

# The Dutch model for health manpower planning – Data requirements

NIVEL

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# Outline of the presentation

- Step by step overview of the principal parameters of the Dutch planningmodel
- Data requirements for the current supply
- Data requirements for the outflow out of the current supply

Available supply in year T

Development available supply until T+X

Available supply in year T+X

1. Number in stock  
(male/female)

Required supply in year T

Development required supply until T+X

Required supply in year T+X



Available supply in year T

Development available supply until T+X

Available supply in year T+X

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

Required supply in year T

Development required supply until T+X

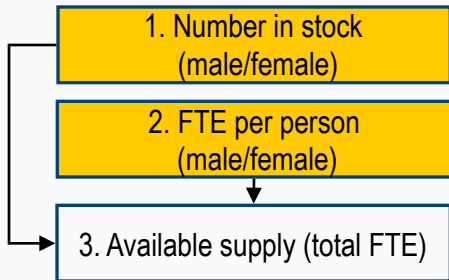
Required supply in year T+X



Available supply in year T

Development available supply until T+X

Available supply in year T+X



Required supply in year T

Development required supply until T+X

Required supply in year T+X



Available supply in year T

**Current  
supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

Development available supply until T+X

Available supply in year T+X

Required supply in year T

Development required supply until T+X

Required supply in year T+X



Available supply in year T

Development available supply until T+X

Available supply in year T+X

**Current  
supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

4. Outflow  
(male/female & projection year)

Required supply in year T

Development required supply until T+X

Required supply in year T+X



Available supply in year T

**Current supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

Development available supply until T+X

4. Outflow  
(male/female & projection year)

**Outflow out of  
Current supply**

Available supply in year T+X

Required supply in year T

Development required supply until T+X

Required supply in year T+X





Available supply in year T

**Current supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

Development available supply until T+X

5. Inflow from abroad  
(male/female)

4. Outflow  
(male/female & projection year)

**Outflow out of  
Current supply**

Available supply in year T+X

Required supply in year T

Development required supply until T+X

Required supply in year T+X



Available supply in year T

**Current supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

Development available supply until T+X

6. Number in training  
(duration of training)

5. Inflow from abroad  
(male/female)

4. Outflow  
(male/female & projection year)

**Ouflow out of  
Current supply**

Available supply in year T+X

Required supply in year T

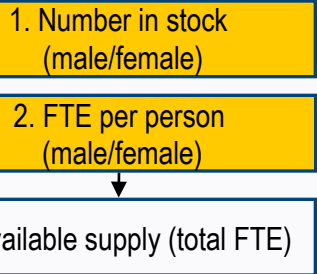
Development required supply until T+X

Required supply in year T+X

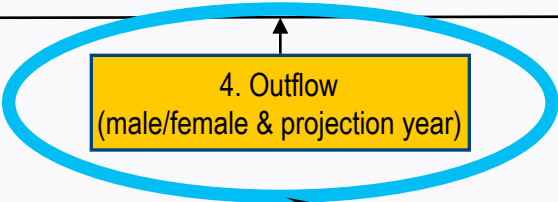
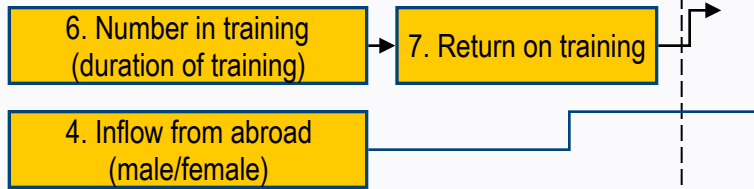


Available supply in year T

**Current supply**



Development available supply until T+X



**Ouflow out of Current supply**

Available supply in year T+X

Required supply in year T

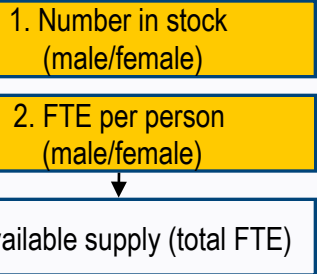
Development required supply until T+X

Required supply in year T+X

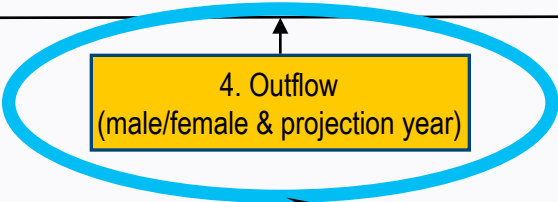
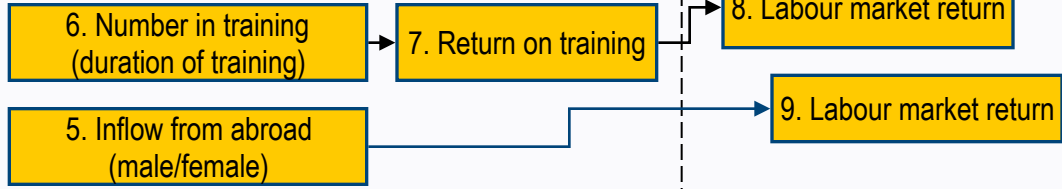


