

CyberMoving WORKSHOP GUIDEBOOK

Bridging the Gap between Invention and Innovation!

THE WORKSHOP GOAL:

Guidelines to adjust CyberCars development with the specific context of mobility in cities.

KEY POINTS:

Explore people opinion (Urban planers, politicians, traffic planers, users, etc.) about the future applications of Cybercars Fleet, or about the news functions.

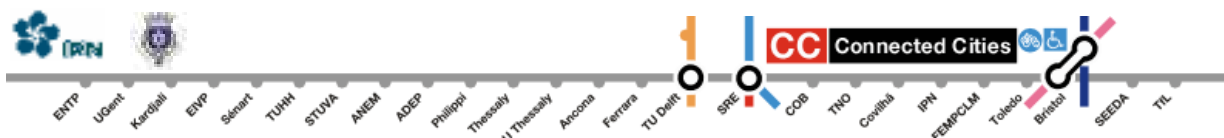
Evaluate when CyberCars will become innovation for cities' mobility.

EXERCISE

General Objective: Develop a new products based in Cybercars Fleet.

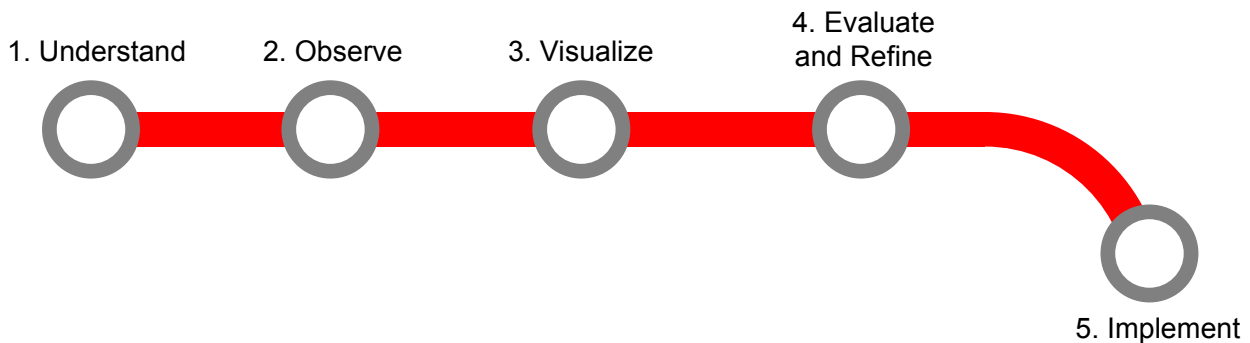
Specific objectives to transform the Invention in Innovation:

- Suggest new functions to the system to fit the people needs
- Suggest new applications to the system.
- Enumerate conditions and constraints to apply Cybercars in the Cities or in private sites (Present and Future).
 - o Hint: It makes sense start with controlled applications like Natural Parks, Hospitals, Airports, Historic Centres, etc. before applied in the Cities to complement other transports? This strategy could speed up the people adoption?
- Enumerate the potential users of this mobility technology.
- Suggest what type of demonstrations necessary to disseminate the product on the potential users (using the Cyber Moving Fleet), and what partners should invite to put strength in the demonstration.
- Suggest what type of demonstrations necessary to persuade the local authorities (Politicians, Urban Planers, Traffic Planers, etc.) to adapt the solution



IDEO's 5 Step Method

IDEO¹ provides a practical step-by-step method any team can use to **develop new products**. This method will help the Connected Cities team to perform the main exercise objective "Develop a new product based in Cybercars Fleets".



1st Step: Understanding:

You must understand the market, the technology, the client and the perceived constraints affecting the problem (How put the Cybercars in the Cities). While the constraints may change later in the process, it's important to begin with a **firm understanding** of the context. Before attempting to create new solutions, you need to understand the product's context: the relevant technologies, competitive environments, potential market segments, and the current forces for change in the arena in which the product will appear. These steps maybe require talking with colleagues and review the yesterday CyberMoving Demonstration (Observing People).

¹ It's hard to believe that objects such as the Palm V organizer, the neat-squeeze dispenser, and the Polaroid i-zone camera have anything in common. Yet these were all developed at IDEO, a Palo Alto-based engineering and design firm.

To do (20 minutes) - What you know about Cybercars

To materialize diffuse ideas, please remember what you know about Cybercars in the Cities and write 30 sentences (with ideas and key points) related with Potential markets, Applications, Technology, Improvements, Problems, etc.

That step makes the Cybercar concept and gives the team a common direction.

