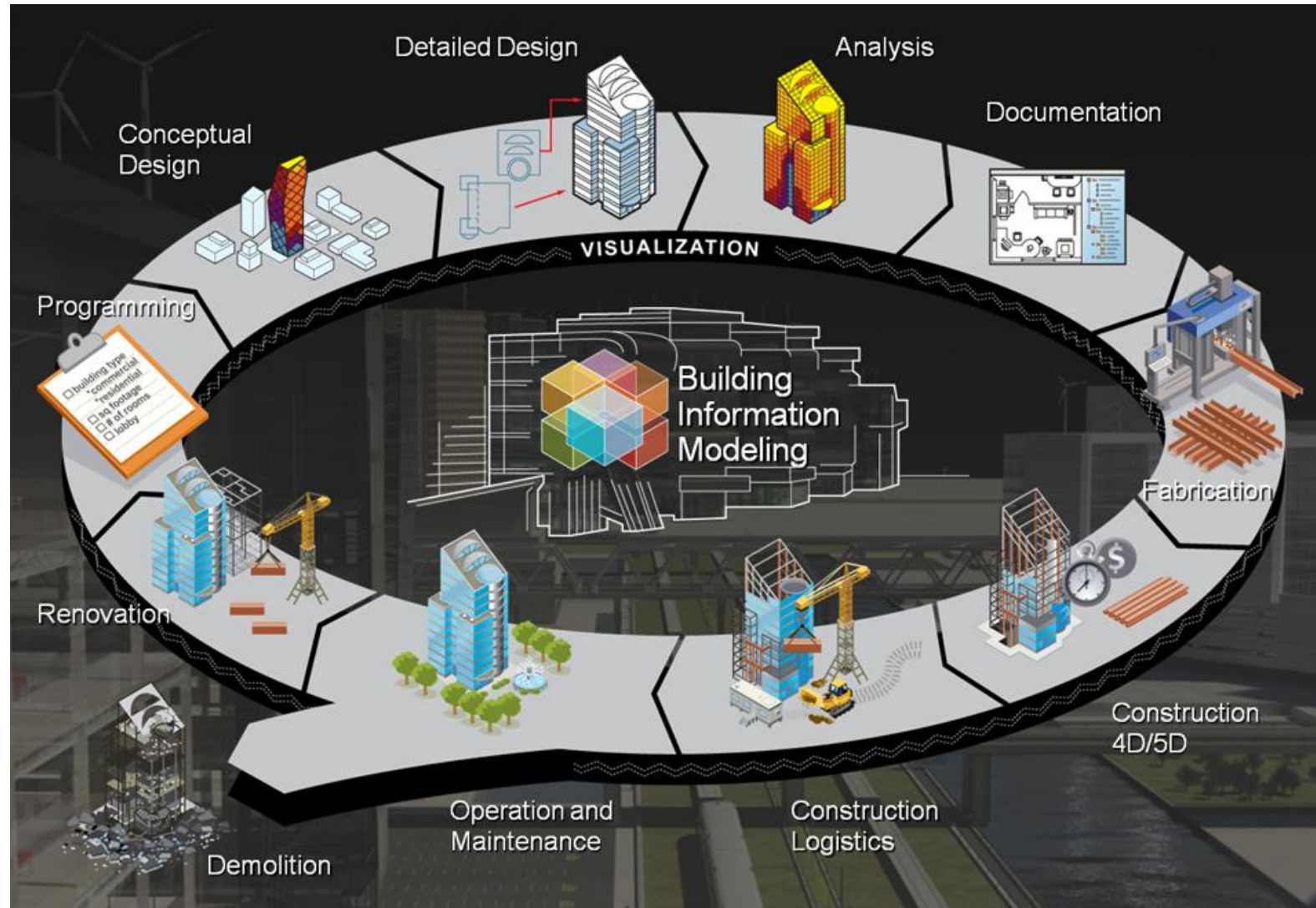


Which of the following features of BIM do you use?





Waar kan BIM voor gebruikt worden?





**EEN WERELD
TE WINNEN**





Introductie USP



Digitalisering binnen
de bouw



Prefab binnen de
bouw



Digitalisering EN
Prefab in de bouw



Toekomst/
Conclusie

Toekomst

Wat moet er gebeuren?





