Walking & Public Transport

Potentials and Possibilities

1 2 3 4

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1

Walking – what is it?

1 Walking …

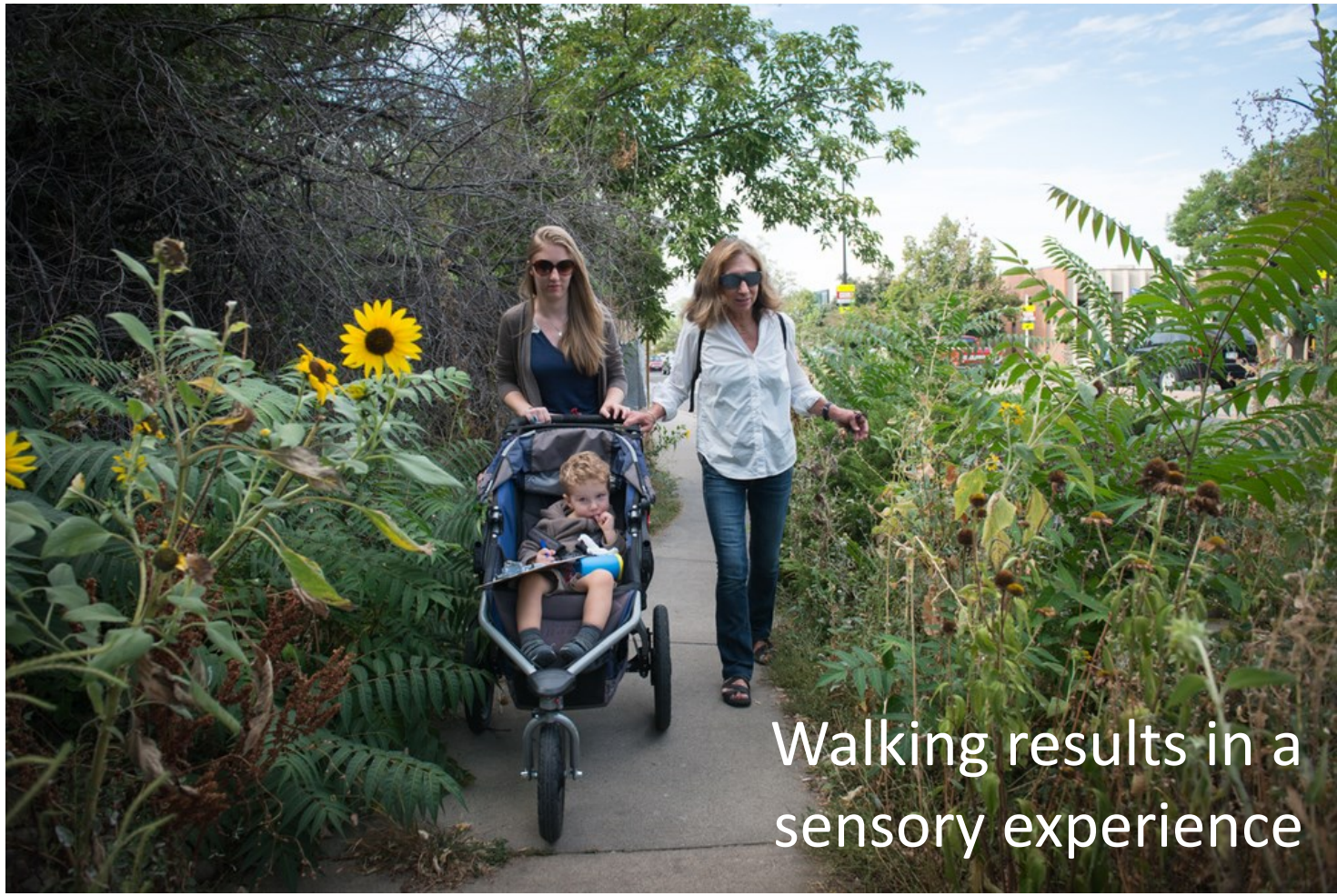
Pedestrians…

- Unconcious mobilty
- Low weight
- Now swinging radius
- Can turn spontaneously
- No braking distance
- Can stop from one step to the next
- React quick and intuitive
- Need litle space
- Can perform activities on the way


1


1
STEFFL
Douglas
KLIMT
Walking is an
outdoor mobility

1



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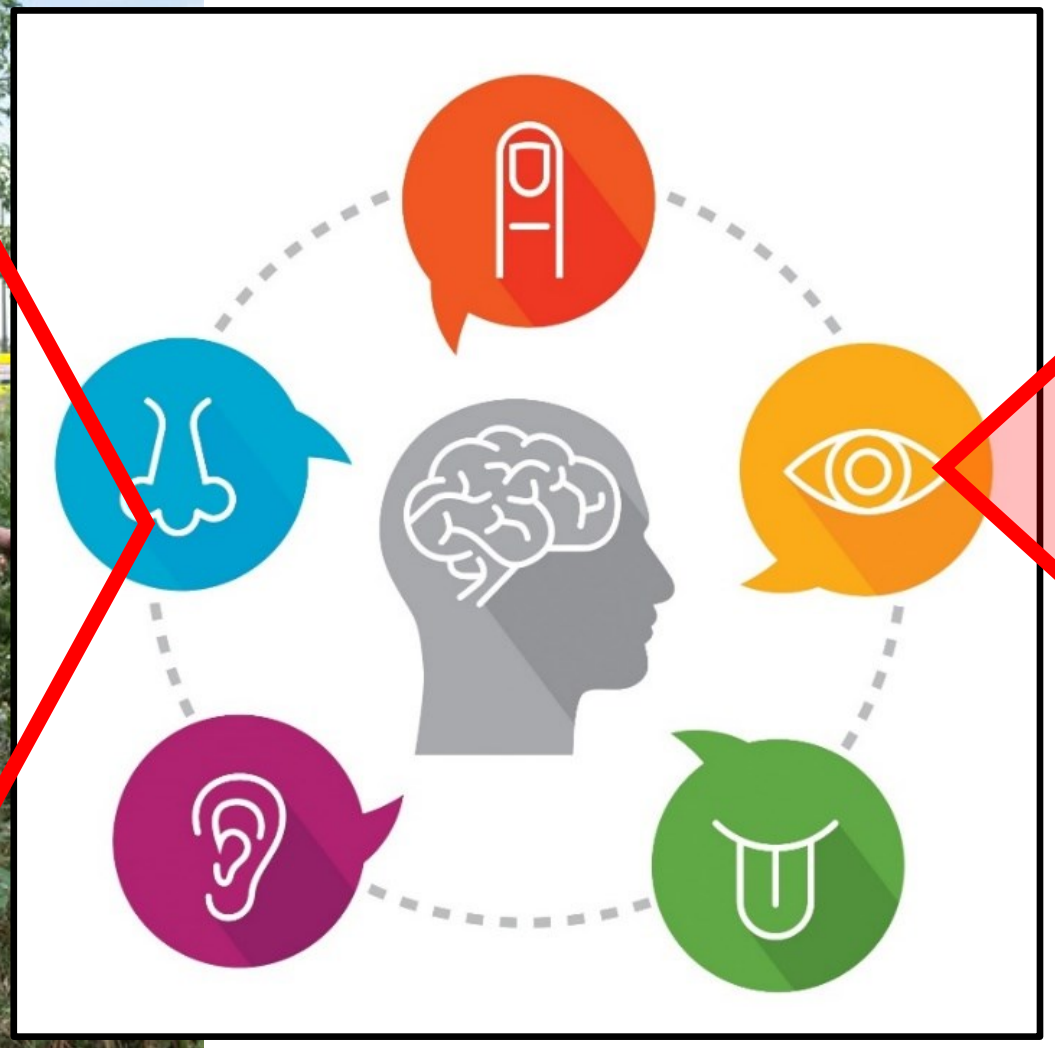

80% visual!

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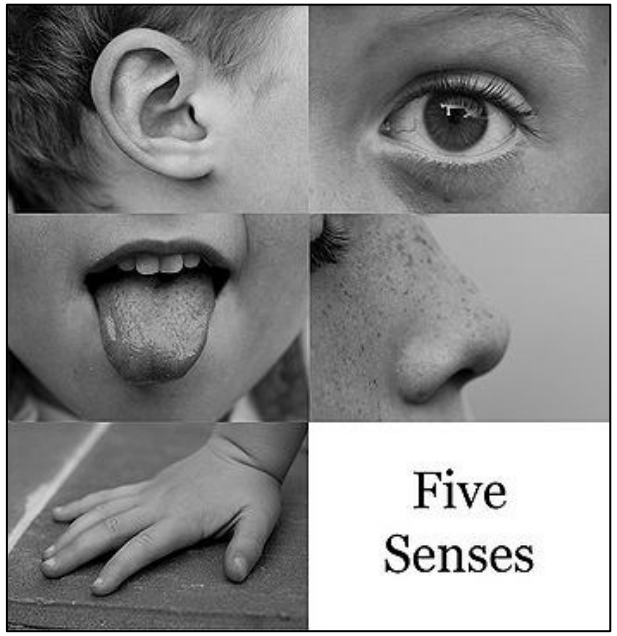
Pedestrians react on walking environments!

How influence urban environments the walking experience?



Impact of the environment on the walking experience

1. Emotions

2. Perception of time

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Emotions

Psychologists explain…

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How can we measure pleasantness?

