

DCA

HITACHI
Inspire the Next

High speed interiors

A front-facing view of a high-speed train, likely a Shinkansen, in a dark environment. The train's nose is white with a large yellow section. Two bright blue headlights are illuminated on the sides of the nose. The train is centered in the frame, and the background is dark and indistinct.

A stakeholder approach

The project had multiple stakeholders, that include DCA's client Hitachi along with their clients – Agility Trains, the key stakeholders, VTEC and Great Western and the Department for Transport.

At a user level it also includes the staff, train drivers and crew along with maintenance and cleaners.

At a passenger level, the design also explicitly considers the whole UK population along with tourists, that includes commuters, families, cyclists, pushchair users, wheelchair users and a whole host of physical and cognitive impairments

Staff representatives

- Train drivers
- Train crew
- Maintenance
- Cleaners



Passenger groups

- Commuters
- Families
- Cyclists
- Pushchair users
- Wheelchair users
- Visually impaired users



Department
for Transport

Inclusive design





“Similar to the Apple store, our service and design should positively re-enforce one another.”

“Like the Porsche 911 we are about having a strong narrative which is relevant and provokes a strong , positive emotive reaction.”

“We are about presenting functionality in a clear, clean and simple manner.”

“Like the Galaxy Tab balancing style and function. What’s more it gives me the freedom of functionality scope, able to add more if and when I want it.”



“We strive to create a timeless image with use of combination of materials.”

“There is to be a clear sign of differentiation between the classes. This doesn’t mean that standard is poor though.”

“Like Apple we want to aim for longevity of aesthetics.”



“We want to evoke a feeling of freedom and facilitate this with provided service, functionality and adaptability.”

“Our experience should be comfortable, robust, intuitive and functional.”

“It is a strong and identifiable British icon , which is what our train should be.”

“We are about delighters, like with the iPhone it has provided me with functionality I didn’t know I needed but now cannot live without.”



Wow & welcoming
Romance of Travel
Considered and Calm

Vestibules



Warm and
welcoming



Personal space
Peaceful
Work enabling

1st class



Core Atmosphere



Standard class

Purposeful & active
A good view for every seat
Sociable



Joy and
Wow factor



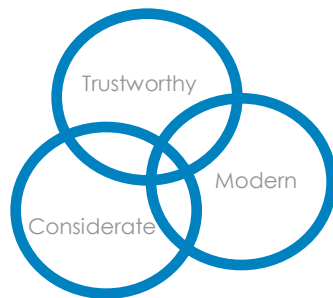
Authentic
and relevant



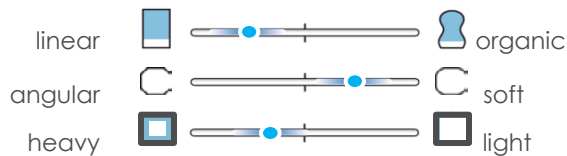
Toilets

Freshness
Clean

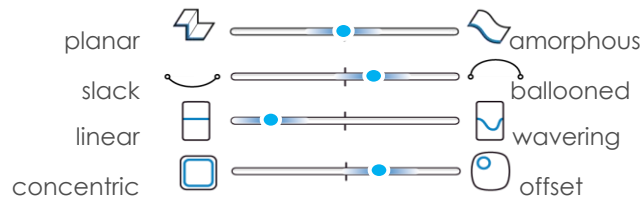
Visual brand language



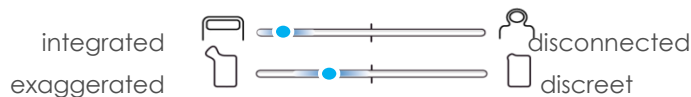
Silhouette



Surface



Stamps



The design concept

Warm colour scheme for vestibules to make them welcoming and create the right visual ambience



Toilet colour scheme designed to integrate with the vestibules



Blue/grey colour for Standard Class with darker seat frames for in service practicality



