

DECISION MODELLING ADAPTIVE RE-USE OF RELIGIOUS HERITAGE

P5 Presentation

S.H.C.P. van Engelen

10-4-2018

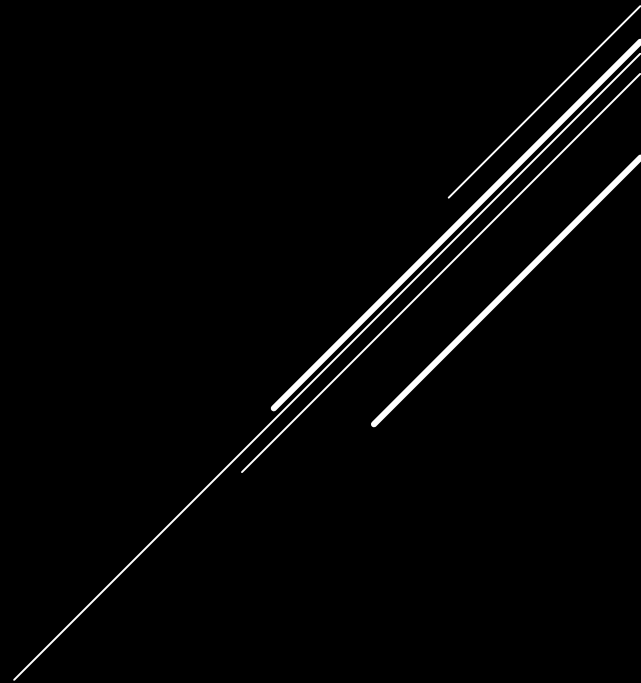


STUDENTENHUISVESTING, ROTTERDAM



INTRODUCTIE EN INHOUD

INTRODUCTIE



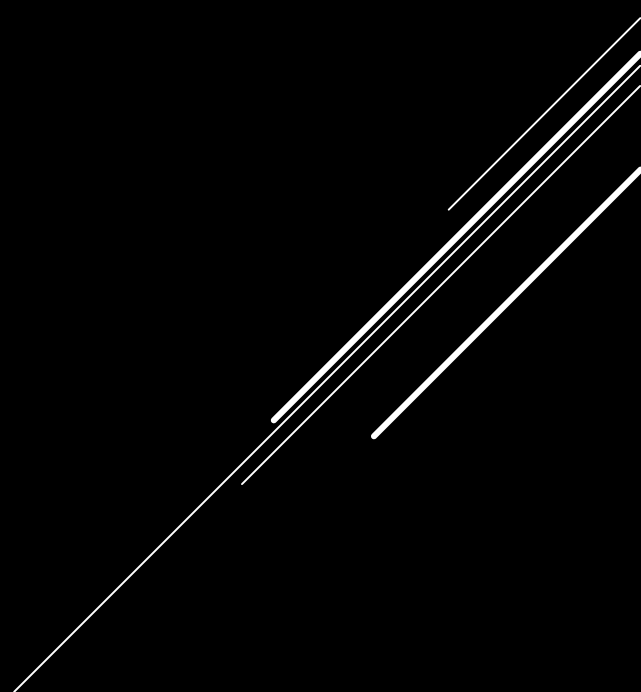
BOEKHANDEL, MAASTRICHT



INHOUD

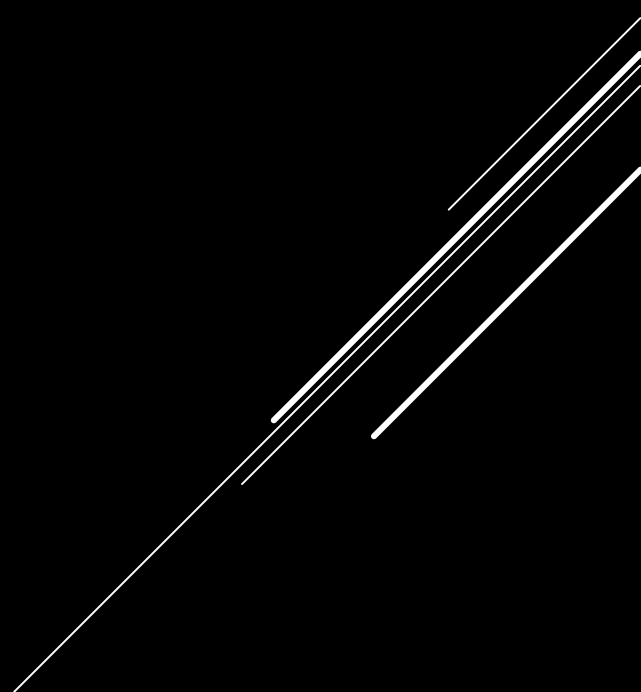
► Achtergrond

INHOUD



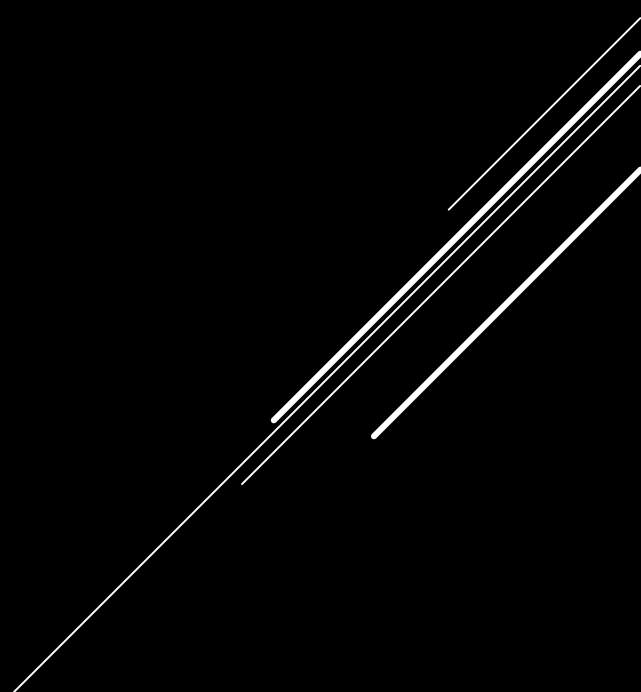
- ▶ Achtergrond
 - ▶ Veroudering

INHOUD



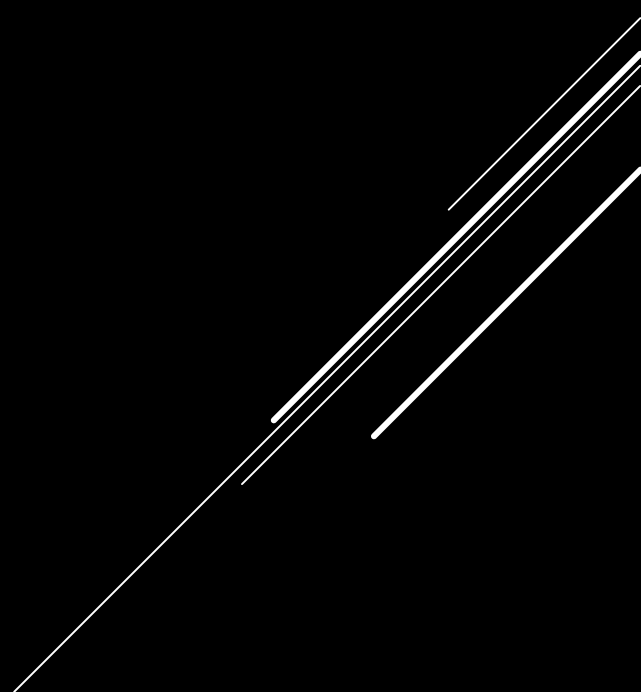
- ▶ Achtergrond
 - ▶ Veroudering
 - ▶ Herbestemming

INHOUD



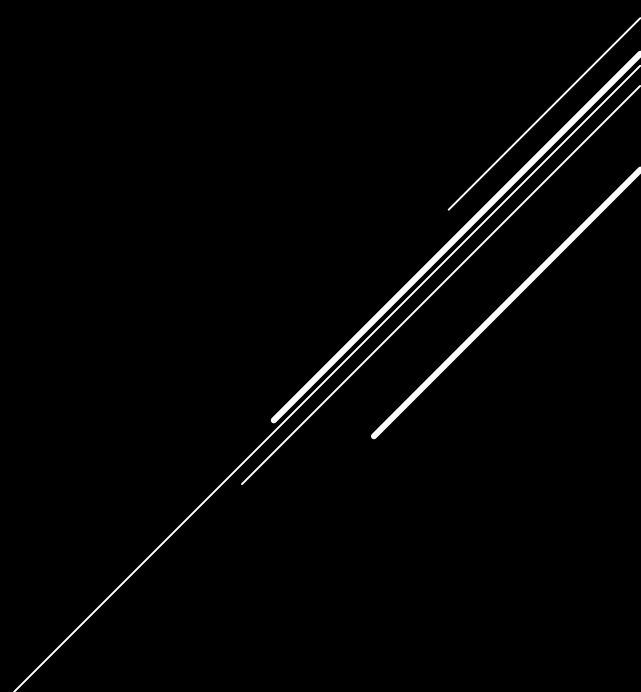
- ▶ Achtergrond
 - ▶ Veroudering
 - ▶ Herbestemming
 - ▶ Voorgestelde oplossing

INHOUD



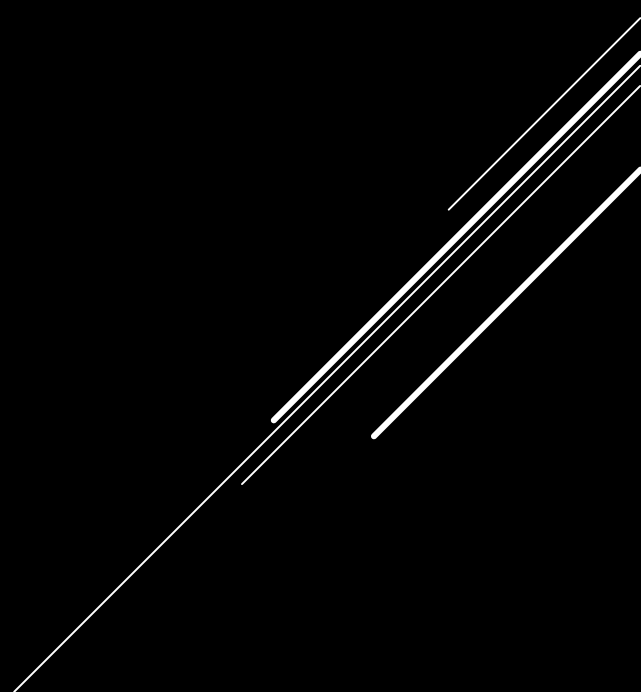
- ▶ Achtergrond
 - ▶ Veroudering
 - ▶ Herbestemming
 - ▶ Voorgestelde oplossing
 - ▶ Onderzoeksvraag

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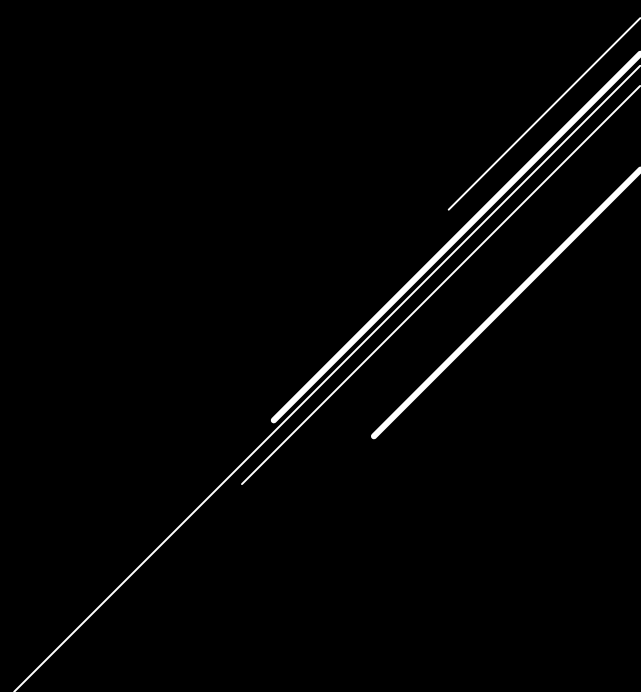
- ▶ Achtergrond
- ▶ Methoden

INHOUD



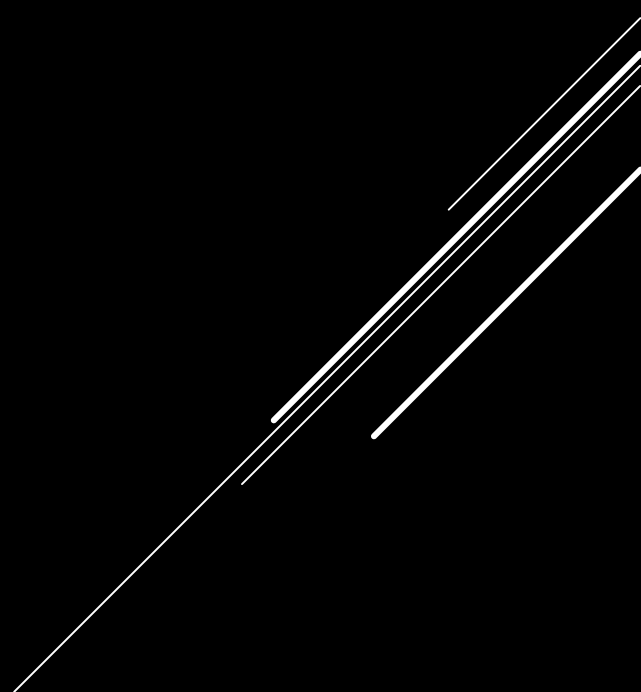
- ▶ Achtergrond
- ▶ Methoden
 - ▶ Algemeen

INHOUD



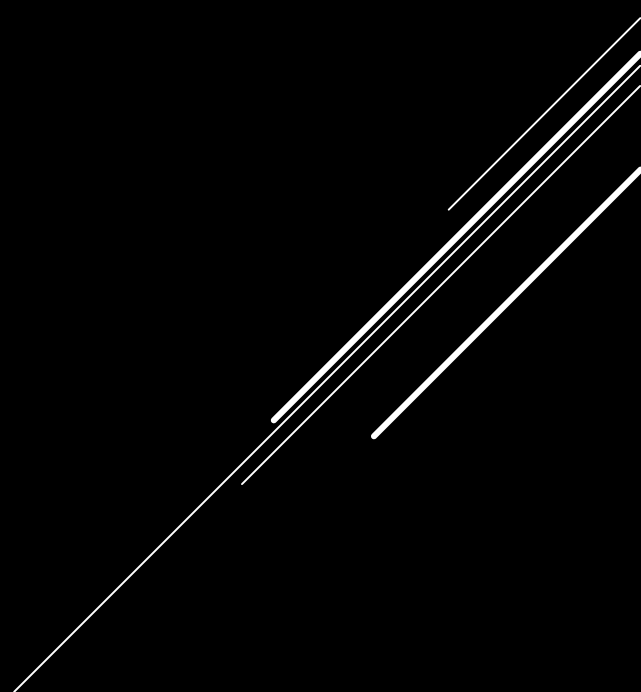
- ▶ Achtergrond
- ▶ Methoden
 - ▶ Algemeen
 - ▶ Eerste ontwerp