Available supply in year T

**Current supply**

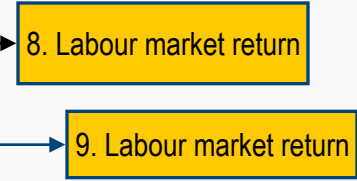


Development available supply until T+X



**Outflow out of Current supply**

Available supply in year T+X



Required supply in year T

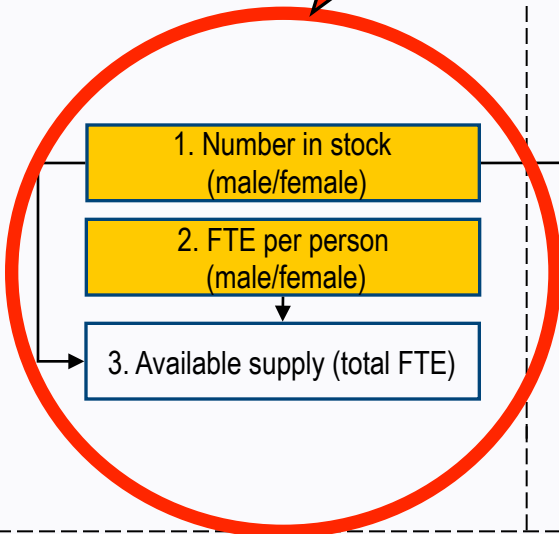
Development required supply until T+X

Required supply in year T+X

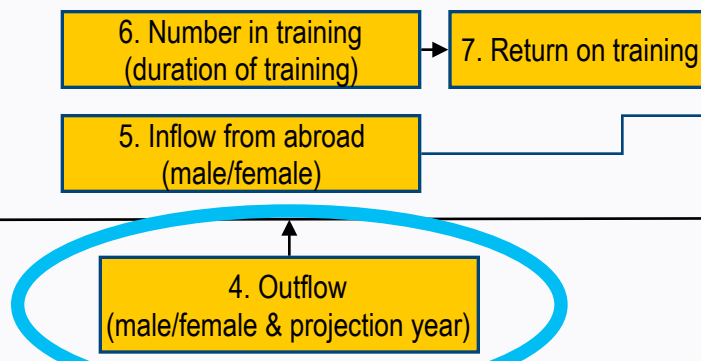


Available supply in year T

**Current supply**

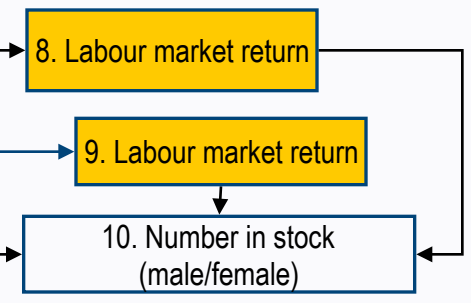


Development available supply until T+X



**Outflow out of Current supply**

Available supply in year T+X



Required supply in year T

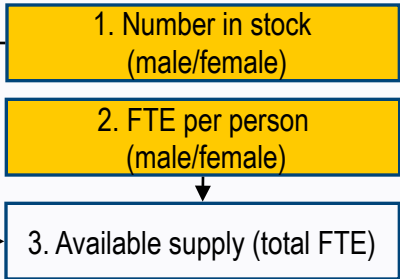
Development required supply until T+X

Required supply in year T+X

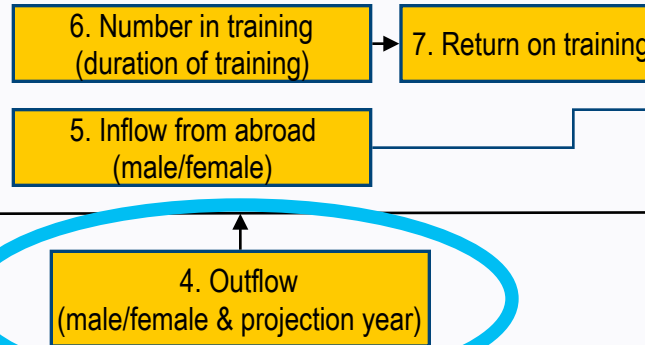


Available supply in year T

**Current supply**

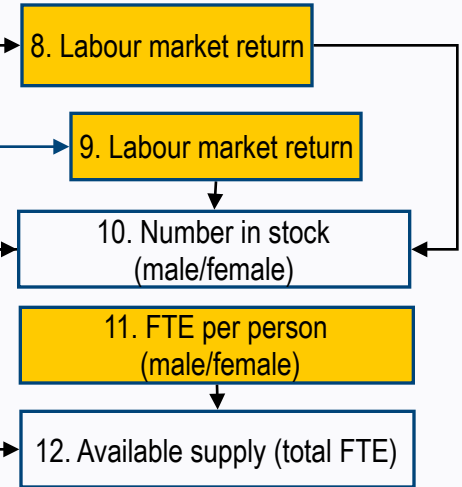


Development available supply until T+X



**Outflow out of Current supply**

Available supply in year T+X



Required supply in year T

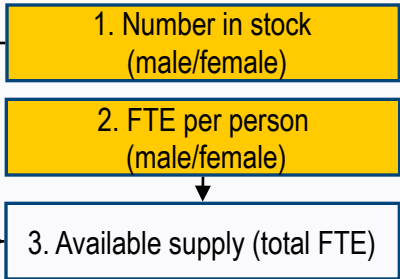
Development required supply until T+X

Required supply in year T+X

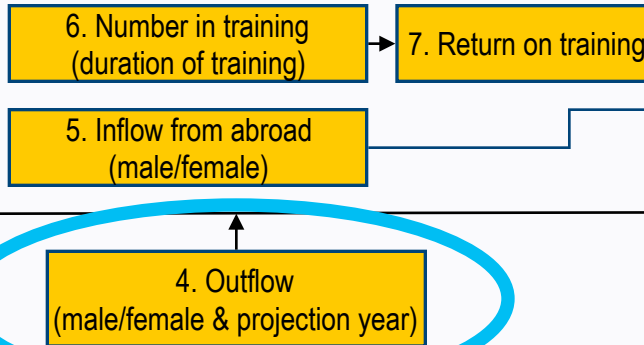


Available supply in year T

