Interaction Design Institute Ivrea

Multi+ Community Car Research Project

in collaboration with

Fiat Auto - Advanced Design Studio + live | work

Authors Roberto Bolullo, Simona Maschi
Laura Polazzi, David Slocombe

Layout, Graphic design by Line Ulrika Christiansen

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Project Team:
Interaction Design Institute Ivrea, Italy

Simona Maschi	Project Leader
Roberto Bolullo	Desk Research – Case Studies and Knowledge Maps
Laura Polazzi	Field Research - Interviews and Community Stories
Dave Slocombe	Concept Development and Communication

Live | Work, United Kingdom

Chris Downs	Service Design
James Gibson	Service Design
Ben Reason	Service Design

Multi+ - The Fiat Multipla, a Mini Community Car

In June 2003, Fiat Auto and Interaction-Ivrea initiated a collaborative project with the goal of investigating the role of service design in the context of mobility.
Based around Fiat's six seater 'Multipla', the project looks at the evolving interaction between people and cars in everyday situations. An interdisciplinary team of researchers and designers was formed to investigate the following questions;

" How do new mobility services affect the design of the car?"

" How can we encourage the creation of communities through the use of traditional private cars?"

" What are the user behaviours and experiences that make a car a 'community car'"?

" How can we design for communities rather than for individuals?"

" How can we customise the experience for a community?"

Interaction Ivrea is supporting Fiat in designing and communicating new user experiences based on higher levels of customisation and personalisation. The project shows that the Multipla can be treated as a platform for new service solutions that support the needs of people as members of communities.

One of the main directions taken by the project team was to consider the Multipla as a mini-community car. Here the mini-community is built upon the purposes for which the car might be used, such as going to he supermarket, going on a ski-trip and others. The project shows that sharing a car might be a desirable future for people, a convenient strategy for companies and a better solution for the environment.

Three Definitions

Mobility, Sustainable Mobility and New Mobility

Three definitions that communicate our approach to mobility

Mobility

Mobility can be understood as the movement of people, freight, money, information or any physical or virtual element. For this reason we specify that when we use the concept of mobility we are thinking of the movement of people from one place to another.

Three Definitions

To define how we understand the approach of the project and how we understand mobility we selected three definitions from experts in the field.

To understand the way we approach the mobility concept we want to mention a paragraph of Birgit Niesing ("Sustainable Mobility" Fraunhofer magazine 2000):

> *"The Swiss philosopher Gonsalv Mainberger recognized that mobility is always connected with a purpose. We travel from the country into town in order to work, shop or take the children to school. We keep business appointments in Cologne, Berlin, London and Brussels. And even in our leisure time we seldom sit quietly at home. We travel to distant countries, take weekend trips, visit the theatre or meet up with friends. Man's urge to move on and his curiosity have always been a major driving force in human progress"*
>
> Birgit Niesing

People always move with a purpose. The purpose can be seen from two different perspectives. The first, that mobility supports the evolution of the individual's identity and the second that mobility supports the needs of the individual practically in maintaining social, family and work connections, this can be understood as the needs of people as a whole.

This helps us to reflect on the idea that when designing for a sustainable mobility framework we should focus in the needs of individuals as much as the need of people as a whole.

Sustainable Mobility

We use the following definition from The World Business Council for *Sustainable Development (WBCSD), to support our approach to sustainable mobility in this research project.*

> *"Sustainable Mobility is the ability to meet society's need to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological values, today or in the future"*

New Mobility

The concept of mobility has changed dramatically in the last one hundred years. The actual systems of mobility have brought some unsustainable aspects that affect our individual and collective lifestyles. A report from *Moving the Economy* outlines that our behaviour is affecting at all levels of the mobility systems from climate change to the liveability of cities or life cycles of cars.

