

Improving the Adoption of E-Mobility in Germany – Building on Experiences from Norway

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Content

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Background: Potential of Electric Cars

Potential of Electric Cars

- ✓ Lower CO₂-emissions over lifetime
- ✓ Combinable with renewable energies
- ✓ Independency of oil

- ✓ No exhaust gases
- ✓ Less noisy at low speed



Acceptance of Electric Cars in Germany

Electric Cars in Germany

Ambitious Government targets

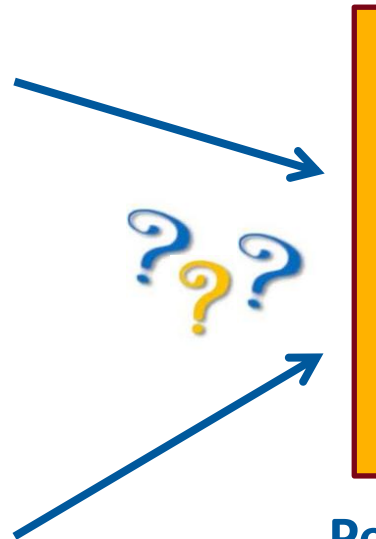
1 million electrified vehicles on
the streets in 2020

Positive attitude in the population

“environmentally friendly”

“technology is fascinating”

(German DOE, 2013)



Low adoption rates

~25,000 electric cars on
the streets in 2016

Perceived barriers:

range

infrastructure

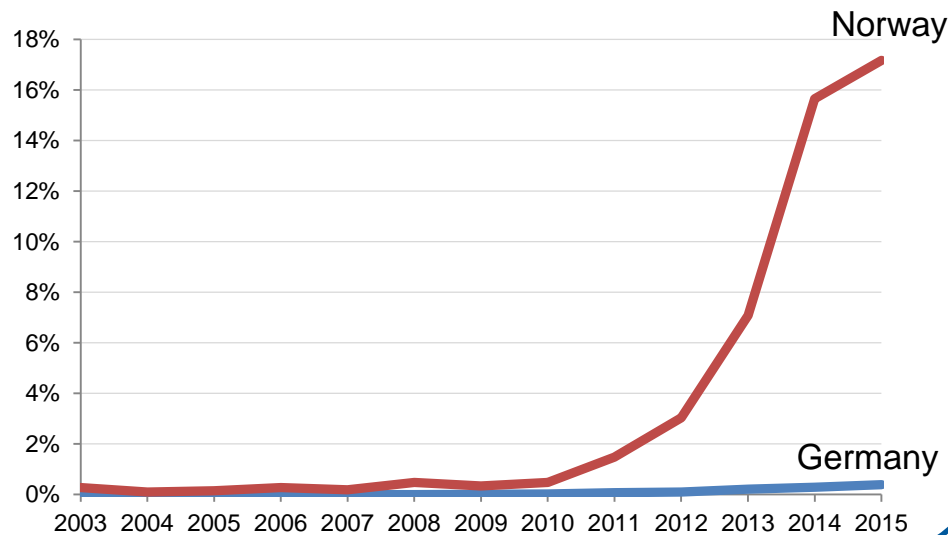
(purchase) price

Opportunities to Learn from Norway

Limitations of German Studies

- Studies are often hypothetical/ prospective
- Studies with users can only be implemented in field trials or with innovative persons

Share of Electric Cars of New Car Registrations



Calculations based on ECB, 2016; Figenbaum & Kolbenstvedt, 2013; Grønn Bil, 2016; OFV, 2016; Statista 2016a, b.

Why should we learn from Norway?