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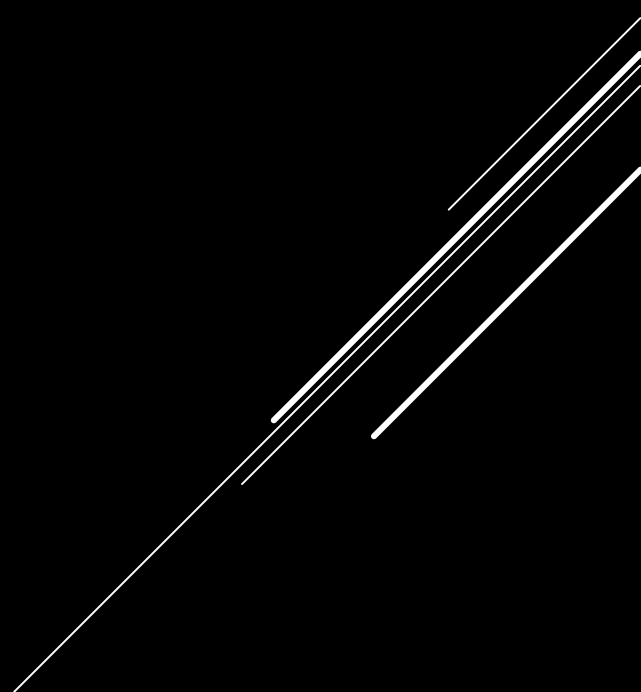
- ▶ Achtergrond
- ▶ Methoden
 - ▶ Algemeen
 - ▶ Eerste ontwerp
 - ▶ Input case

INHOUD



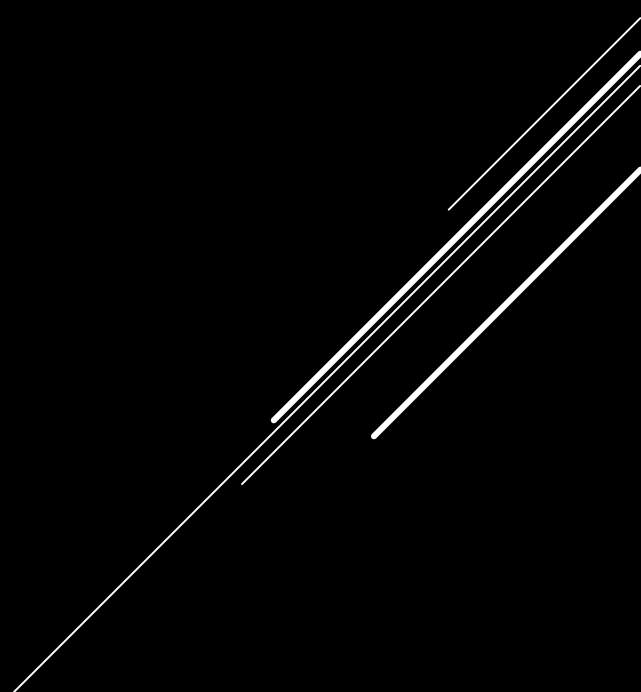
- ▶ Achtergrond
- ▶ Methoden
- ▶ Bevindingen

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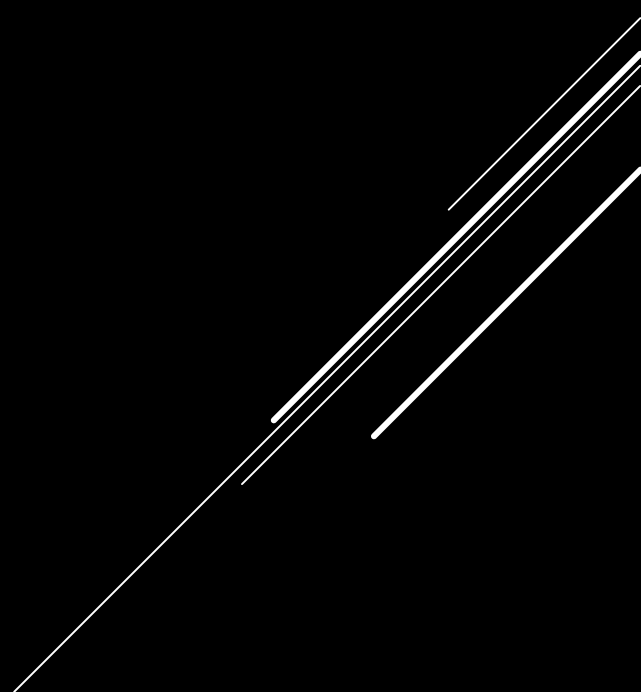
- ▶ Achtergrond
- ▶ Methoden
- ▶ Bevindingen
- ▶ Conclusie

INHOUD



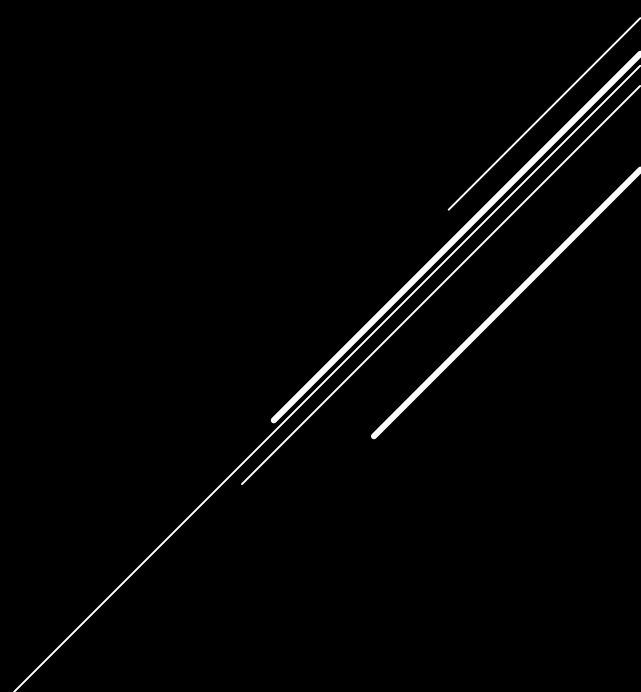
- ▶ Achtergrond
- ▶ Methoden
- ▶ Bevindingen
- ▶ Conclusie
- ▶ Discussie

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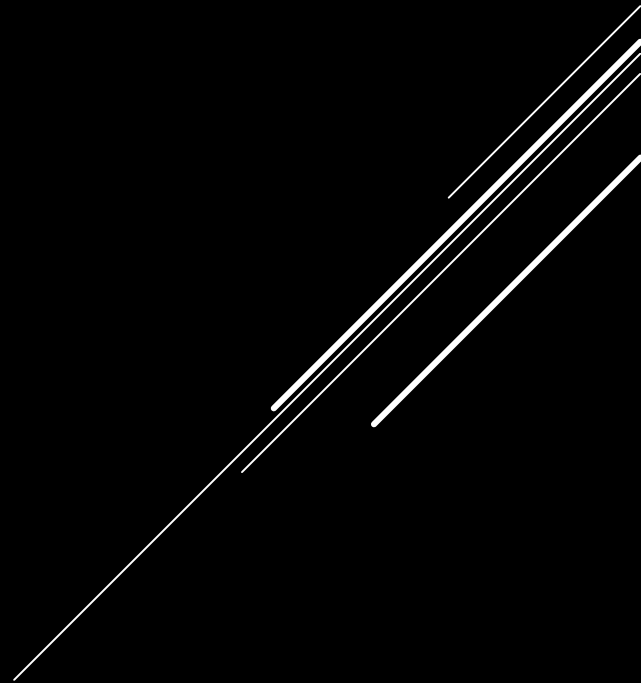


- ▶ Achtergrond
- ▶ Methoden
- ▶ Bevindingen
- ▶ Conclusie
- ▶ Discussie
- ▶ Aanbevelingen en reflectie

INHOUD



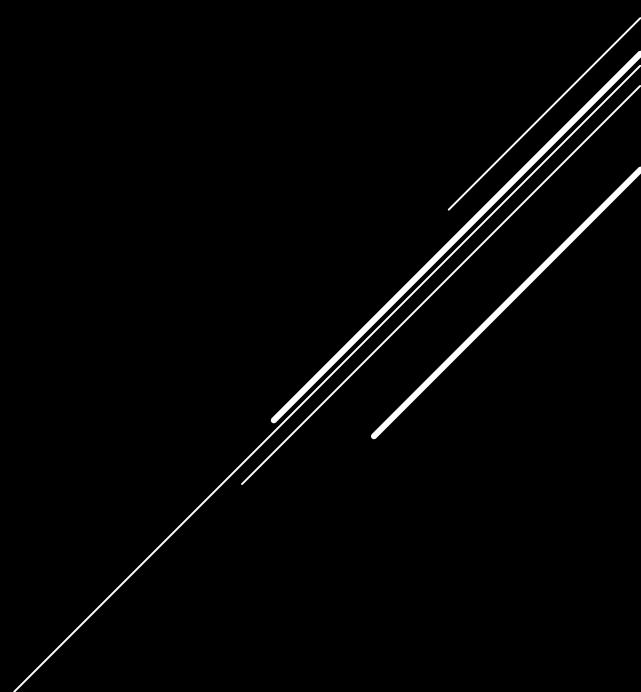
ACHTERGROND



- ▶ (Jongmans, Linskens, & De Groot, 2008; Katholiek Nieuwsblad, 2013; Kennedy & Zwemer, 2010)

▶ Veroudering

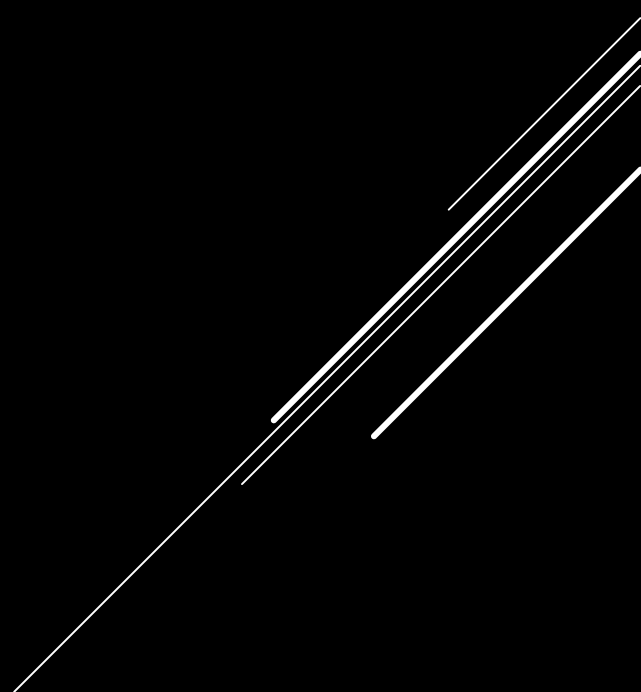
ACHTERGROND



► (Haasdonk, 2013; Velthuis & Spennemann, 2007)

► Erfgoed

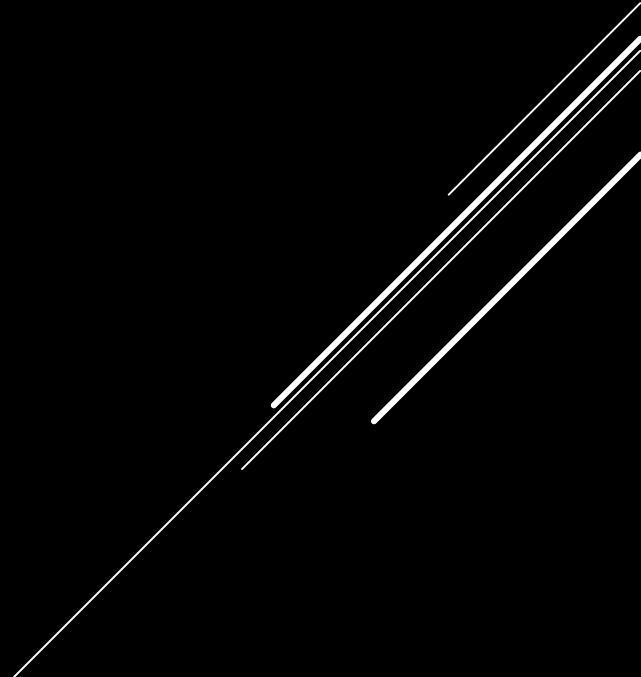
ACHTERGROND



- ▶ (Castells, 2010; Spennemann, 2006a, 2006b; Task Force Toekomst Kerkgebouwen, 2014)

▶ Erfgoed

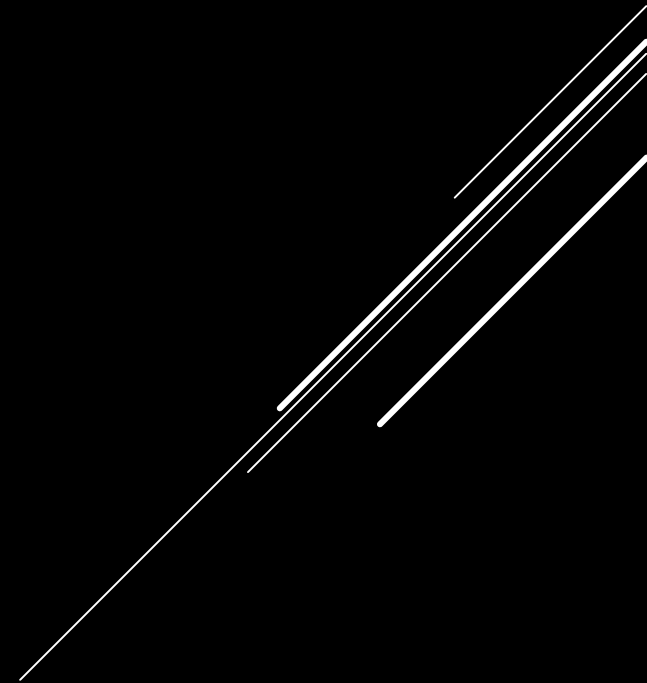
ACHTERGROND



► (Bromley, Tallon, & Thomas, 2005; Wright & Eppink, 2016)

► Herbestemming

ACHTERGROND

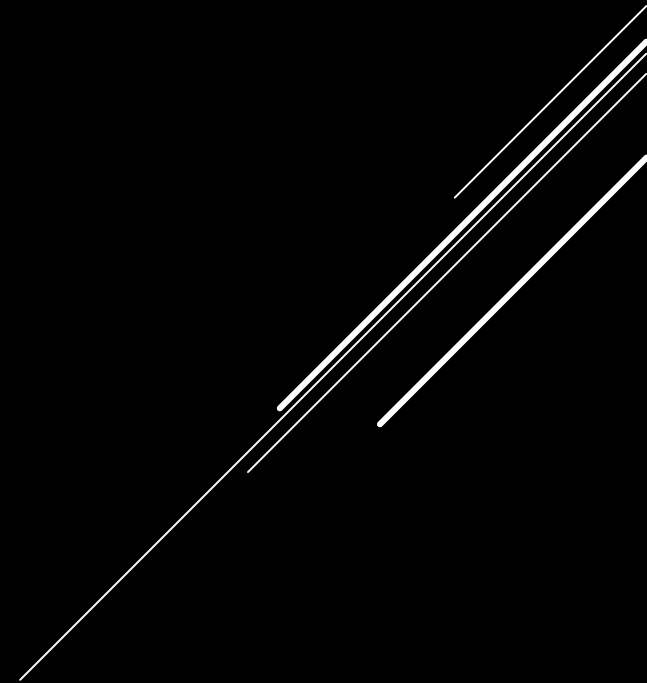


► Bullen & Love (2011):

