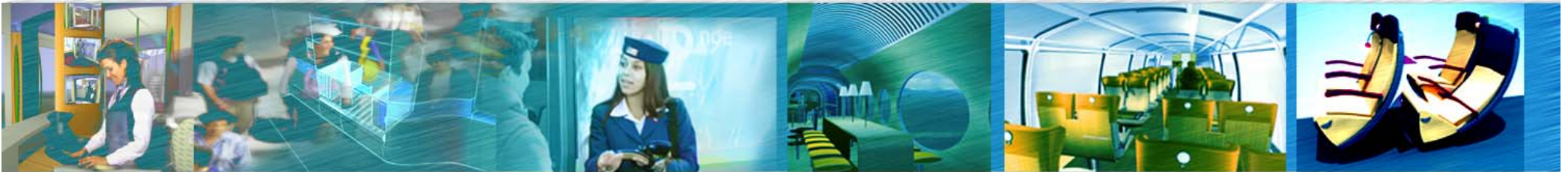


*Fast track to Sustainable Mobility*

## SNCF Researches to meet customers' satisfaction about comfort and services



Sylvie Guerrand

*Head of Comfort division  
Innovation and Research Department*



## SNCF Researches about Comfort and Services

- Main objectives :
  - To improve our knowledge about customers comfort perception and detect the trends for improvement
  - To improve comfort specification for future trains (or stations)
  - To help developing new products, new services with new technologies
- Organised with projects and partnerships (with universities, other industrial companies, engineering companies, design schools or agencies)
- A wide domain treated :
  - Comfort inside trains or stations (global comfort, physical and sensorial comfort, equipment etc..)
  - New services for ticketing (mobile phone), web travel services

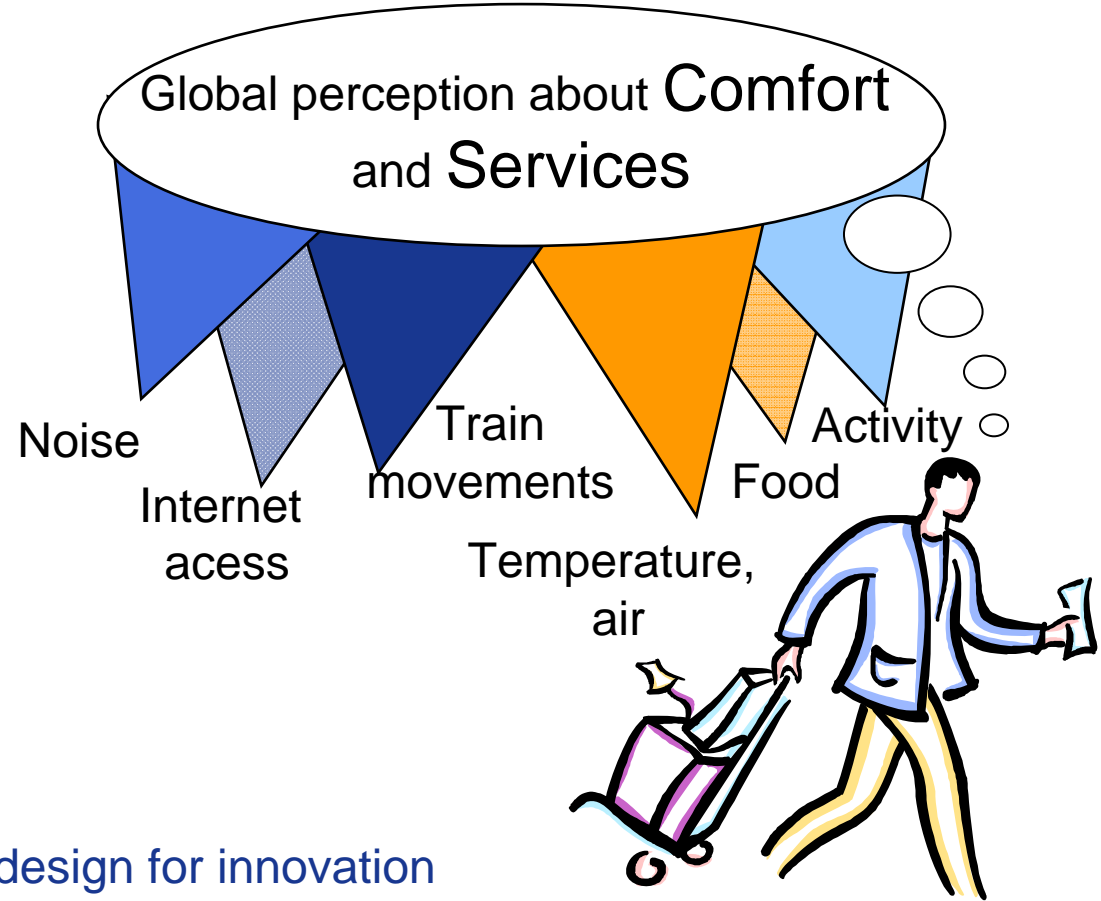
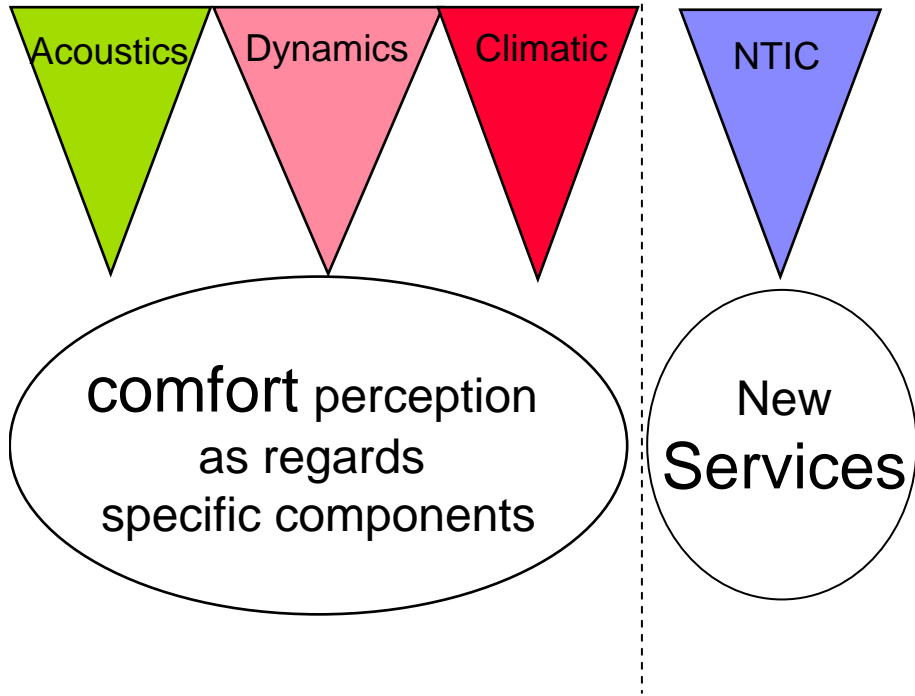