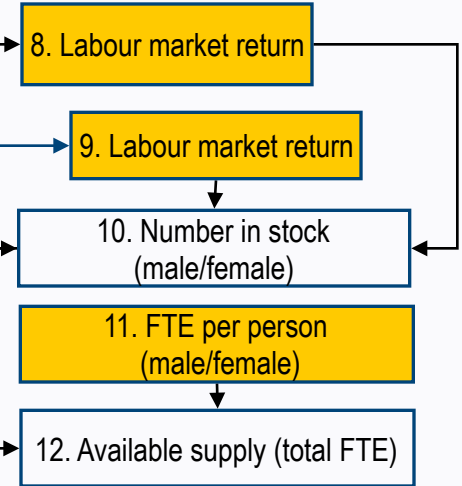
**Current supply**



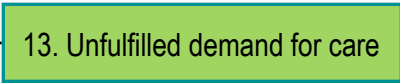
Development available supply until T+X



Available supply in year T+X



**Outflow out of Current supply**



Required supply in year T

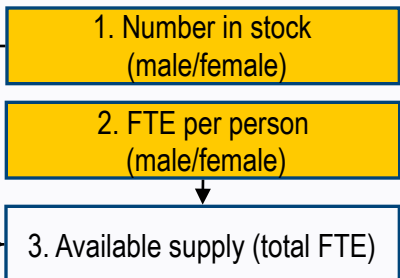
Development required supply until T+X

Required supply in year T+X

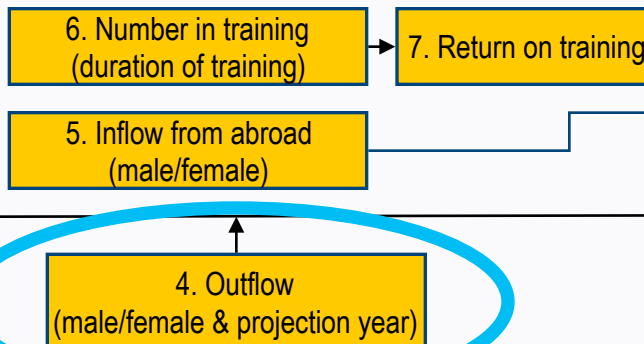


Available supply in year T

Current supply

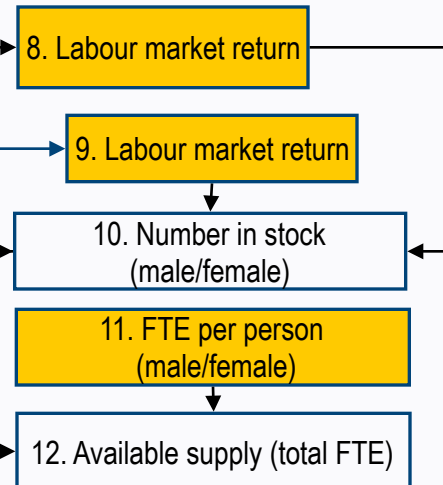


Development available supply until T+X



Outflow out of Current supply

Available supply in year T+X



13. Unfulfilled demand for care

6. Demographic developments

14. Required supply (total FTE)

Required supply in year T

Development required supply until T+X

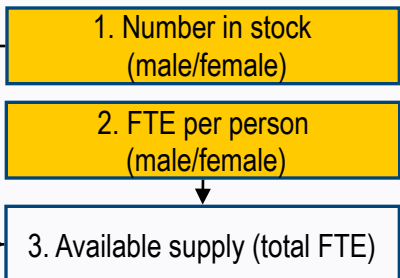
Required supply in year T+X



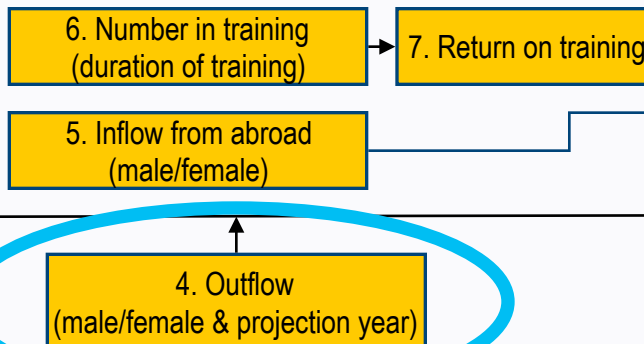


Available supply in year T

Current supply

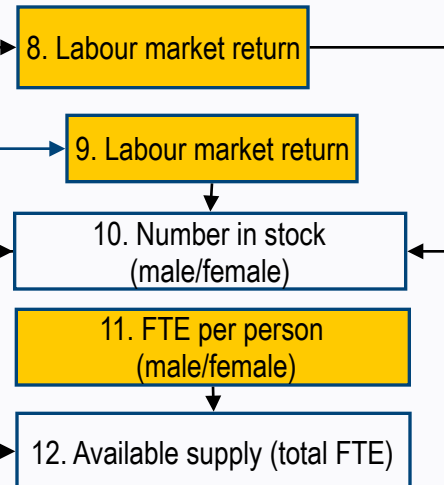


Development available supply until T+X

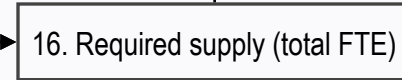
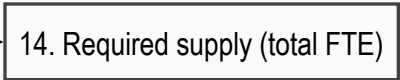
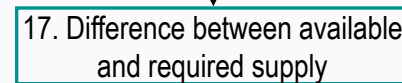
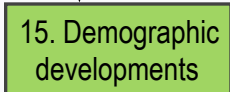
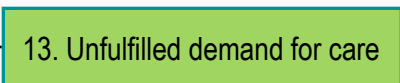


