Engineering and Design – Optimisation by Compromise

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1 Initial point: list of current trends related to cardesign

- activation oft side surfaces
- new lighting elements as technological statement
- gradual digitalisation of interiors (dashboards)
- durable establishment of retro-themes
- aiming for higher grades of functionality
- growing acceptance for downsizing
- reincarnation of the hatchback
- carsharing-concepts provide feasibility and function
- growing acceptance of alternatives for exterior surface materials
- first for use of electric energy optimized cars enter the market
- growing acceptance for alternatives energies in vehicles

2 Activation of side surfaces:

- technical ambitious theme
- targets to marketing
- customer expects visible innovations (product refinements, facelifts) within 4 years (Europe, western markets) , down to 2 years (far east markets)
- side surfaces became more complex within the last decades, shoulders have been accented
- simple shutlines during the sixties (describable with one curve)
- accentuation of the shoulder
- step one: conversion of trim strips into a surface-theme (keywords: Featurelines, Droping Lines, Dynamic Lines)
- next step: side surfaces full open for styling

- further keywords: 3d-graphics, bulged wheel guards, complex topology of surfaces
- high investment for moulding process (keywords: yield strength, higher numbers of moulding steps
- at present: phase of Mannerism, exaggeration of the design-theme
- growing countermotion in designstudios recognizable: excerpt Gorden Wagener, stand Daimler AG, IAA 2013

3 New lighting elements as technological statement

- on first sight: seems to be a technologically driven feature, but main reasons are coming from marketing
- functional improvement (glare-free high beaming, daytime running light, adaptive break light (unpropitious relation between revenue and expense)
- reason for developing this theme intensively: (see upper theme) relatively simple presentation of Innovations or rather technological progress of the whole product
- no interference to the main structure of the vehicle necessary
- up to now hardly no reduction of costs or occupied volume
- Iat present mostly used as upgrade versions, even so conventional solutions have to fit the car
- Innovative solutions oftenly additional elements (daytime running lights)- complexity increases
- highly accepted (by customer)
- existing regulations oftenly do not fit the noe technologies (source of light defined as point – not surface)
- new regulations are required to tap the full potential (picture: roof light Opel Adam)

4 First for use of electric energy optimized cars enter the market

representative: BMW i3

- BMW i3 bzw. i-Reihe: awesome new concept brought to the market, change of paradigm; revolutionary, but has to be introduced as evolution
- Total new structure, but had to appear as to conventional products related – avoidance of des „Iinnovation shock“ (customers are not used to revolutionary concepts in cardesign anymore)

- I3 more ambitious project than i8 (in terms of acceptance)
- Research seems to be a free gift to other manufacturers
- Change of paradigm in marketing
- especially i3 (no sporty car) does not fit to the forme BMW-DNA
- Design: exciting compromise between to different worlds
- Design decisions more conservative in: face, surface, silhouette
- Design decisions more innovative in: volume (more upright body, division in thirds ignored), whell dimensions, interior concept (doors, dashboard), interior materials
- Ideal erosion in details expected: display (driver panel on top of steering column)
- Not brought to market as low budget version, but as modern, technologically driven concept – wider scope für customers identification (opposite example: Lupo 3L)
- outstanding qualities (engine power, acceleration)

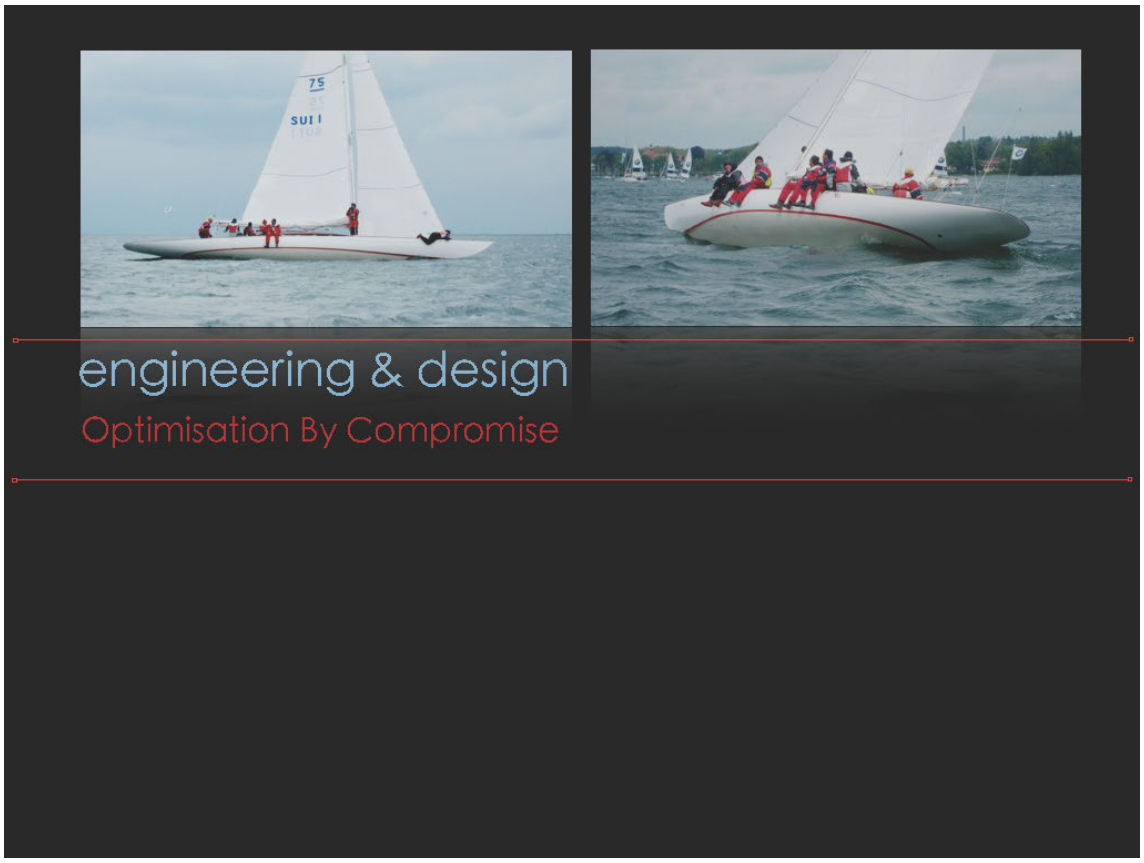
5 Carsharing-concepts provide feasibility and function

- trend is related: for younger generations cars are on a decreasing emotional level
- effects for interior and exterior of future cars
- more private car renting expected
- Interior: position, form, functionality of controls have to meet a standard (Standard-Interface); counterexample: high-class-cars, sportscars, niche cars, motorbikes
- approach:
- transfer of quasi-standards from existing mass production cars (intuitive operating)
- transfer of operating proceedures into software based procedures (interaktive Interfaces),(intuitive operation, experiences coming from non car areas (Smartphones, Playstation-Controler etc.))
- automating of operation by: light switch sensors examination of geo data, local whether data, rela time traffic information and bio data
- automating of functions like: light, screewash, air condition, gearbox, engine (related to optimization of range of electric cars), steering (traffic jam, low speed traffic, parking)
- design challenges caused by:

- intuitive interface design
- reduction of number of controls
- increasing of resistance against wearout and vandalism

6 Conclusion:

- fundamental changes in vehicle design will come within the next 10 years:
- last years: hardly no revolutionary innovated concepts, but constant incresed detail quality in car design
- costumers expectations: high quality in detail, low steps in concepts
- umcoming generations: car industry will have to fight for the acceptance fort her products, new players will compete
- density of innovations will have to increase
- utilisation of vehicles will has to get more importance
- issue (contradiction):
- nowadays elderly generations spend the highest amounts of money for cars, industry has to focus on them
- prospering markets in east and far-east a buying conservative products in huge amounts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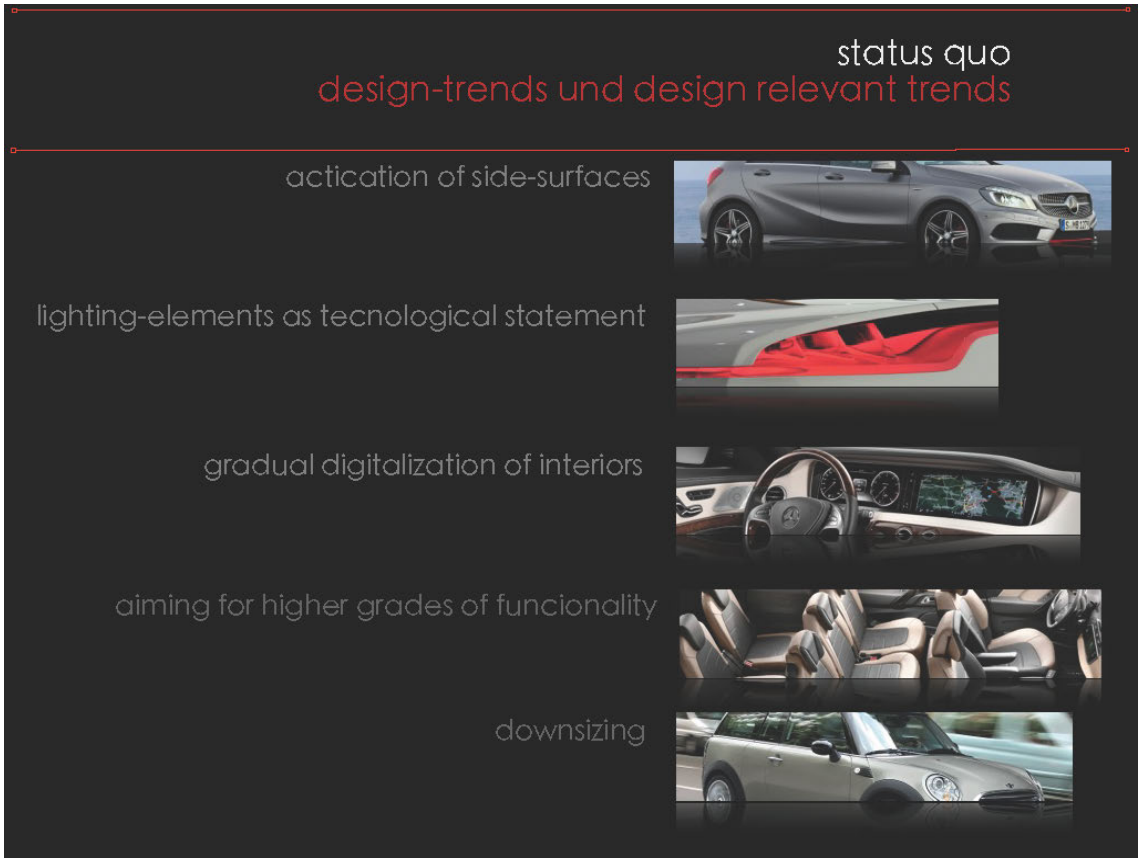
engineering & design
Optimisation By Compromise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design-trends und design relevant trends
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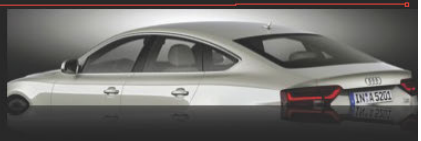


carsharing-conceptes provide feasibility and function

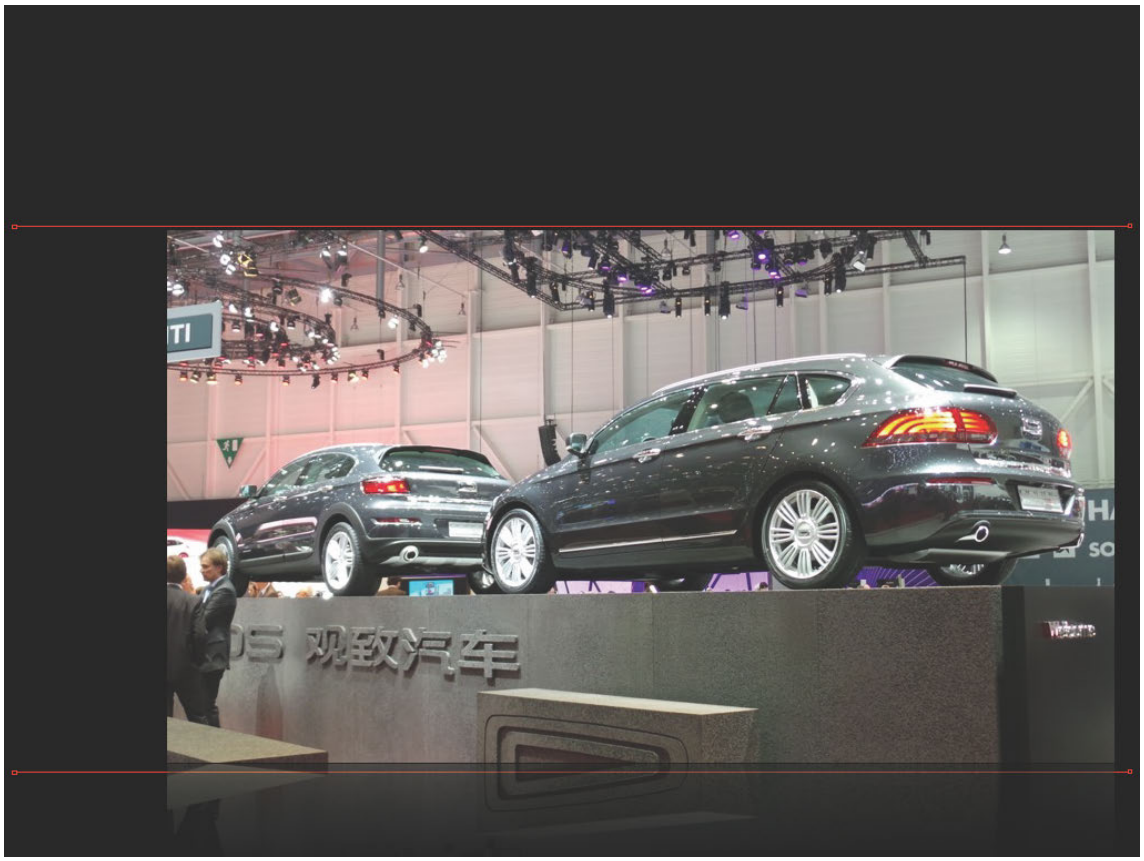
growing acceptance of alternatives for exterior surface materials

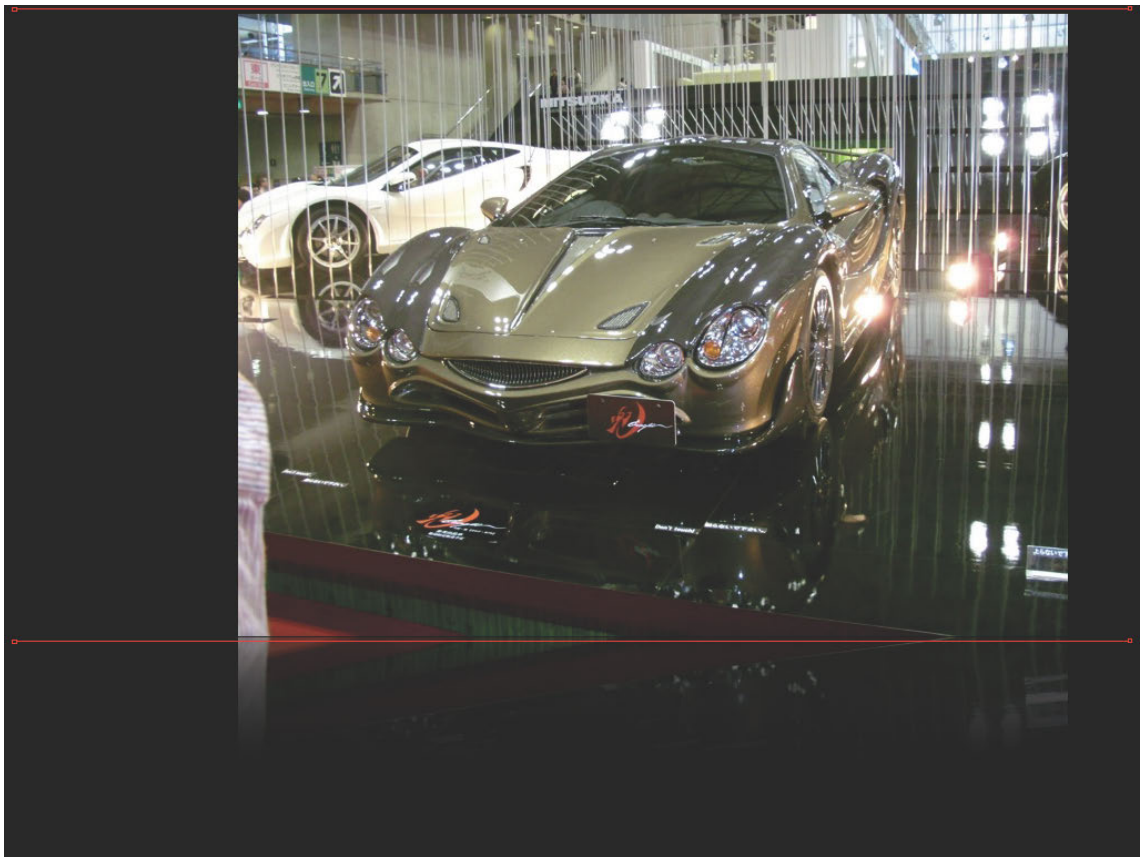
first for use of electric energy optimized cars enter he market

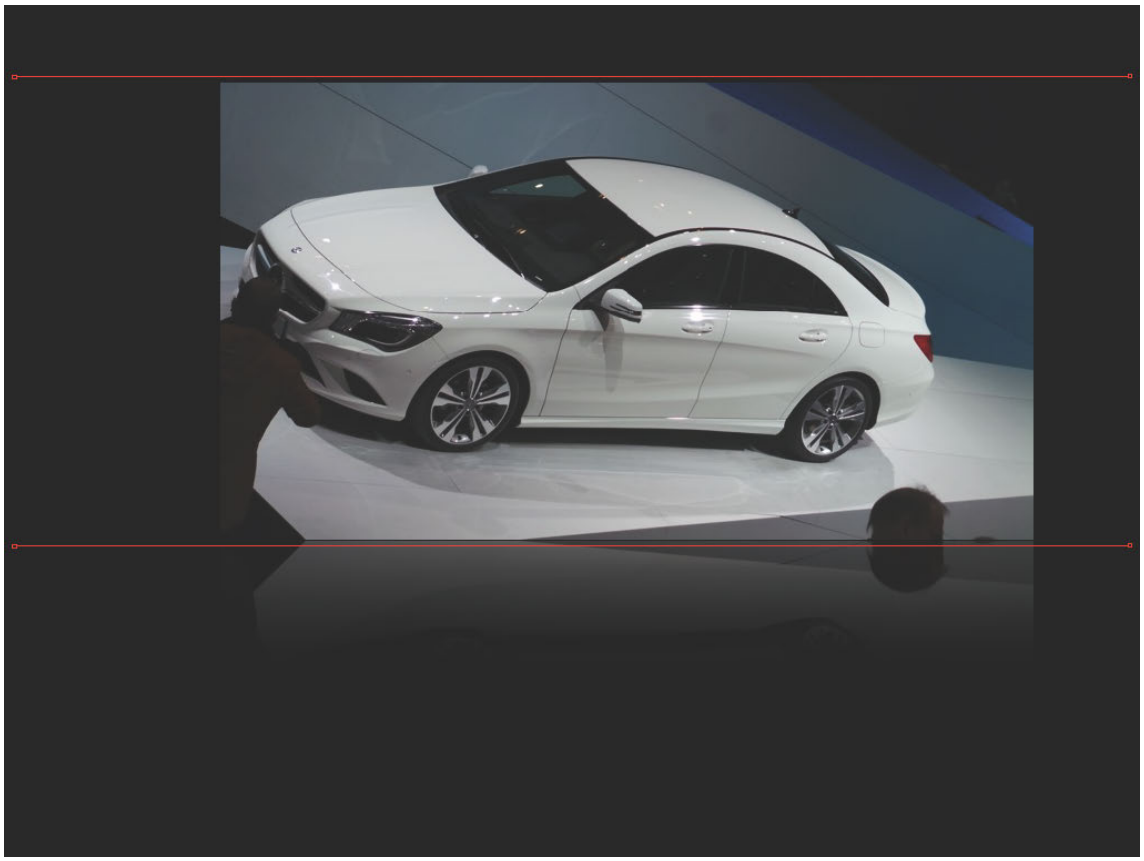
growing acceptance for alternatives energies in vehicles

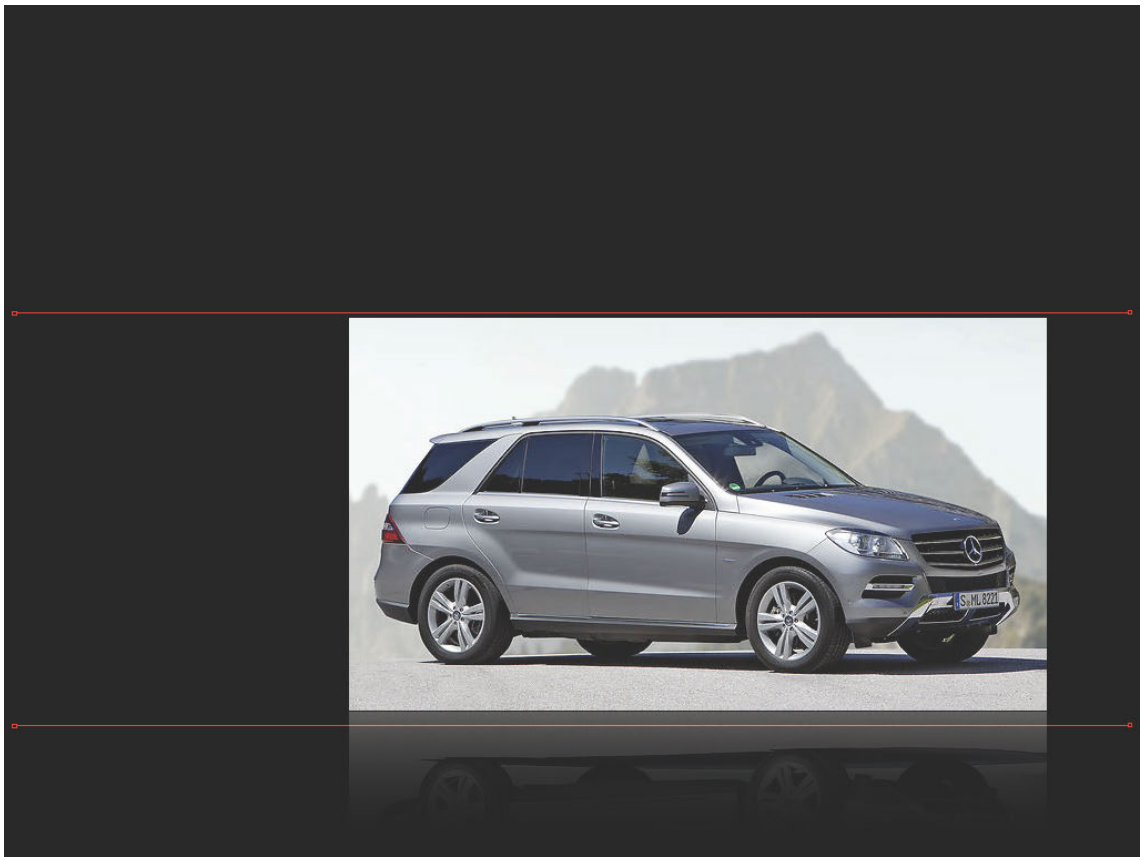
activation of side-surfaces

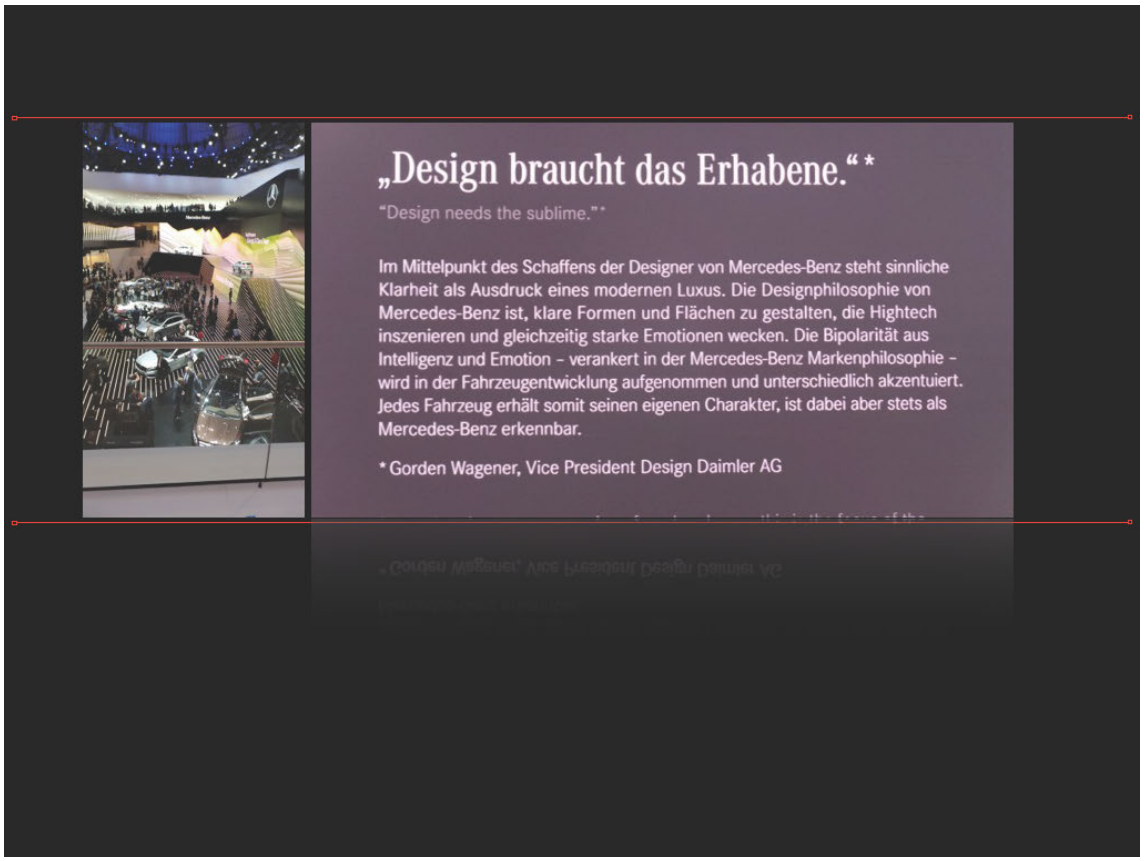

BMW 2002 tii

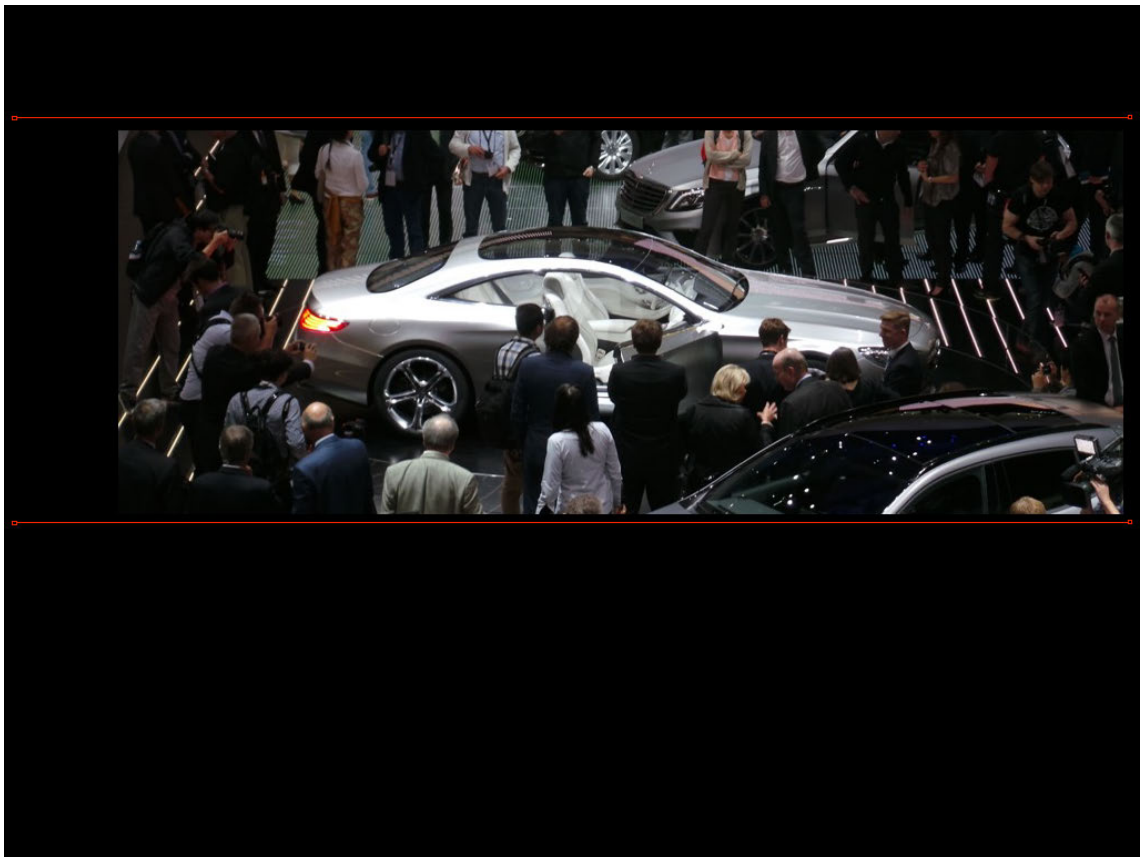


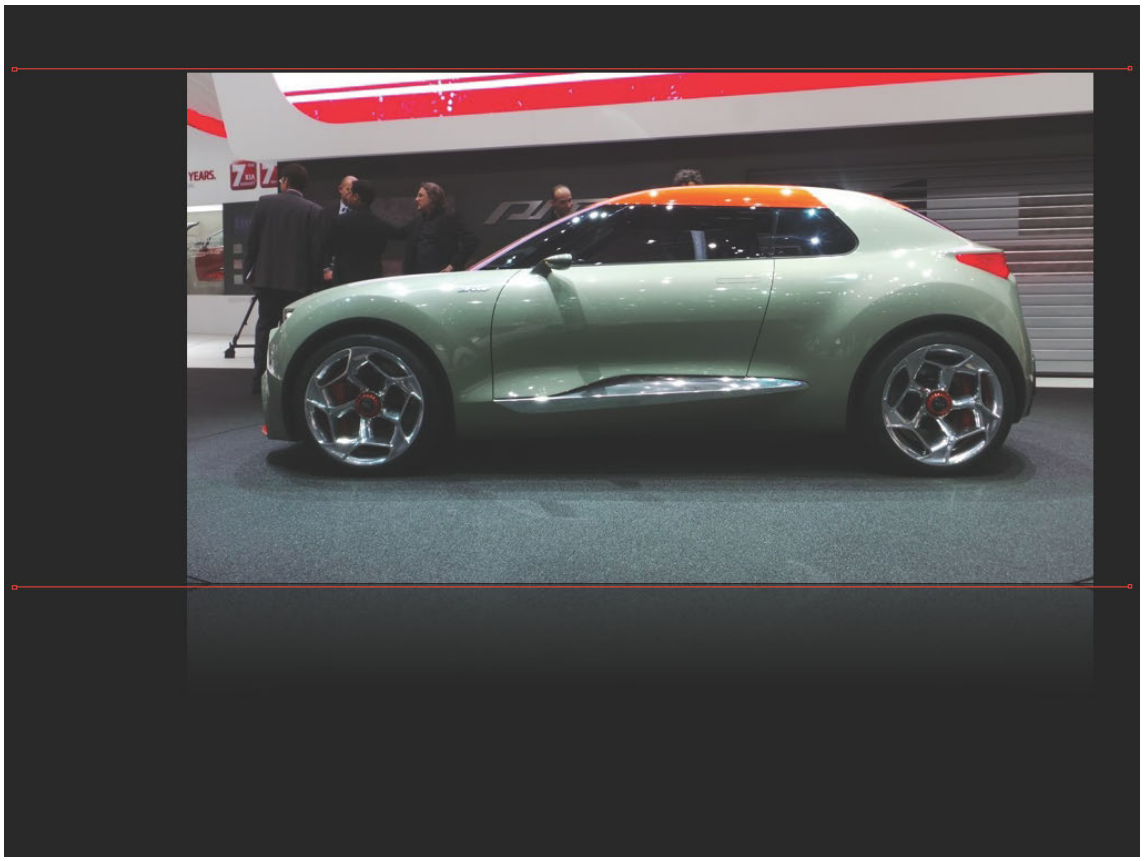


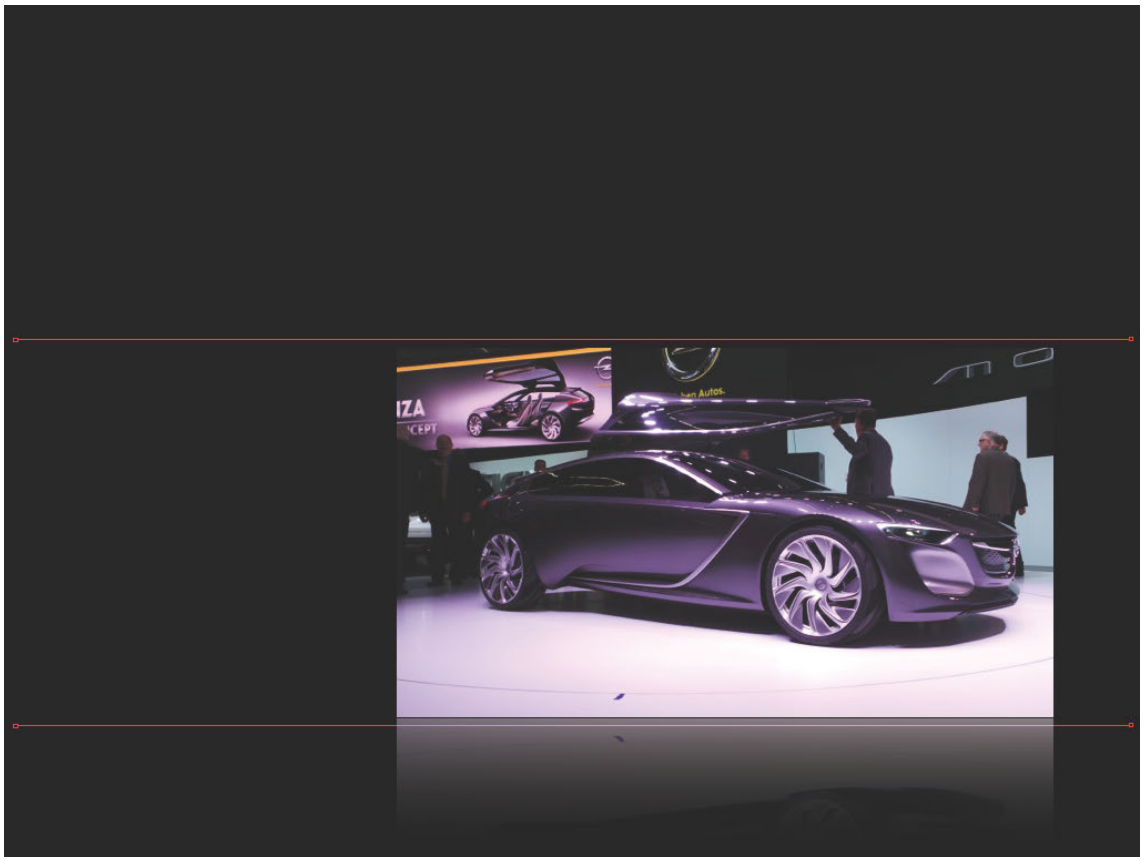


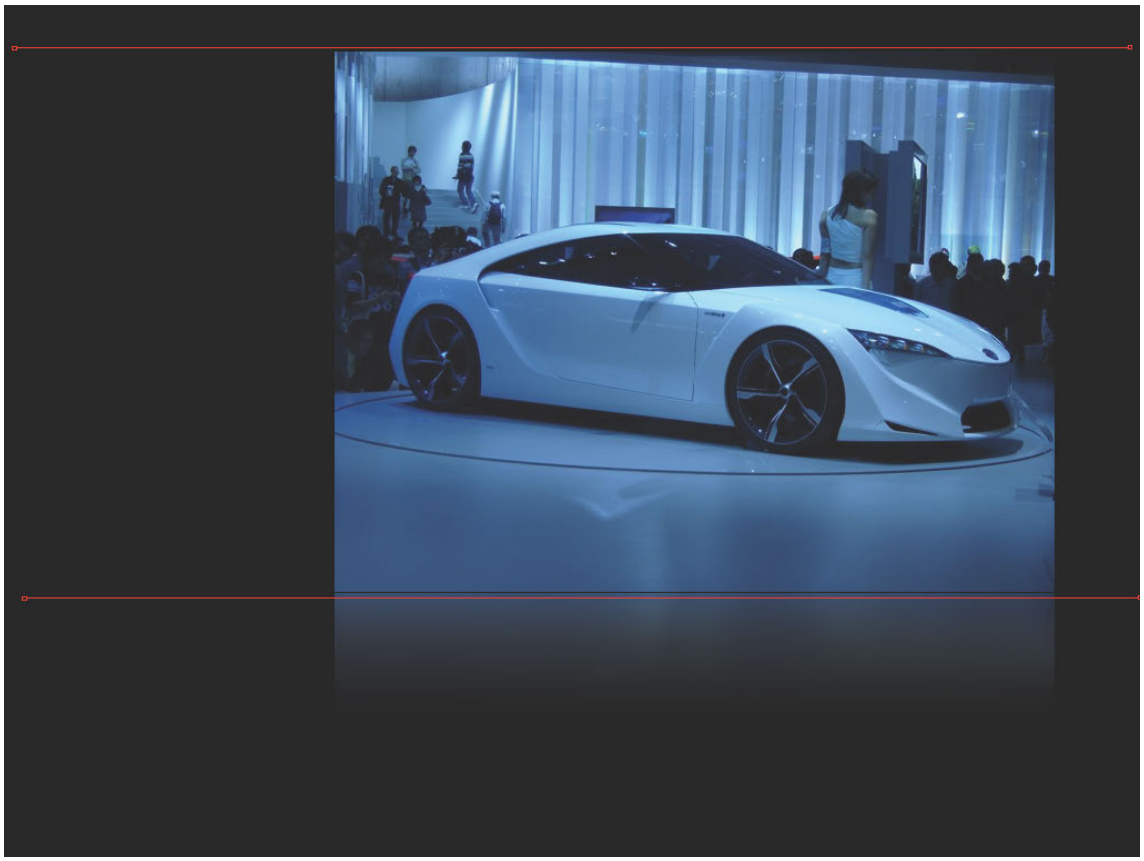


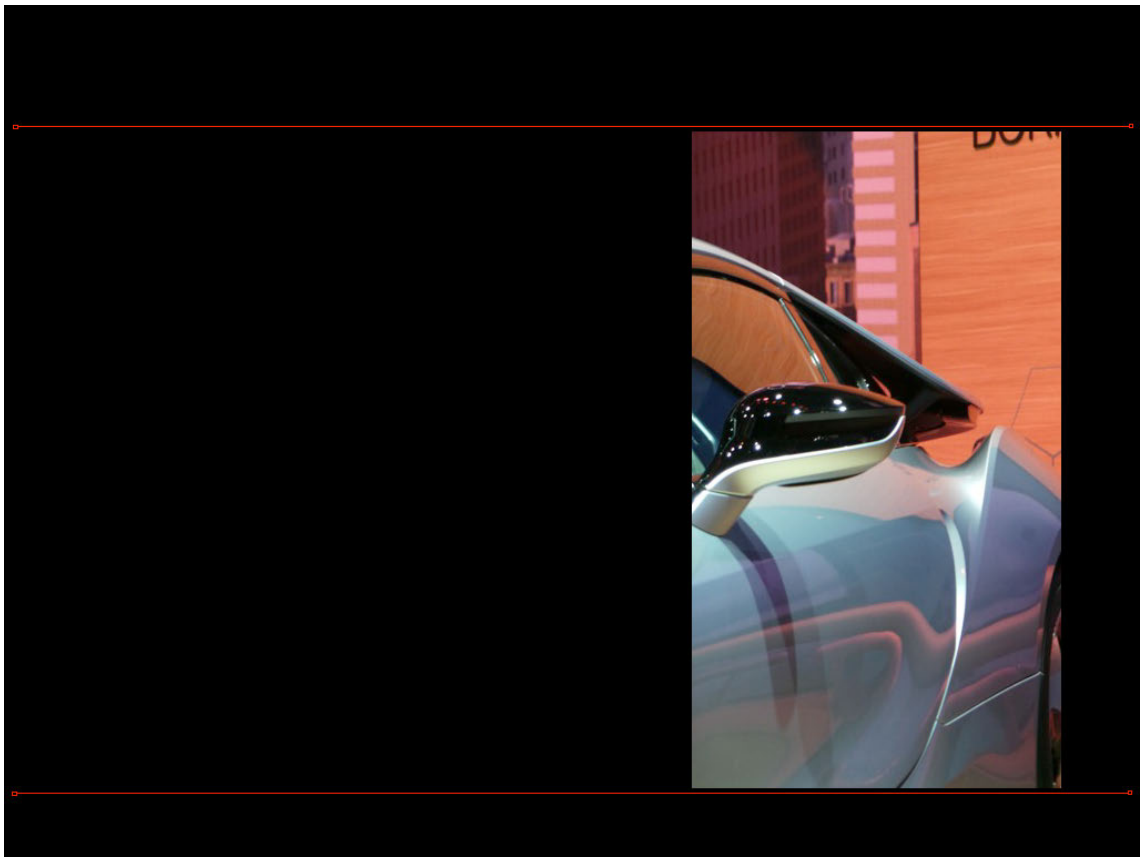

„Design braucht das Erhabene.“*
“Design needs the sublime.”*
Im Mittelpunkt des Schaffens der Designer von Mercedes-Benz steht sinnliche Klarheit als Ausdruck eines modernen Luxus. Die Designphilosophie von Mercedes-Benz ist, klare Formen und Flächen zu gestalten, die Hightech inszenieren und gleichzeitig starke Emotionen wecken. Die Bipolarität aus Intelligenz und Emotion – verankert in der Mercedes-Benz Markenphilosophie – wird in der Fahrzeugentwicklung aufgenommen und unterschiedlich akzentuiert. Jedes Fahrzeug erhält somit seinen eigenen Charakter, ist dabei aber stets als Mercedes-Benz erkennbar.
* Gorden Wagener, Vice President Design Daimler AG



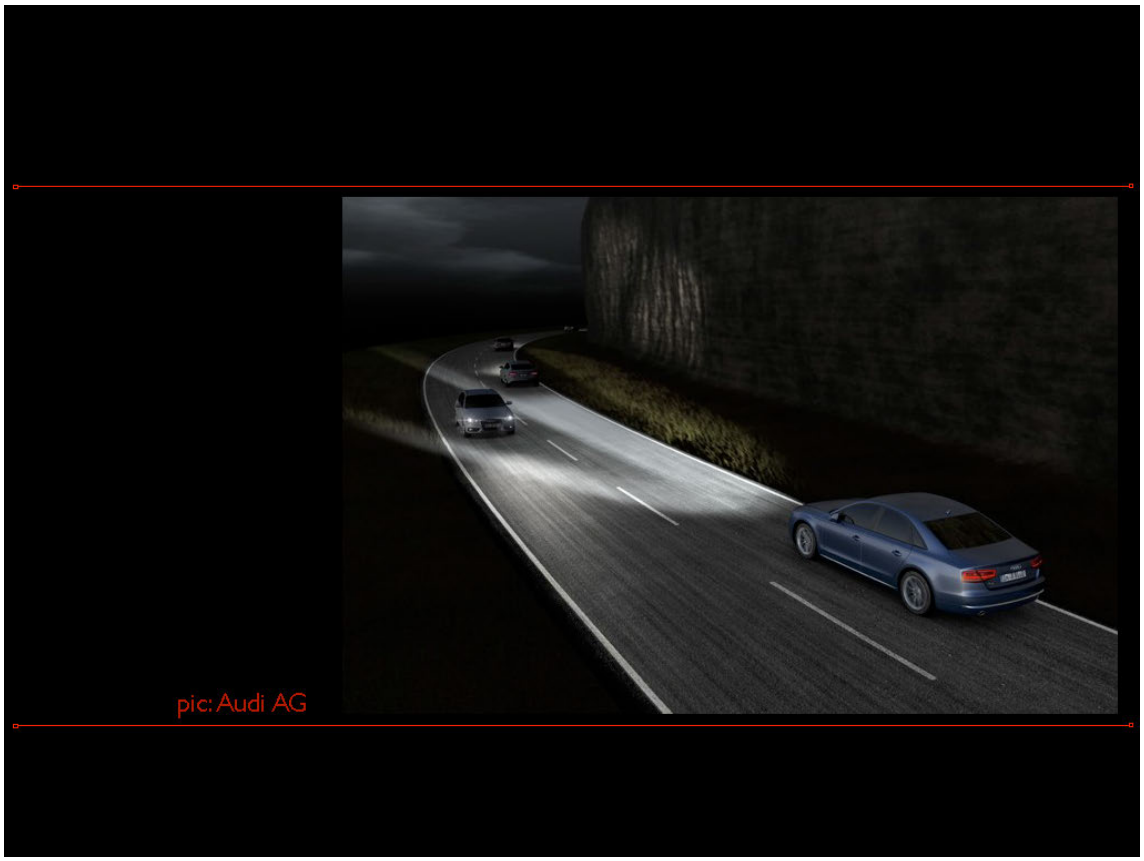






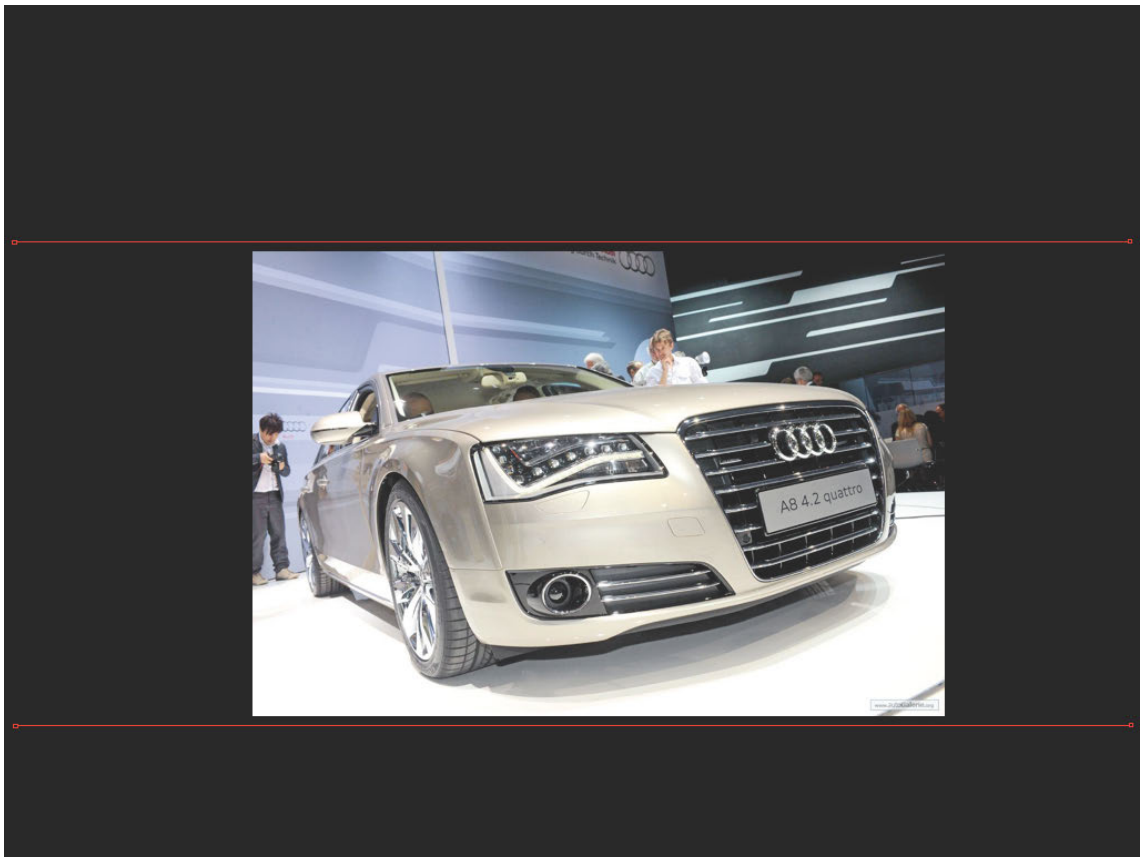


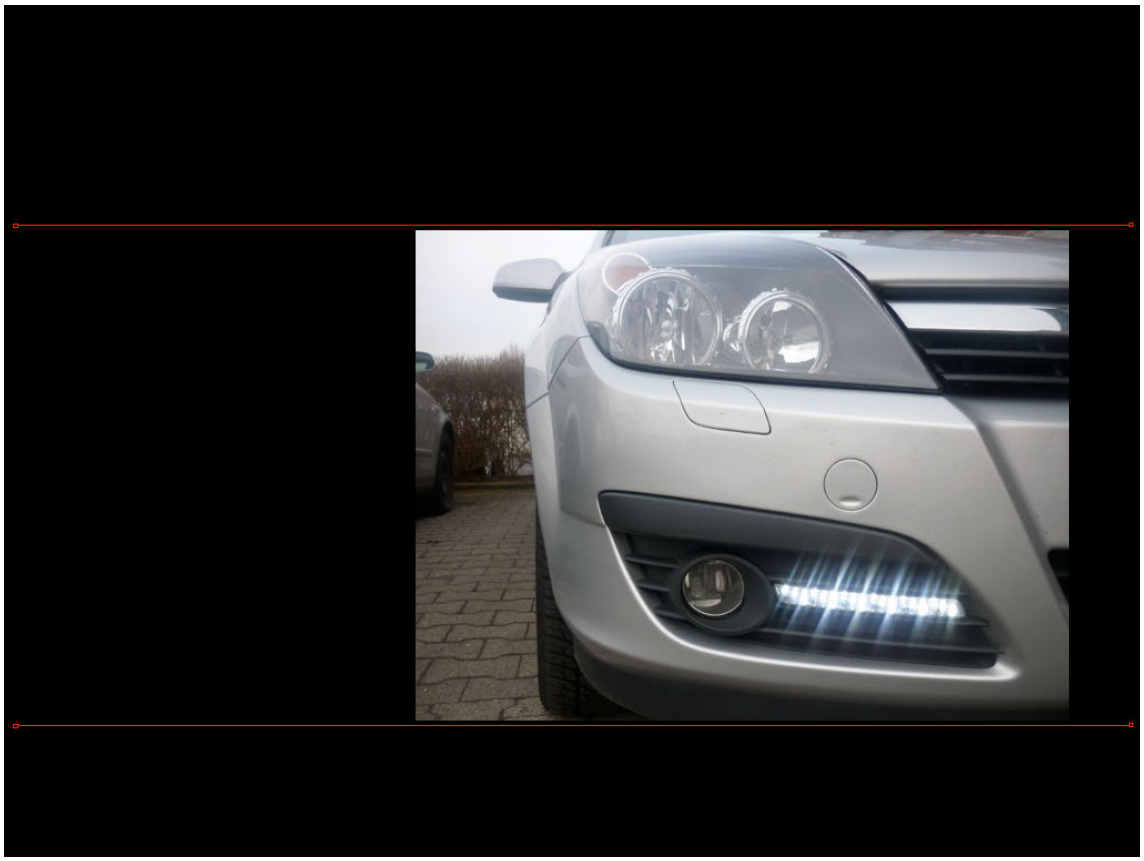
lighting elements as tecnological statement

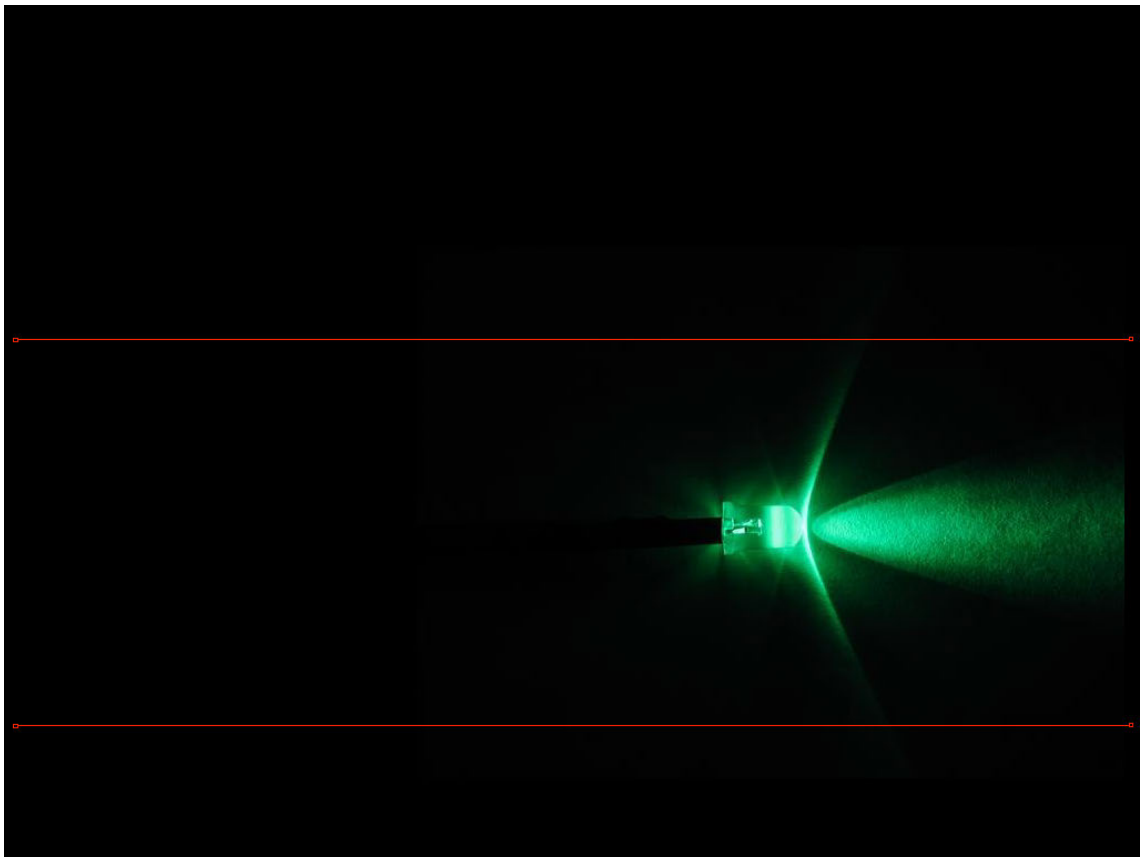


pic: Audi AG

pic: Daimler AG


A8 4.2 quattro

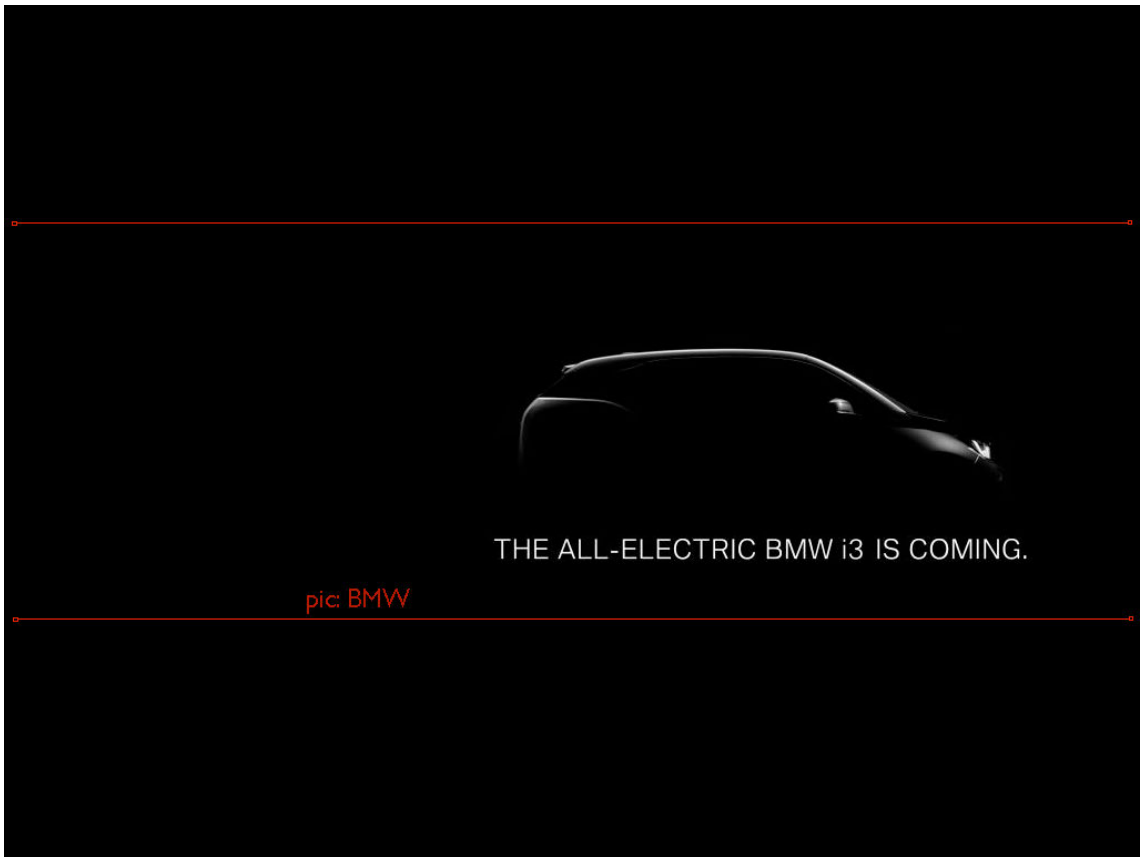




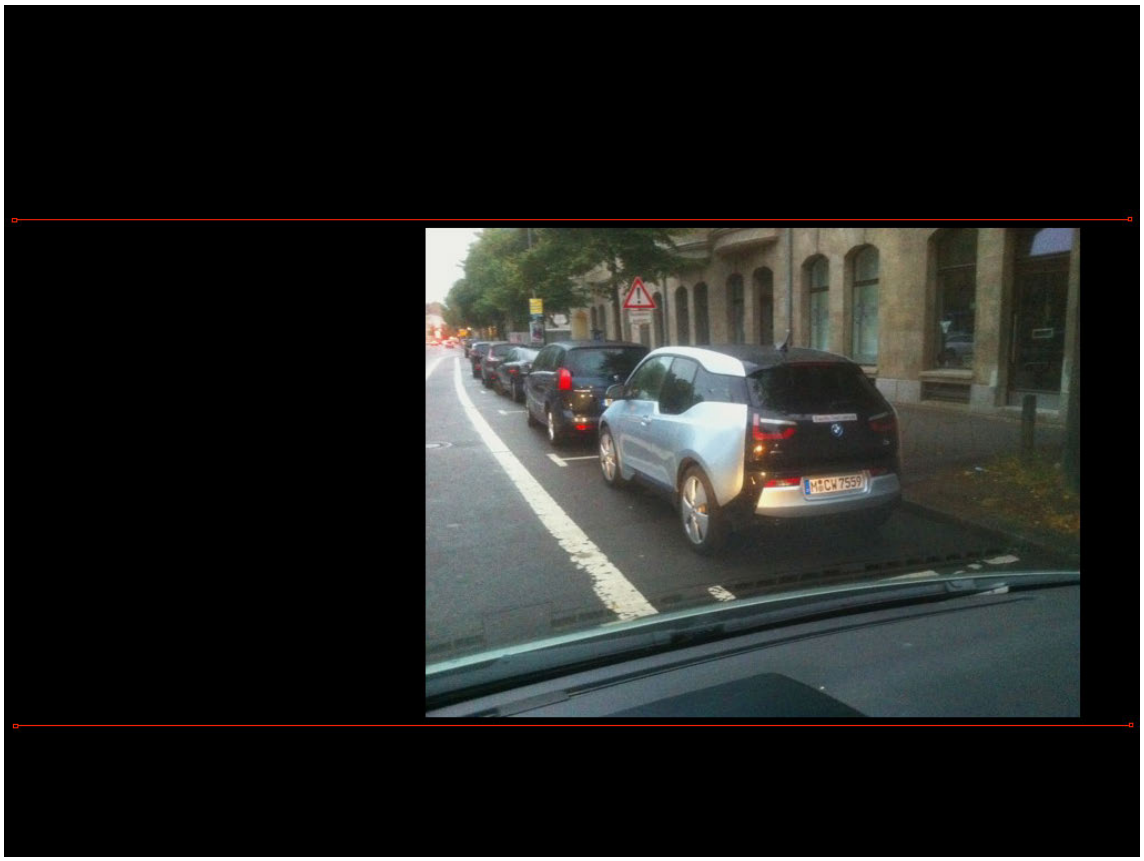

Disco
Volante

first for use of electric energy optimized cars enter the market


TWIZY
RENAULT SPORT F1


THE ALL-ELECTRIC BMW i3 IS COMING.
pic: BMW


DER NEUE BMW i8.
DER SPORTWAGEN DER ZUKUNFT.

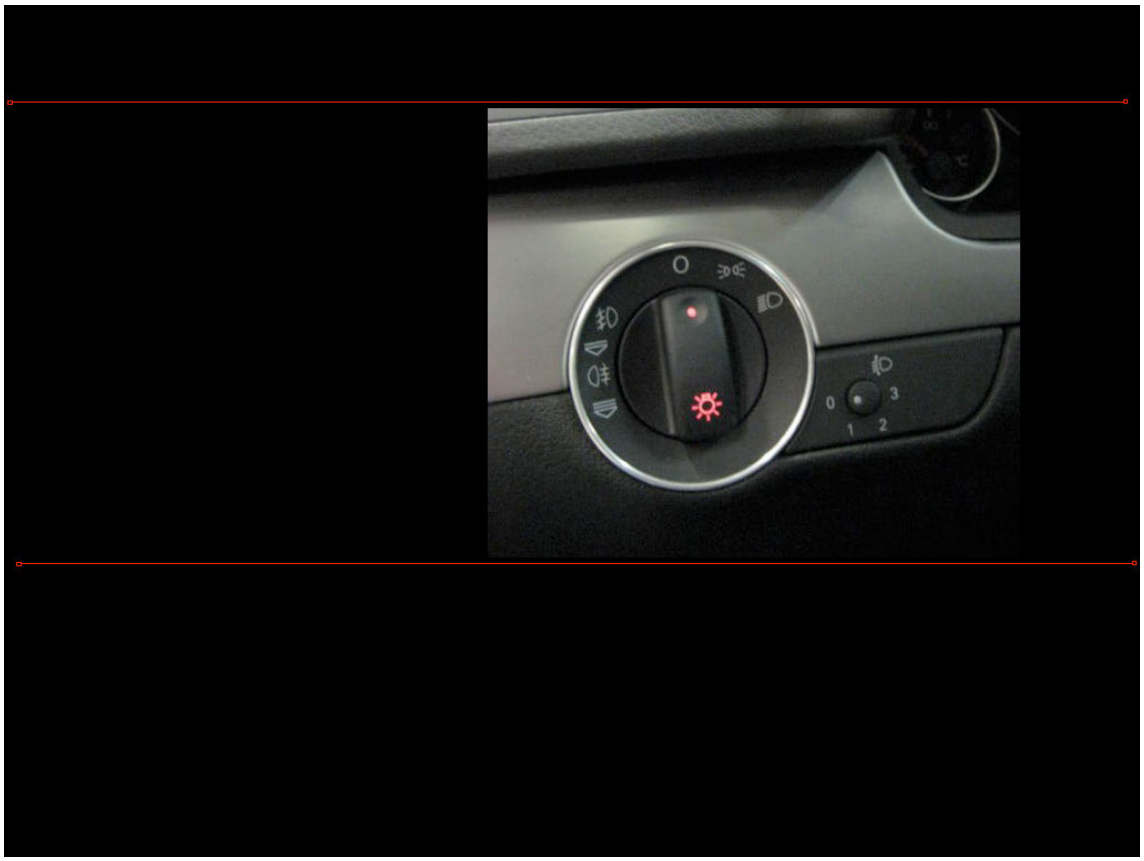


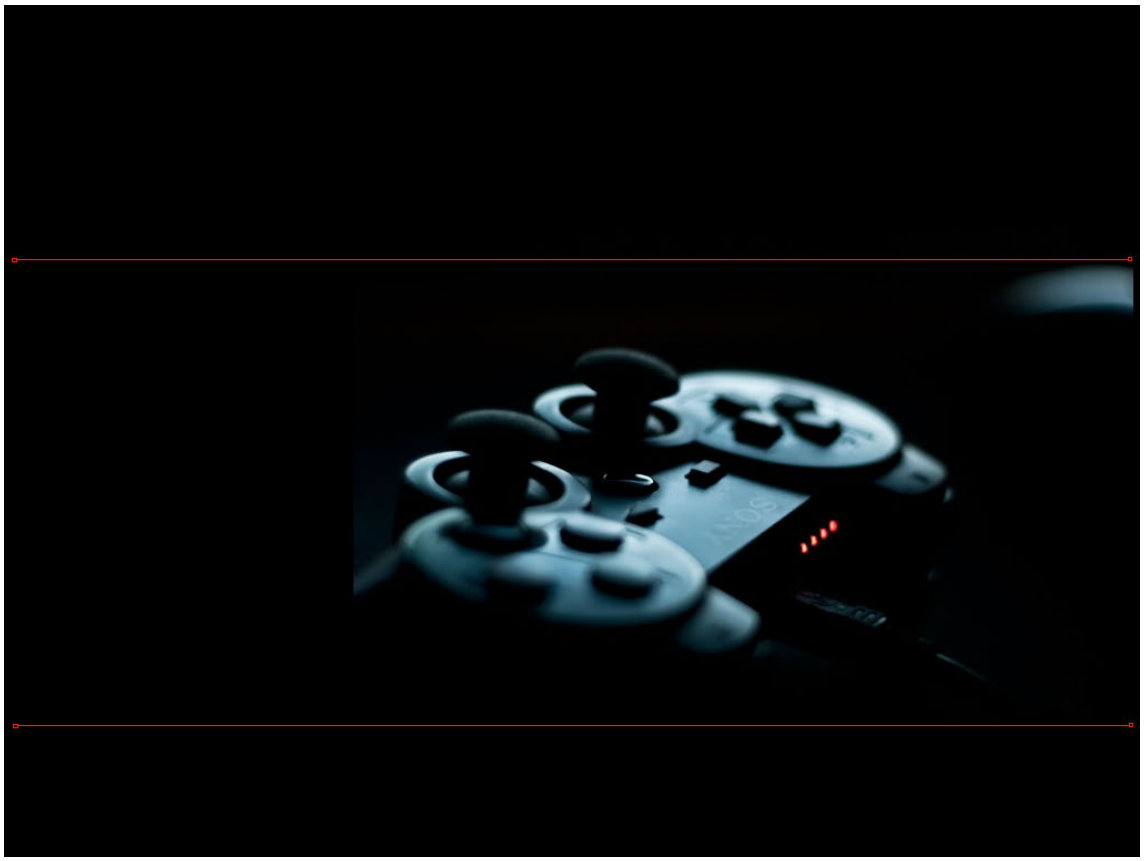

ActiveHybrid 5

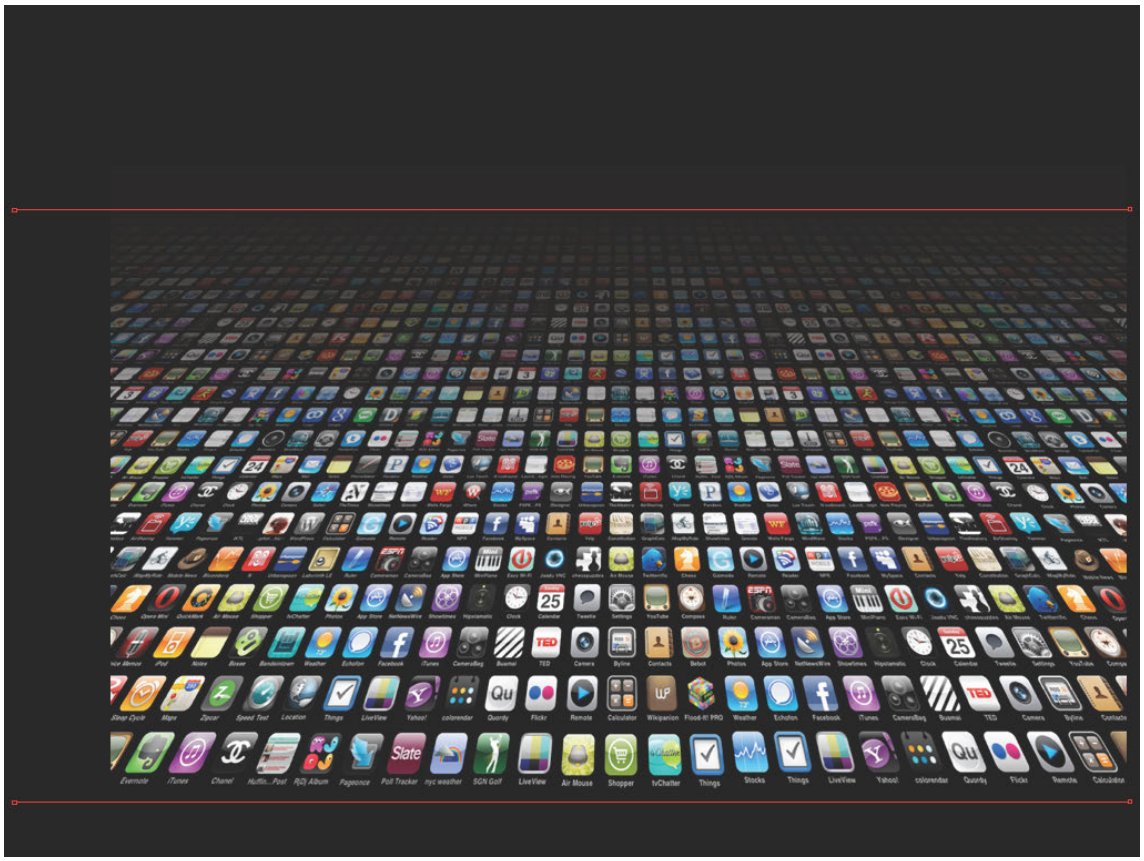

Bild: BMW AG

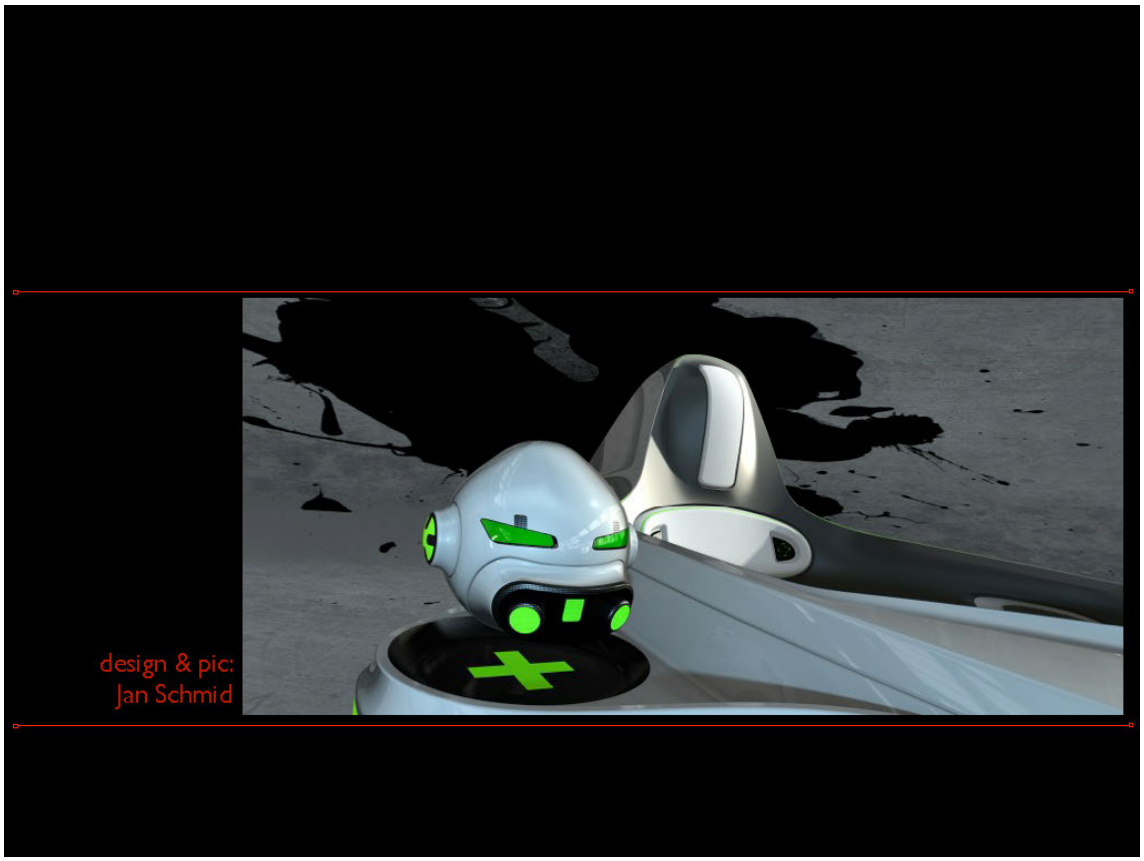
Carsharing Concepts provide feasibility and function

Bild: Daimler AG








design & pic:
Jan Schmid


CONCLUSION