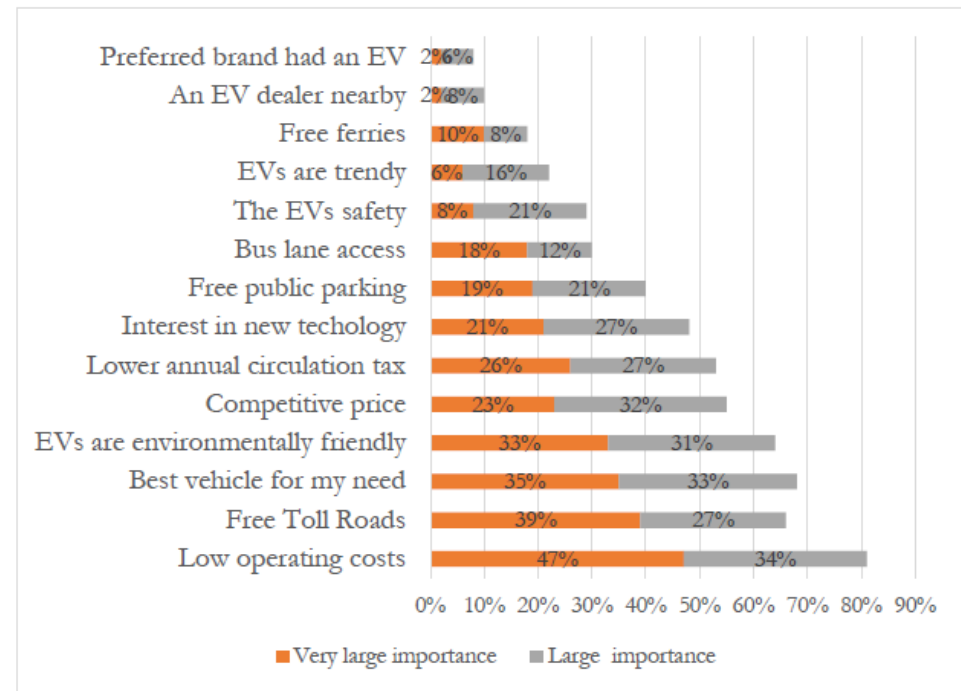
- Electric car boom
- >70.000 electric cars on the streets
(2% of population, 80% registered in households)
- Large studies with actual users from general population