Ouflow out of Current supply

Available supply in year T+X



Scenario 0

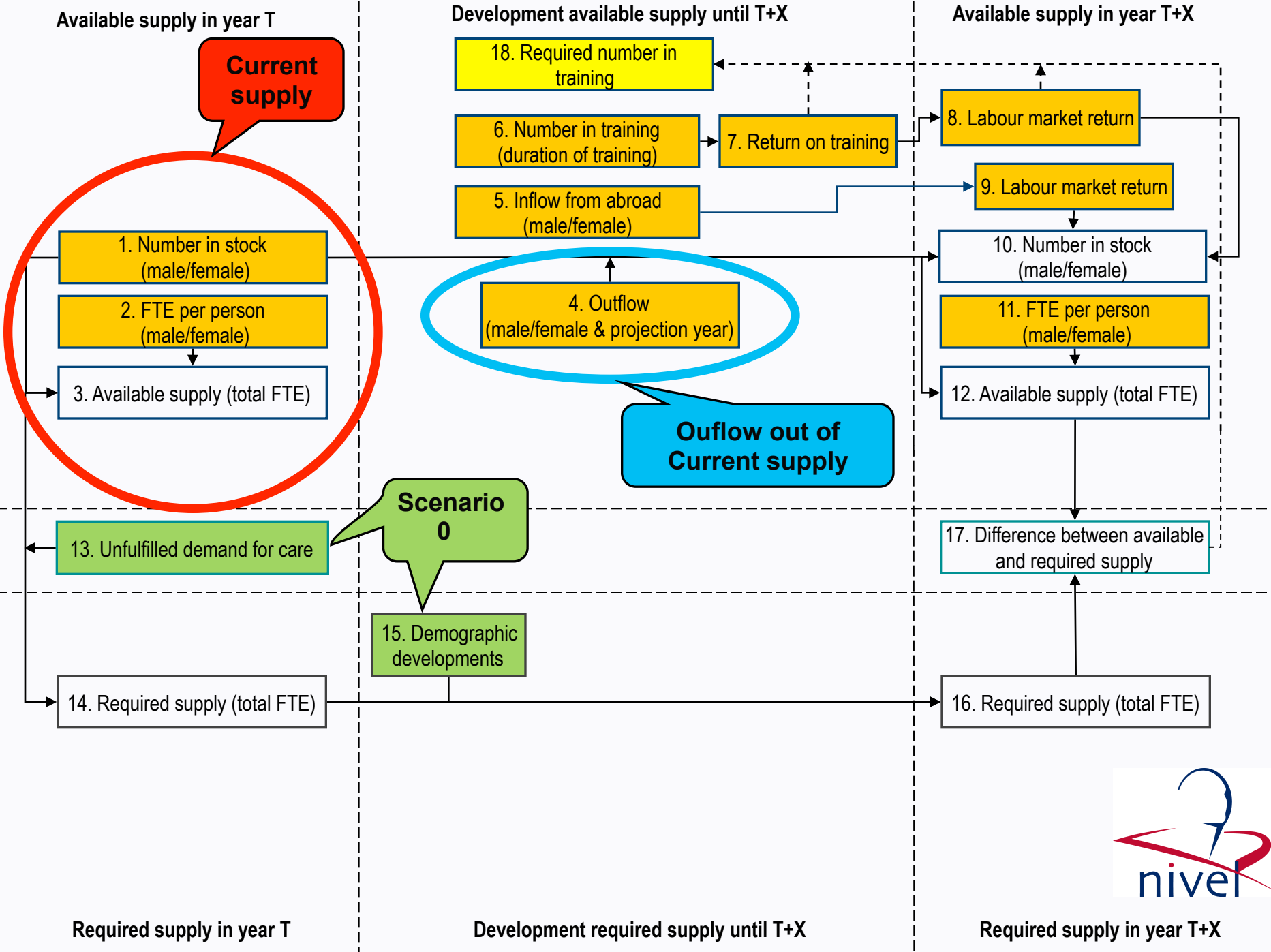


Required supply in year T

Development required supply until T+X

Required supply in year T+X





# Outline of the presentation

- ✓ Step by step overview of the principal parameters of the Dutch planningmodel
- **Data requirements for the current supply**
- Data requirements for the outflow out of the current supply

Available supply in year T

**Current  
supply**

1. Number in stock  
(male/female)

2. FTE per person  
(male/female)

3. Available supply (total FTE)

Development available supply until T+X

Available supply in year T+X

Required supply in year T

Development required supply until T+X

Required supply in year T+X



# Data requirements for the current supply

- “Current” number of professionally active professionals by gender
  - Preferably based on registry data or large scale survey
  - Preferably as recent as possible (or with some update)
  - Preferably as “valid” as possible (complete; etc.)
  - Breakdown by gender is important for gender related differences in working time
- “Current” number of FTE per professional by gender
  - With basically the same requirements as for the current number of professionals (and almost always based on the same source)

**Professionally active** (number of active professionals, derived from current labour statistics)

"Now"

Male	Female	Total
455	690	1.145

**FTE / person** (number of Full Time Equivalents per person, derived from current health labour statistics)

"Now"

Male	Female	Total
0,90	0,70	0,78

**Total supply of care** (number of FTE, derived from labour statistics)

"Now"

Male	Female	Total
410	483	893

# Available Supplymodel

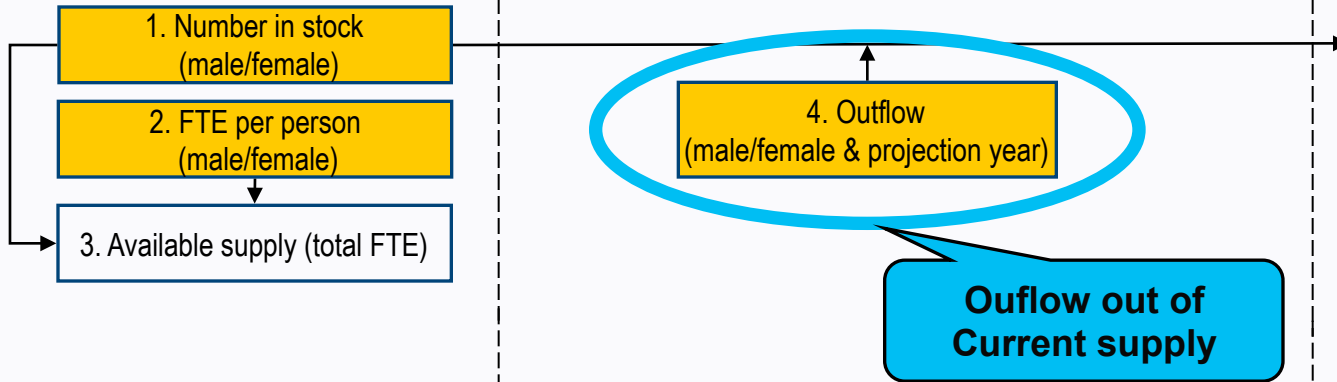
# Outline of the presentation

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Available supply in year T

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Available supply in year T+X