“converting a building to undertake a change of use required by new or existing owners”

► Herbestemming

ACHTERGROND



► Herbestemming

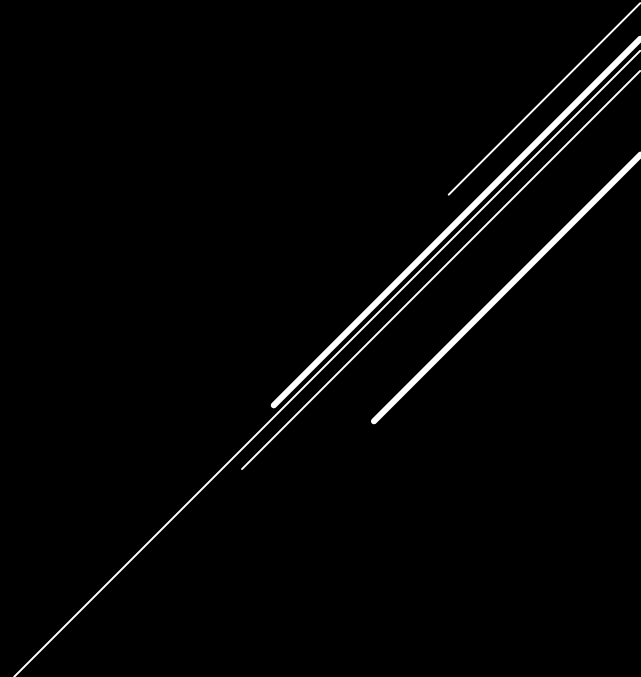
ACHTERGROND

- (Bromley et al., 2005; Bullen & Love, 2011; Conejos, Yung, & Chan, 2014; Elsorady, 2014; Lynch, 2014, 2016; Mohamed & Alauddin, 2016; Ruijgrok, 2006; Tweed & Sutherland, 2007; Watson, 2009; Wilkinson, Remøy, & Langston, 2014; Yung & Chan, 2012)
- Architectonische integriteit bewaren
- Duurzame ontwikkeling stimuleren
- Gebiedsontwikkeling versnellen
- Duurzaamheidsdoelen bereiken
- Erfgoed behouden
- Verder behoud promoten
- Verbeteren van de kwaliteit van gebouwde omgeving
- Culturele identiteit van samenlevingen beschermen
- Gebruik van private mobiliteit terugdringen
- Voorkomen van afval uit sloop
- Verkleinen milieu-footprint gebouwde omgeving
- Verkleinen consumptie van materiaal, transport en energie
- Disruptie door bouwwerkzaamheden verkleinen
- Herbestemmingsprojecten marketen
- Waarde vergroten van object
- Waarde vergroten in omgeving
- Oplossen van vraag naar huisvesting en commerciële ruimte

- ▶ (Asselbergs et al., 2008; Clark, 2007; Conejos, Langston, Chan, & Chew, 2016; Elsorady, 2014; Herbestemming.nu, 2017; Shipley, Utz, & Parsons, 2006)

▶ Herbestemming

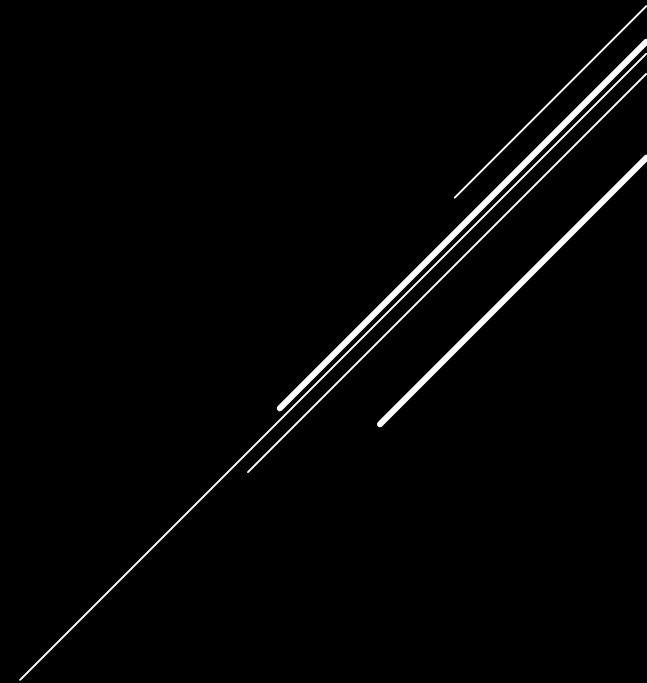
ACHTERGROND



- ▶ (Russell L. Ackoff, 1956; Bazelmans, 2013; Binnekamp, 2010; Jackson, 2003; Jonkers & Van Doren, 2017; Koenen, 2017; Misirlisoy & Günçe, 2016; Sluiter, 2017; Van Loon, 1998; Van Schijndel, 2017)

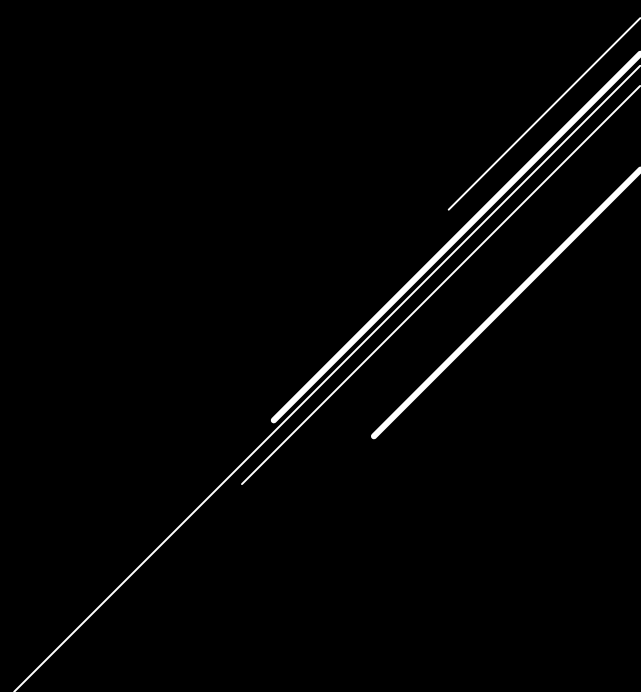
▶ Behoud

ACHTERGROND



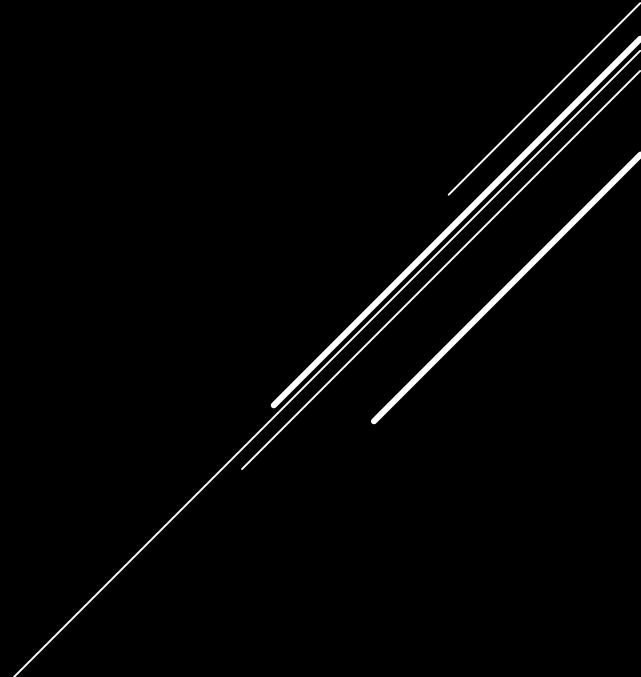
- ▶ Toepassen van systeembenadering op de herbestemming van functioneel verouderde kerken

ACHTERGROND



- ▶ How can a decision model improve the practice of adaptive re-use of functionally obsolete Roman Catholic churches in the Netherlands?

ACHTERGROND



RESTAURANT, ANDIJK

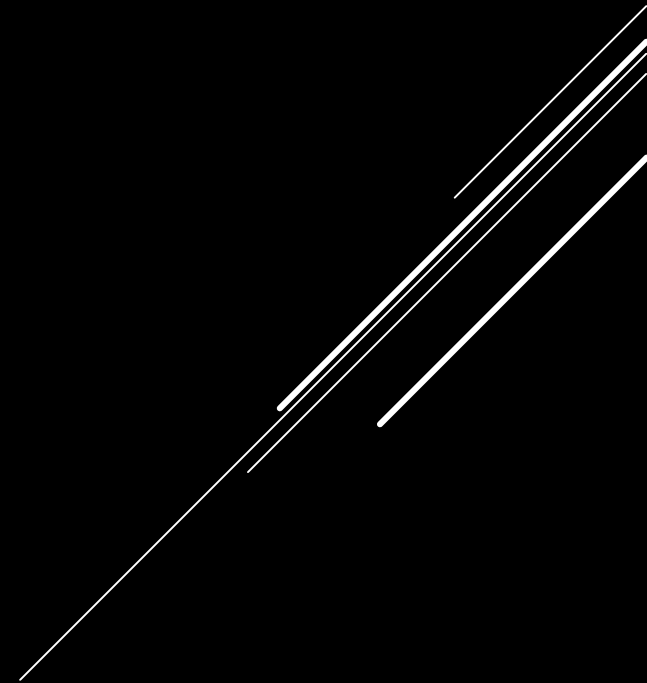


ACHTERGROND

▶ (R.L. Ackoff & Sasieni, 1968)

- ▶ Probleem formuleren
- ▶ Wiskundig model van bestudeerde systeem bouwen
- ▶ Oplossing uit het model halen
- ▶ Model testen en oplossing evalueren
- ▶ Implementeren en onderhouden van oplossing

ACHTERGROND

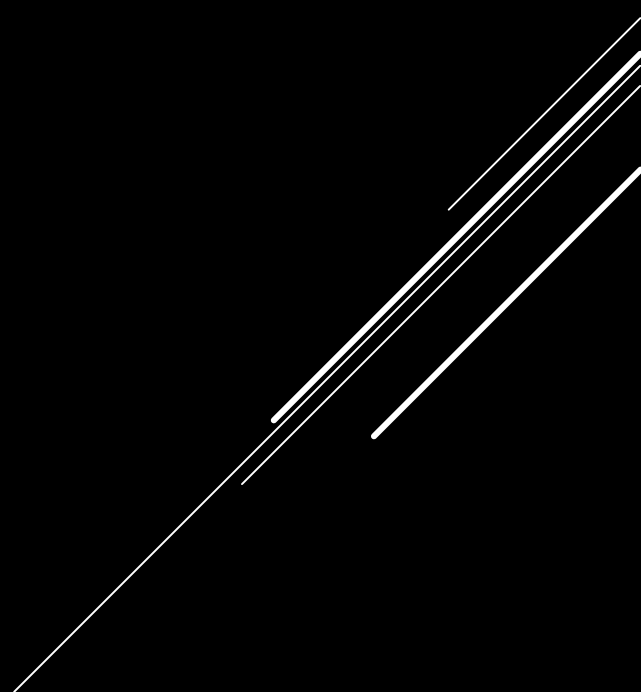


- ▶ Mogelijke herbestemmingen moeten gemodeleerd kunnen worden
- ▶ Manier waarop project faalt moet geïdentificeerd kunnen worden
- ▶ (Tegenovergestelde) Eisen met de grootste impact op haalbaarheid moeten geïdentificeerd kunnen worden.

ACHTERGROND

► Relevantie

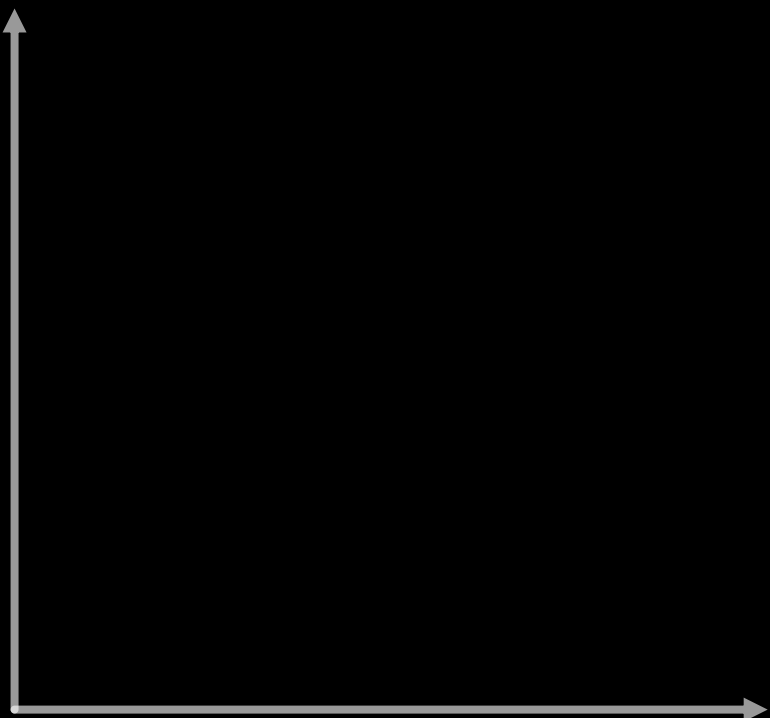
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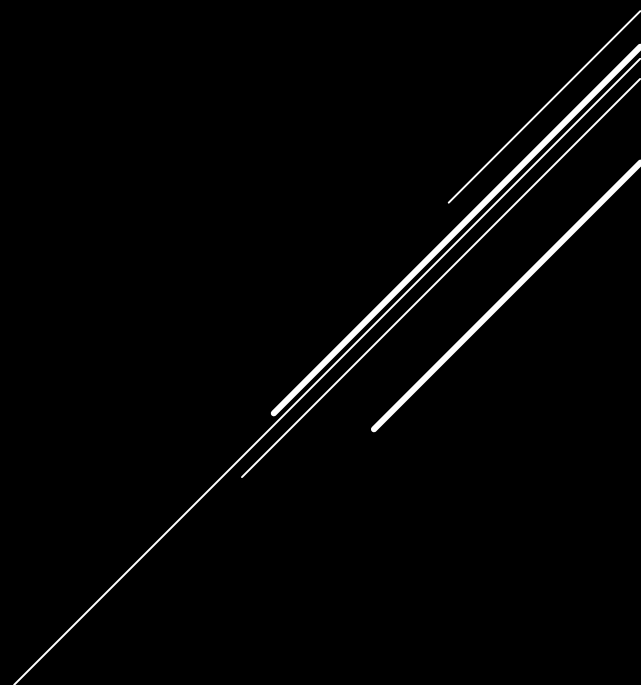
GLASATELIER, TILBURG