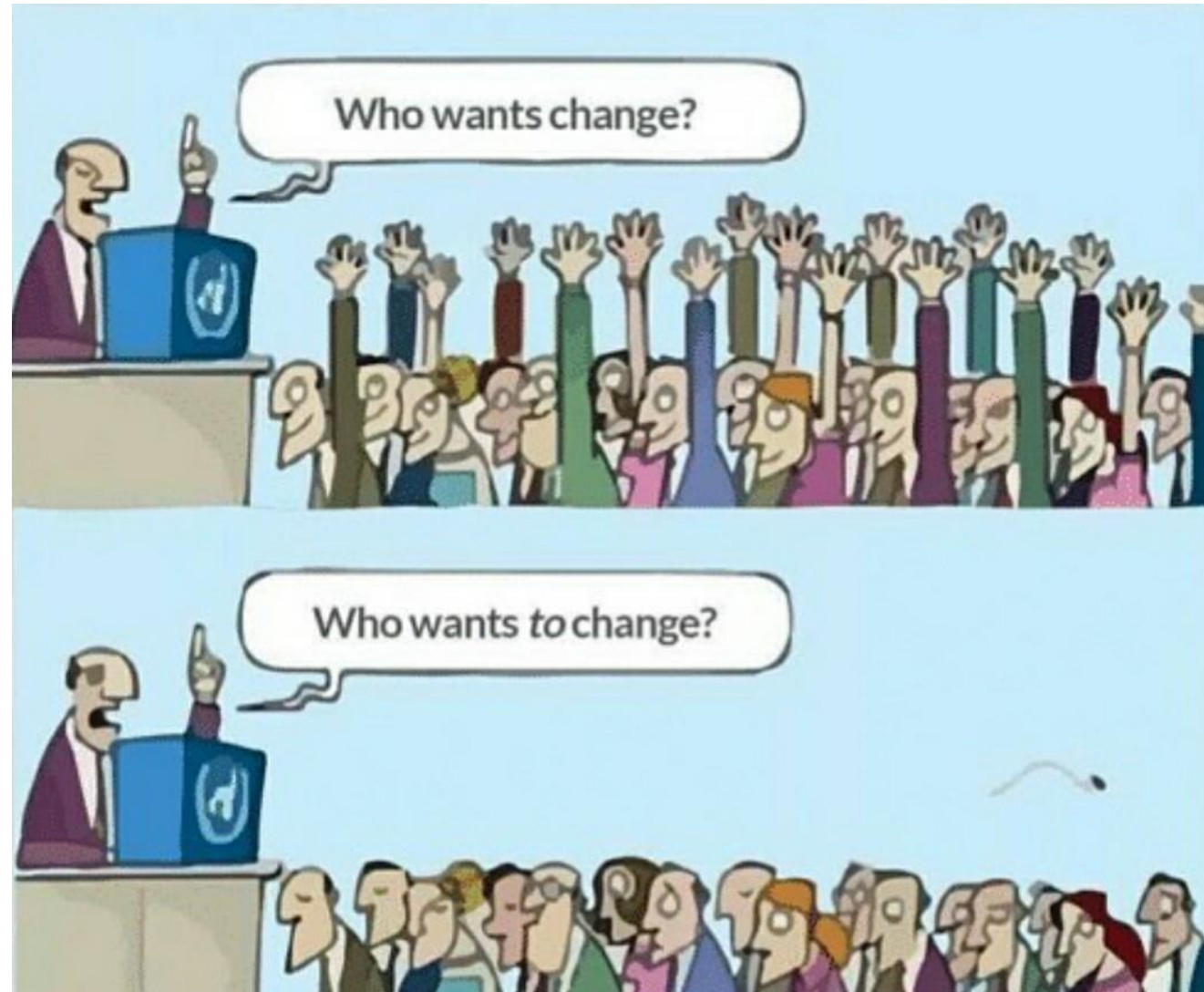


Installateur: “BIM will lead to **major changes** in the way the **different trade teams collaborate** in a construction project”

Doelgroep	 Duitsland	 UK	 Nederland	 België
Aannemer B&U 	X	X	X	X
W-installateur 	2018 41%	48%	49%	36%
	2020 54%	54%	56%	69%
E-installateur 	52%	74%	59%	34%