Required supply in year T

Development required supply until T+X

Required supply in year T+X

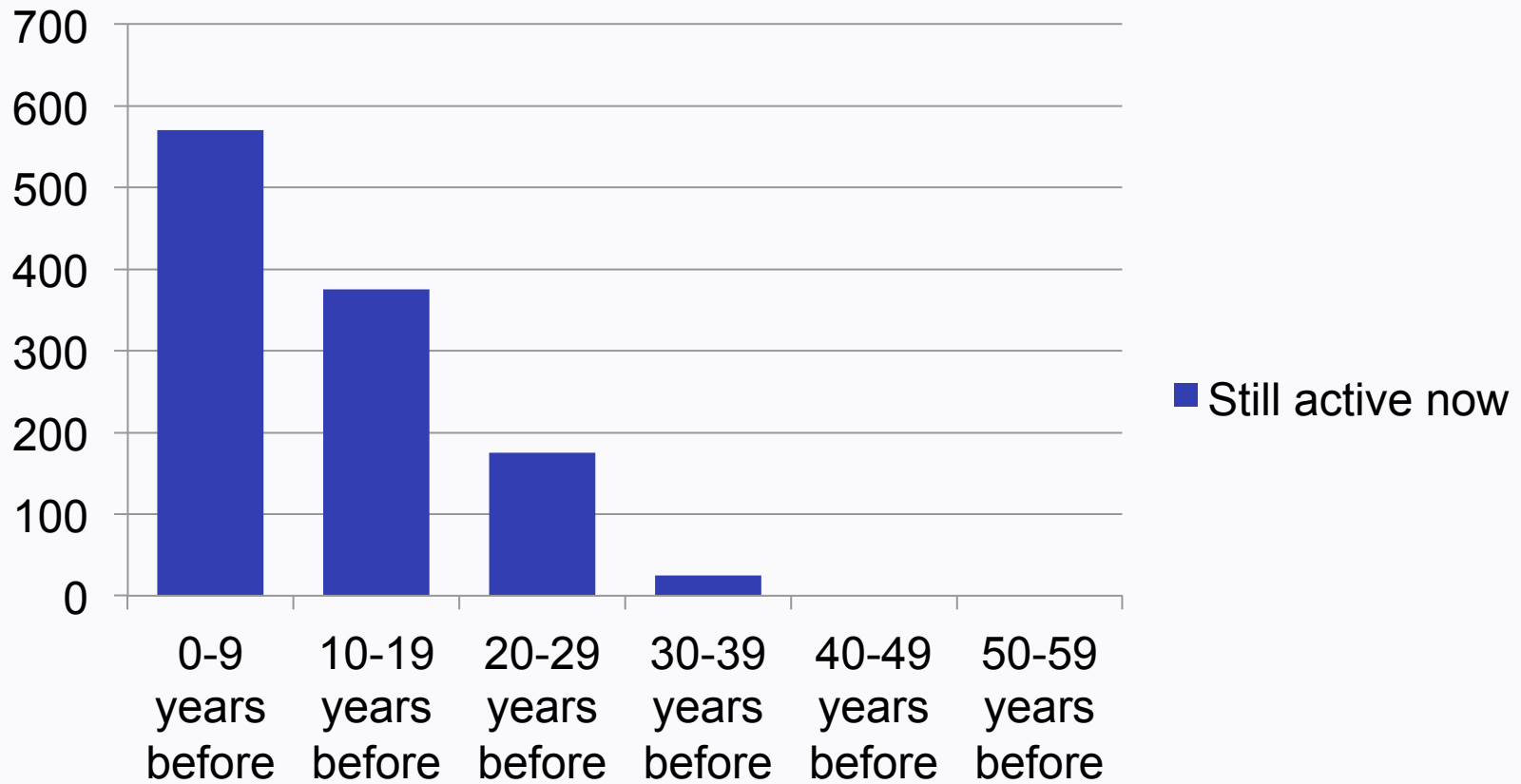




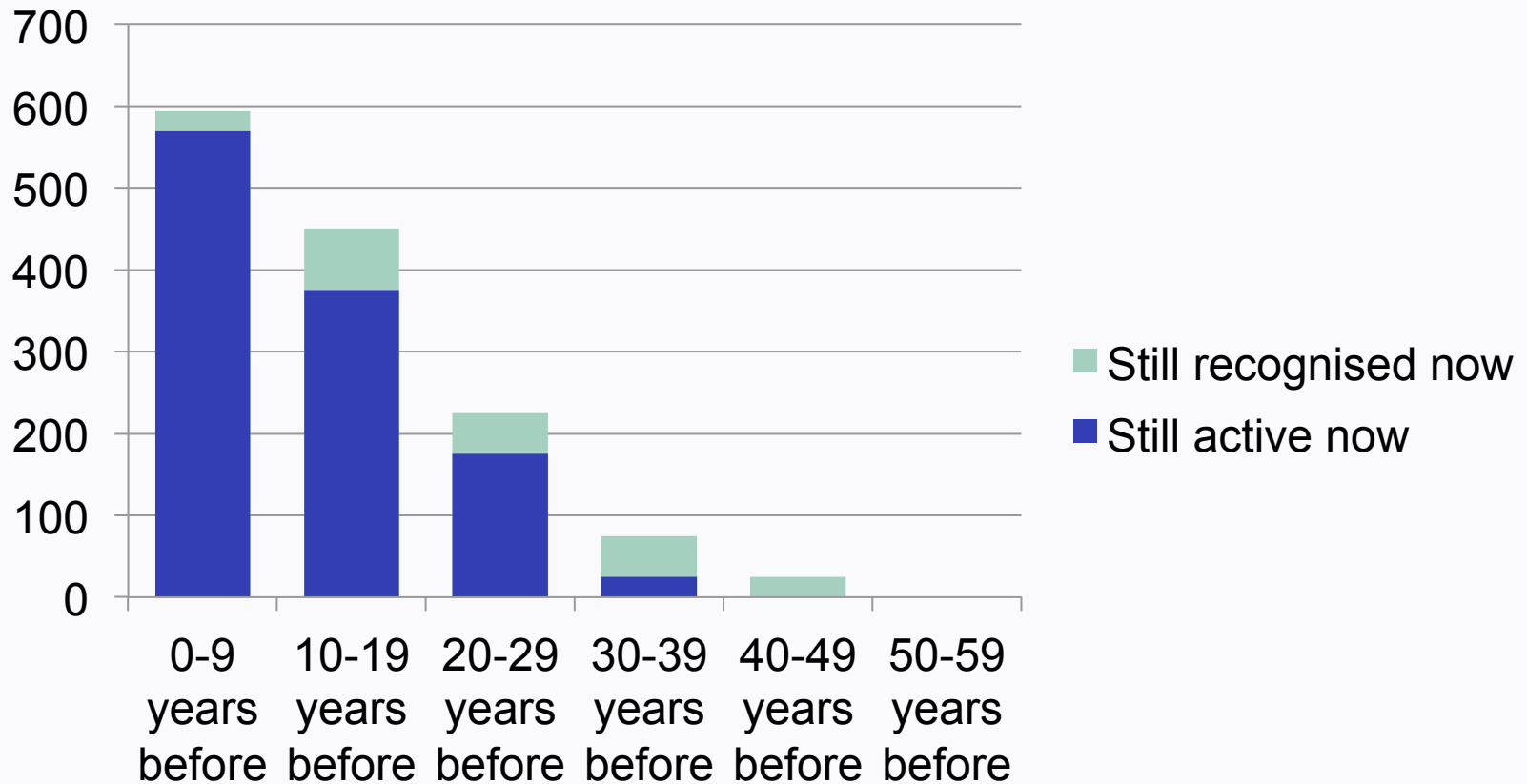
# Data requirements for the outflow out of the current supply: most common data

- “Current” number of professionally active professionals by gender and 5-year registration period
  - Based on the same source from which the current supply by gender is derived
- “Current” number of licensed professionals by gender and 5-year registration period
  - For display purposes only
- “Current” number of “ever” licensed professionals by gender and 5-year registration period
  - For calculating the % still active
- For simplicity: a 10 year registration period is now