Pleasantness:

Interviews

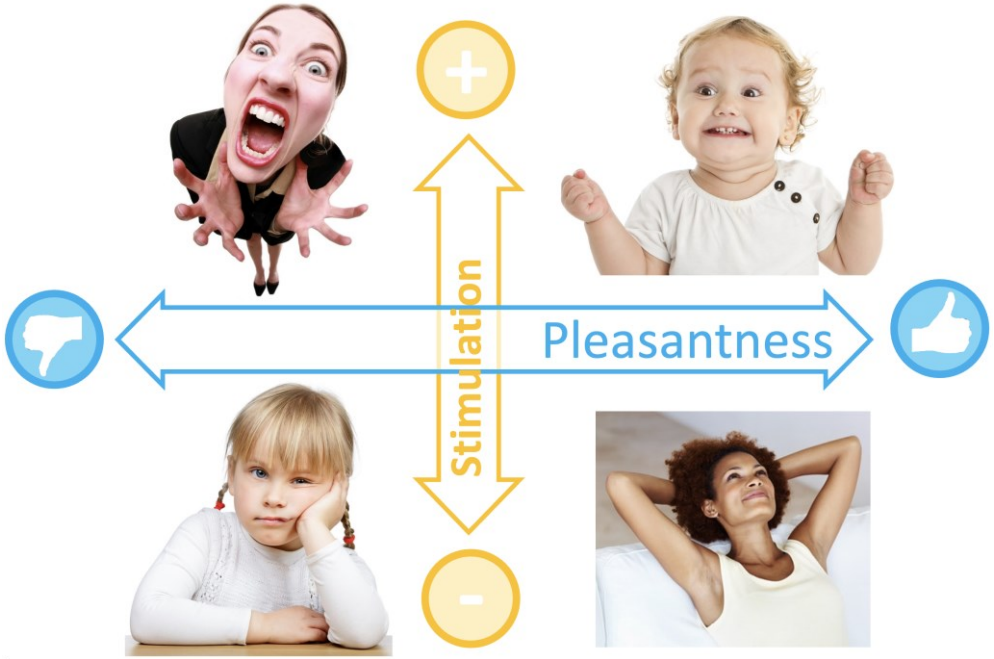
2

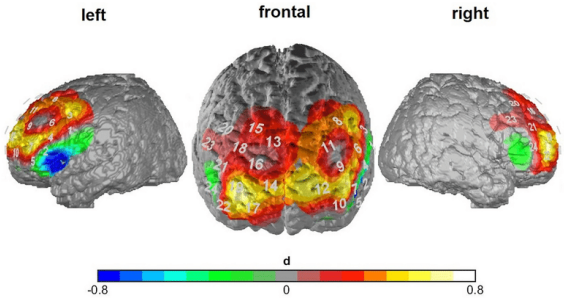
How can we measure stimulation?

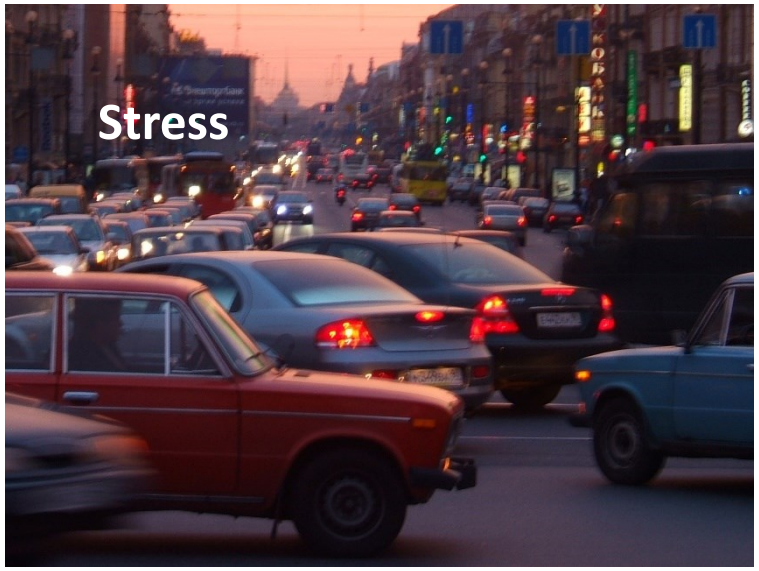
Stimulation:

Observations

2 How can we measure stimulation?

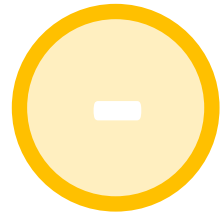


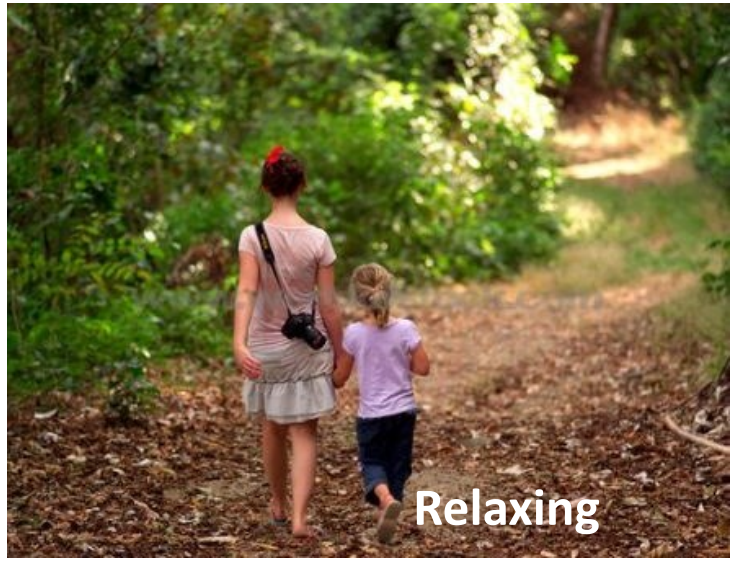



Stress

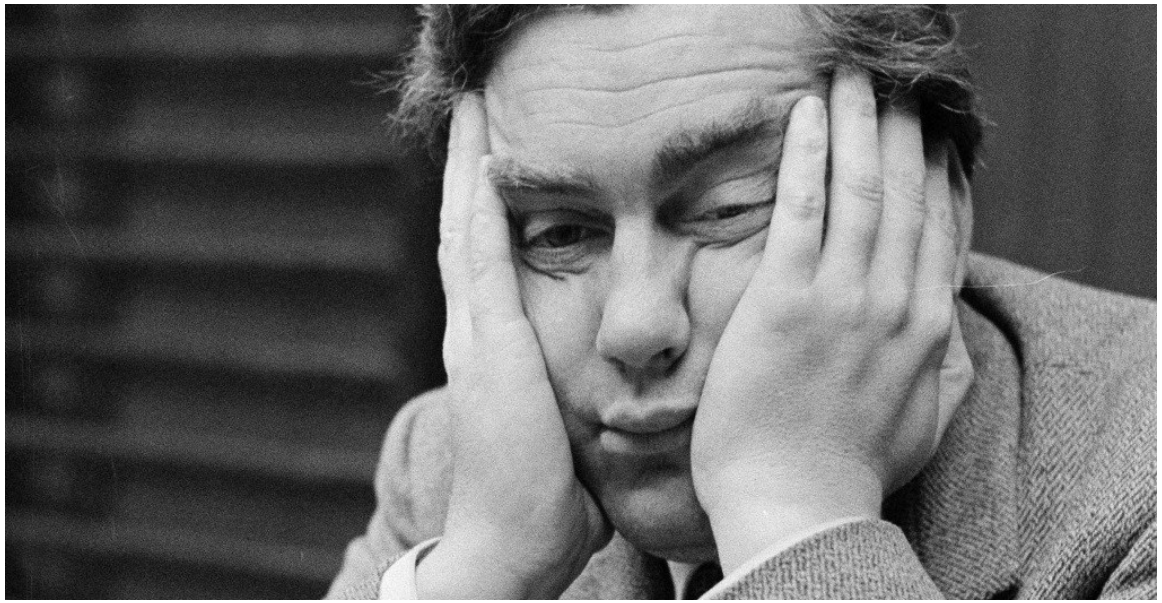

Happiness, excitement


Boring




Relaxing

2 Pedestrians experience of time



We do not experience time as constant

2

Time perception: Effect for walking

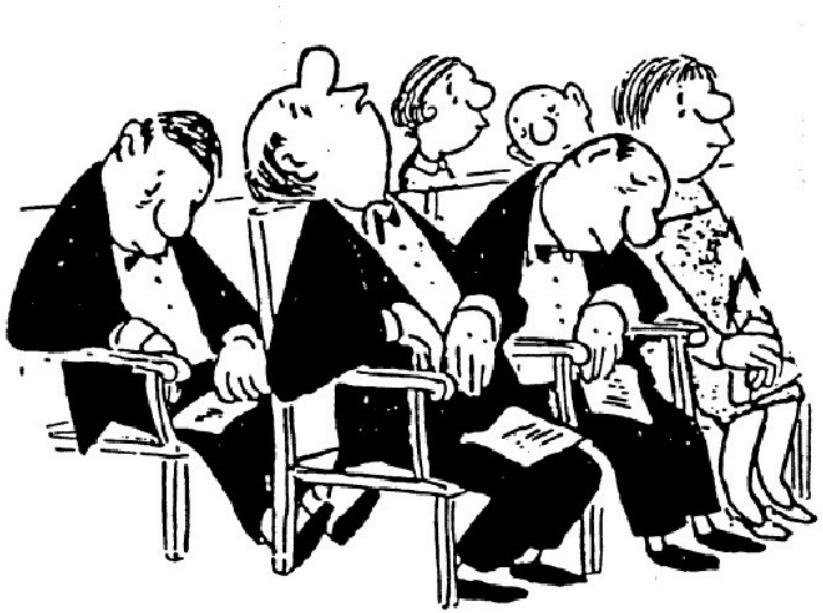
Time passes fast

Distance short

Perceived walking speed high

3 Subjective perception of time – psychologists explain…

Low stimulation

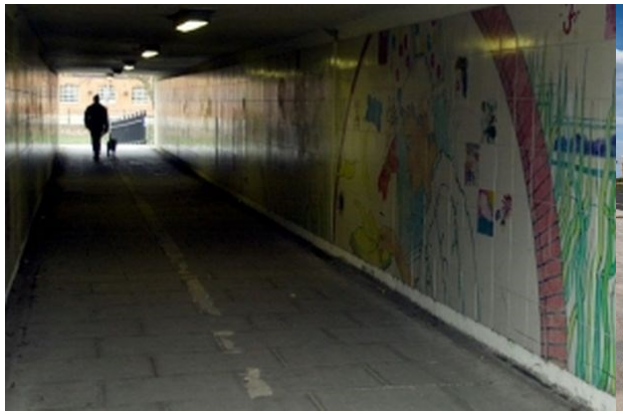


Long …

High stimulation

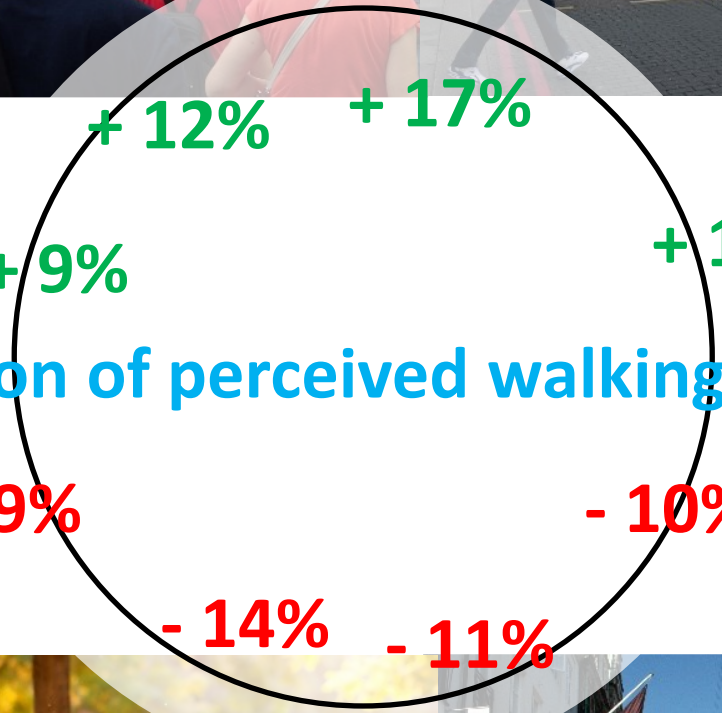
Short!!

2




Variation distance perception **30%**

No «soft factor»!

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Perception of
1. Travel time
2. Distance
3. Speed

What we reach on foot

2

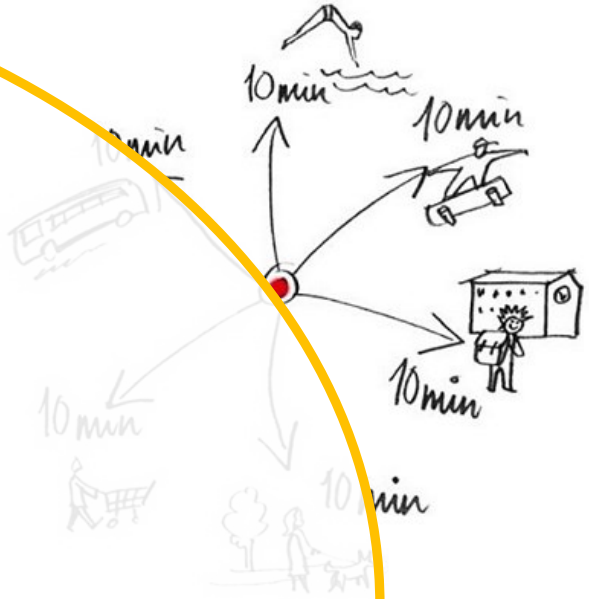
The urban environment influences…

1. if we choose to walk

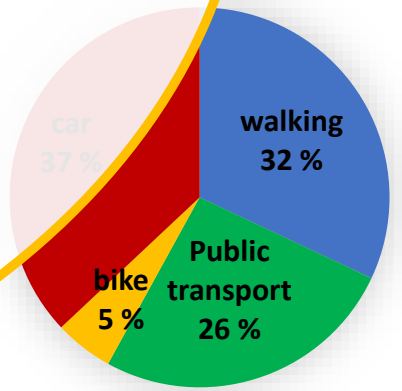
2. how far we walk

Emotions

Choice to walk



Modal split



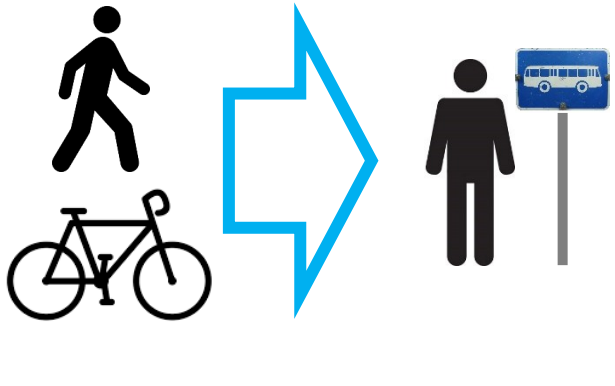
How we choose to travel

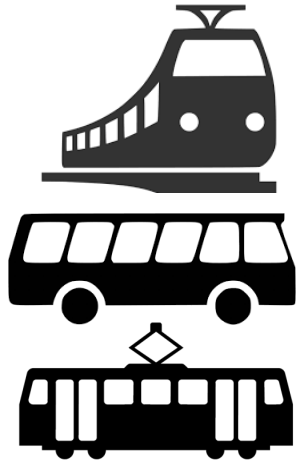
3

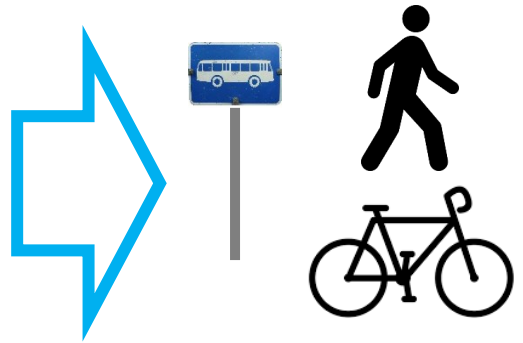
Walking for Public transport – only the “*first and last mile*”?

3 Public transport: one journey - four trips

Home







Work

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Trip legs

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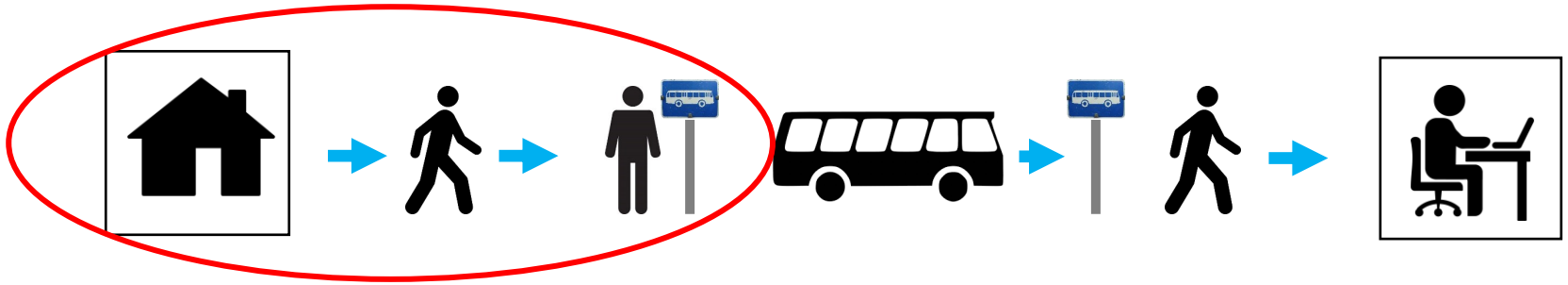
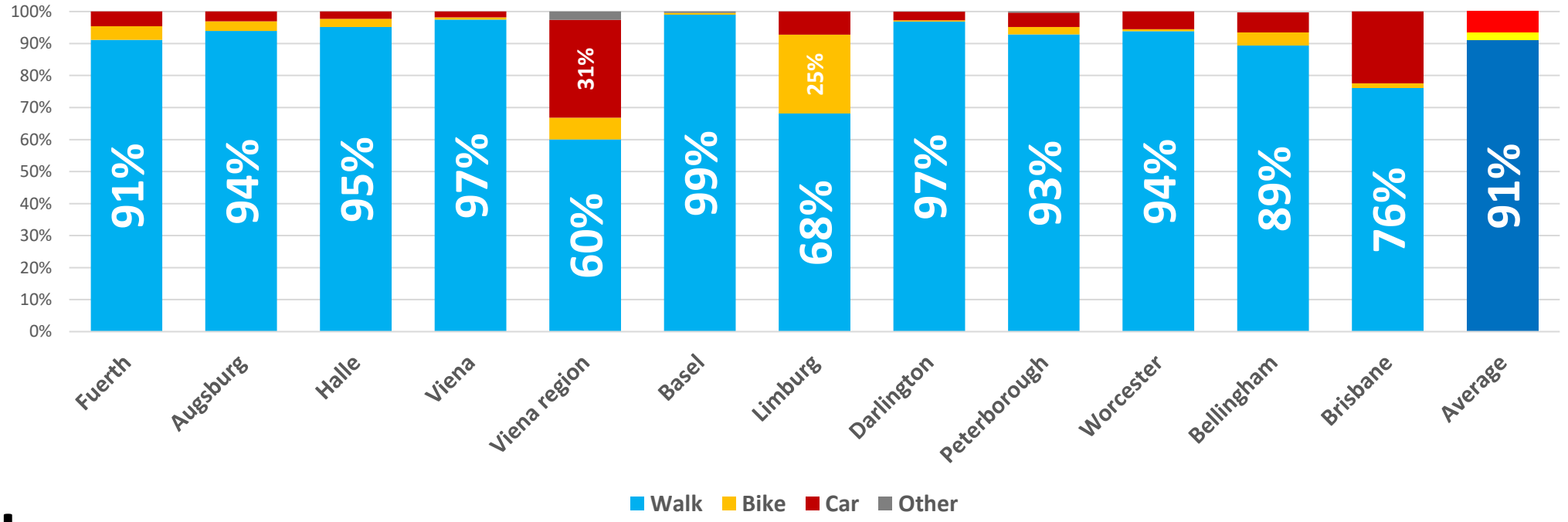
Getting to PT close to homes