Practical and comfortable seats, based on proven seat platform



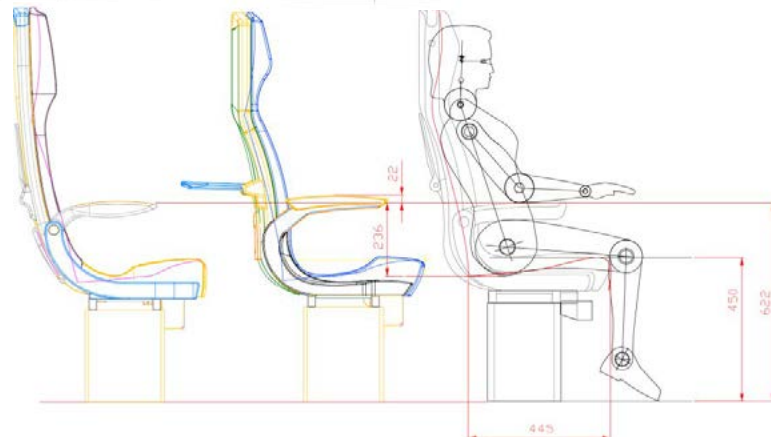
Richer hues and use of darker woods to differentiate the 1st Class saloon



Sitting comfortably



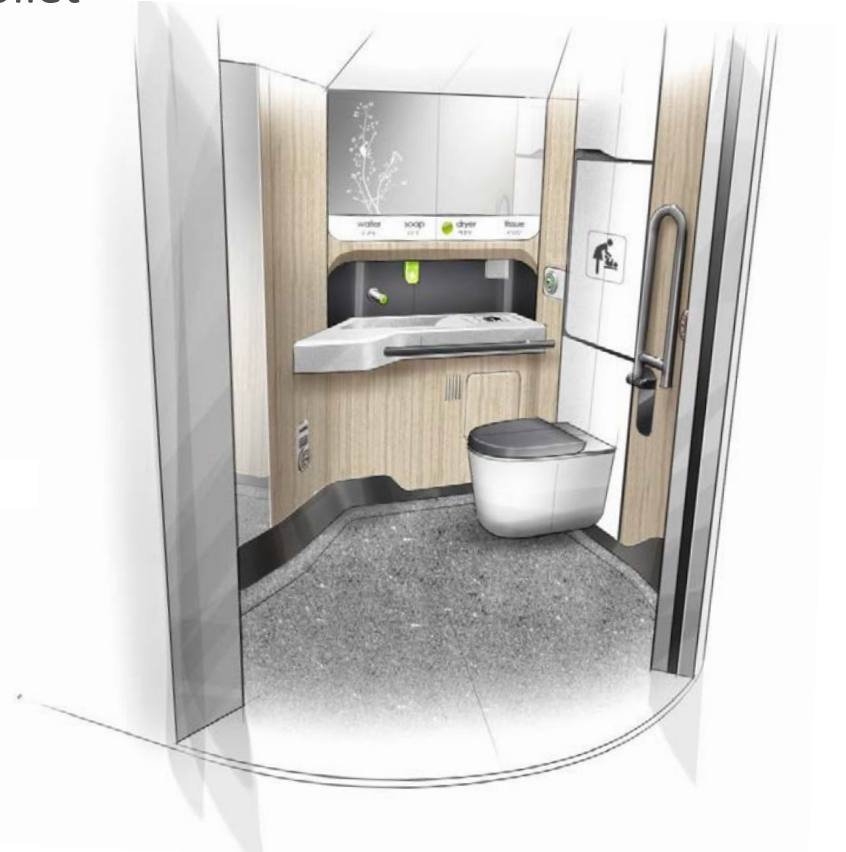
- Following ergonomic best practise.
- Meeting BS 6853 Cat 1B and EN 45545
- Unique seat design based on proven seat platform
- The challenge of PRM TSI compliance
- Defining passenger comfort for a 5% small female to 95% large male