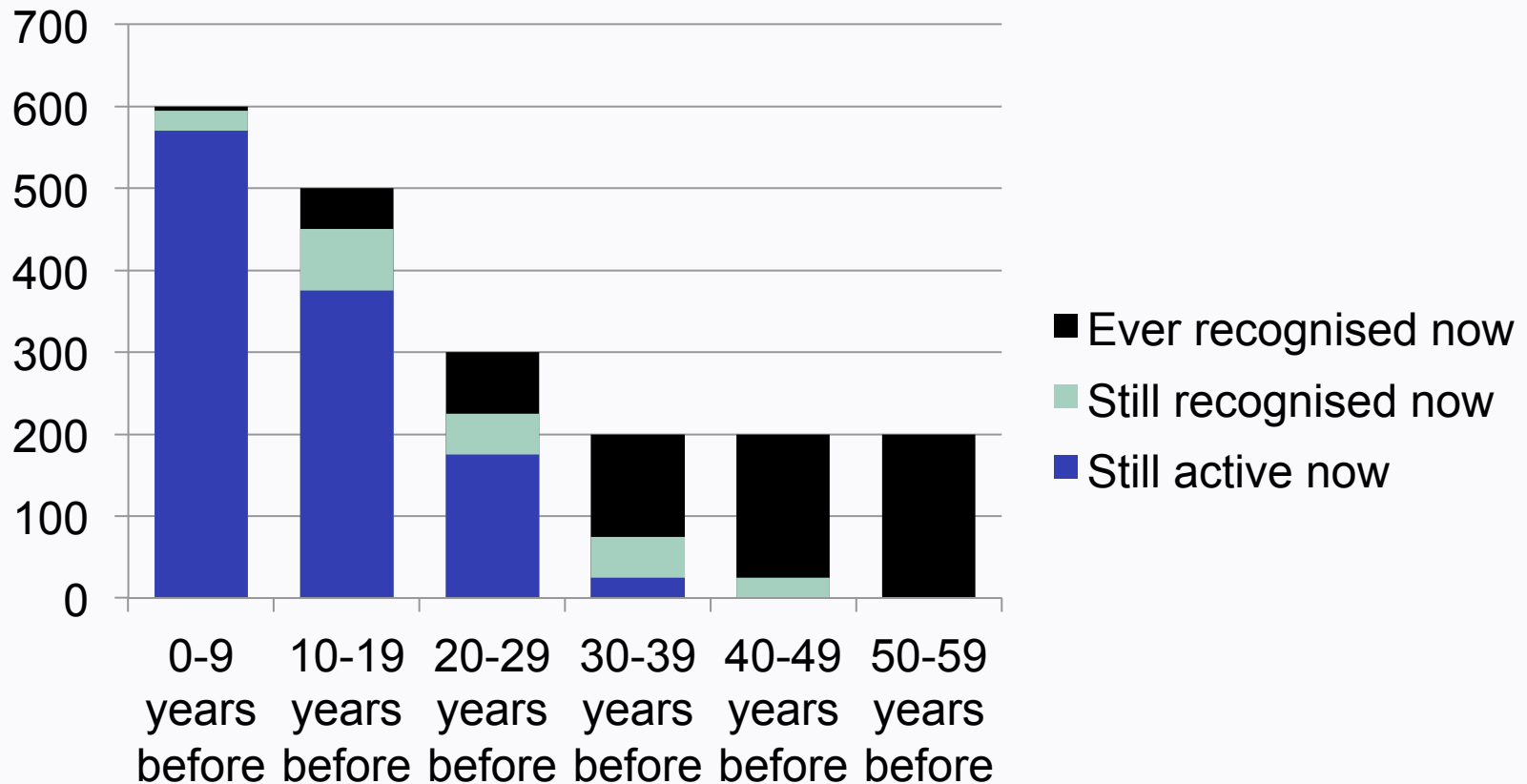
# “Current” number of active professionals by registration period



# “Current” number of active and “current” number of licensed professionals by registration period



# “Current” number of active and licensed (now and ever) professionals by registration period



**Professionally active** (number of active professionals per registration period, derived from current labour statistics)

"Now"

Recognition period	Male	Female	Total
0-9 years before	190	380	570
10-19 years before	150	225	375
20-29 years before	100	75	175
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	455	690	1.145

# Data for Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per registration period, derived from labour statistics, including persons not recognised any more)

"Now"

Recognition period	Male	Female	Total
0-9 years before	200	400	600
10-19 years before	200	300	500
20-29 years before	150	150	300
30-39 years before	100	100	200
40-49 years before	100	100	200
Total	750	1.050	1.800

**Professionally active** (number of active professionals per registration period, derived from current labour statistics)

"Now"

Recognition period	Male	Female	Total
0-9 years before	190	380	570
10-19 years before	150	225	375
20-29 years before	100	75	175
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	455	690	1.145

**% Still active** (% still active per registration period, derived from current labour statistics)

"Now"

Recognition period	Male	Female	Total
0-9 years before	95,0%	95,0%	95,0%
10-19 years before	75,0%	75,0%	75,0%
20-29 years before	66,7%	50,0%	58,3%
30-39 years before	15,0%	10,0%	12,5%
40-49 years before	0,0%	0,0%	0,0%
Total	60,7%	65,7%	63,6%

Data and some calculation for Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per registration period, derived from labour statistics, including persons not recognised any more)

"Now"

Recognition period	Male	Female	Total
0-9 years before	200	400	600
10-19 years before	200	300	500
20-29 years before	150	150	300
30-39 years before	100	100	200
40-49 years before	100	100	200
Total	750	1.050	1.800

**Professionally active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now"				"In 10 years"				"In 20 years"					
Recognition period	Male	Female	Total	R.P. in 10 years	Male	Female	Total	Outflow	R.P. in 20 years	Male	Female	Total	Outflow
0-9 years before	190	380	570	10-19 y. before	150	300	450	-21,1%	20-29 y. before	133	200	333	-41,5%
10-19 years before	150	225	375	20-29 y. before	133	150	283	-24,4%	30-39 y. before	30	30	60	-84,0%
20-29 years before	100	75	175	30-39 y. before	23	15	38	-78,6%	40-49 y. before	0	0	0	-100,0%
30-39 years before	15	10	25	40-49 y. before	0	0	0	-100,0%	50-59 y. before	0	0	0	-100,0%
40-49 years before	0	0	0	50-59 y. before	0	0	0	x	60-69 y. before	0	0	0	x
Total	455	690	1.145		306	465	771	-32,7%		163	230	393	-65,6%
					-32,8%	-32,6%				-64,1%	-66,7%		

**% Still active** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now"			
Recognition period	Male	Female	Total
0-9 years before	95,0%	95,0%	95,0%
10-19 years before	75,0%	75,0%	75,0%
20-29 years before	66,7%	50,0%	58,3%
30-39 years before	15,0%	10,0%	12,5%
40-49 years before	0,0%	0,0%	0,0%
Total	60,7%	65,7%	63,6%

## Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised any more)

"Now"			
Recognition period	Male	Female	Total
0-9 years before	200	400	600
10-19 years before	200	300	500
20-29 years before	150	150	300
30-39 years before	100	100	200
40-49 years before	100	100	200
Total	750	1.050	1.800

**Professionally active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

Recognition period	"Now"			"In 10 years"				"In 20 years"				
	Male	Female	Total	R.P. in 10 years	Male	Female	Total	Outflow	R.P. in 20 years	Male	Female	Total
0-9 years before	190	380	570	150	300	450	-21,1%	133	200	333	-41,5%	
10-19 years before	150	225	375	133	150	283	-24,4%	30	30	60	-84,0%	
20-29 years before	100	75	175	23	15	38	-78,6%	0	0	0	-100,0%	
30-39 years before	15	10	25	0	0	0	-100,0%	0	0	0	-100,0%	
40-49 years before	0	0	0	0	0	0	x	0	0	0	x	
<b>Total</b>	<b>455</b>	<b>690</b>	<b>1.145</b>	<b>306</b>	<b>465</b>	<b>771</b>	<b>-32,7%</b>	<b>163</b>	<b>230</b>	<b>393</b>	<b>-65,6%</b>	