1	Tourist attractions	17	Network needed
2	Vulnerable	18	Suitable for old cities
3	Mobility of disabled and aged	19	Arrangement of network - Storage
4	Fun	20	Complex streets, hard to navigate areas
5	Alternative to tram	21	University campus, hospitals
6	Dangerous - Safety	22	Movement of goods, e.g. depots, logistics, factories
7	Short distances only	23	Status/Image
8	Shopping – Heavy loads	24	Ergonomic design could be better
9	Golf courses	25	Design bigger-faster – Platooning?
10	Cyber boats	26	Personal safety - good
11	Bad weather conditions - Useful	27	Alcohol use – good to stop drink driving
12	Evening wear, high heels	28	Powerless, lack of control
13	Send home alone with shopping	29	Infrastructure important – as simple as possible
14	Connection between transport and roads	30	Sustainability? Energy use?
15	Difference in height - Useful	31	Extra features – wifi, papers, loudspeaker – Added value
16	Only small number of people	32	Lack of comfort

2) **Observe:** What confuses? What is liked? What is hated? What is not satisfied?
Remember one more time when you observed the “natives in their habitat” – safety issues, people with inabilities, traffic jams, pollution, urban barriers, etc.
Once there is a broad direction, it is crucial to focus on the potential users and customers.

2.1 - To do (20 minutes)

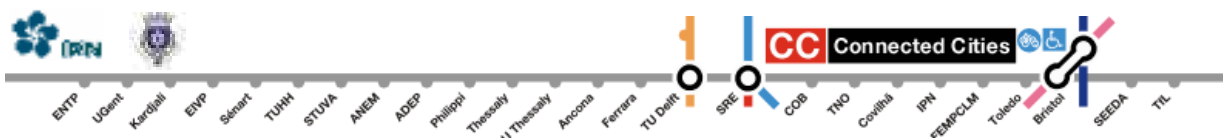
Remember last Cybermoving Experience, the people engaging in the practice, what they are used to, and what matters to them. After this, list the **system disadvantages** (Urban transport based in Cybercars) interpreting the different typical users: Young People; People Disables; Old People; Sellers; Residents; Politicians, “Urban Technicians”, “CyberMoving Company”, Tourists, etc.).

Please feel free to choose other scenarios using this technology.

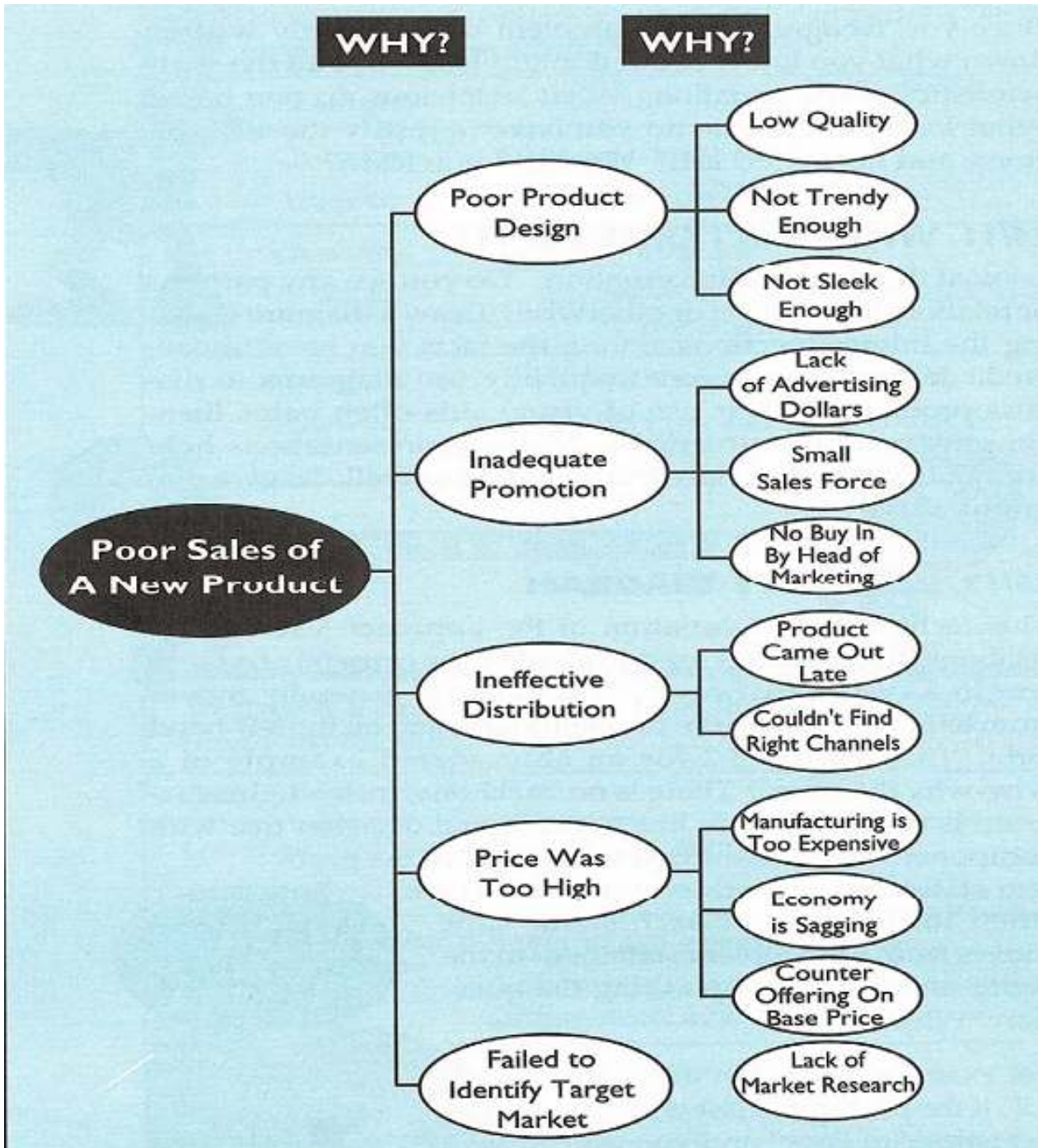
Visualizing these characters will help you to anchor your perspective about what designs will mean in practice, to the different people who may use them.