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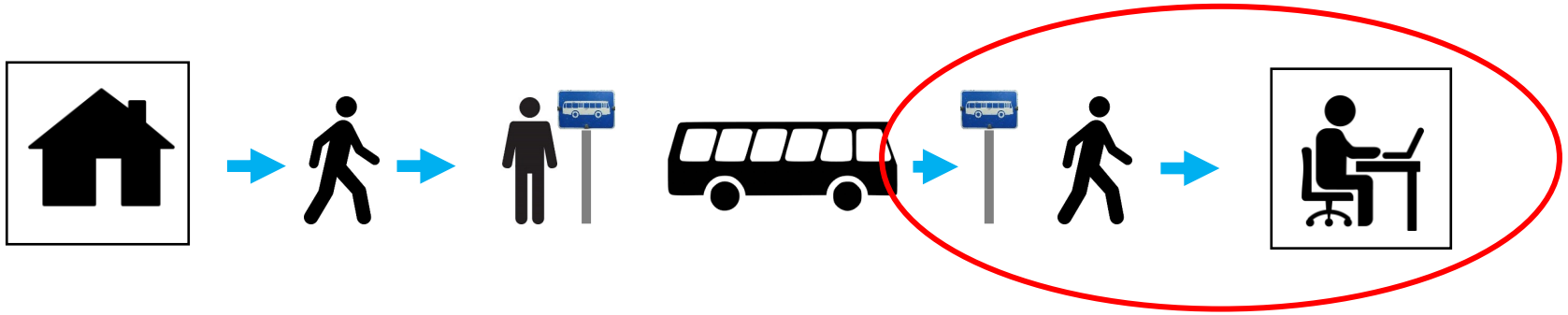
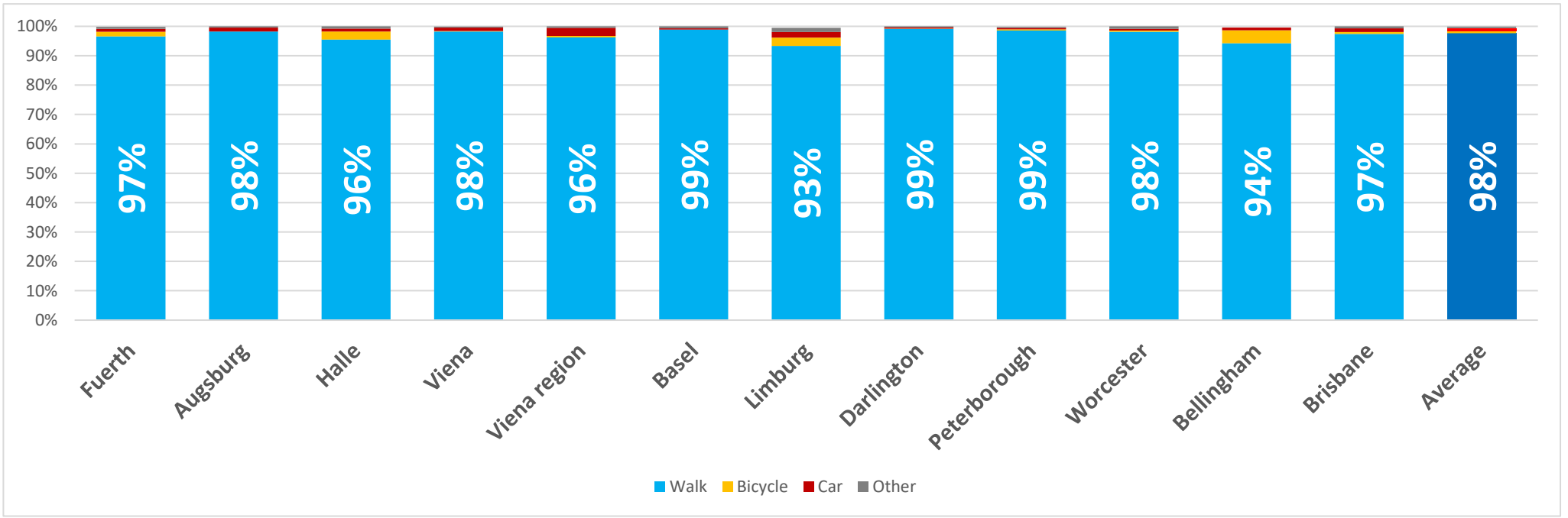
Getting to PT at the journey destination





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How much walking is integrated in Public Transport trips?

Principal component analysis:

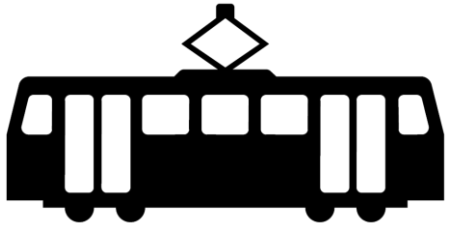
2 types of short, everyday, urban public transport trips:

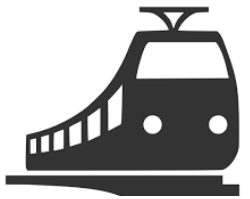
Trip type 1

- Slower PT mode (21 km/h)
- short walking access trips
- 72% of all the trips in the data

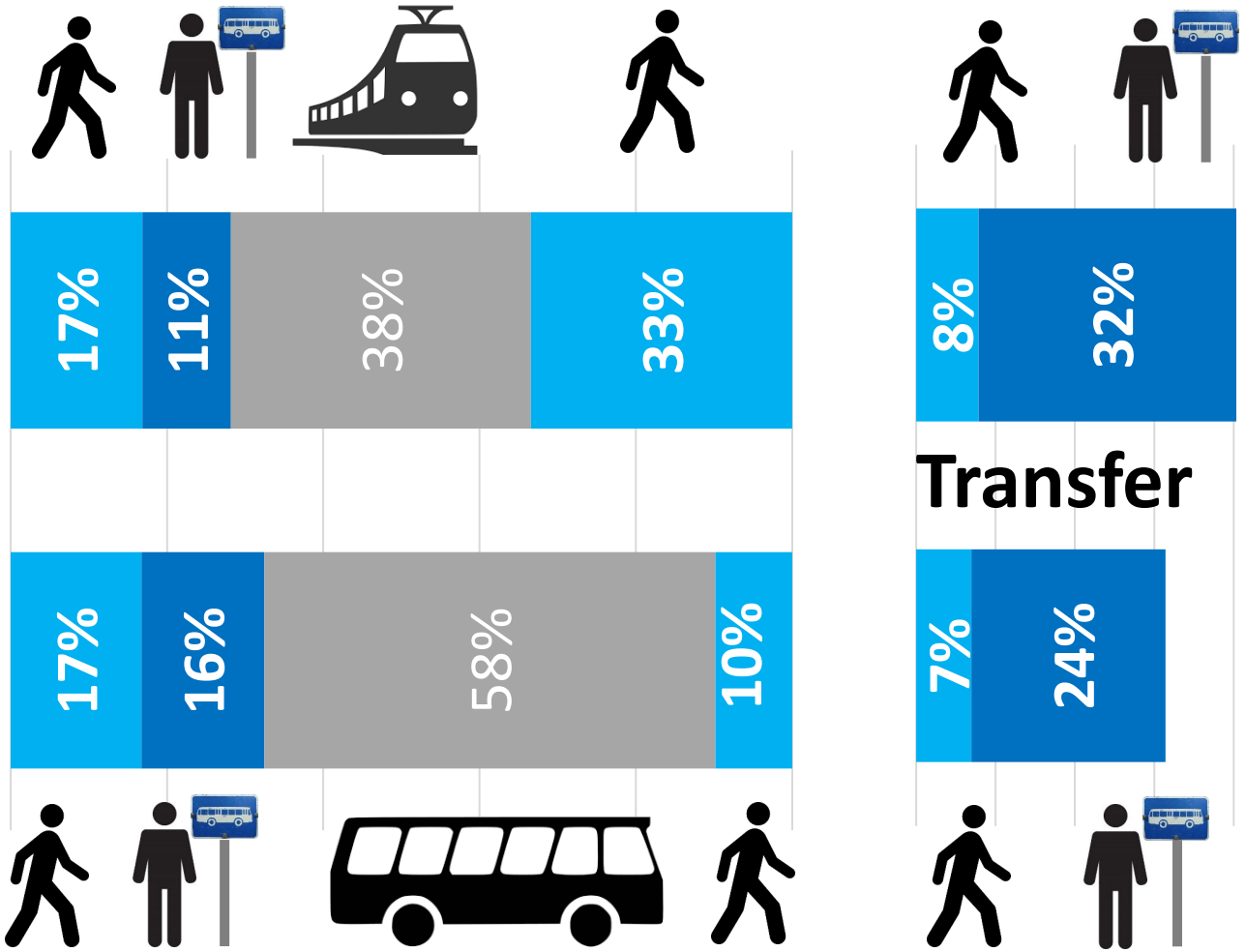
Trip type 2

- Slightly faster PT mode (25 km/h)
- Longer walking access trips at activity end of trip
- 17% of all trips in the data