**% Still active** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

Recognition period	Male	Female	Total
0-9 years before	95,0%	88,0%	91,0%
10-19 years before	75,0%	75,0%	75,0%
20-29 years before	66,7%	50,0%	58,3%
30-39 years before	15,0%	10,0%	12,5%
40-49 years before	0,0%	0,0%	0,0%
<b>Total</b>	<b>60,7%</b>	<b>65,7%</b>	<b>63,6%</b>

Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised any more)

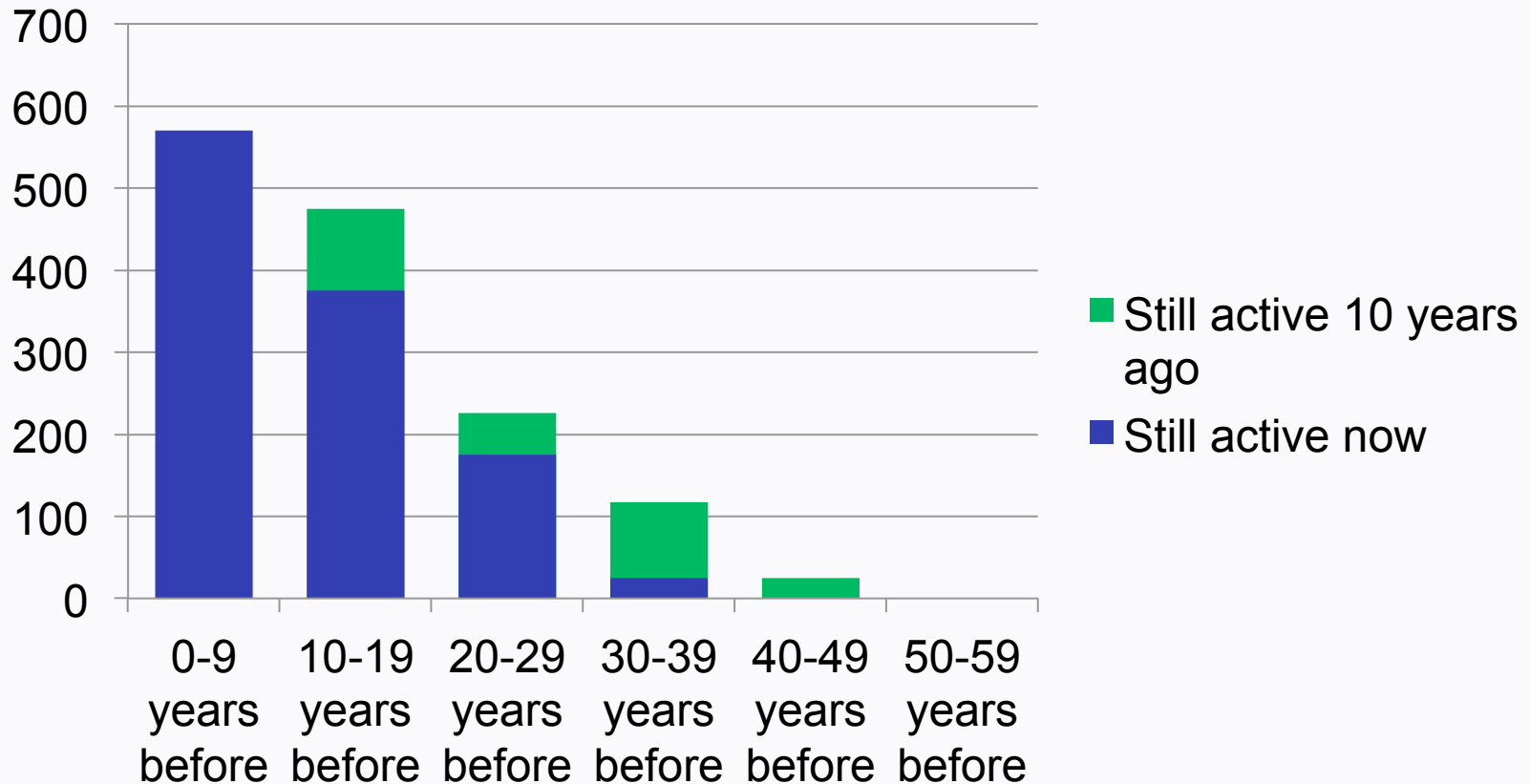
Recognition period	Male	Female	Total
0-9 years before	200	400	600
10-19 years before	200	300	500
20-29 years before	150	150	300
30-39 years before	100	100	200
40-49 years before	100	100	200
<b>Total</b>	<b>750</b>	<b>1.050</b>	<b>1.800</b>



# Data requirements for the outflow out of the current supply: most preferred data

- “Current” number of professionally active professionals by gender and 5-year registration period
  - Based on the same source from which the current supply by gender is derived
- “Historical” number of professionally active professionals by gender and 5-year registration period, 5 and 10 years ago
  - For calculating the % still active after 5 or 10 years
- For simplicity: a 10-year registration period is now used

# “Current” and “Historical” number of active professionals by registration period



**Professionally active** (number of active professionals, derived from current labour statistics)

"Now"

Recognition period	Male	Female	Total
0-9 years before	190	380	570
10-19 years before	150	225	375
20-29 years before	100	75	175
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	455	690	1.145

"current" number of active professionals who were recognised 0-9 years before "now"  
 "current" number of active professionals who were recognised 10-19 years before "now"  
 "current" number of active professionals who were recognised 20-29 years before "now"  
 "current" number of active professionals who were recognised 30-39 years before "now"  
 "current" number of active professionals who were recognised 40-49 years before "now"  
 "current" number of active professionals who were recognised 0-49 years before "now"

## Data for Outflowmodel using current % still active after 10 years

**Pr. Act. 10 y. before** (number of ever recognised professionals, derived from historical labour statistics, including persons not recognised any more)

"10 years ago"

Rec.per. 10 y. before	Male	Female	Total
not yet recognised	200	400	600
0-9 years before	190	285	475
10-19 years before	113	113	226
20-29 years before	67	50	117
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	385	458	843

"historical" number of active professionals who were recognised 0-9 years before "now"  
 "historical" number of active professionals who were recognised 10-19 years before "now"  
 "historical" number of active professionals who were recognised 20-29 years before "now"  
 "historical" number of active professionals who were recognised 30-39 years before "now"  
 "historical" number of active professionals who were recognised 40-49 years before "now"  
 "historical" number of active professionals who were recognised 50-59 years before "now"  
 "historical" number of active professionals who were recognised 10-59 years before "now"

**Professionally active** (number of active professionals, derived from current labour statistics)

"Now"

Recognition period	Male	Female	Total
0-9 years before	190	380	570
10-19 years before	150	225	375
20-29 years before	100	75	175
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	455	690	1.145