Findings from Norway

Findings from Norway

Factors impacting purchase

- Operating costs and exemption from toll roads score highest

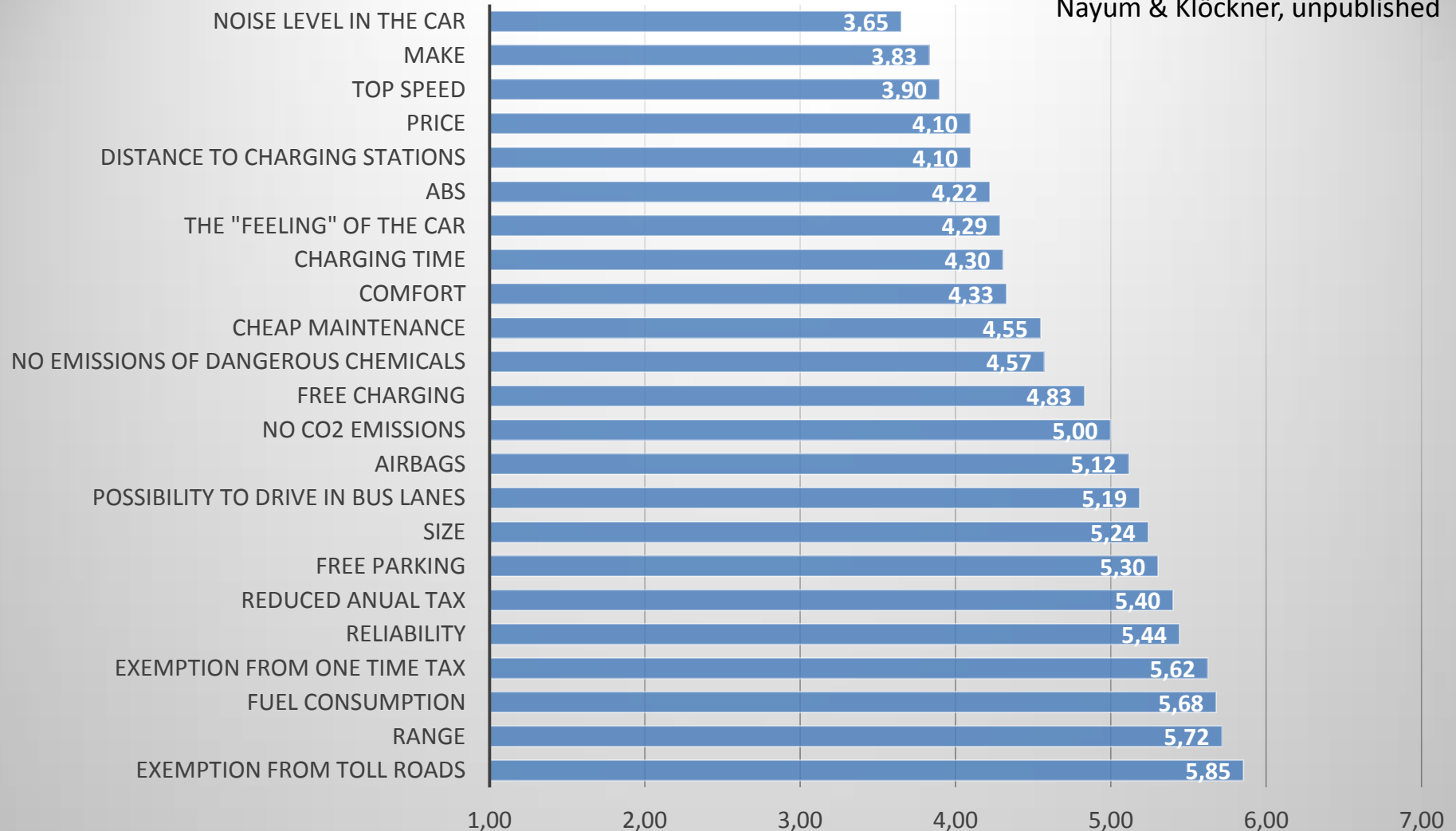


Figenbaum et al., 2014

Figure S3 Important factors when buying an EV among EV owners in Norway (n = 1 721). Percent

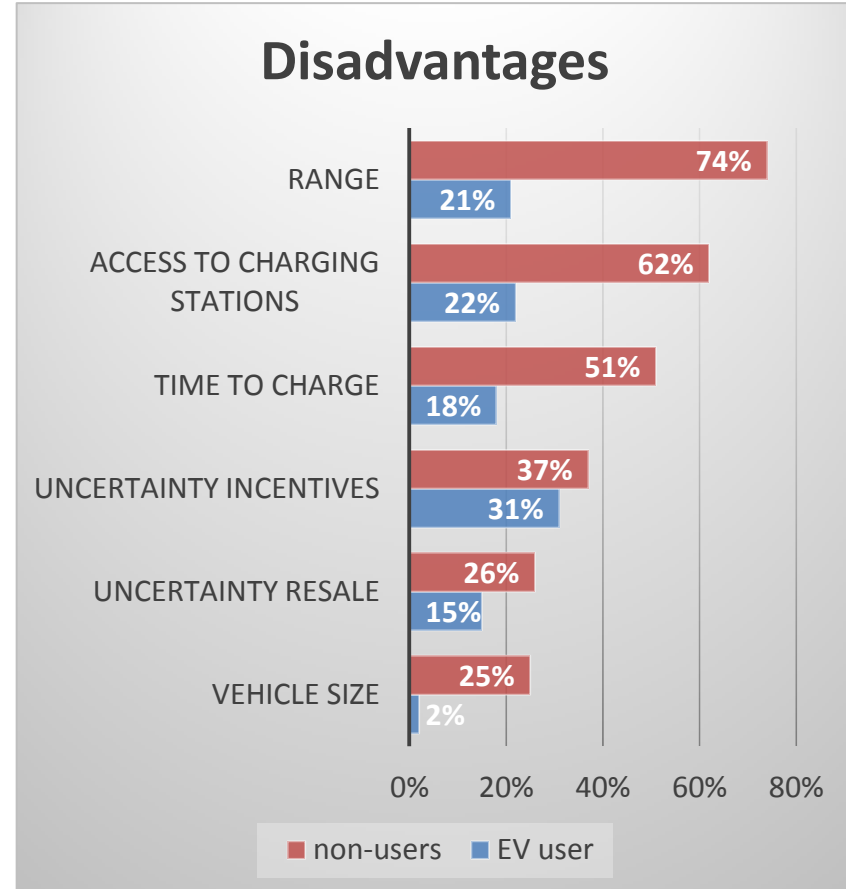
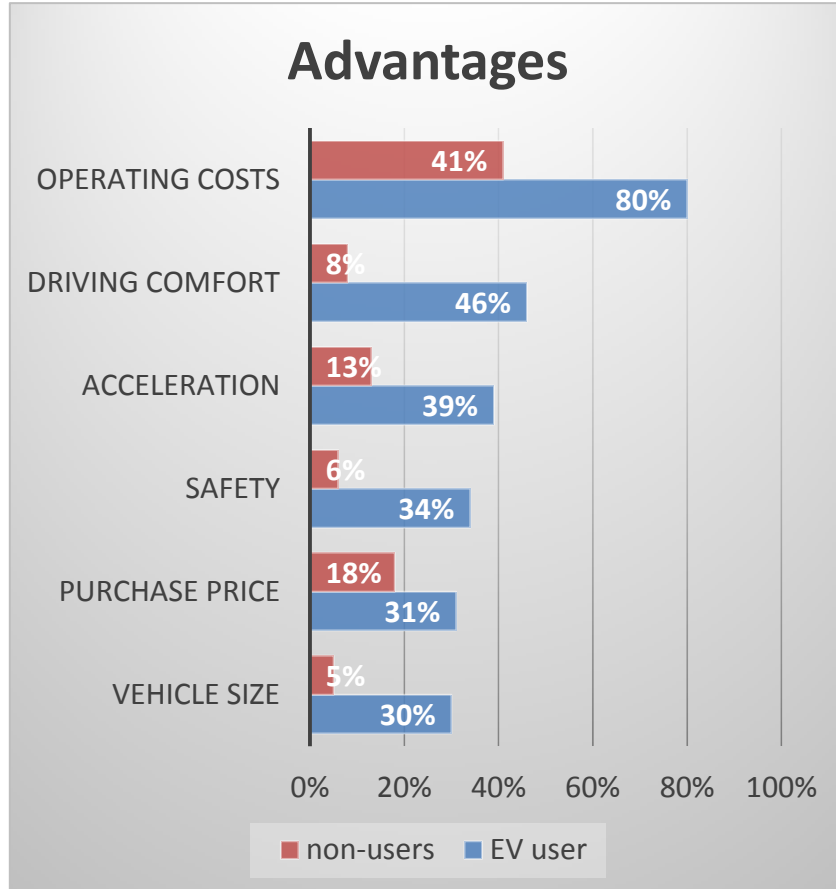
Findings from Norway