Presentation of the principles that rule this activity and of some examples of the new approaches undertaken



# Starting from the customers' perceptions

- To reverse our classical approaches (keeping the knowledge acquired thanks to them)



- To merge disciplines  
Physics + human sciences + creative design for innovation



## The Concept Train Approach : a new tool to innovate

The concept train approach won an award in 2006 (*Janus du design 2006 given by the French institute of design*)

It is adapted to the railway field from the concept car process,

- starting without constraints
- taking into account diagnoses, customers' expectations and results about comfort
- Including new technologies
- using the resources of design as a « global » approach

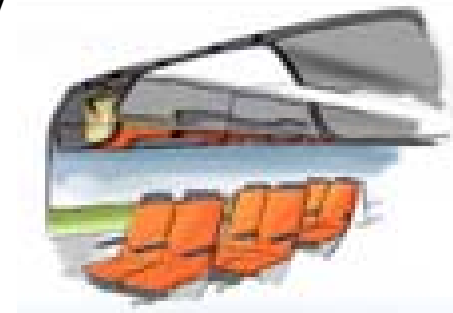
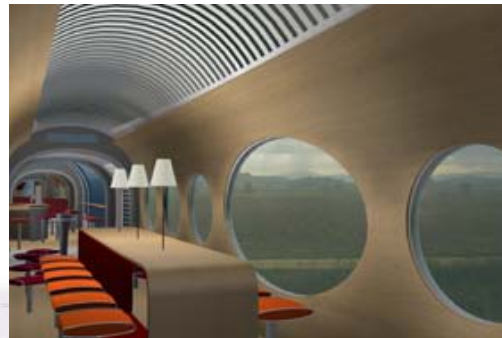
Since 2000, it has provided new concepts for future suburban trains, or for the space offer to the traveller, or any other aspect of comfort (luggage, toilettes, etc..)

# The Concept Train Approach : a new tool to innovate

A real innovation process !

## Real applications

- Suburban trains specifications
- Mock up of new spaces for luggage that could lead to specifications
- One brevet for a luggage secured compartment
- Development of a specific comfort object for ID-TGV





## Aconit : an example of a multidisciplinary research approach

Evidences with previous researches of the specificity of COMFORT as a human concept and perception phenomenon :

- It evolves with time (“l’invention du confort” by Le Goff)
- It is global, “integrated”
- It is the subject of judgement, assessment and production of meanings
- It is dependent of the context and of memory phenomena

**Aconit** is focused on the concept of comfort in trains, implementing a real multidisciplinary approach mixing human sciences and engineer sciences

- Psycholinguistics studies
- Psycho environmental studies
- Definition of customer references about trains (design approach)
- Physical measurements
- Sensorial analyses (test)