**% Still act. after 10 y.** (% still active per year, derived from current and historical labour statistics)

"Now versus 10 year ago"

Rec.per. 10 y. before	Male	Female	Total	
not yet recognised	95,0%	95,0%	95,0%	chance of being active "now" for professionals who were recognised 0-9 years before "now" ("labour market return after 10 years")
0-9 years before	78,9%	78,9%	78,9%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 10-19 years before "now"
10-19 years before	88,5%	66,4%	77,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 20-29 years before "now"
20-29 years before	22,4%	20,0%	21,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 30-39 years before "now"
30-39 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 40-49 years before "now"
40-49 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 50-59 years before "now"
Total	68,8%	67,7%	68,2%	

**Pr. Act. 10 y. before** (number of ever recognised professionals, derived from historical labour statistics, including persons not recognised any more)

"10 years ago"

Rec.per. 10 y. before	Male	Female	Total
not yet recognised	200	400	600
0-9 years before	190	285	475
10-19 years before	113	113	226
20-29 years before	67	50	117
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	385	458	843

Data and calculations of chances of being still active for  
Outflowmodel using current % still active after 10 years

**Professionally active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now"

"In 10 years"

"In 20 years"

Recognition period	"Now"			"In 10 years"					"In 20 years"				
	Male	Female	Total	Then	Male	Female	Total	Outflow	Then	Male	Female	Total	Outflow
0-9 years before	190	380	570	10-19	150	300	450	-21,1%	20-29	133	199	332	-41,8%
10-19 years before	150	225	375	20-29	133	149	282	-24,8%	30-39	30	30	60	-84,1%
20-29 years before	100	75	175	30-39	22	15	37	-78,6%	40-49	0	0	0	-100,0%
30-39 years before	15	10	25	40-49	0	0	0	-100,0%	50-59	0	0	0	-100,0%
40-49 years before	0	0	0	50-59	0	0	0	x	60-69	0	0	0	x
Total	455	690	1.145		305	464	769	-32,8%		162	229	391	-65,8%
					-32,9%	-32,7%				-64,3%	-66,8%		

**% Still act. after 10 y.** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now versus 10 year ago"

Rec.per. 10 y. before	Male	Female	Total	
not yet recognised	95,0%	95,0%	95,0%	chance of being active "now" for professionals who were recognised 0-9 years before "now" ("labour market return after 10 years")
0-9 years before	78,9%	78,9%	78,9%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 10-19 years before "now"
10-19 years before	88,5%	66,4%	77,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 20-29 years before "now"
20-29 years before	22,4%	20,0%	21,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 30-39 years before "now"
30-39 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 40-49 years before "now"
40-49 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 50-59 years before "now"
Total	68,8%	67,7%	68,2%	

**Pr. Act. 10 y. before** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised any more)

"10 years ago"

Rec.per. 10 y. before	Male	Female	Total
not yet recognised	200	400	600
0-9 years before	190	285	475
10-19 years before	113	113	226
20-29 years before	67	50	117
30-39 years before	15	10	25
40-49 years before	0	0	0
Total	385	458	843

Outflowmodel using current % still active after 10 years

**Professionally active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

Recognition period	"Now"			"In 10 years"				"In 20 years"					
	Male	Female	Total	Then	Male	Female	Total	Outflow	Then	Male	Female	Total	Outflow
0-9 years before	190	380	570	18-19	150	300	450	-21,1%	20-29	133	199	332	-41,8%
10-19 years before	150	225	375	20-29	133	149	282	-24,8%	30-39	30	30	60	-84,1%
20-29 years before	100	75	175	30-39	22	15	37	-78,6%	40-49	0	0	0	-100,0%
30-39 years before	15	10	25	40-49	0	0	0	-100,0%	50-59	0	0	0	-100,0%
40-49 years before	0	0	0	50-59	0	0	0	x	60-69	0	0	0	x
<b>Total</b>	<b>455</b>	<b>690</b>	<b>1.145</b>		<b>305</b>	<b>464</b>	<b>769</b>	<b>-32,8%</b>		<b>162</b>	<b>229</b>	<b>391</b>	<b>-65,8%</b>

**% Still act. after 10 y.** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

Rec.per. 10 y. before	Male	Female	Total	
not yet recognised	95,0%	95,0%	95,0%	chance of being active "now" for professionals who were recognised 0-9 years before "now" ("labour market return after 10 years")
0-9 years before	78,9%	78,9%	78,9%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 10-19 years before "now"
10-19 years before	88,5%	86,4%	77,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 20-29 years before "now"
20-29 years before	22,4%	20,0%	21,4%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 30-39 years before "now"
30-39 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 40-49 years before "now"
40-49 years before	0,0%	0,0%	0,0%	chance of being active "now" for professionals who were active 10 years before "now" and were recognised 50-59 years before "now"
<b>Total</b>	<b>68,8%</b>	<b>67,7%</b>	<b>68,2%</b>	

**Pr. Act. 10 y. before** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised any more)

Rec.per. 10 y. before	Male	Female	Total
not yet recognised	200	400	600
0-9 years before	190	285	475
10-19 years before	113	113	226
20-29 years before	67	50	117
30-39 years before	15	10	25
40-49 years before	0	0	0
<b>Total</b>	<b>385</b>	<b>458</b>	<b>843</b>

Outflowmodel using current % still active after 10 years

"Now" = 2013

**Changes between "Now" and "Then"**

"Then" = 2023

	Male	Female	Total
Inflow in training / year	0	0	0
Return on training	95,0%	95,0%	x

	Male	Female	Total
Labour market return for Dutch training	95,0%	95,0%	x

	Male	Female	Total
Inflow from abroad / year	0	0	0

	Male	Female	Total
Labour market return from abroad	80,0%	80,0%	x

**Professionally active (head count)**

"Now"

Male	Female	Total
455	690	1.145

**Ouflow between "Now" and "Then"**

	Male	Female	Total
In 10 years	-32,9%	-32,7%	-32,8%
In 20 years	-64,3%	-66,8%	-100,0%

**Professionally active (head count)**

"Then"

	Male	Female	Total
Still active "Then"	305	464	770
From abroad and active "Then"	0	0	0
From Dutch training and active "Then"	0	0	0
Total active "Then"	305	464	770

Change in head count: -32,8%

**FTE / person**

"Now"

Male	Female	Total
0,90	0,70	0,78

**FTE / person**

"Then"

Male	Female	Total
0,90	0,70	0,78

**Total supply of care (FTE count)**

"Now"

Male	Female	Total
410	483	893

**Total supply of care (FTE count)**

"Then"

Male	Female	Total
275	325	600

Change in FTE count: -32,8%

Supplymodel, including inflow parameters