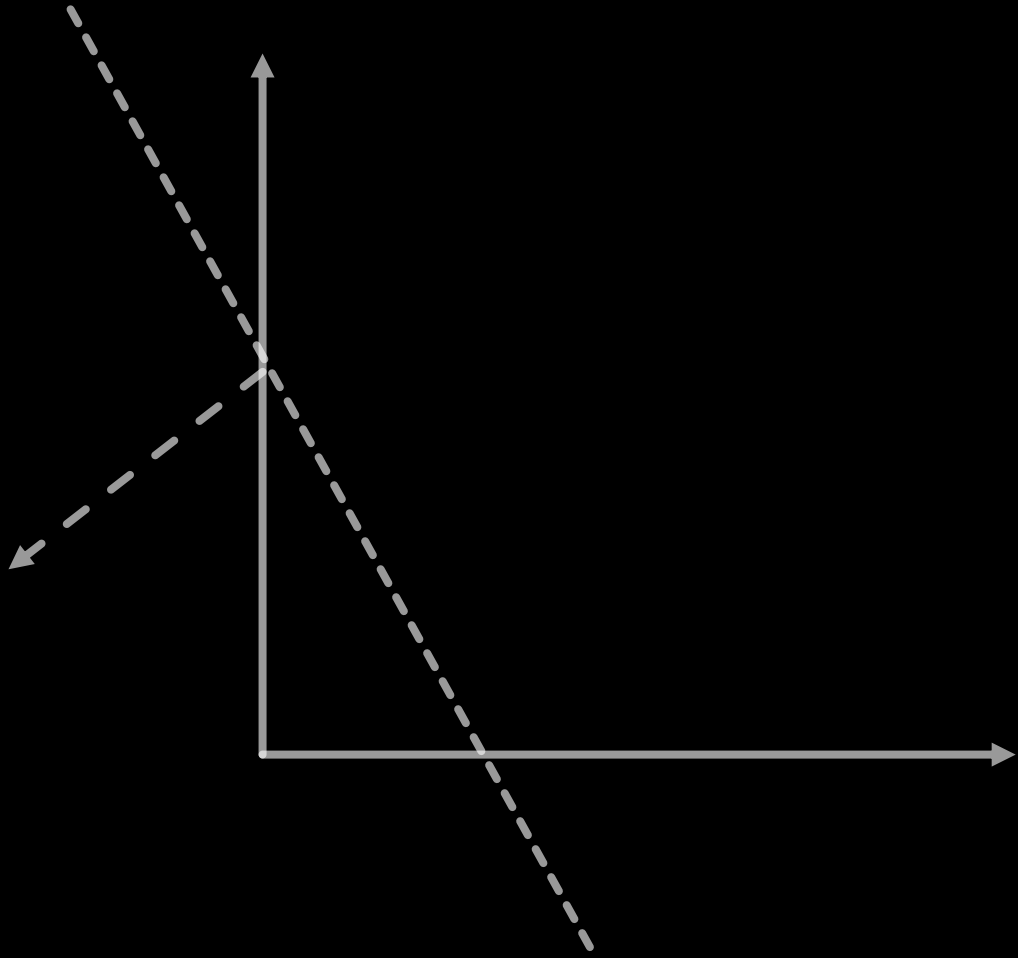


BESLISMODELLEREN

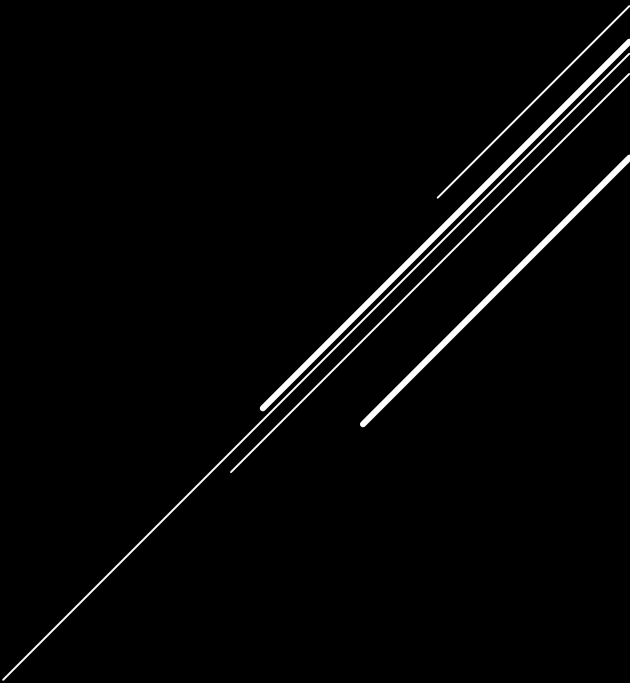


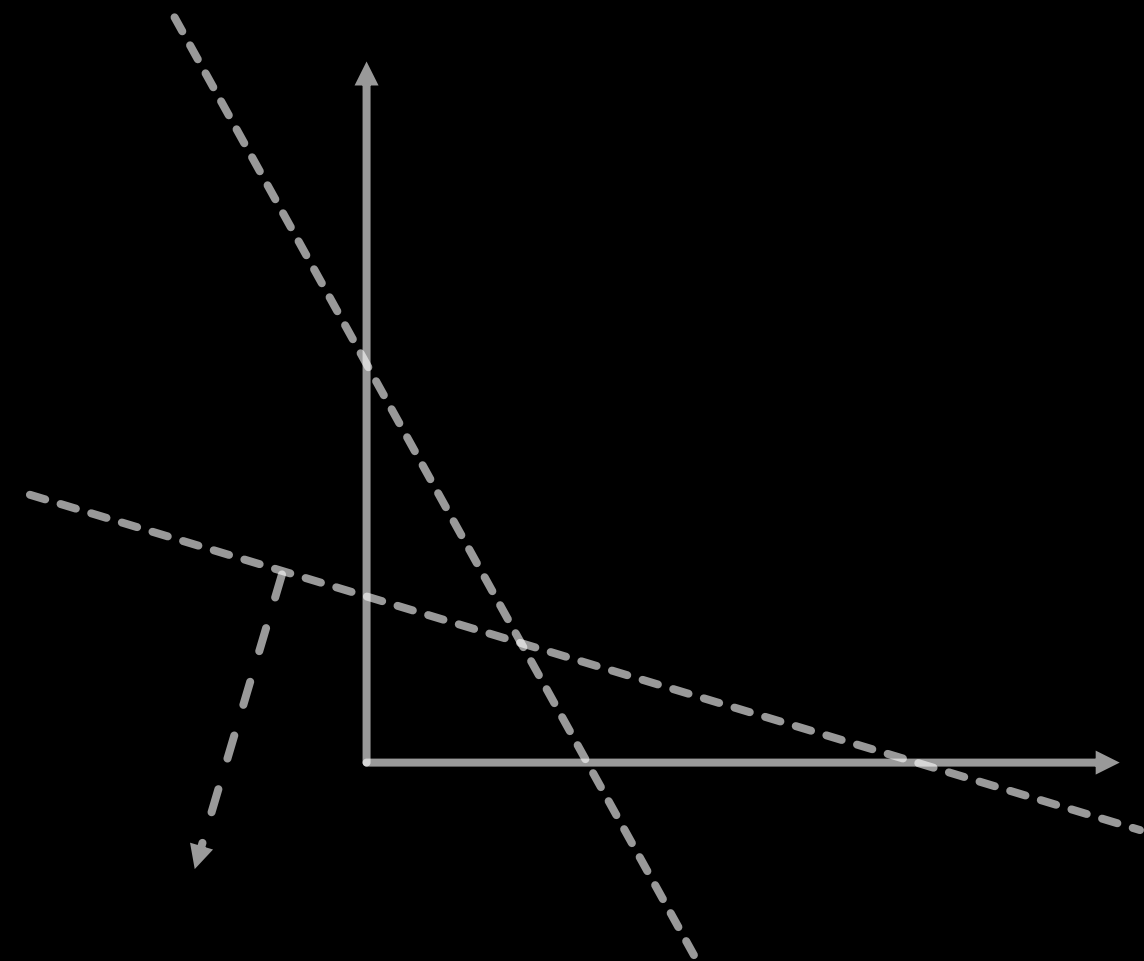
BESLISMODELLEREN



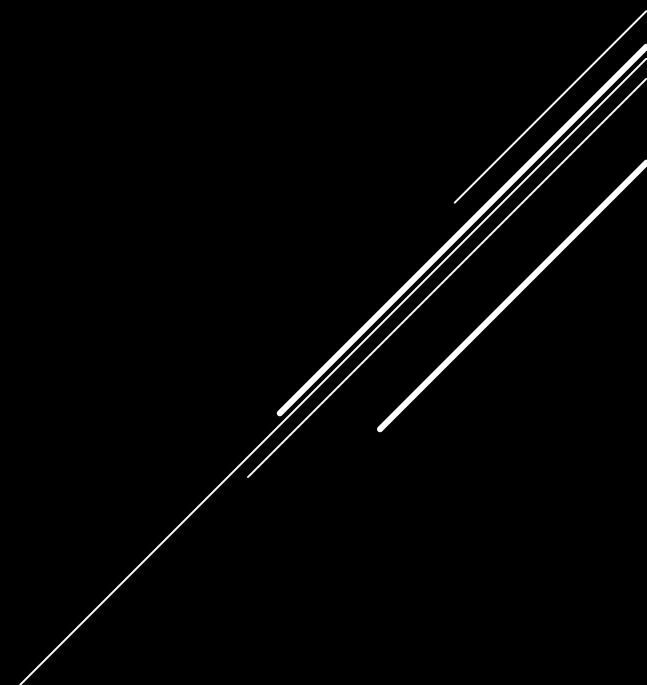


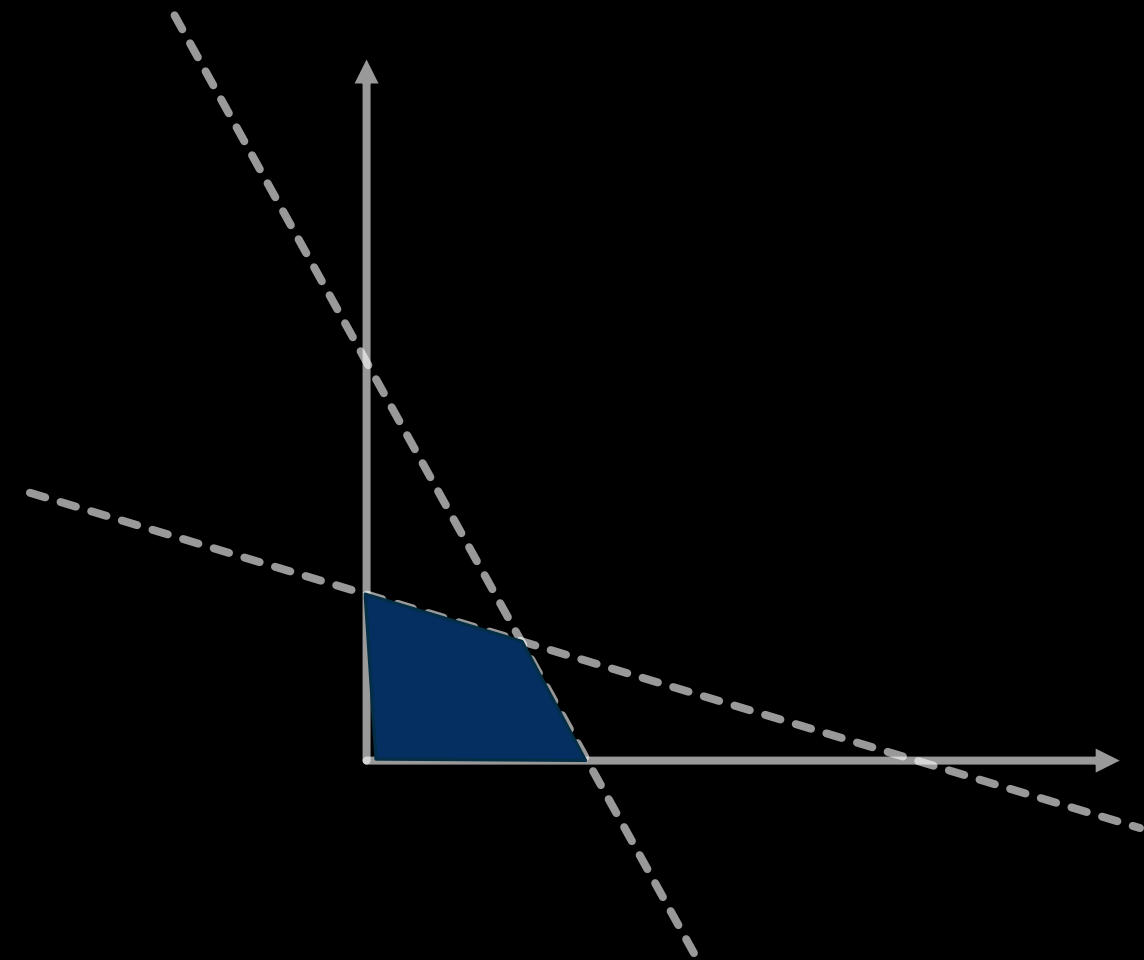
BESLISMODELLEREN



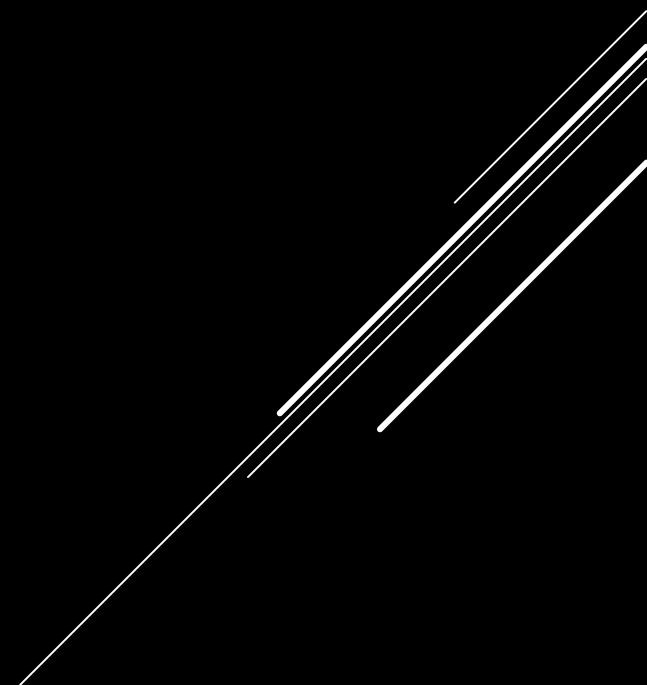