For this exercise it is important to take aware in “User desirability”, “Business viability” and “Technical feasibility” (please remember the exercise objectives).

Play	Disadvantages	Play	Disadvantages
Young people	Supervising issues; not a toy; to slow; bad for health; image; trouble; sabotage; abuse; lots of alternatives.	Children	Safety issues – door.
Disabled people	Impossible for wheelchair users; entering/using for blind people; accessibility; problem, needs a door; step.	Old people	Overcrowding; walking and lack of space; uncomfortable; lack of confidence in technology; no information.
Shoppers	No window shopping; can only get out at stops; if not on routes; can't carry that much stuff.	Residents	Takes up road space; probably changes parking; road closures; dangerous (if no sensors); visual pollution; cyclists – are they banned; won't go up very steep hills.
Politicians	Not prestigious; big effects-small rewards; expensive; does it solve a problem.		

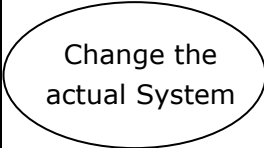


Why Why Diagram



2.2 - To do (30 minutes)

Using the disadvantages written in the last page, fill the next frame, regarding “Why Why Diagram”. Why change/create the actual System (Cybercars in the Cities). Please remember the exercise objectives.

	<p>Why ?</p> <p>Safety Issues</p>	<ul style="list-style-type: none"> - No supervision - No door - No sensor - Unexpected - Quiet
	<p>Value of Product?</p>	<ul style="list-style-type: none"> - Too slow - Not flexible - Not comfortable - Set routes - Poor design - Poor image-golf cart - No successful stories/no good practice - Limited use groups - Poor return of investment? - Is better than walking - Recharging issues
	<p>Coast Effective</p>	<ul style="list-style-type: none"> - Maintenance - Infrastructure - Road space - Added value worth the investment?

3) Visualize - How will our brainstormed solution solve the problem?

At the third step, your attention finally turns to the system being designed.

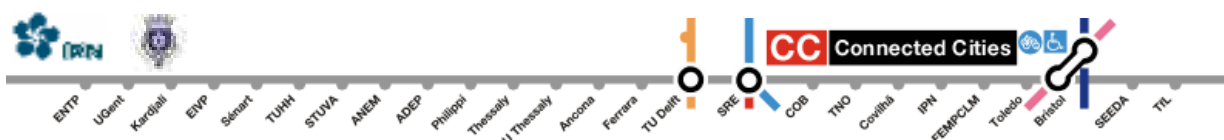
How will our solution is complete? How it solve the problem?

To do (20 min) - Find new ideas to improve the Cybercars System

Read all the last steps and find new ideas to improve the Cybercars System (Vehicles, System management, User interface, News Applications, etc.). Please take into account the main exercise objectives and use the brainstorming technique.