3 Travel time from door-to-door



Time as Pedestrian

62%
+Transfer 71%

42%
+Transfer 59%

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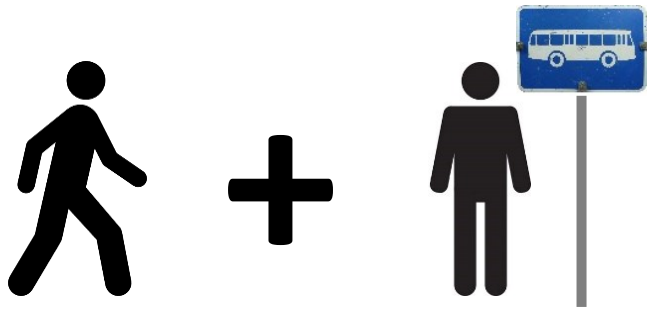
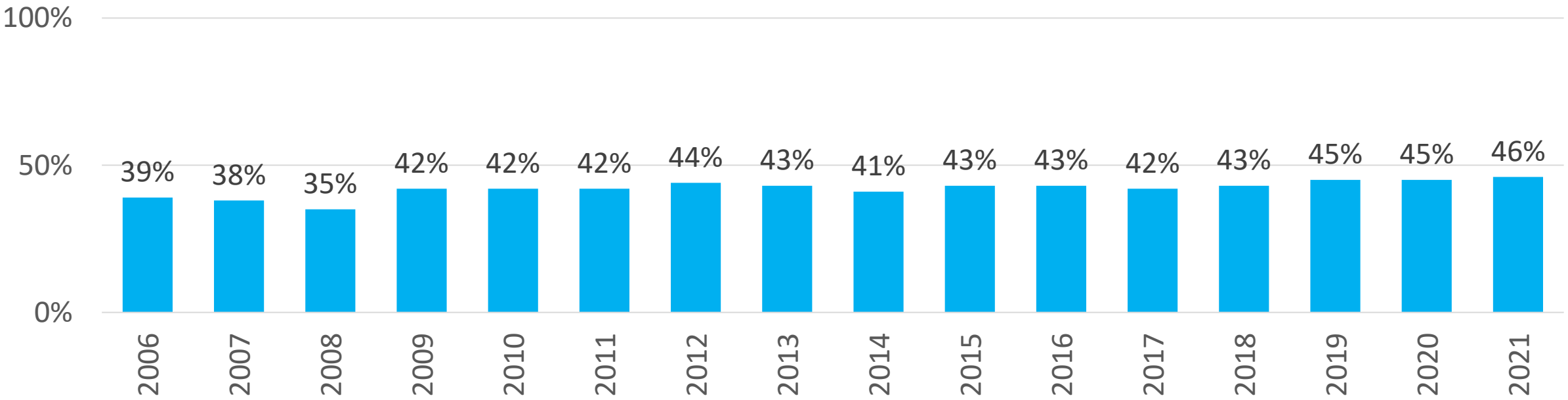
Danish National Travel Survey

Travel time spent walking, waiting & transferring along public transport trips

Average Denmark 2006 to 2021 (Christiansen and Skougaard, 2015)





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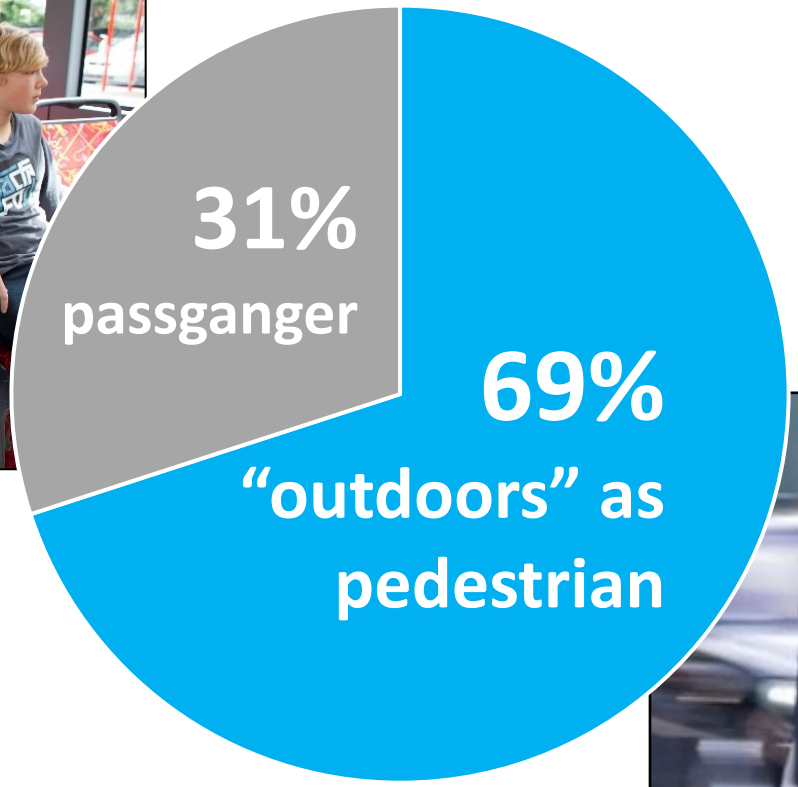
3 What do you remember from a journey?



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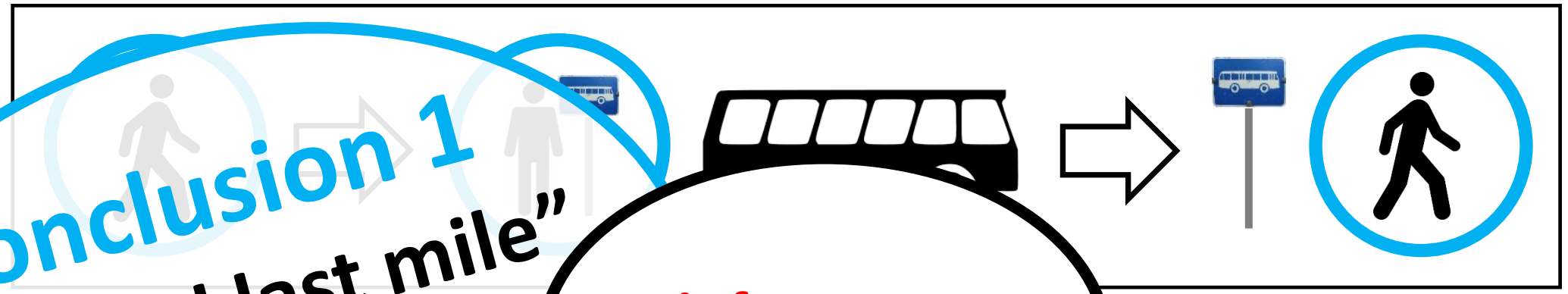
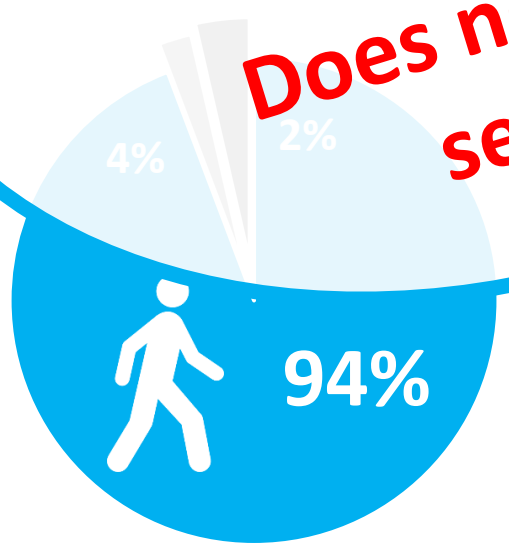
Conclusion 1

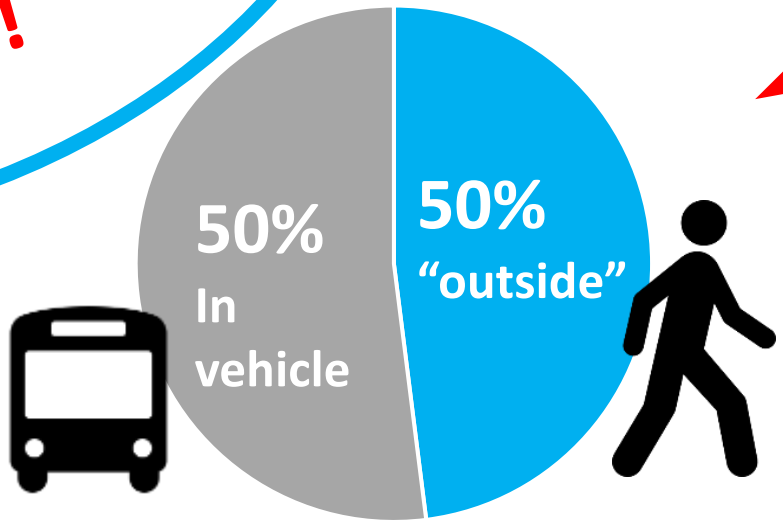
"First and last mile"
???

Does not make sense!

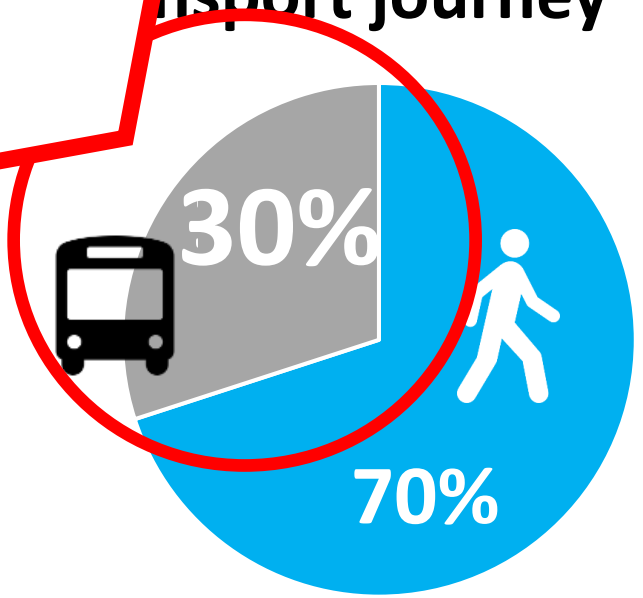


PT infrastructure investments





Memory of a public transport journey



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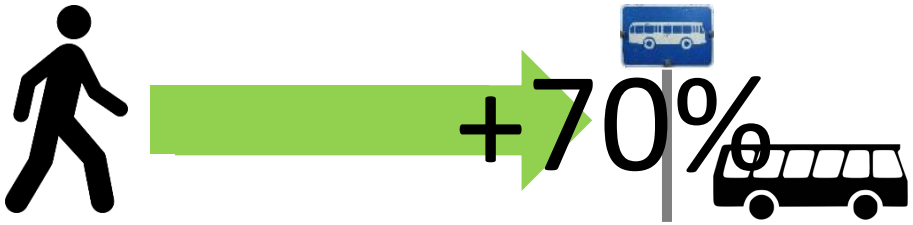
Good conditions for walking…

potential for public transport…?!

… and how to do it…?