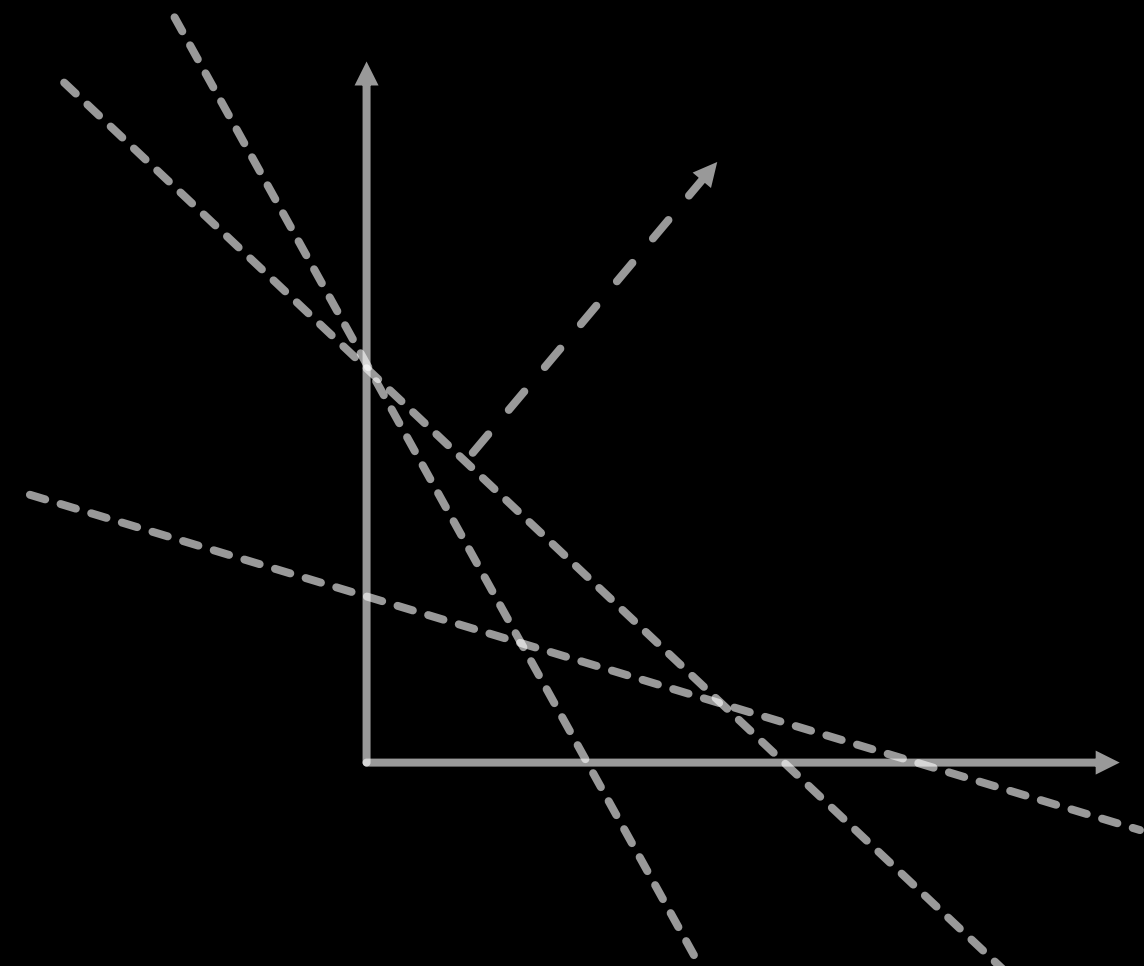
BESLISMODELLEREN



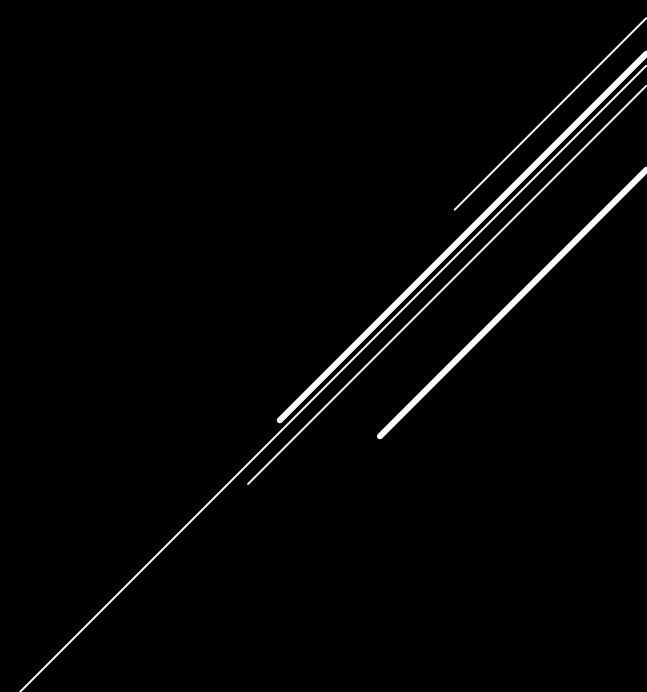


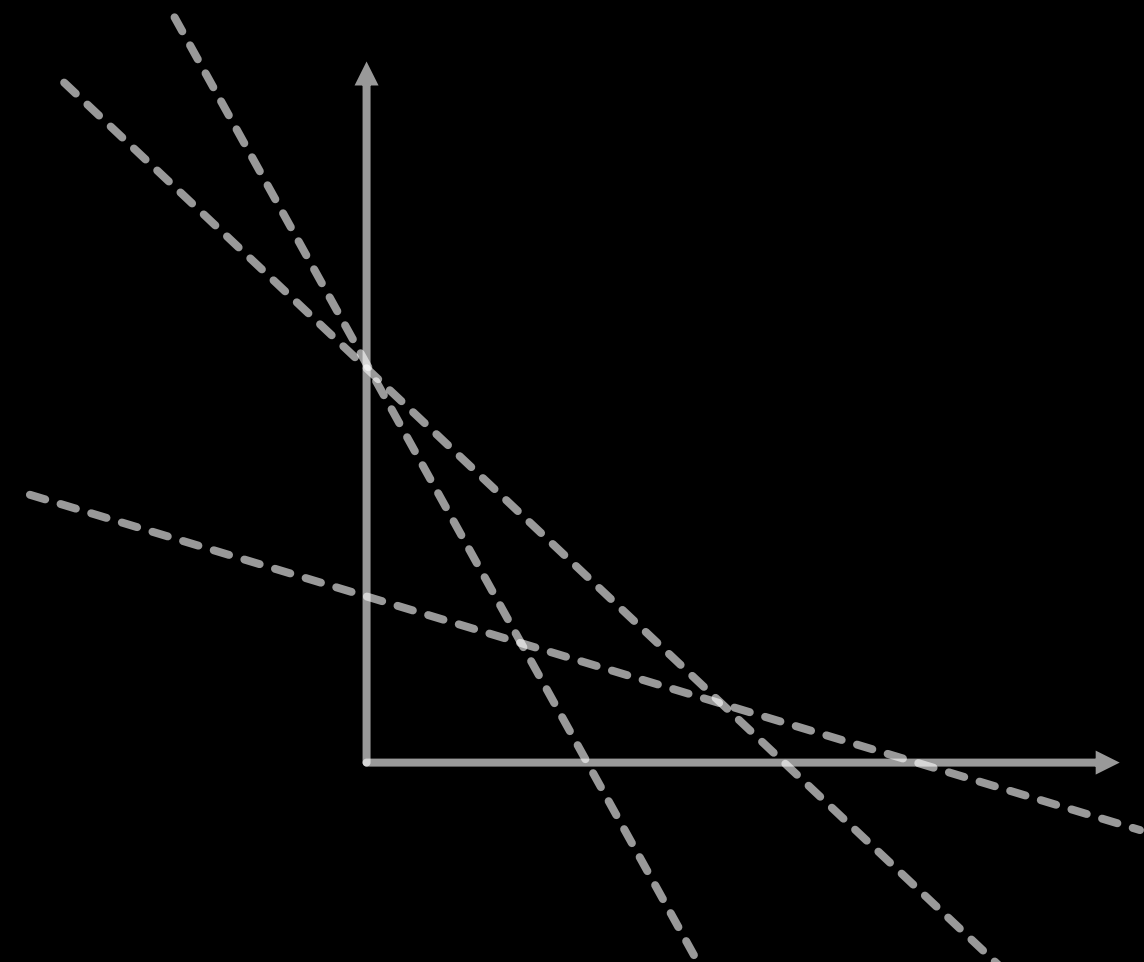
BESLISMODELLEREN



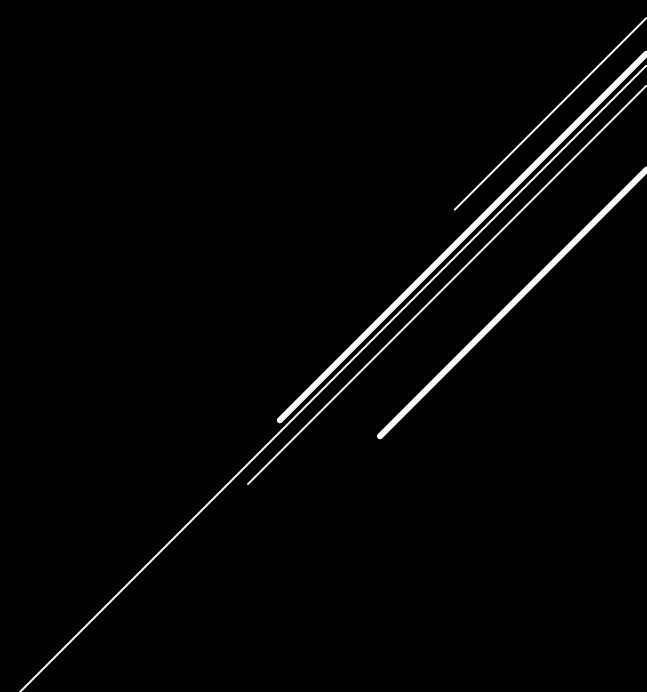


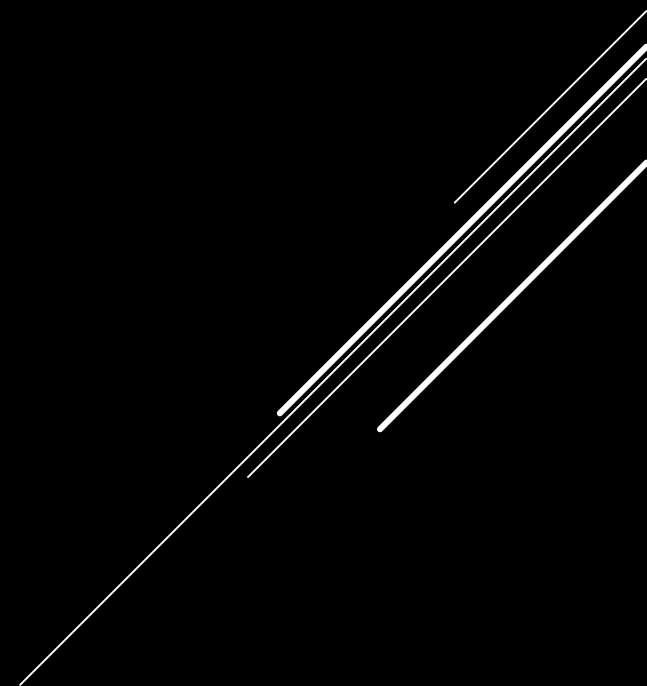
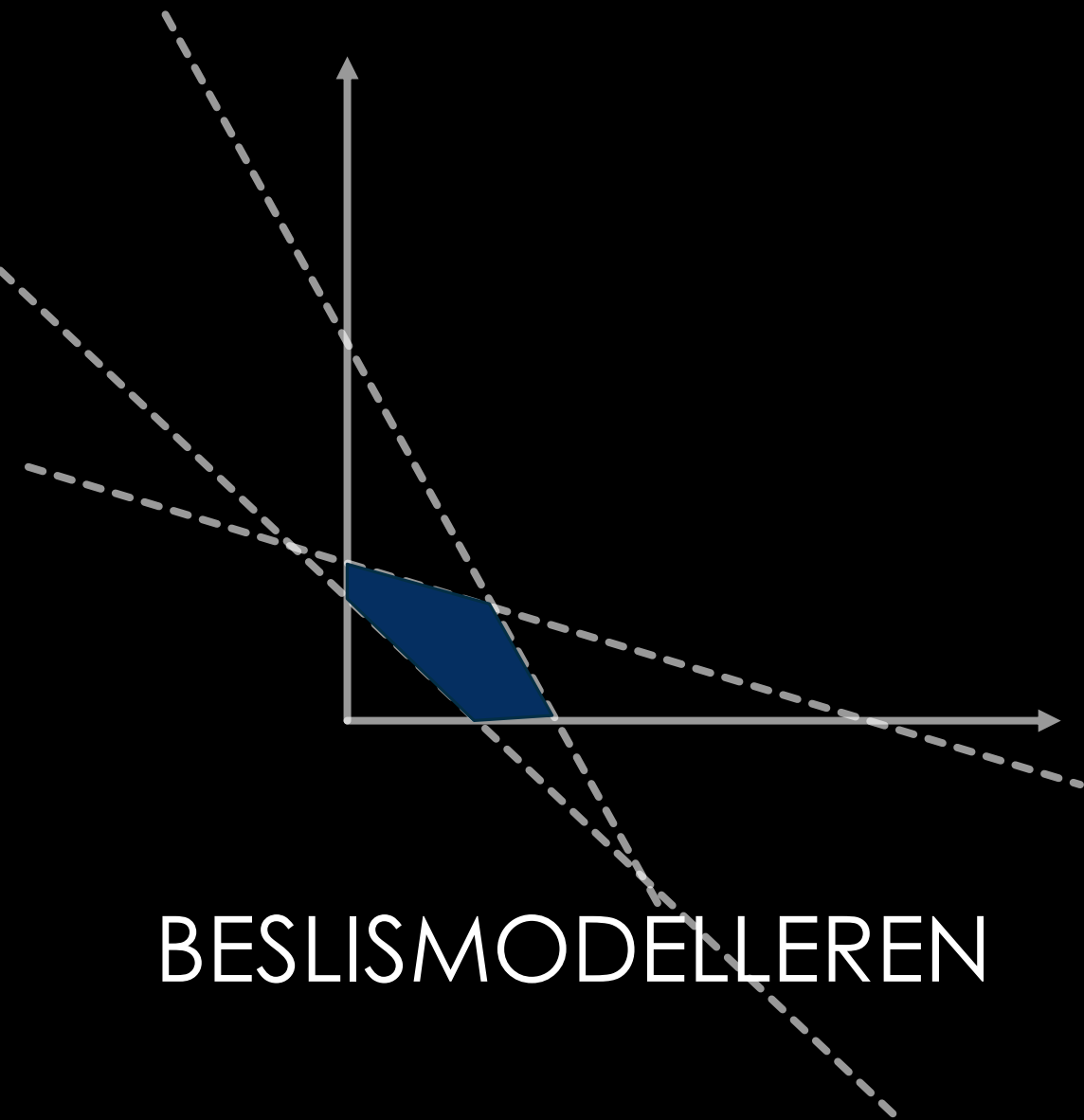
BESLISMODELLEREN