Nayum & Klöckner, unpublished



Findings from Norway

Experience with electric vehicles changes their perception

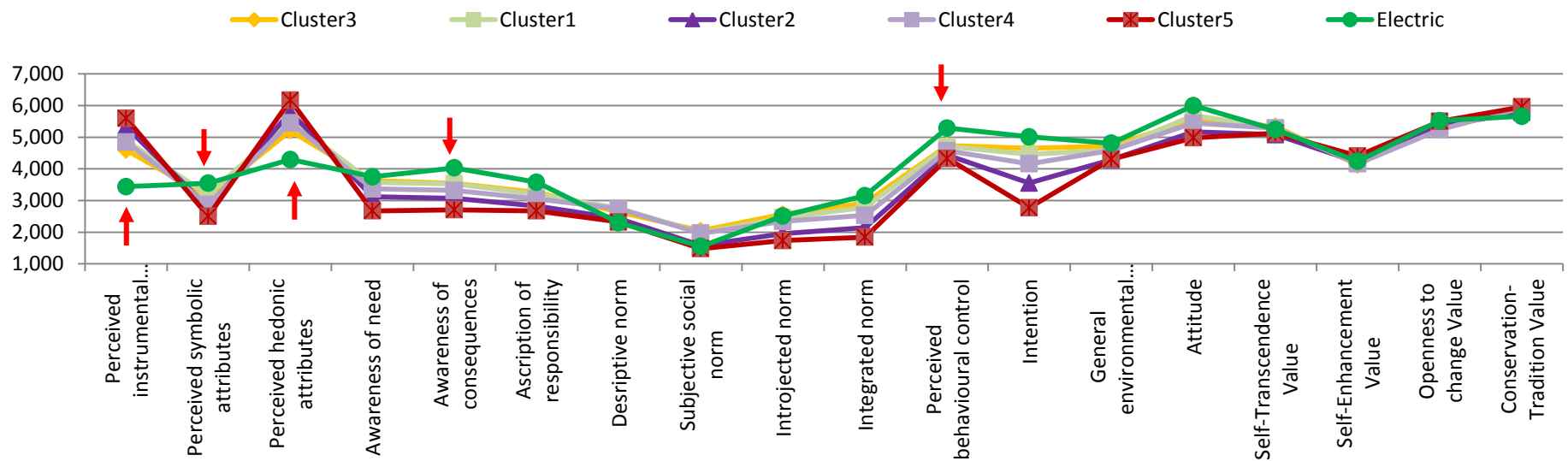


Figenbaum et al., 2014

Findings from Norway

Electric car buyers do not have much different psychological profiles

- Less importance of instrumental and hedonic car attributes, more symbolic
- More awareness of consequences
- More perceived control