Meeting passenger needs – a universal toilet

- Welcoming and easy to clean
- PRM TSI compliant
- High quality visual appearance to create an en-suite experience, with the look and feel of a hotel bathroom
- Making the best use of space for both mothers and babies, the mobility impaired passengers and everyone else
- The small space saver toilet designed with the same visual details.
- Meeting the challenge of fitting a baby change table in a very compact space envelop

Space saver toilet

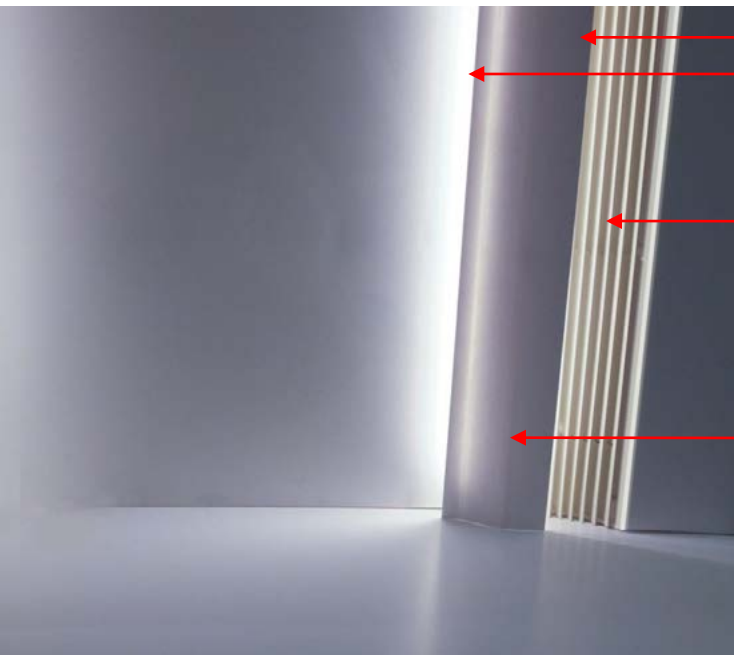


The en-suite universal toilet

- Welcoming and easy to clean.
- PRM TSI compliant.
- High quality visual appearance to create an en-suite experience, with the look and feel of a hotel bathroom.
- Making the best use of space for both mothers and babies, the mobility impaired passengers and everyone else.



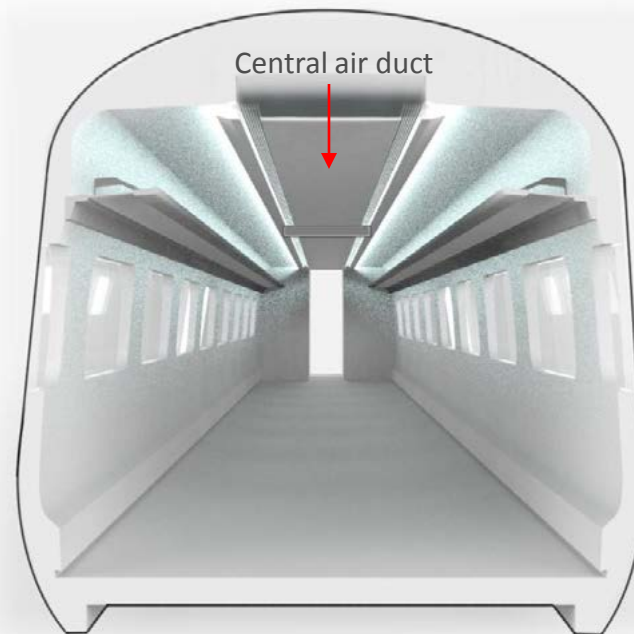
Innovative interior lighting



← In-direct light LED
light source placed behind
extruded cover panel

← Integrated ventilation slats
provide additional
reflected light

← Light cover supports the
LED light strips and
prevents unwanted
direct glare



Computer visualisation of
indirect light solution

Integrated wayfinding



DIN Pro Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789



User trials

Reviewing the ergonomic mock-ups with the travelling public in the 5-95% size range has proved invaluable in assessing the interior design features