BESLISMODELLEREN



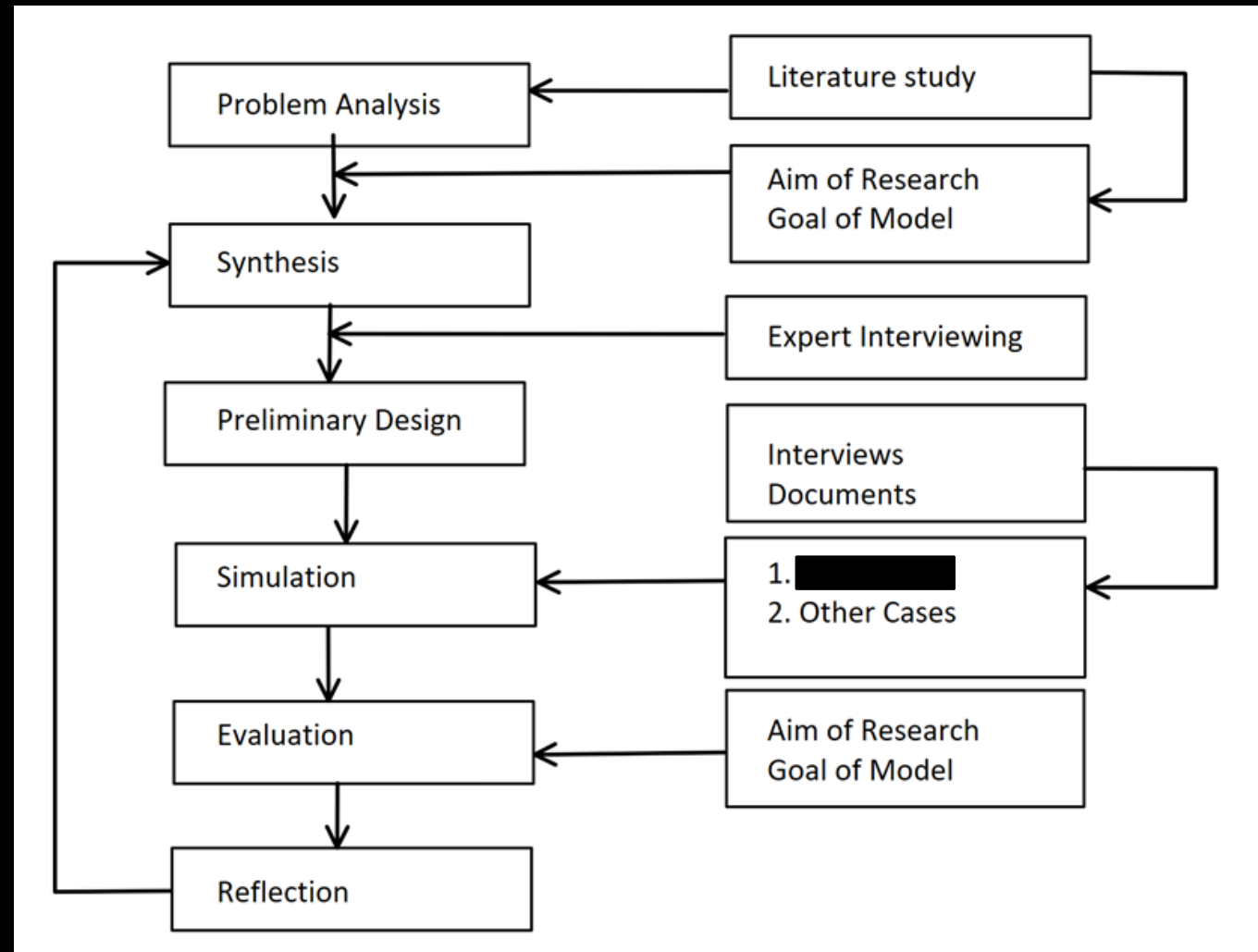


THEATER, BERGEN OP ZOOM



METHODEN

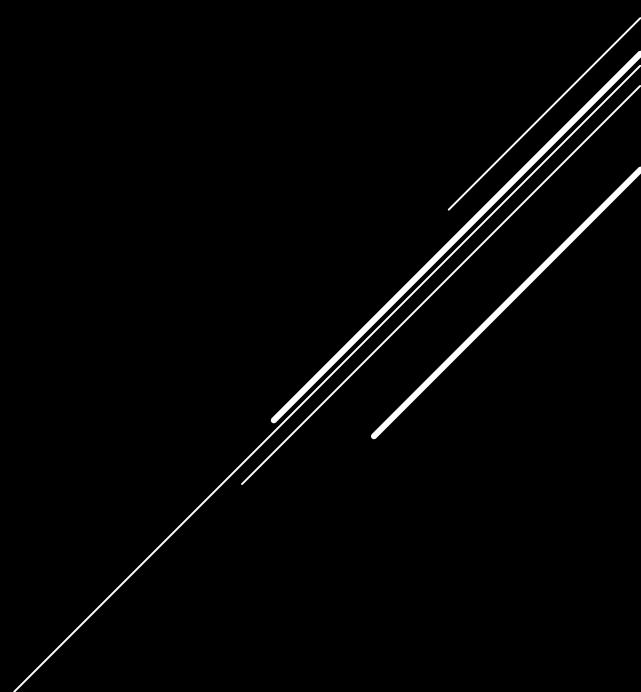
METHODEN



► Onderzoeksmethoden

- Adviseur van municipality
- Adviseur van parochie
- Bisdommelijk bouwadviseurs
- Projectontwikkelaar

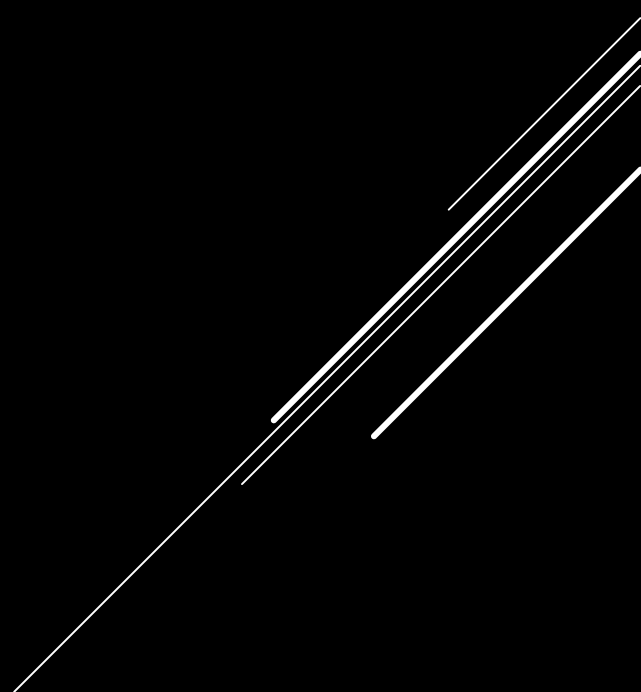
METHODEN



► (Bryman, 2016)

► Onderzoeksmethoden

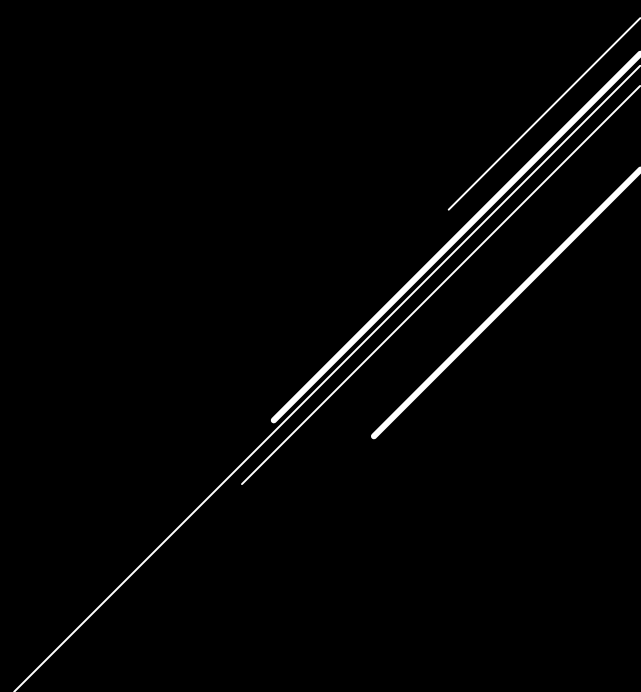
METHODEN



► (Binnekamp, 2015; Sluiter, 2017; Van Schijndel, 2017)

► Eerste model ontwerp

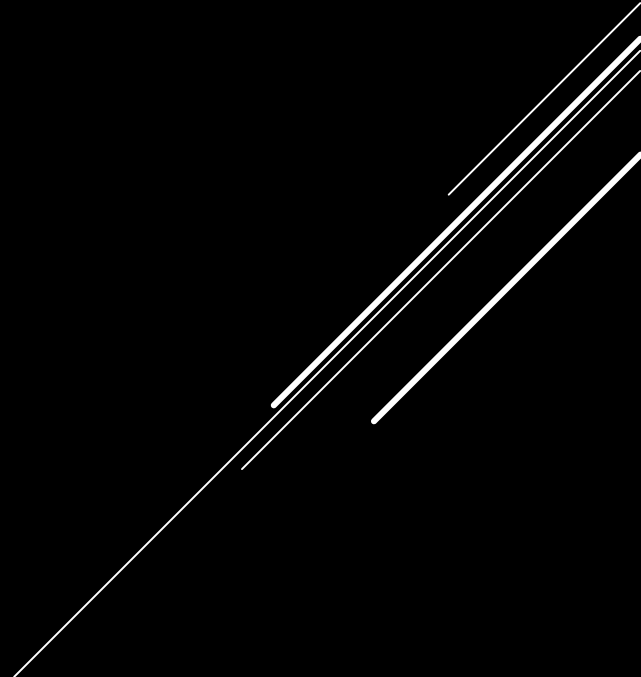
METHODEN



► (Jonkers & Van Doren, 2017)

► Eerste model ontwerp

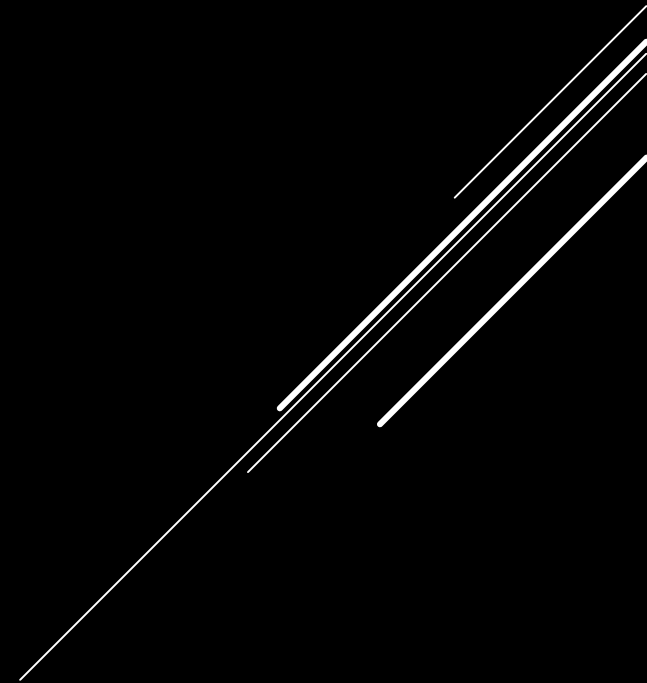
METHODEN



- ▶ (Jonkers & Van Doren, 2017; Koenen, 2017; Sluiter, 2017; Van Schijndel, 2017)

▶ Casus

METHODEN



► Casus

Maximize $-421.000 \cdot CU + 1.500.000 \cdot RD + 500.000 \cdot MU$

Under constraints:

$$1 \cdot CU + 1 \cdot RD + 1 \cdot MU = 1$$

(Een keuze mogelijk)

$$0 \cdot CU + 1 \cdot RD + 0 \cdot MU = 0$$

(Gemeente vindt kerk monumentwaardig)

$$0 \cdot CU + 0 \cdot RD + 1 \cdot MU = 0$$

(Bisdom staat herbestemming niet toe)

$$1 \cdot CU + 0 \cdot RD + 0 \cdot MU = 0$$

(Geen negatieve NCW mogelijk voor parochie)

METHODEN

Model

Endogenous Variables

Outcome

ContinuedUse

ReDevChapelSenior

MixedUse

1

0

0

Net Present Value Parish (10 year)

€

-421.000

€

1.500.000

€

500.000

€ -421.000

DUAL VALUES

Constraints:

One option only

1

1

1

1 = 1

€ -421.000

Actors:

Municipality

Finds church "monument worthy" (al

0

1

0

0 = 0

€ 1.921.000

Diocese

No Adaptive Re-use (no adaptive opti

0

0

1

0 = 0

€ 921.000

New Parish

Cannot Pay Upkeep (No Negative NPV

1

0

0

1 Not = 0

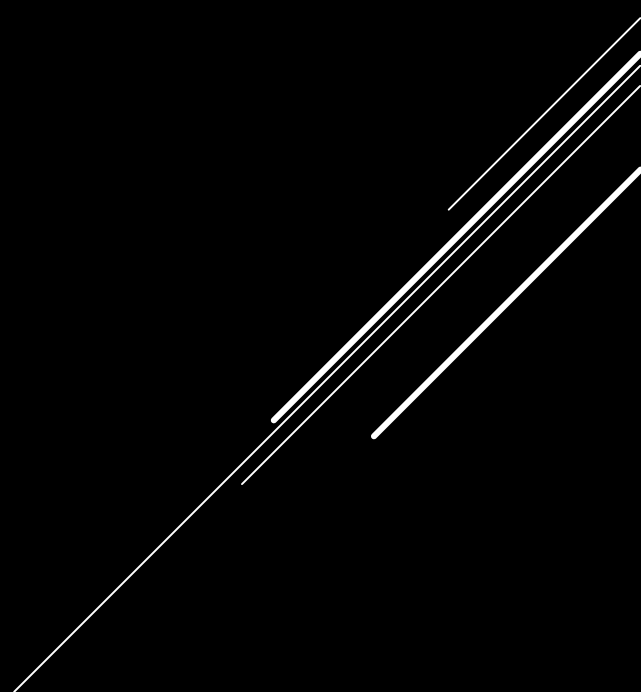
€

-

METHODS

► Casus

METHODEN



- ▶ Uitgebreide casus

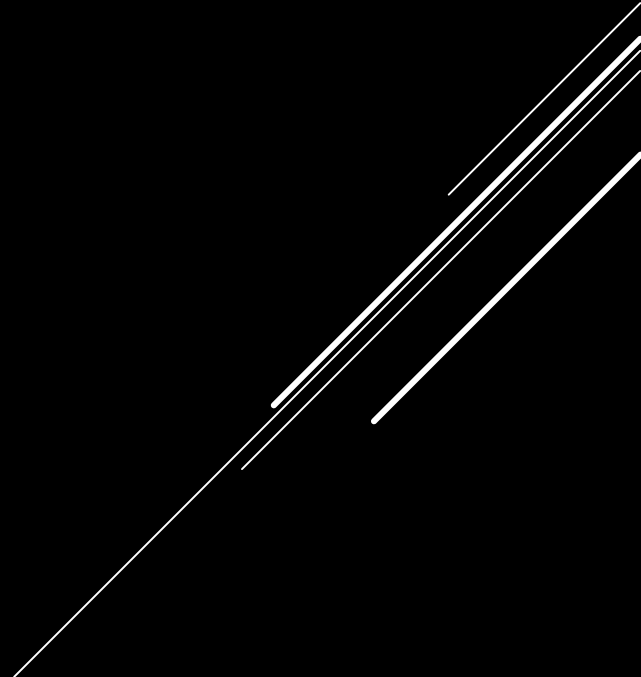
▶ (Jonkers & Van Doren, 2017; Koenen, 2017; Sluiter, 2017; Van Schijndel, 2017)