4

Acceptable walking distances vary…

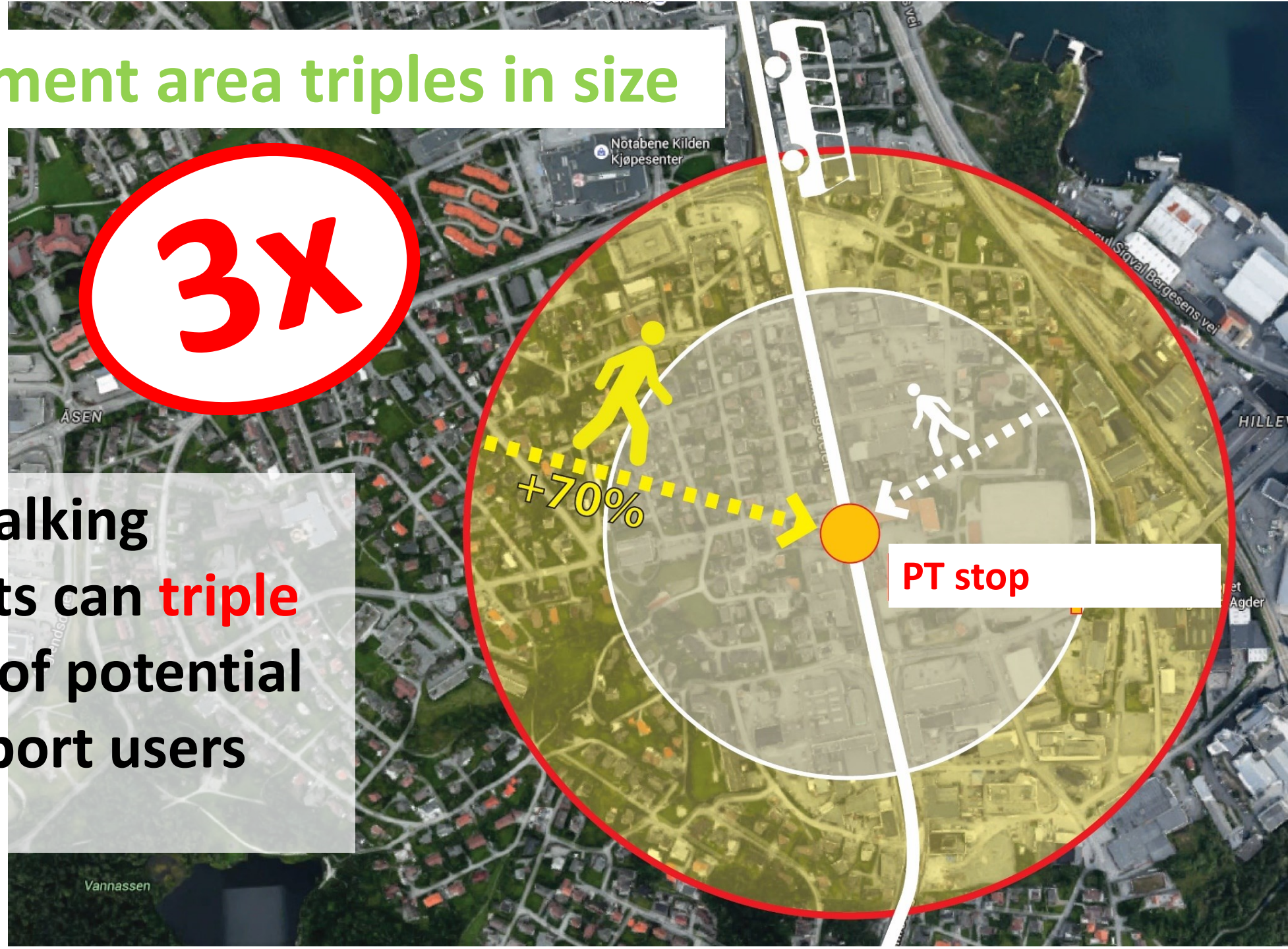


4

Catchment area triples in size

Potential

Attractive walking environments can triple the amount of potential public transport users
(theoretically)



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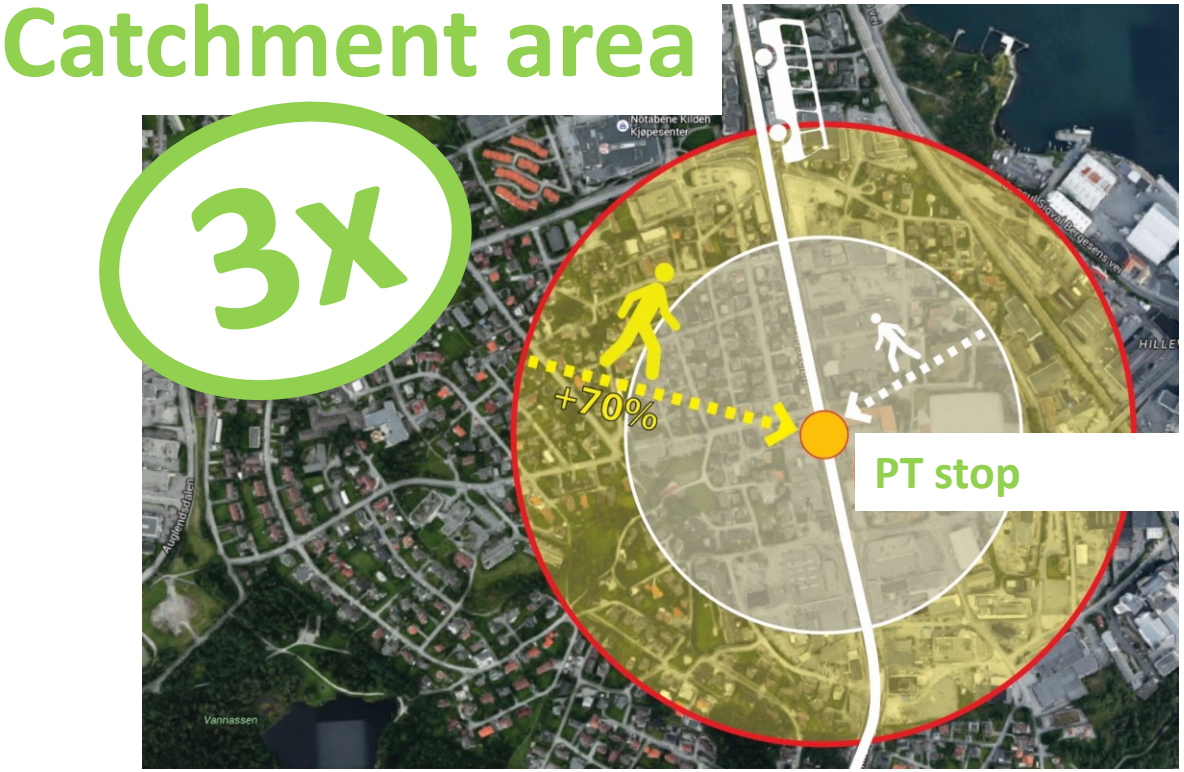
How to achieve this effect?

… through urban planning?

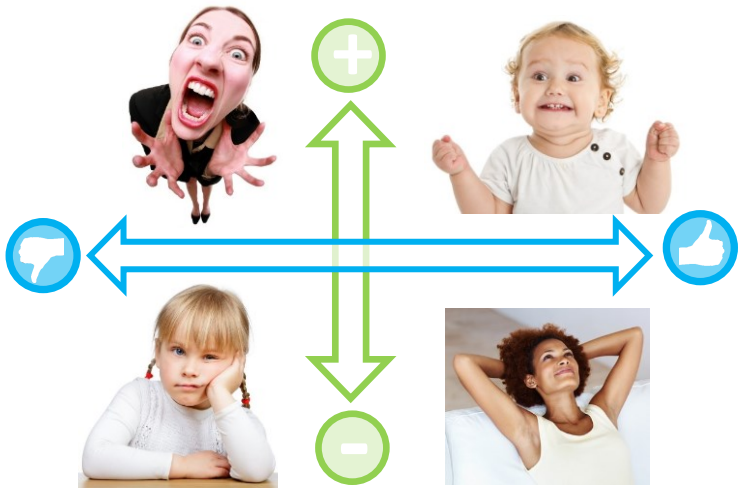


41 Urban environments for good emotions and short perceived distances

distance

Subjective perception

time



Good emotions

30%

longer walking distance

Hillnhütter 2016

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42 Access to shops & services along the walk

15 to 25 %

longer walking distance

Hillnhütter 2016

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4 3 Waiting at street crossings

Waiting time:

10 – 15 %

… of a 300m walk to the stop*

* 1x crossing at traffic light at trafficked street (>1500 cars per hour)

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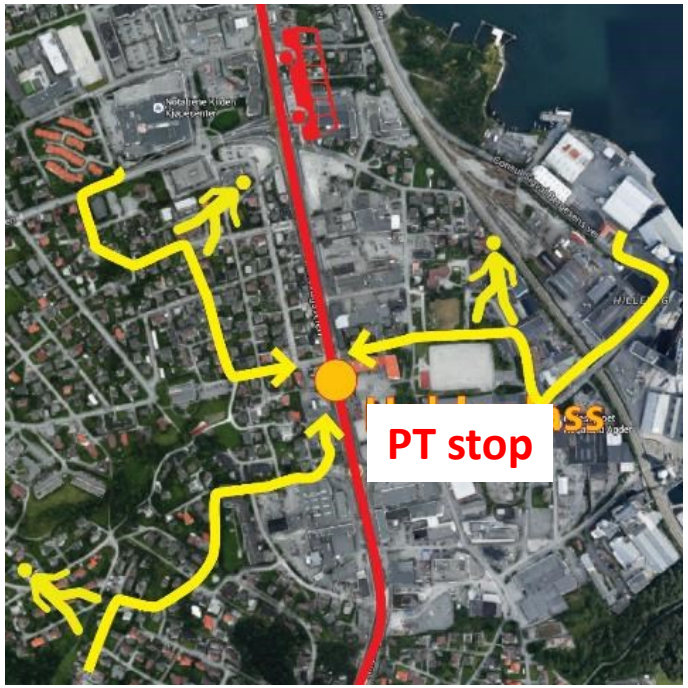
4 4 Good footpath networks & obstacle free paths