They report that as a response to this actual situation and, after identifying three trends in our societies nowadays, a New Mobility concept is emerging. These trends are:

1. Transportation Demand is Growing Beyond the Capacity of Current Systems
2. New Systems and Technologies are being applied to Transportation
3. Business is Shifting to a Service Oriented Market

On the basis of these trends Moving the Economy gave the definition of a New Mobility:

> *"The convergence of these trends is leading to a New Mobility, the next generation of urban transportation systems, service and products. Mobility innovations span the spectrum of transportation, from moving people, to moving goods, to moving less, (where unnecessary travel or shipping is reduced.) New mobility applications are generally integrated, smart, clean, service oriented and user-focused"*

Six Knowledge Maps

Scale, Experience, Value, Organisation, Situation and Time & Place

These maps were created as a way of organising and accessing the knnowledge held in the case studies analysed.

Desk Research

Desk research was conducted by Roberto Bolullo over a six week period. The aim of the research was to understand the relevant facts and issues affecting modern mobility and to collect representative mobility case studies.

The search for case studies covered areas and companies from Automotive companies, the European Union, Local and National Institutions, Research Groups, Universities with Transport Studies or Public and Private companies that work with mobility related issues. Around 120 programs, initiatives, events, papers and research projects were collected and analysed.

The Knowledge Maps

The 32 most representative case studies from the 120 were selected and six knowledge maps were created to enable an understanding of the relationships, similarities and differences, between them.
Each Knowledge map is organised according to two dichotomies that make up the axes. Placing the case studies into the map according to the axes that most represent its content allows the reader to gain a qualitative understanding of the case studies.

Each map also features a highlighted area. This 'area of interest' was created by the author to communicate the cases that appeared the most relevant to the design brief. The six knowledge maps are;
Scale, Experience, Value, Organisation, Situation, and Time & Place

In the following pages of this booklet the Maps are presented along with four short summaries of case studies that appear in the map. The four case studies are highlighted with a circle in the Map with each case study representative of one of the four sectors.

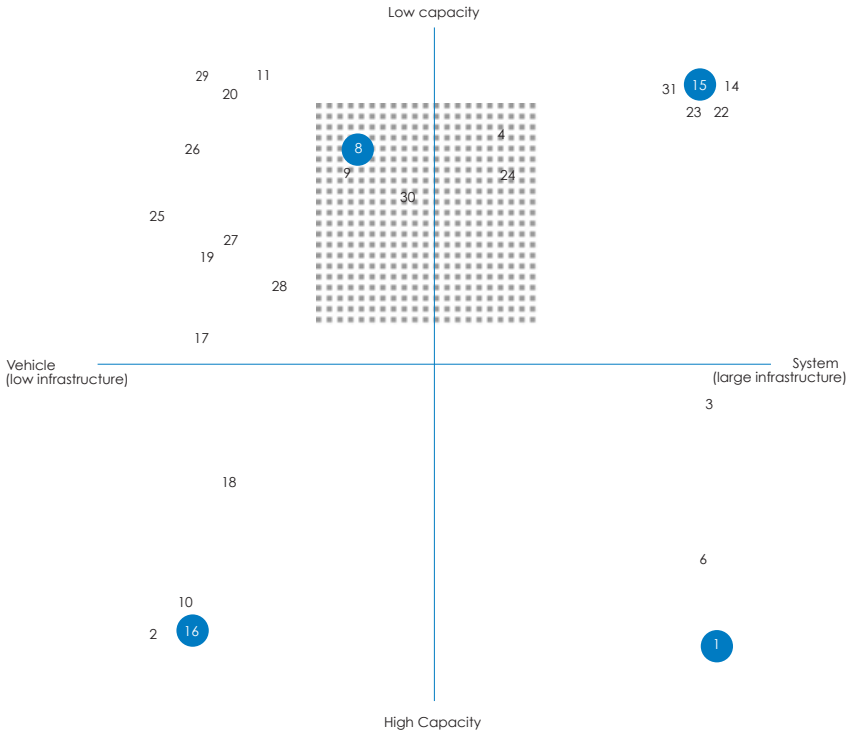
Scale

In this map we explored the combination between the complexity of the infrastructure and the capacity of the vehicle.