- ▶ (Ouderen) Appartementen
- ▶ Cultureel centrum
- ▶ Kantoor
- ▶ Bibliotheek/boekwinkel
- ▶ Winkelruimte of supermarkt
- ▶ Evenementenruimte
- ▶ Sportschool
- ▶ Binnenspeeltuin

METHODEN

Maximize $-421.000 \cdot \text{CU} + 1.500.000 \cdot \text{RCS} + 500.000 \cdot \text{MU} + 5.715.530 \cdot \text{RH} + 1.833.654 \cdot \text{AH} + 2.208.098 \cdot \text{AEH}$
 $+ 1.282.873 \cdot \text{AC} + 2.196.012 \cdot \text{AO} + 1.730.048 \cdot \text{AB} + 5.743.282 \cdot \text{AR} + 8.629.322 \cdot \text{AE} + 3.899.751 \cdot \text{AG} +$
 $3.332.529 \cdot \text{AP}$

METHODEN



Maximize $-421.000*CU + 1.500.000*RCS + 500.000*MU + 5.715.530*RH + 1.833.654*AH + 2.208.098*AEH + 1.282.873*AC + 2.196.012*AO + 1.730.048*AB + 5.743.282*AR + 8.629.322*AE + 3.899.751*AG + 3.332.529*AP$

Onder marktbeperkingen:

$$1*CU + 1*RCS + 1*MU + 0*RH + 0*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 0*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

$$1*CU + 1*RCS + 1*MU + 1*RH + 1*AH + 1*AEH + 1*AC + 1*AO + 1*AB + 1*AR + 1*AE + 1*AG + 1*AP = 1$$

Maximize $-421.000*CU + 1.500.000*RCS + 500.000*MU + 5.715.530*RH + 1.833.654*AH + 2.208.098*AEH + 1.282.873*AC + 2.196.012*AO + 1.730.048*AB + 5.743.282*AR + 8.629.322*AE + 3.899.751*AG + 3.332.529*AP$

Onder eisen van actoren:

$$0*CU + 1*RCS + 0*MU + 1*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 0*AE + 0*AG + 0*AP = 0$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 0*AE + 0*AG + 0*AP = 0$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 1*AO + 0*AB + 0*AR + 1*AE + 0*AG + 0*AP = 0$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 0*AE + 0*AG + 0*AP \geq 0$$

$$0*CU + 1.225.577*RCS + 465.274*MU + 4.052.662*RH + 805.589*AH + 1.118.801*AEH + 344.877*AC + 1.108.691*AO + 718.926*AB + 4.075.876*AR + 6.489.962*AE + 2.533.817*AG + 2.059.353*AP \leq 3.000.000$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 1*AE + 0*AG + 0*AP = 0$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 1*AE + 0*AG + 1*AP = 0$$

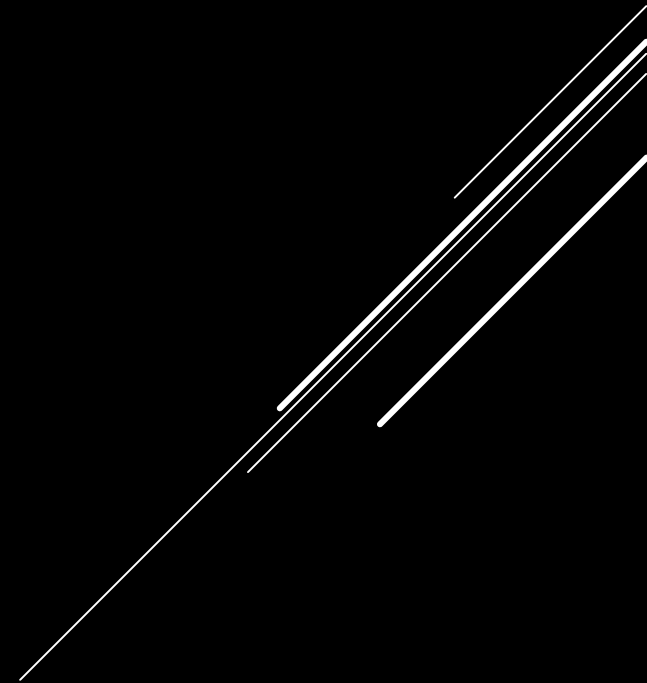
$$1*CU + 0*RCS + 0*MU + 0*RH + 0*AH + 0*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 0*AE + 0*AG + 0*AP = 0$$

$$0*CU + 0*RCS + 0*MU + 0*RH + 1*AH + 1*AEH + 0*AC + 0*AO + 0*AB + 0*AR + 0*AE + 0*AG + 0*AP = 0$$

Model	Choice options	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground	
	Endogenous Variables	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP	
	Outcome	0	0	0	0	0	0	0	0	0	0	0	1	0	
	Net Present Value Parish (10 year)	€ -421.000	€ 1.500.000	€ 500.000	€ 5.715.530	€ 1.833.654	€ 2.208.098	€ 1.282.873	€ 2.196.012	€ 1.730.048	€ 5.743.282	€ 8.629.322	€ 3.899.751	€ 3.332.529	€ 3.899.751
Constraints:															
	One option only	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Market Conditions (is market saturated?)															
	Housing	1	1	1	0	0	1	1	1	1	1	1	1	1	1 = 1
	Elderly housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Cultural	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Office	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Bookstore/library	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Supermarket/retail	1	1	1	1	1	1	1	1	1	0	1	1	1	1 = 1
	Horeca/eventspace	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Gym	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Indoor playground	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Actors:															
Municipality															
	Monument status	0	1	0	1	0	0	0	0	0	0	0	0	0	0 = 0
Diocese															
	Adaptive re-use allowed	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
	Perpetual clauses (functions)	0	0	0	0	0	0	0	1	0	0	1	0	0	0 = 0
Project Developer															
	No Negative NPV of Adaptation Development	€ -	€ 0	€ 0	€ -0	€ 0	€ -	€ -0	€ -0	€ -	€ -0	€ -	€ 0	€ 0	€ 0 ==>0
	Max Price of Church (Investment Space)	€ -	€ 1.225.577	€ 465.274	€ 4.052.662	€ 805.589	€ 1.118.801	€ 344.877	€ 1.108.691	€ 718.926	€ 4.075.876	€ 6.489.962	€ 2.533.817	€ 2.059.353	€ 2.533.817 <= € 3.000.000
Neighbours															
	No Noise Nuisance	0	0	0	0	0	0	0	0	0	0	1	0	0	0 = 0
	No Parking Problems	0	0	0	0	0	0	0	0	0	0	1	0	1	0 = 0
New Parish															
	No Negative NPV Allowed	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
Architect															
	Not suited for conversion to housing	0	0	0	0	1	1	0	0	0	0	0	0	0	0 = 0

- ▶ Uitgebreide casus

METHODEN



KANTOOR, BREDA



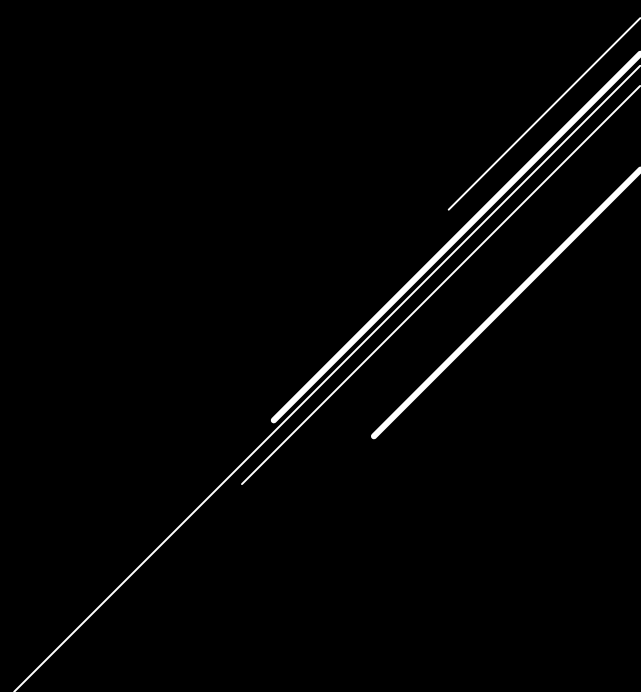
BEVINDINGEN

- ▶ Mogelijke herbestemmingen moeten gemodeleerd kunnen worden
- ▶ Manier waarop project faalt moet geïdentificeerd kunnen worden
- ▶ (Tegenovergestelde) Eisen met de grootste impact op haalbaarheid moeten geïdentificeerd kunnen worden.

BEVINDINGEN

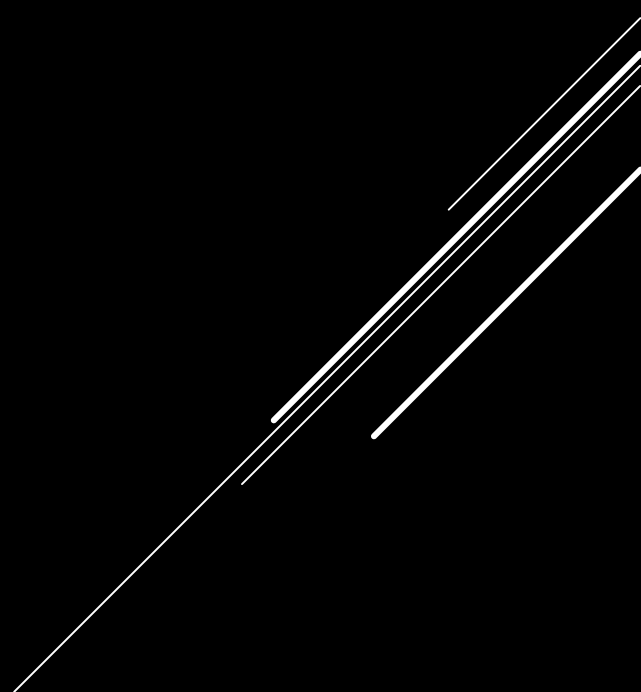
- ▶ Probleem formuleren
- ▶ Wiskundig model van bestudeerde systeem bouwen
- ▶ Oplossing uit het model halen
- ▶ Model testen en oplossing evalueren
- ▶ Implementeren en onderhouden van oplossing

BEVINDINGEN

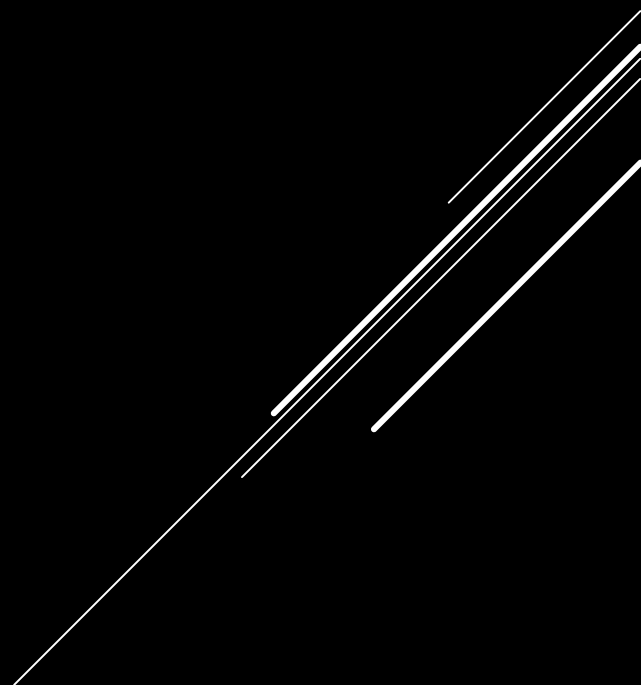


- ▶ Probleem formuleren
- ▶ Wiskundig model van bestudeerde systeem bouwen
- ▶ Oplossing uit het model halen
- ▶ Model testen en oplossing evalueren
- ▶ Implementeren en onderhouden van oplossing

BEVINDINGEN

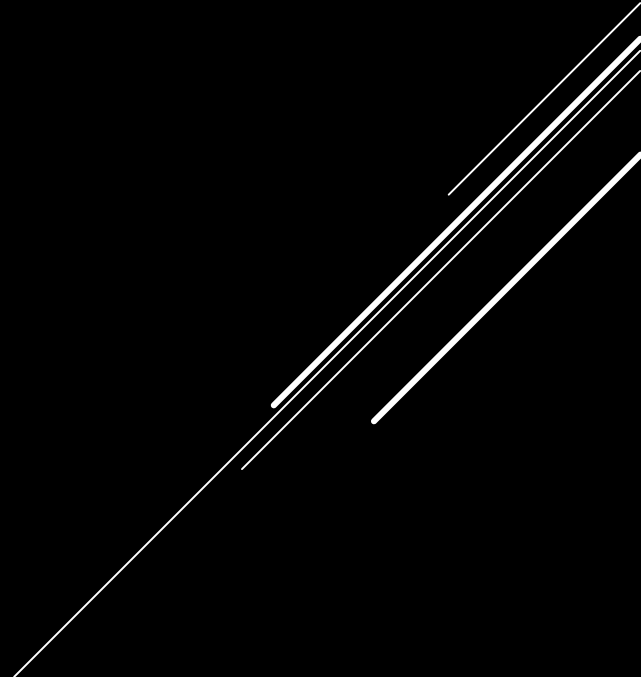


CONCLUSIES

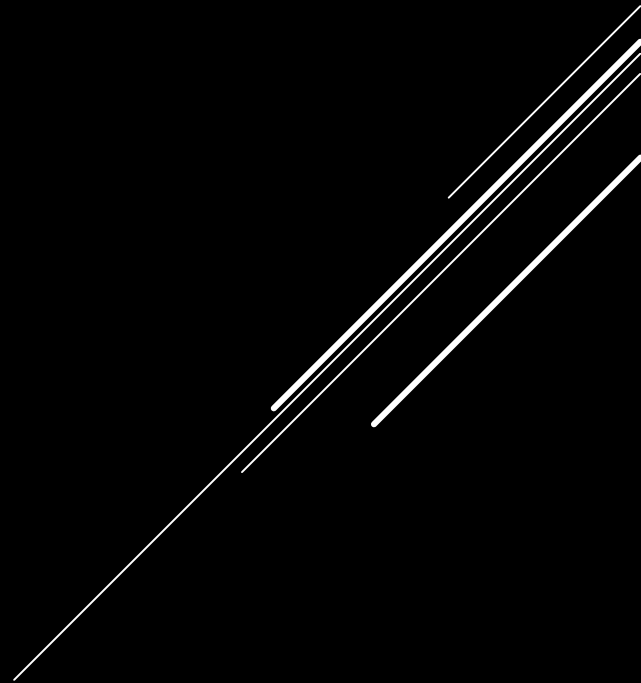


- How can a decision model improve the practice of adaptive re-use of functionally obsolete Roman Catholic churches in the Netherlands?