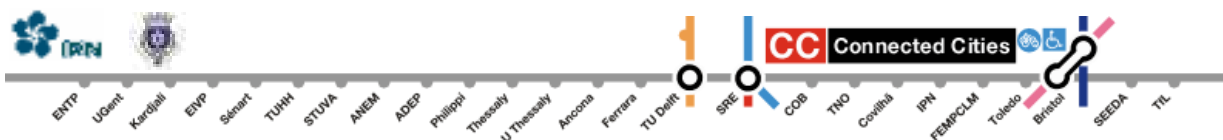
Brainstorming rules:

- Elect a moderator;
- Define the problem you want solved clearly, and lay out any criteria to be met (see the slogan above the table "**Bridging the Gap between Invention and Innovation, The Cybercars in the Cities, Soon!**")
- Keep the session focused on the problem;
- Ensure that no one criticizes or evaluates ideas during the session. Criticism introduces an element of risk for group members when putting forward an idea. This stifles creativity and cripples the free running nature of a good brainstorming session;
- Encourage an enthusiastic, uncritical attitude among members of the group. Try to get everyone to contribute and develop ideas, including the quietest members of the group;
- Let people have fun brainstorming. Encourage them to come up with as many ideas as possible, from solidly practical ones to wildly impractical ones. Welcome creativity;
- Ensure that no train of thought is followed for too long;
- Encourage people to develop other people's ideas, or to use other ideas to create new ones ; and
- **Appoint one person** to note down ideas that come out of the session. A good way of doing this is to use a flip chart.



	Description	Votes
1	No supervision	
2	-CCTV	
3	-mechanical head	
4	-electric shocks	
5	-locks people in and drives to police station	
6	-information panels	
7	-links to home computer - parent monitoring	
8	-children only – lower the roof	
9	-identify the user – keep groups separately	
10		
11	No door	
12	-add a door with windows (half door)	
13	-air conditioning	
14	-automatic	
15		
16	No sensor	
17	-active sensor	
18	-sensitivity of sensor	
19	-button which must be held down for it to move	
20	-noise sensitive	
21	-connection to central point	
22	-add more sensors	
23		
24	Unexpected	
25	-noise – casols, musak, clip clop	
26	-publicity	
27	-advertising	
28	-light ahead of it or head light	
29	-smell	
30	-signal when moving well can entes - light	
31		
32	Quiet	
33	-noise	
34	-not to noise – snoring at night	
35	-different levels of noise	

36	-lights at night, noise during day	
37		
38	Too slow	
39	-speed it up	
40	-build infrastructure	
41	-guided fast sections	
42		
43	Not flexible	
44	-GPS	
45	-screen where you are	
46	-need to be able to stop anywhere	
47	-send a text and it knows where you are	
48	-be able to chose alternative route	
49		



4) **Evaluate and Refine (15 minutes):**

Once there is a basic structure for the design, the details are filled in, and user testing at a variety of levels is performed to provide feedback (remember the CyberMoving demonstration).

Read all the items mentioned in the 3rd exercise, and choose the best **7 features** to hit the **main exercise objectives** (page one).

	Features
1	Add an automatic door
2	Lower the ceiling so only children can use
3	Activate sensors
4	Make it noticeable – light and noise
5	More speed
6	No set route – flexibility
7	Low maintenance coast, longer life battery

5) Implement: commercialize, market...

In the “implementation” stage, you will focus their attention more on the pragmatic aspects of building the designed object: costs, manufacturability, durability, quality control, maintenance, and so on. Take advantage of the cross-functional teams throughout the process is to ensure that these considerations have not been ignored in the previous steps, because in general they cannot be simply patched on at the end.

5.1 - The aim of this exercise is not implementing but prepares your product presentation (20 minutes):

Please write your system proposal in slide (PowerPoint) or paper sheet. You could complement your presentation with other methods, or different materials. Do not forget to include distinctive ideas, applications, advantages, dissemination tasks, etc.

5.2 – The aim of this exercise is to persuade the audience to “buy” your product. They need to know your “value proposition” (8 minutes).

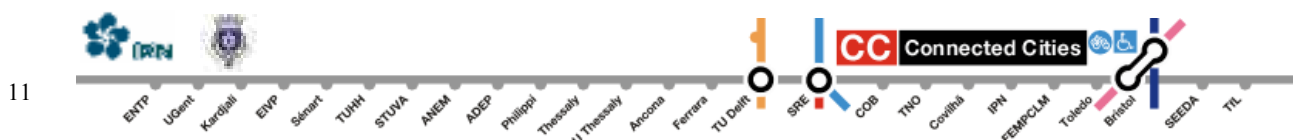
Now, imagine that you have a company and need to sell the product to implement in the cities. You will have 8 minutes to do your proposition (“extended elevator speech”).

Please take into account the **exercise main objectives**.

The audience will choose the best product...
Good luck.

Conclusions:

The ideas collected with this exercise will be including in Connected Cities best practices manual, and will used by Pedro Nunes Institute to improve the Cybercars development strategy.



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Hint: It makes sense start with controlled applications like Natural Parks, Hospitals, Airports, Historic Centres, etc. before applied in the Cities to complement other transports? This strategy could speed up the people adoption?

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- Suggest what type of demonstrations necessary to disseminate the product on the potential users (using the Cyber Moving Fleet), and what partners should invite to put strength in the demonstration.
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