Nayum, Klöckner & Mehmetoglu, 2016

Findings from Norway

Owning an electric car changes travel patterns

- More car trips, less public transportation
- This is also reflected in psychological variables

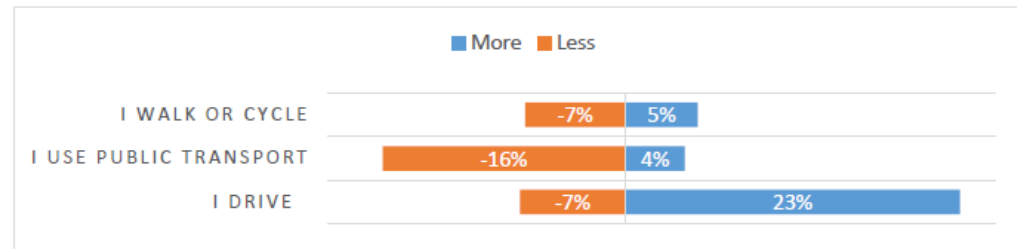
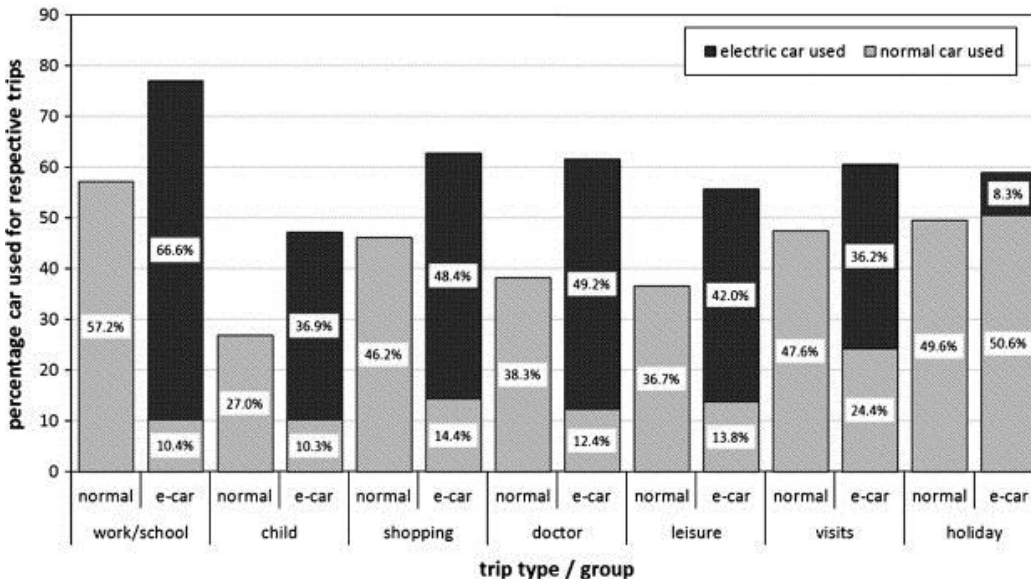


Figure S5 Changes in the travel pattern among EV owners in Norway 2014 (n = 1 722). Percent

Figenbaum et al., 2014

Klößner, Nayum & Mehmetoglu, 2013



Discussion/ Conclusion

Discussion/ Conclusion

Purchase decision: Variety of aspects is important

- Financial incentives need to set electric cars at level with combustion engine cars
- Electric cars have non-financial benefits (saving the environment, innovative technology, status symbol, “cheating the state”)
- Electric car buyers in Norway are (almost) normal car buyers
- Findings are in line with psychological theories on the adoption of innovations (Ajzen, 1991; Rogers, 2003)

Discussion/ Conclusion

Everyday Use: Driving electric cars is not problematic

- Experiencing a technology changes the perception of it (Rogers, 2003; Davis et al., 1989)
 - Non-users: lack of experience, lack of knowledge
- Range and infrastructure findings no surprise? E.g., Germany: >90% of ways <40 km

Rebound phenomena might be a problem

- Explanations? (Klößner et al., 2013)
 - incentive structure (free toll roads, parking)
 - moral licensing

Discussion/ Conclusion

Implications for Germany

- Electric cars are ready for everyday use
- When more people adopt electric cars, their reputation will improve
- Not only financial incentives influence the diffusion of electric cars...
- ...but financial incentives can speed up the process (and foster rebound effects)
- Myths could be tackled with well-targeted information campaigns

Thank you for your attention!

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