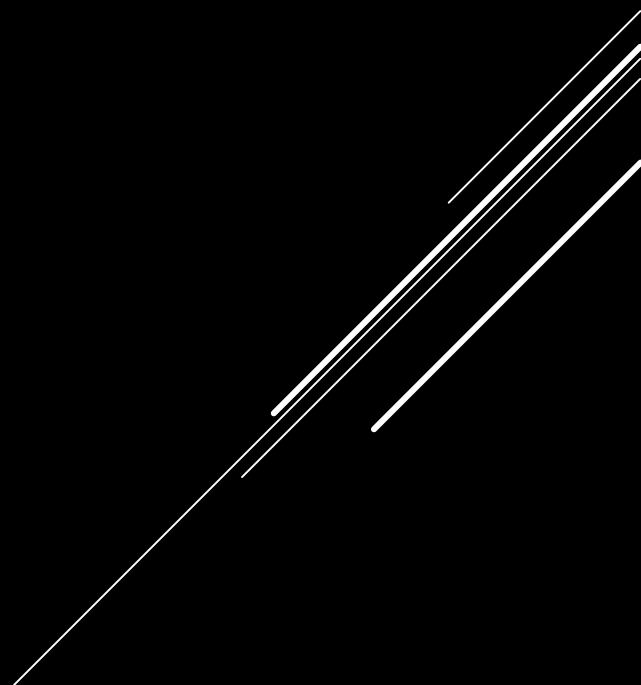
CONSLUSIES



DISCUSSIE

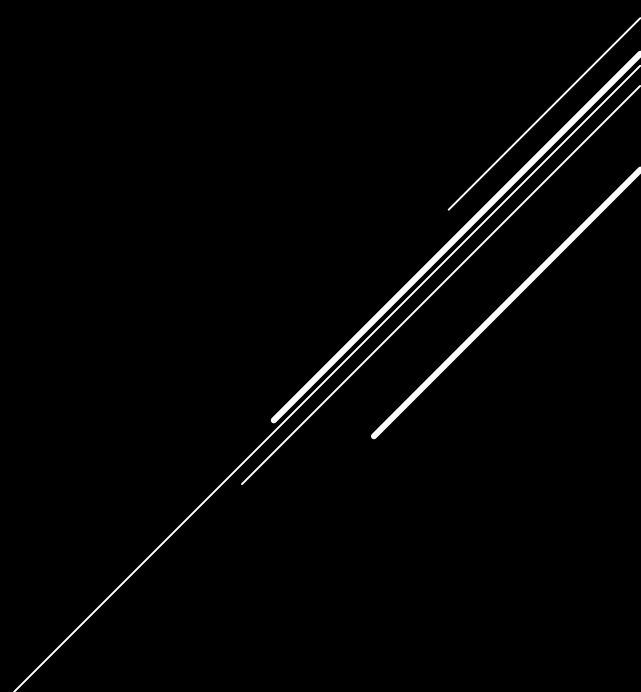


AANBEVELINGEN EN REFLECTIE



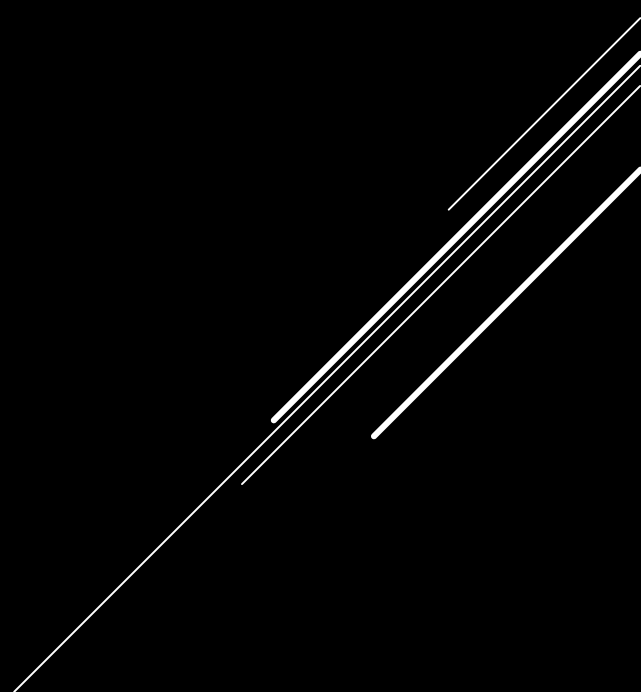
► Positie parochie

AANBEVELINGEN EN REFLECTIE



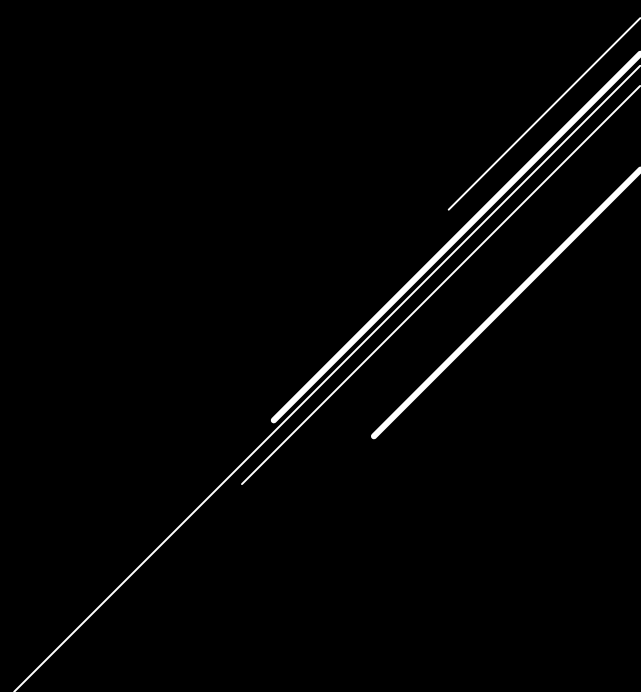
- ▶ Positie parochie
- ▶ Gemeente

AANBEVELINGEN EN REFLECTIE



- ▶ Positie parochie
- ▶ Gemeente
- ▶ Urgentie

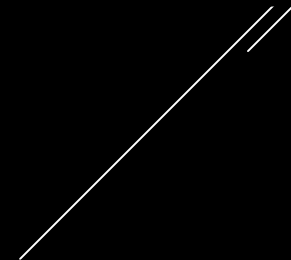
AANBEVELINGEN EN REFLECTIE



- ▶ Positie parochie
- ▶ Gemeente
- ▶ Urgentie
- ▶ Gebruik van model
 - ▶ Variabelen

Model	Choice options												
Endogenous Variables	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground
Outcome	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP
	0	0	0	0	0	0	0	0	0	0	0	1	0

AANBEVELINGEN EN REFLECTIE



- ▶ Positie parochie
- ▶ Gemeente
- ▶ Urgentie
- ▶ Gebruik van model
 - ▶ Variabelen
 - ▶ Doelfunctie

Model	Choice options	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground
	Endogenous Variables	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP
	Outcome	0	0	0	0	0	0	0	0	0	0	0	1	0
	Net Present Value Parish (10 year)	€ -421.000	€ 1.500.000	€ 500.000	€ 5.715.530	€ 1.833.654	€ 2.208.098	€ 1.282.873	€ 2.196.012	€ 1.730.048	€ 5.743.282	€ 8.629.322	€ 3.899.751	€ 3.332.529

€ 3.899.751

AANBEVELINGEN EN REFLECTIE

- Positie parochie
- Gemeente
- Urgentie
- Gebruik van model
 - Variabelen
 - Doelfunctie
 - Markt condities

Model	Choice options	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground	
	Endogenous Variables	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP	
	Outcome	0	0	0	0	0	0	0	0	0	0	0	1	0	
	Net Present Value Parish (10 year)	€ -421.000	€ 1.500.000	€ 500.000	€ 5.715.530	€ 1.833.654	€ 2.208.098	€ 1.282.873	€ 2.196.012	€ 1.730.048	€ 5.743.282	€ 8.629.322	€ 3.899.751	€ 3.332.529	€ 3.899.751
Constraints:															
	One option only	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Market Conditions (is market saturated?)															
	Housing	1	1	1	0	0	1	1	1	1	1	1	1	1	1 = 1
	Elderly housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Cultural	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Office	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Bookstore/library	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Supermarket/retail	1	1	1	1	1	1	1	1	1	0	1	1	1	1 = 1
	Horeca/eventspace	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Gym	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Indoor playground	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1

AANBEVELINGEN EN REFLECTIE

- Positie parochie
- Gemeente
- Urgentie
- Gebruik van model
 - Variabelen
 - Doelfunctie
 - Markt condities
 - Eisen actoren

Model	Choice options	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground	
	Endogenous Variables	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP	
	Outcome	0	0	0	0	0	0	0	0	0	0	0	1	0	
	Net Present Value Parish (10 year)	€ -421.000	€ 1.500.000	€ 500.000	€ 5.715.530	€ 1.833.654	€ 2.208.098	€ 1.282.873	€ 2.196.012	€ 1.730.048	€ 5.743.282	€ 8.629.322	€ 3.899.751	€ 3.332.529	€ 3.899.751
Constraints:															
	One option only	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Market Conditions (is market saturated?)															
	Housing	1	1	1	0	0	1	1	1	1	1	1	1	1	1 = 1
	Elderly housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Cultural	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Office	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Bookstore/library	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Supermarket/retail	1	1	1	1	1	1	1	1	1	0	1	1	1	1 = 1
	Horeca/eventspace	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Gym	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Indoor playground	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Actors:															
Municipality															
	Monument status	0	1	0	1	0	0	0	0	0	0	0	0	0	0 = 0
Diocese															
	Adaptive re-use allowed	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
	Perpetual clauses (functions)	0	0	0	0	0	0	0	1	0	0	1	0	0	0 = 0
Project Developer															
	No Negative NPV of Adaptation Development	€ -	€ 0	€ 0	€ -0	€ 0	€ -	€ -0	€ -0	€ -	€ -0	€ -	€ 0	€ 0	€ 0 >= 0
	Max Price of Church (Investment Space)	€ -	€ 1.225.577	€ 465.274	€ 4.052.662	€ 805.589	€ 1.118.801	€ 344.877	€ 1.108.691	€ 718.926	€ 4.075.876	€ 6.489.962	€ 2.533.817	€ 2.059.353	€ 2.533.817 <= € 3.000.000
Neighbours															
	No Noise Nuisance	0	0	0	0	0	0	0	0	0	0	1	0	0	0 = 0
	No Parking Problems	0	0	0	0	0	0	0	0	0	0	1	0	1	0 = 0
New Parish															
	No Negative NPV Allowed	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
Architect															
	Not suited for conversion to housing	0	0	0	0	1	1	0	0	0	0	0	0	0	0 = 0

AANBEVELINGEN EN REFLECTIE

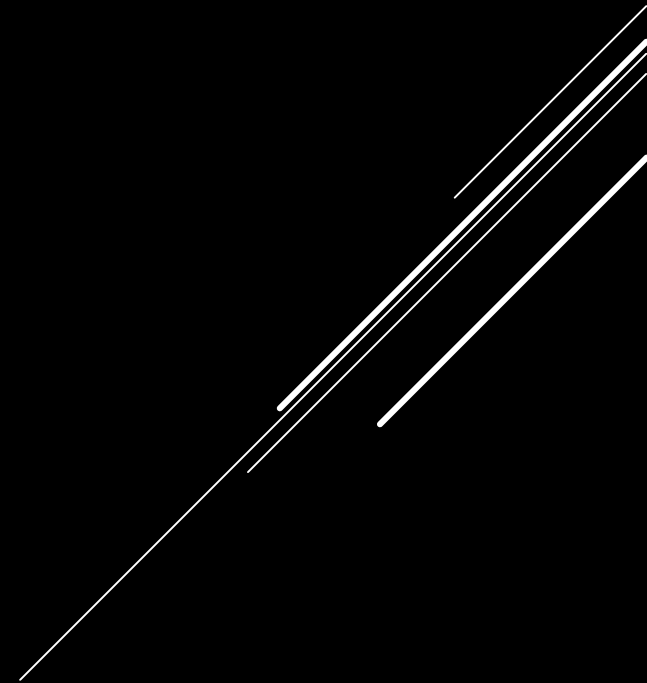
- Positie parochie
- Gemeente
- Urgentie
- Gebruik van model
 - Variabelen
 - Doelfunctie
 - Markt condities
 - Eisen actoren

Model	Choice options	ContinuedUse	ReDevChapelSenior	MixedUse	ReDevHousing	AdaptiveHousing	AElderlyHousing	ACultural	AdaptiveOffice	AdaptiveBooks	AdaptiveRetail	AdaptiveEvent	AdaptiveGym	APlayground	
	Endogenous Variables	CU	RCS	MU	RH	AH	AEH	AC	AO	AB	AR	AE	AG	AP	
	Outcome	0	0	0	0	0	0	0	0	0	0	0	1	0	
	Net Present Value Parish (10 year)	€ -421.000	€ 1.500.000	€ 500.000	€ 5.715.530	€ 1.833.654	€ 2.208.098	€ 1.282.873	€ 2.196.012	€ 1.730.048	€ 5.743.282	€ 8.629.322	€ 3.899.751	€ 3.332.529	€ 3.899.751
Constraints:															
	One option only	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Market Conditions (is market saturated?)															
	Housing	1	1	1	0	0	1	1	1	1	1	1	1	1	1 = 1
	Elderly housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Cultural	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Office	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Bookstore/library	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Supermarket/retail	1	1	1	1	1	1	1	1	1	0	1	1	1	1 = 1
	Horeca/eventspace	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Gym	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
	Indoor playground	1	1	1	1	1	1	1	1	1	1	1	1	1	1 = 1
Actors:															
Municipality															
	Monument status	0	1	0	1	0	0	0	0	0	0	0	0	0	0 = 0
Diocese															
	Adaptive re-use allowed	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
	Perpetual clauses (functions)	0	0	0	0	0	0	0	1	0	0	1	0	0	0 = 0
Project Developer															
	No Negative NPV of Adaptation Development	€ -	€ 0	€ 0	€ -0	€ 0	€ -	€ -0	€ -0	€ -	€ -0	€ -	€ 0	€ 0	€ 0 >= 0
	Max Price of Church (Investment Space)	€ -	€ 1.225.577	€ 465.274	€ 4.052.662	€ 805.589	€ 1.118.801	€ 344.877	€ 1.108.691	€ 718.926	€ 4.075.876	€ 6.489.962	€ 2.533.817	€ 2.059.353	€ 2.533.817 <= € 3.000.000
Neighbours															
	No Noise Nuisance	0	0	0	0	0	0	0	0	0	0	1	0	0	0 = 0
	No Parking Problems	0	0	0	0	0	0	0	0	0	0	1	0	1	0 = 0
New Parish															
	No Negative NPV Allowed	1	0	0	0	0	0	0	0	0	0	0	0	0	0 = 0
Architect															
	Not suited for conversion to housing	0	0	0	0	1	1	0	0	0	0	0	0	0	0 = 0

AANBEVELINGEN EN REFLECTIE

- ▶ Positie parochie
- ▶ Gemeente
- ▶ Urgentie
- ▶ Gebruik van model
 - ▶ Variabelen
 - ▶ Doelfunctie
 - ▶ Markt condities
 - ▶ Eisen actoren
 - ▶ Oplossingsruimte en schaduw prijzen

AANBEVELINGEN EN REFLECTIE



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