About the Map

In this map we can see that most of the mobility related services are designed for either a specific small infrastructure or a large one, with only a few projects operating at both ends of the scale. The services that are designed at a vehicle scale have different passenger capacities i.e. car passenger capacity as opposed to buses, much higher, passenger capacity.

The services that have been designed at large infrastructure are mostly applied as low capacity car-sharing services. There are a couple of services in the high capacity area i.e. Octopus Smart Card [1] that integrates a wide range of mobility services including underground transit and rail. There are a group of projects in the centre of the [Scale] map that are small car-sharing organisations with cars that serve a specific group of people or community e.g. An eco-community, The Dancing Rabbit Vehicle Co-operative [9], that shares cars and bicycles.



5 Case study reference number

Representative cases

A possible direction for the brainstorm

Map: The range of scales that the services support

Vertical Axis: Capacity of the vehicle

Horizontal Axis: Complexity of the infrastructure

A Possible Direction for Innovation

An area that may be interesting to investigate is that of combining medium scale infrastructure with high car passenger capacity (more than four passengers) to address the needs of groups or communities.

[8]

Name: Stadthaus Schlump
Promoters: City Institution and the German team Gessner and Raap
Place: Hamburg, Germany
Year: mid-1990's

Service description:
This service was born as part of a larger project as the result of a developer competition in the mid-1990's. Participants were called by the city to encourage innovative solutions for the reuse of heritage-listed former hospitals. Stadthaus Schlump are 45 residential units that offer a "mobility package" consisting of a public transit travel card, access to four shared cars and communal bikes for rent. Fifteen parking spaces are available for the residents and on-street parking is permitted.

Points of Interest: This is an example of a service that offers medium scale infrastructures that offers low passenger capacity vehicles.

[15]

Name: ZEV·NET
Promoters: National Fuel Cell Research Centre and The Institute of Transportation Studies (ITS) at University of California in cooperation with Toyota Motor Sales, U.S.A., Inc
Place: City of Irvine, USA
Year: 2002

Service description: The ZEV-NET is a station car project. Station cars are mobility systems that enable people to access different electric vehicles (EV) in mass transit and station car areas. The service provides the user with specialised parking slots where they can charge the car. There is an added value to the service as parking slots are difficult to find in mass transit areas. ZEV-NET provides to commuters with a variety of vehicles types including City EV's, Full-Featured EVs, and Hybrid vehicles. At the moment they have fifty cars and are in planning to upscale to one hundred.

Points of Interest: This is a clear example of a service that offers low capacity cars inside a large system of different cars and parking locations.

[16]

Name: Neighbourhood Bus
Promoters: The Metropolitan Transport Company of Barcelona (TMB)
Place: Barcelona, Spain.
Year: 1999

Service description: The Neighbourhood Bus service supports people that live in areas of Barcelona where conventional buses have difficulties circulating. They are assisted with a small bus that allows them to move to areas with better access to other modes of transport. The service allows passengers to access the major transport networks, commercial areas and other services.

Points of Interest: This is a clear example of a service that offers high capacity vehicles with the minimum system infrastructure possible.

[1]
Name: Octopus Cards Limited
Promoters: It is a joint venture of six major transport operators in Hong Kong
Place: Hong Kong, HK
Year: 1997

Service description: Octopus is an electronic payment system using a contact less smart card trademarked as Octopus Card. The Octopus Card offers users a way to integrate different mobility related services. The Octopus card can be widely used in over 180 different organisations covering 30 mobility services (ferry, bus, light rail, heavy rail and the underground) also parking, retail, self services outlets, conferences and exhibitions, recreational facilities, school campuses and access control. The Octopus Smart Card is the world's leading contact less smart card system with 7.13 million transactions a day.