No obstacles in streets

Up to

+20%

Dense footpath network



+10 to

+25%

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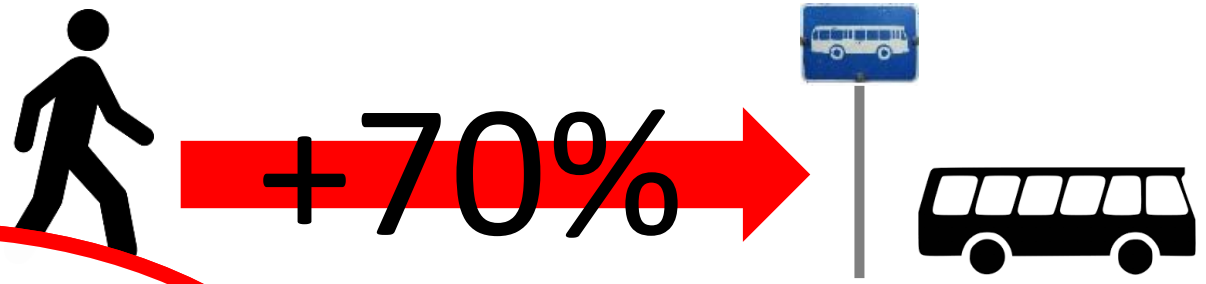


Longer walking distances to public transport:

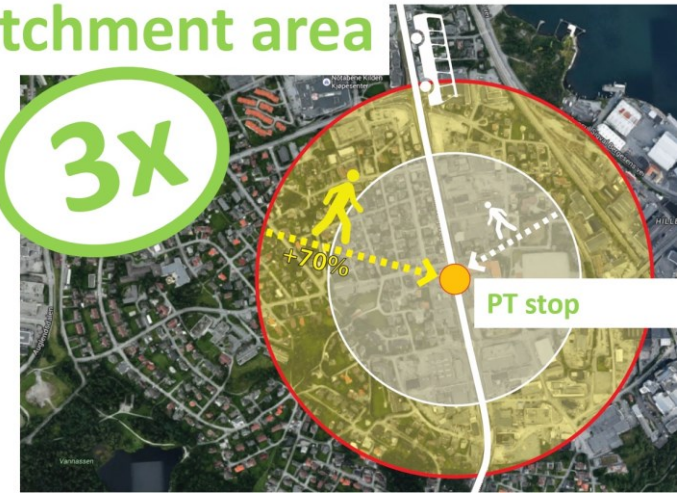
1. Good emotion
2. Accessible s ops and se
3. Crossing traf ked streets
4. No obstacles and g d n 45%

$\sum$ > 70%

Conclusion 4

Urban planning
Urban design
Transport planning

Verry doable!!



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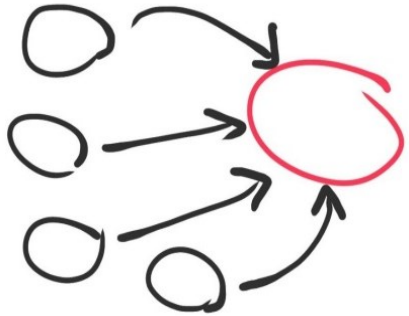
Conclusion



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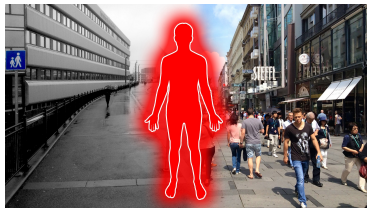

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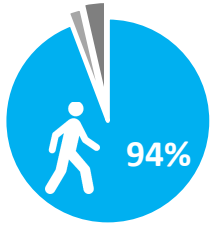

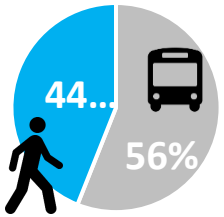

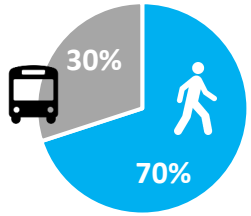

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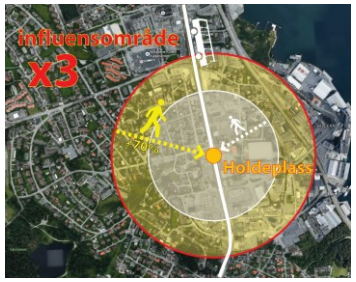

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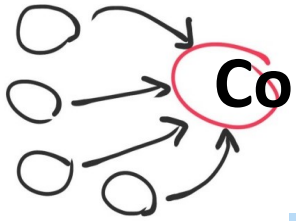
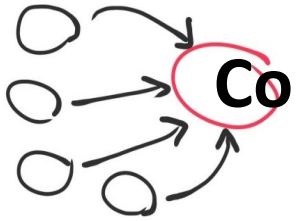


Conclusion

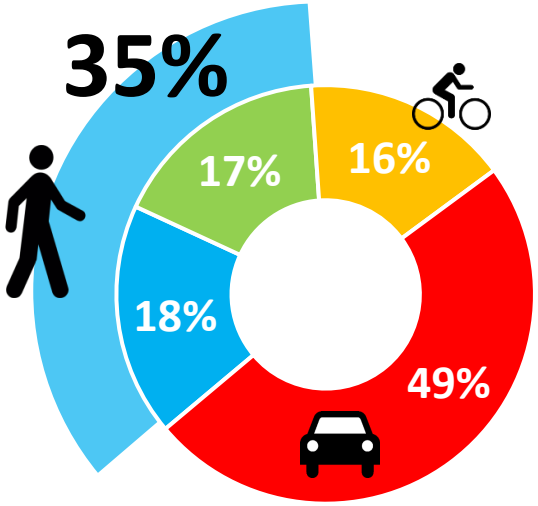
Urban design principle 1

Variation!



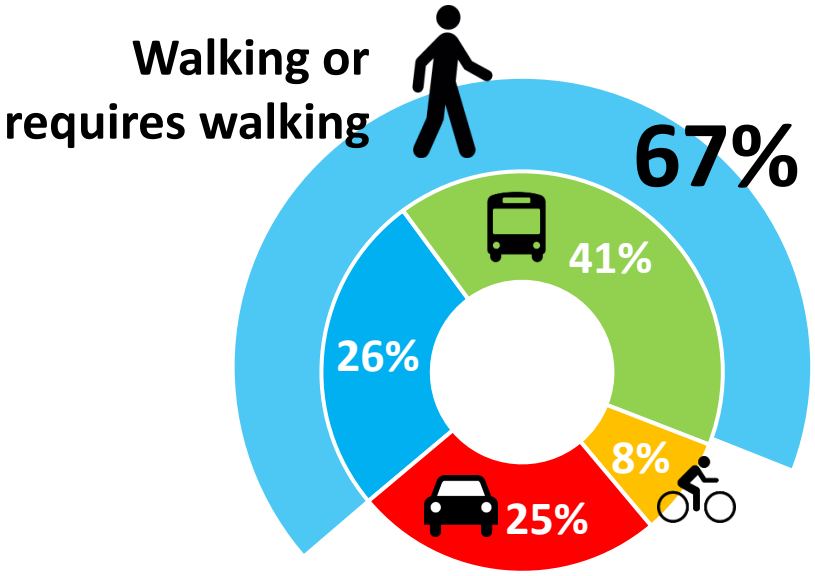
Conclusion

Much walking in cities…



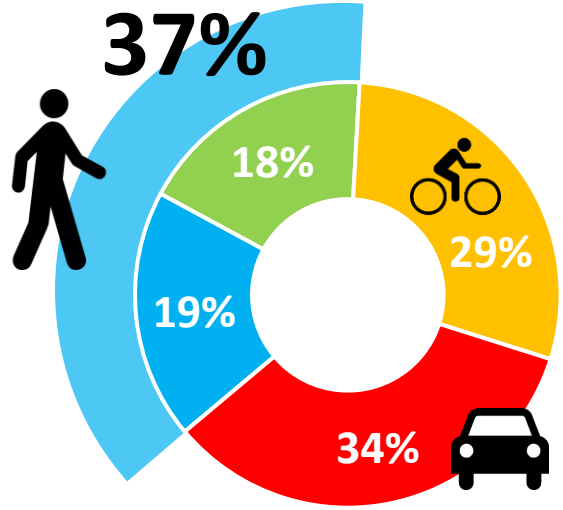
Rotterdam (NL)

(2008)



Zürich (CH)

(2015)



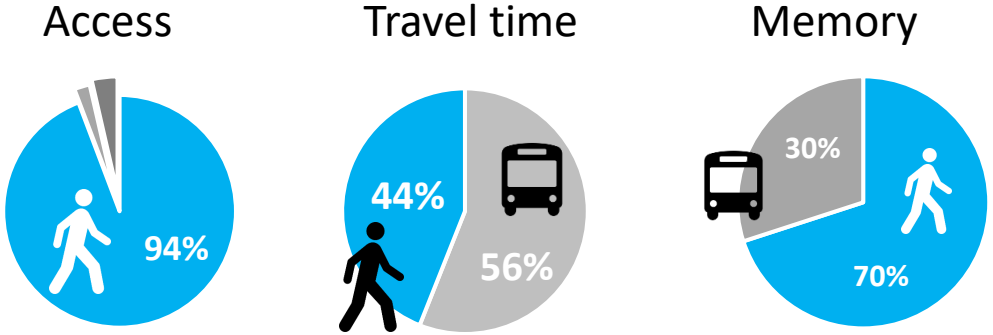
Copenhagen (DK)

(2015)