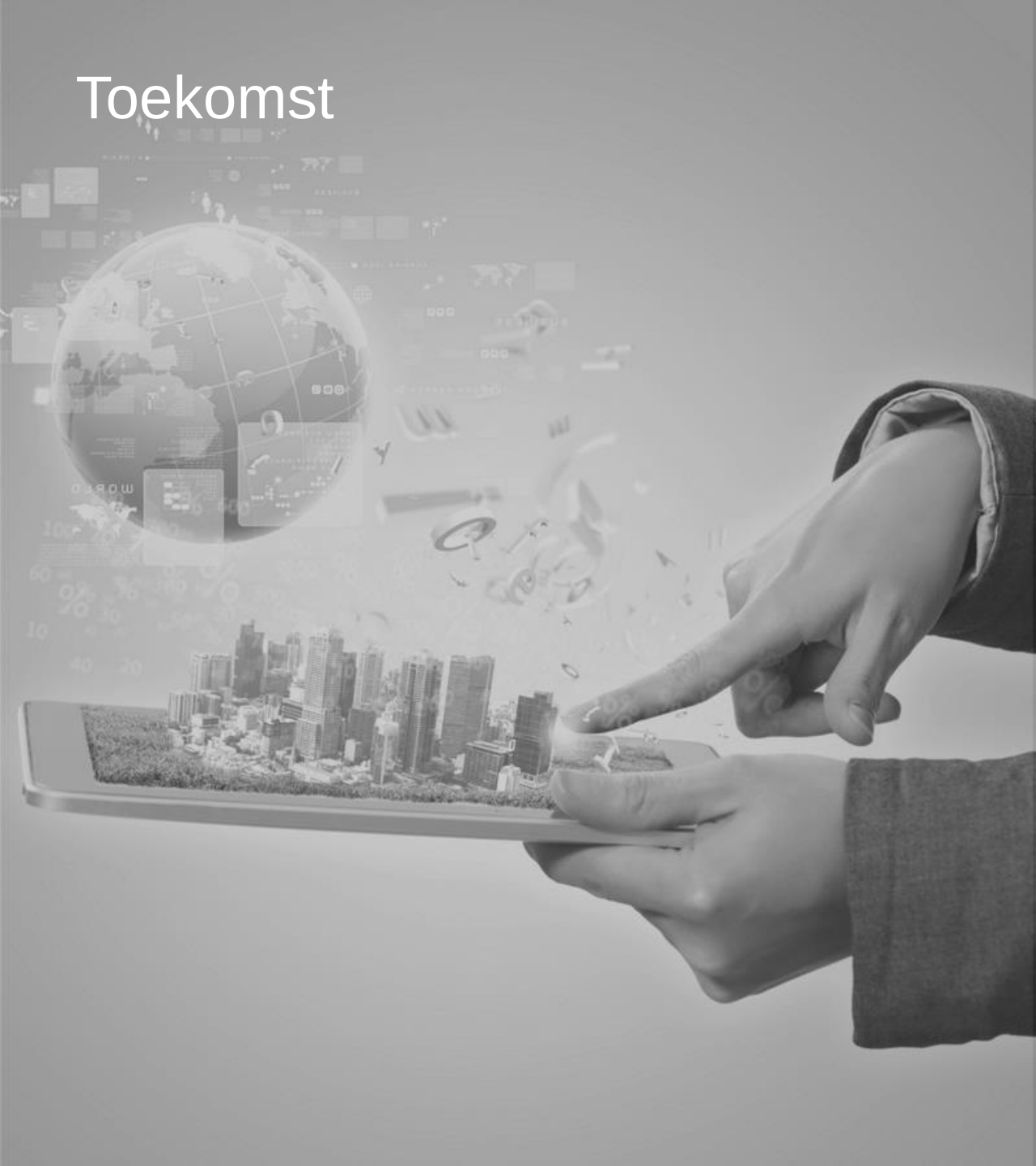
Aannemer: “In order to successfully implement the digital possibilities the present culture has to change”

Doelgroep	 Duitsland	 UK	 Nederland	 België
Aannemer B&U 	60%	66%	69%	57%
W-installateur 	X	X	X	X
E-installateur 	X	X	X	X



Toekomst

Disruptive forces?







Aannemer: “Digital revolution leads to competition from outside the construction sector”