# Aconit : an example of a multidisciplinary research approach

Psycholinguistic analysis of customers speech about comfort collected in real situation (PhD thesis of G. Delepaut –LCPE, and SNCF)

- **Open questionnaires** first to detect without a priori components of comfort and their connections :
  - *"Selon vous, en quoi votre trajet est confortable?" (semantic and syntactic analysis)*
- **Closed questionnaires** built on the results of the first ones to be connected to physical measurements
  - *"Lorsque vous étiez debout ou que vous vous êtes déplacé(e), les mouvements du train vous ont-ils été :"*

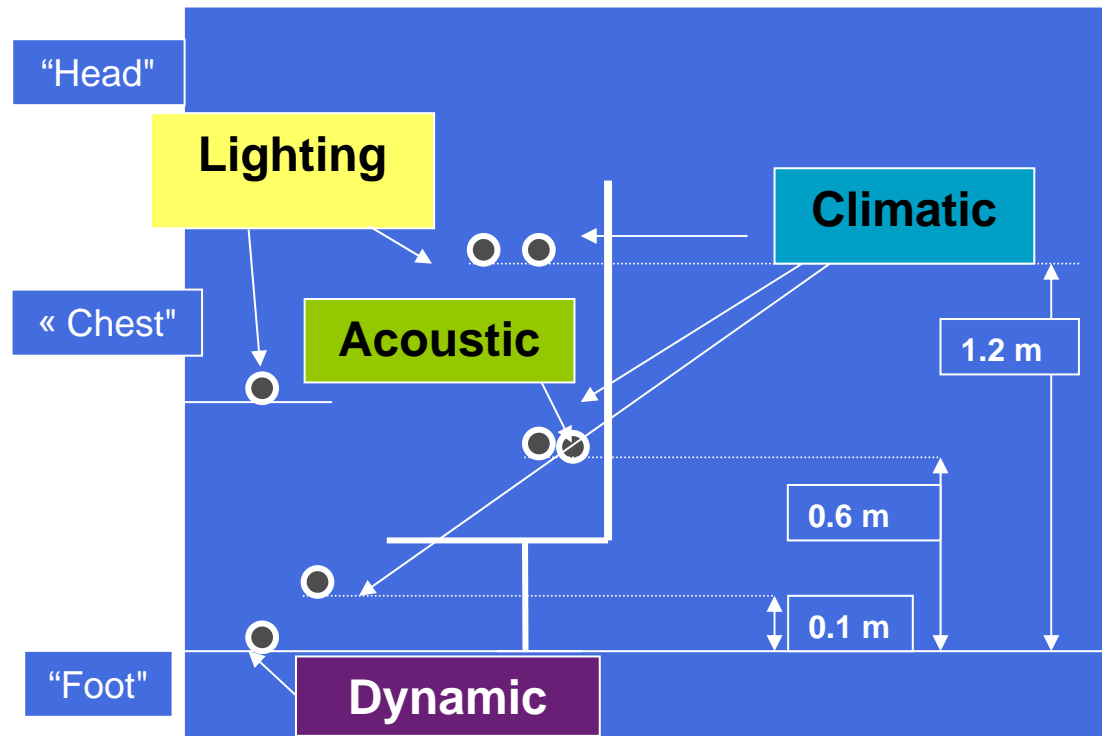


Très inconfortables	Inconfortables	Moyennement inconfortables	Confortables	Très Confortables
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Aconit : an example of a multidisciplinary research approach

Development of a specific measurement tool called OCTAVE (Outil de mesure du Confort Thermique, Acoustique Vibratoire et d'Eclairage)







# Aconit : The kind of results expected and obtained

## Relevant knowledge on comfort for trains !

- The components and their importance as regards customers perception, and different variables (train, first or second class, time etc..)
- But also their connection between them



## Relevant recommendations

- To study and improve comfort (or uncomfot)
- To define new indicators for each components



## Innovation

- Analysis of what has evolved (or not)

# Conclusions and perspectives

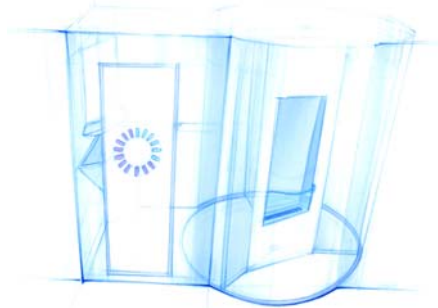
Two main changes to progress within the field of Comfort and Services

- Reverse usual approaches and start from the customer perception
- Call the good competences and mix disciplines

Take advantage of creative design in connection with scientific results to innovate

Other issues tackled with the same research principles

- Seats
- Toilets
- Lights



- Accessibility of sensorial disabled people
  - Starting from their perception
  - Using creative design to propose new ideas
  - Using new technologies to provide new services



Thanks for your attention