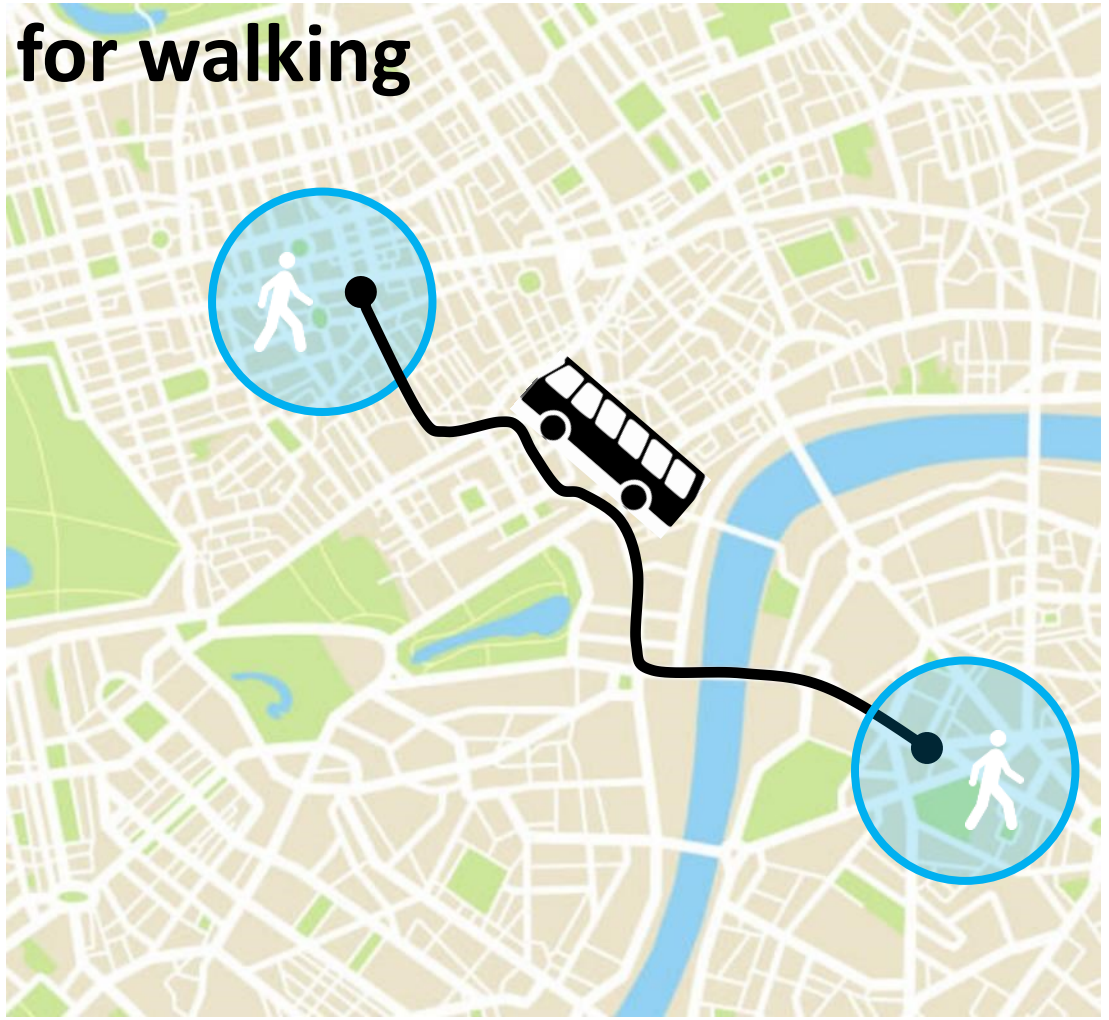
Conclusion

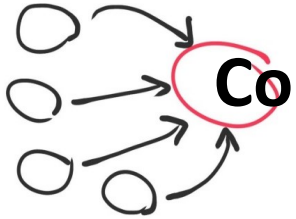
Walking for public transport…

Public transport for more walking!



Linking urban quarters for walking





Conclusion

Urban design principle 2

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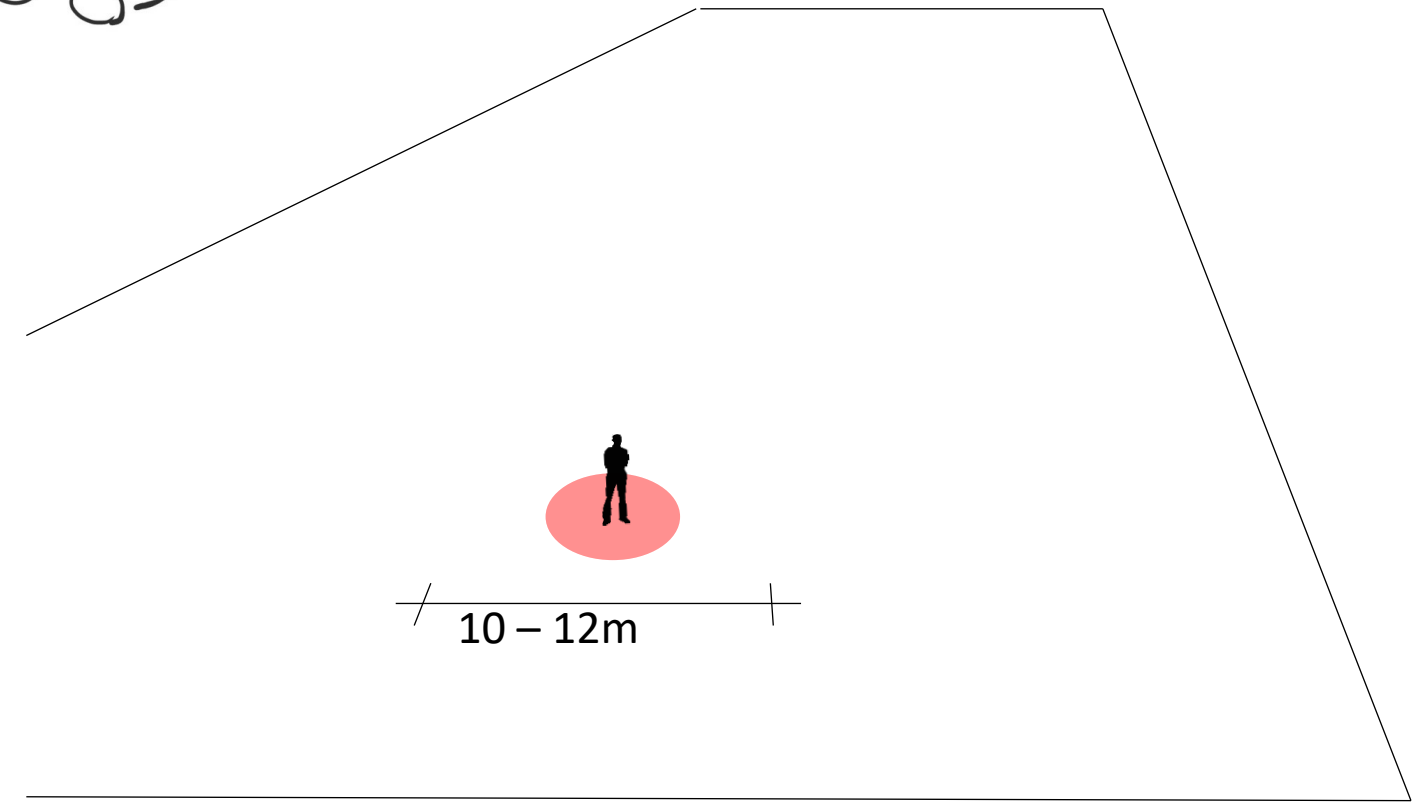


Environments in human scale

Conclusion

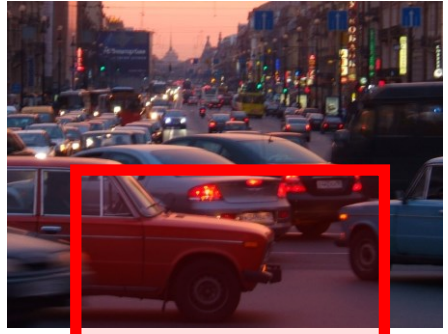
Walking — Outdoor mobility

Public transport — Outdoor mobility

Cycling — Outdoor mobility

Car

Urban environment critical factor to reduce car driving!

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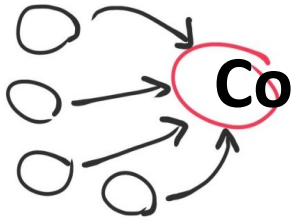
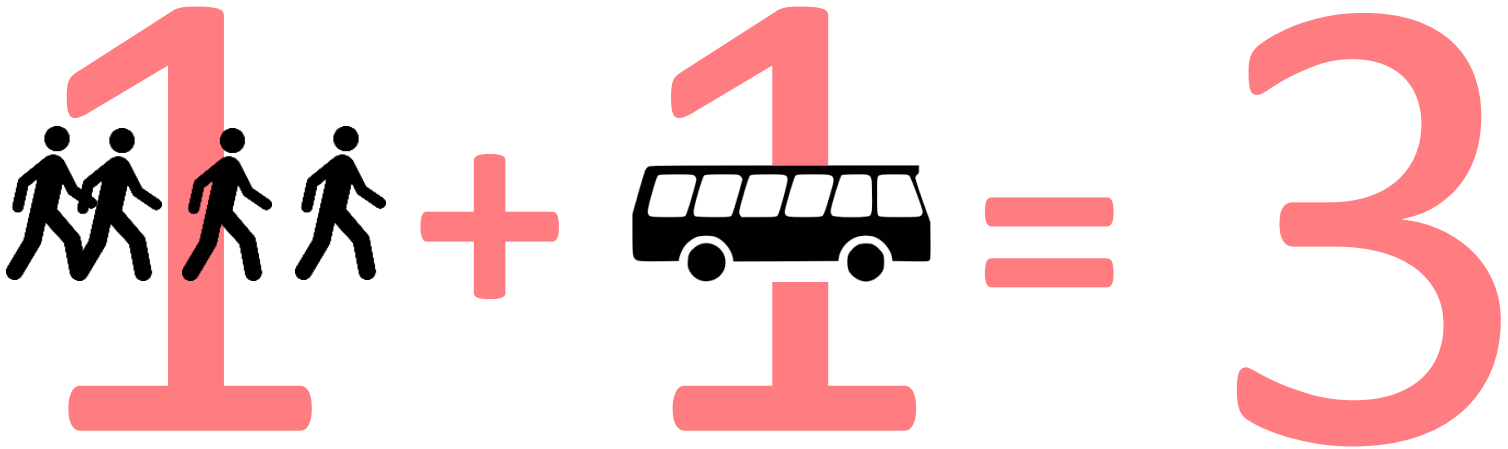


Conclusion

Integrating walking & public transport:

Synergy effect



1. Higher return from public transport investments
2. More opportunities for walking
3. More effective to reduce car driving

Conclusion

Further reading: