From large-scale, multi-user VR to cloud streamed car configurator
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Virtual Reality vs. virtual product development

Innovation

Customer needs

Individualization

Time-to-market

Increasing product portfolio

Virtual product development as an approach to support the product development process
Product development process
Use case: Validation of look-and-feel and quality

Validation of look-and-feel & quality

- General appearance
- Surfaces of individual parts
- Transition between two parts
- Design features/ contours
- Transition between part-surfaces
Toolset for validation of look-and-feel & quality
Evolution of our rendering methods

Open GL  Ambient Occlusion  Global Illumination
Challenges with our toolset

“I don’t feel present in the virtual world” –
Missing immersion in monoscopic VR-presentation

“I can’t naturally explore the virtual world” –
Indirect navigation – mainly performed by operator
Project: large-scale, multi-user VR

Consumer HMDs at a reasonable price available

Earlier studies showed the possible usage of multi-user VR

Multi-user VR for evaluation of proportions and general appearance

Monoscopic real-time GI visualization for detailed evaluation
System design

- Area: ~15m x ~15m → 220m²
- Up to 5 concurrent user
Demo
Future work

- Evaluation of work task
  - Effectiveness, efficiency, user-satisfaction
  - What improvements are necessary?

- If there is a tendency towards perceived usefulness
  - Roll Out/ System installation
  - Adaption for processes
  - Apply further hardware improvements
Cloud Streamed Car Configurator
Game Engine B2C
1. Trends
2. re:Invent
3. Challenge
4. Next?
dealerships go digital | the journey is online | customers expect more
dealerships go digital

the journey is online

customers expect more

dealership visits

personalization

digital stores

*McKinsey, reported in the Economist
96% of customers conduct online research.

3/4 of the journey is online.

14 hours spent researching.

18 websites visited.

75% of customers are willing to buy online (Global).

92% of customers are willing to buy online (China).

Online car sales are expected to increase from 5% in 2015 to 25% in 2025.

*JD Power, Analog Folk, Accenture, Financial Times
dealingships go digital | the journey is online | customers expect more

visualisation is a given | experience is key | ...and yet, basic experience

"Give your customers an Experience, not just a Product."
1. Trends
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4. Next?
static images

limited views

single background

limited configurations

lights turned off

no control
limited configurations
static images
limited views
single background
lights turned off
no control

animated car
freedom of views
multiple backgrounds

all cars, all options
lights turned on
customer drives
“THE BEST CAR CONFIGURATOR ON THE INTERNET”
This Is The Best Car Configurator On The Internet

Andrew F-Czalies
4/15/16 3:28pm · File via: HOW YOU'D SPEC IT

After yesterday’s discussion of the saddest car configurators on the internet somebody sent us one on the opposite end of the awesomeness spectrum. This online 3D configurator for the Audi Allroad blows every other one I’ve seen out of the water.

Alright, so it’s still in the “conceptual” phase, but I’m still fired up about it.

It doesn’t matter how much you care about German luxury station wagons (though, come on, how much better do cars get?) this digital experience is amazingly immersive and beautiful, if a little clunky and Beta-y.

You can play with it right here and I think you’re going to enjoy yourself, regardless of whether or not you need Google to translate the buttons from German for you.
After yesterday's discussion of the saddest car configurators on the internet, you inevitably see a car on the opposite end of the automotive spectrum. This online 3D configurator for the Audi A4 Allroad blows every other one I've seen out of the water.

Alright, so it's still in the "conceptual" phase, but I'm still fired up about it.

It doesn't matter how much you care about German luxury station wagons (though, come on, how much better do cars get?) this digital experience is eminently immersive and beautiful, if a little clunky and beta-y.

You can play with it right here and I think you're going to enjoy yourself, regardless of whether or not you need Google to translate the buttons from German for you.
more to come...
18,500 completed configurations in 3D vs. 15,500 in 2D

66% more user interaction in 3D than in 2D

significant x.xxx € upsell “potential” in 3D compare to 2D

> Conversion

> Interaction

> Revenue

Measured over a time period of 100 days...
All criteria improved in 3D compare to 2D (some up to 26%)…
More rollouts to come . . .

Pilot running . . .

Pilot running . . .

More rollouts to come . . .
A4 allroad

1. Trends
2. re:Invent
3. Challenge
4. Next?
Low-Latency

Plugin Free

5M Polygons Car

All Devices

All Bandwidths

Different Transports
See if possible to put white slide (like thank you one) with legend below.
pure UX
pure UX

personalization
Hello
Jonathan

Your friends cars

Start from this configuration

Recommended for you
pure UX

personalization

home VR
pure UX

personalization

home VR

e-motion / driving
Thank You!