Doelgroep	Duitsland	UK	Nederland	België
Aannemer B&U 	45%	36%	27%	34%



Illustration by Ben Fearnley

LETTER FROM TORONTO

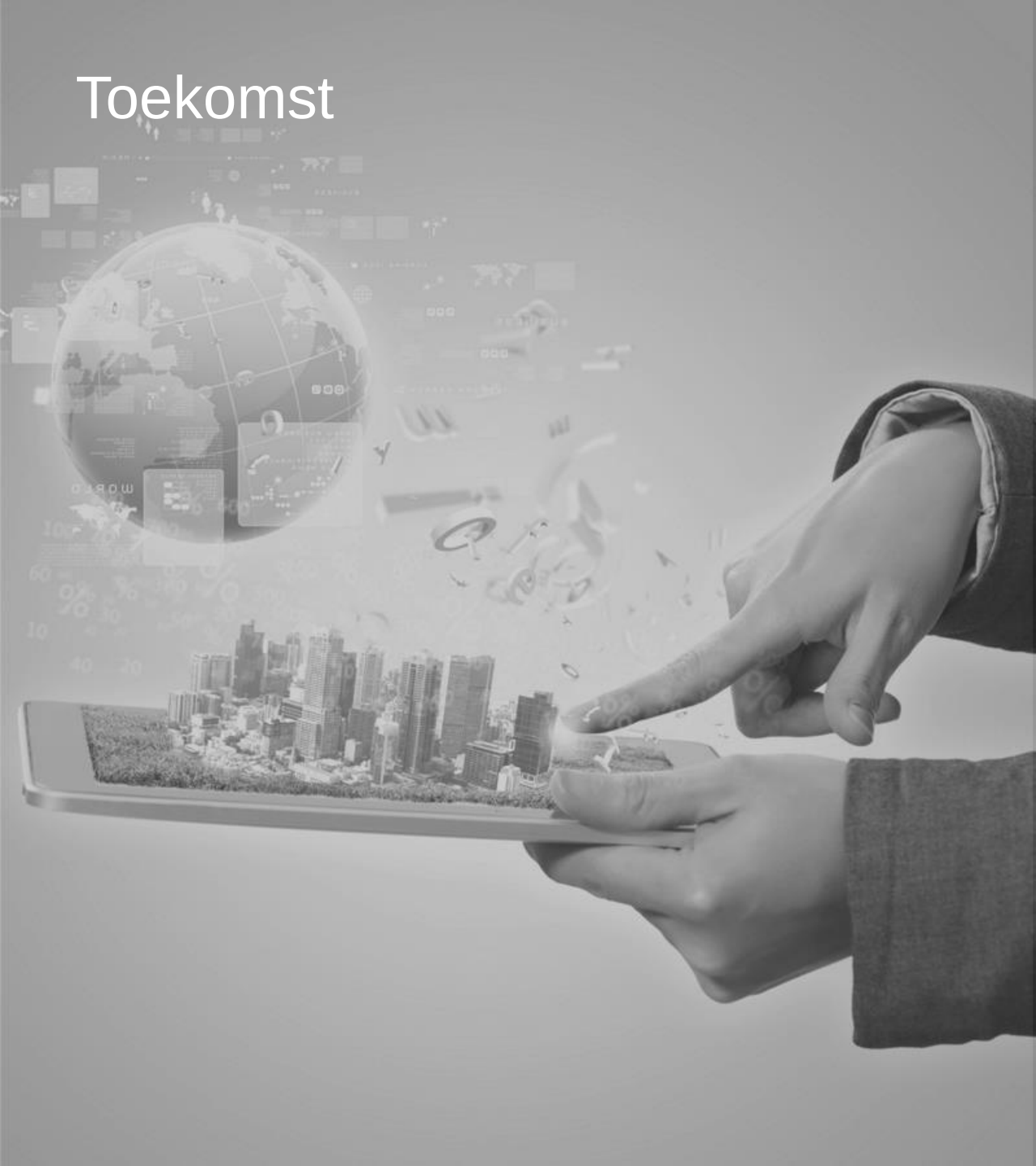
Google Is Building a City of the Future in Toronto. Would Anyone Want to Live There?

It could be the coolest new neighborhood on the planet—or a peek into the Orwellian metropolis that knows everything you did last night.

By NANCY SCOLA | July/August 2018

Toekomst

Key takeaways



KEY TAKEAWAYS

- Wat is nodig om digitalisering succesvol te laten zijn?
Gegevens-, informatie- en kennisuitwisseling
Gewoon doen, meer bedrijven/ partijen moeten er mee gaan werken
Standaardisering
Cultuurverandering
- Hoe kijken met name architecten en aannemers aan tegen digitalisering in de bouw en prefab?
- Wat zijn de grote winstpunten die er te behalen zijn als beide goed worden geïmplementeerd? Wat zijn de obstakels die men moet overwinnen?

KEY TAKEAWAYS

- Wat is nodig om digitalisering succesvol te laten zijn?
- Hoe kijken met name architecten en aannemers aan tegen digitalisering in de bouw en prefab?
Positief, aannemers nemen nog meer de regierol en ook fabrikanten nemen steeds vaker initiatief om het anders te gaan doen
- Wat zijn de grote winstpunten die er te behalen zijn als beide goed worden geïmplementeerd? Wat zijn de obstakels die men moet overwinnen?

KEY TAKEAWAYS

- Wat is nodig om digitalisering succesvol te laten zijn?
- Hoe kijken met name architecten en aannemers aan tegen digitalisering in de bouw en prefab?
- **Wat zijn de grote winstpunten die er te behalen zijn als beide goed worden geïmplementeerd? Wat zijn de obstakels die men moet overwinnen?**
Efficiënter projectverloop met een goed eindresultaat voor de eindgebruiker, waardoor minder irritatie is tussen de verschillende disciplines

Inzicht in de Total Cost of Ownership vooraf waardoor andere verdienmodellen ontwikkeld kunnen worden en aansluiting wordt gemaakt met circulariteit.

[illegible]

USP Marketing Consultancy

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