Large luggage storage in overhead racks being evaluated



Wider seats needed to create the right 1st class travel experience



Space is limited on the train but proved suitable for the target audience

Wheelchair user space over specified and extra storage gained as a result



The value of mock ups

Right-hand side controls grouped to aid identification and avoid distraction from main driving zone
controls placed in the primary zone in front of the driver

Participating with drivers at the concept design phase has boosted confidence in the design and provided valuable feedback and a sense of ownership

Instructor's seat placed closer to the cab centre line to improve forward visibility

CCTV monitors placed on the left-hand side following consultation with drivers from GW and EC operators



The virtual mock up



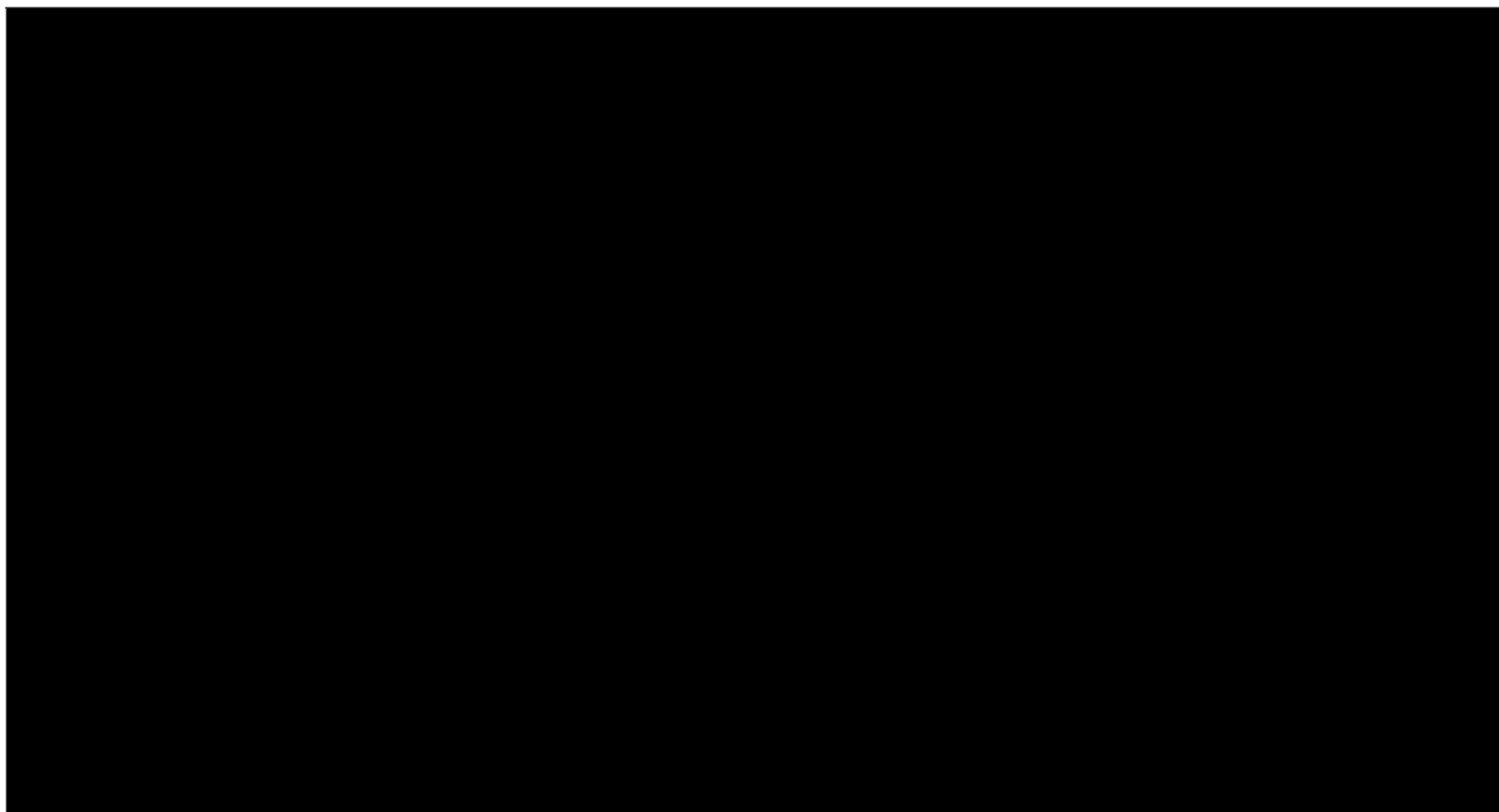
Drivers cab interior

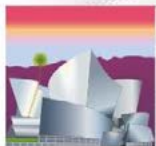


1st Class saloon



Std Class saloon





2015 Human Factors and Ergonomics Society International Annual Meeting Los Angeles

October 26–30, 2015
JW Marriott Los Angeles at L.A. LIVE



59 Years Strong!

The HFES 2015 International Annual Meeting will deliver more than 100 concurrent sessions, interactive posters and demos, Fellows posters, and the fourth User Experience Day featuring a dedicated program track. Your takeaway will be the latest research and practice solutions from 23 technical areas. You'll have opportunities to network with like-minded colleagues and make new strategic contacts at the Gala Opening Reception, Technical Group meetings, and gatherings for early-career professionals and students.

Technical Sessions

Search the preliminary program at <http://bit.ly/2015PrelimProgram>. You can search by author name, keyword in title, technical group, and date/time. Create a personal schedule for the meeting using the itinerary builder assistant. Look for the handy mobile program app, which will be available one week before the meeting.

Workshops

All workshops take place on Monday, October 26.

Morning Workshops, 8:30 a.m. to 12:00 noon

- WK1: How to Create User Requirements for Software, *Anna M. Wichansky*
WK2: Using Ethnographic Methods to Inform Human Factors and User Experience Design, *Jennifer Englert, Mary Ann Sprague, & Patricia Wall*

Afternoon Workshops, 1:30 to 5:00 p.m.

- WK3: What Every Professional Ergonomist Should Know About Statistical Methods and Basic Epidemiology, *David J. Cochran*
WK4: Cognitive Neuroscience for Human Factors, *Chang S. Nam*

All-Day Workshops, 9:00 a.m. to 4:30 p.m.

- WK5: Questionnaire Design for Practitioners and Researchers, *William F. Moroney*
WK7: Human Operator Workload Measurement in Practice and Workload Modeling, *Changxu Wu*

See <http://bit.ly/2015AMWorkshops> for descriptions and fees. Workshops are subject to cancellation if underenrolled.

DCA and Hitachi Rail Europe have won the Human Factors and Ergonomics Society (HFES) Stanley H. Caplan User-Centred Product Design Award 2015.

This US-based award recognises outstanding and innovative practice in product design, alongside the consumer research and design methods used to develop and evaluate the interior design of the Class 800/801 train for the Department for Transport's £5.7bn InterCity Express Programme (IEP).

"Stan and I are very excited about the Hitachi Class 800/801 train winning the award and wish to congratulate the project team on their achievement," said award co-chair Dianne McMullin. "This is the first time an international candidate has won the award, and the judges found DCA's work to be exemplary."

The design process took into consideration all users of the trains, including employees and passengers. An extensive consultation process was undertaken throughout the design process which involved numerous passenger groups, representing commuters, cyclists, wheel chair users and visually impaired travellers, to name a few

Thank you for listening