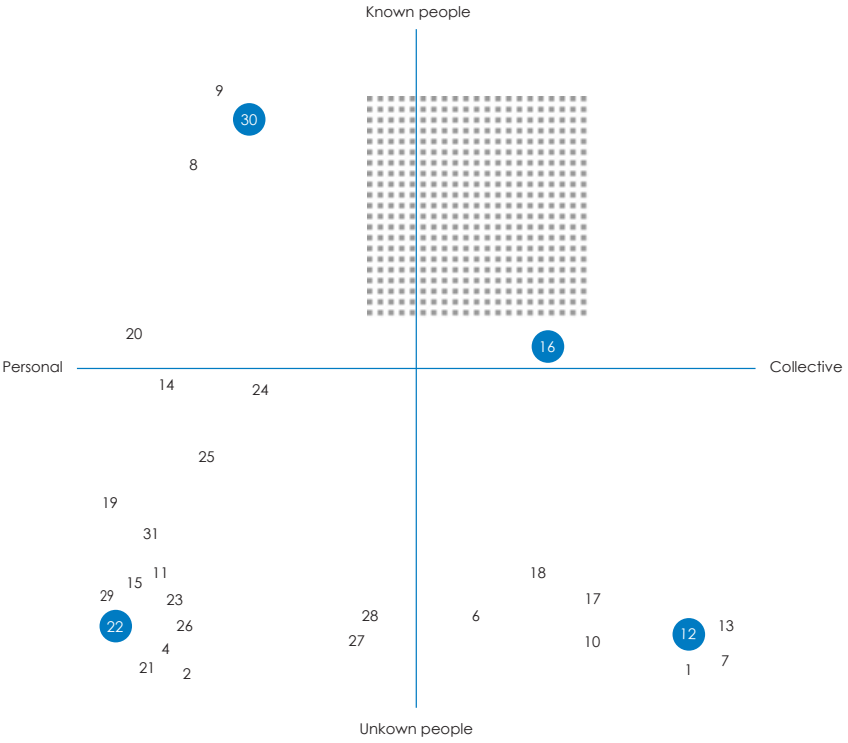
Points of Interest: This is a clear example of a service that offers high capacity vehicles within a big system.

MULTI+ Experience

In this map we explored the combination between the level of personalisation and the level of familiarity the users share with the other people that use the service.

About the Map

In this map we can see that the most of the services provide a personalised experience that is shared with people that we don't know such as car-sharing services. Another relevant group of services provides collective experience but is also shared with people we don't know i.e. 'Car free' events promoted by institutions to increase the awareness about mobility issues. In contrast another group of services provide a more personal experience but with people we know such as car-sharing on a University Campus.



5 Case study reference number

Representative cases

A possible direction for the brainstorm

Map: The kind of human relationship that the service creates

Vertical Axis: Level of familiarity the users share with the other people that use the service

Horizontal Axis: Level of personalization

A Possible Direction for Innovation

An area that may be interesting to investigate is that of the small community that supports social relationship between users. This area is of potential interest because people see an added value to the services that offer shared experiences with familiar people.

[22]

Name: Zipcar
Promoters: Zipcar, Inc.
Place: Boston and New York, USA
Year: 2000

Service description: Zipcar is a membership organisation that provides self-service car access to residents and businesses in US cities. The service is an alternative to owning a car in dense urban areas and areas experiencing chronic parking shortages. Zipcars are located like ATM machines in reserved parking spaces near to where people live and work. Members reserve cars on the Internet, let themselves in with a smart card and receive a bill at the end of the month. The service can be reserved and accessed 24 hours a day/ 7 days a week. The service doesn't involve time consuming paperwork or waiting in line. Cars can be reserved for as little as an hour and the parking lots are always situated in central locations within the cities. In 2002 there were 100 Zipcars and served 2000 members in three different cities.

Points of Interest: This is an example of a service that offers a personalised experience shared with people we don't know.

[30]

Name: Campus Car
Promoters: Cranfield University
Place: Bedfordshire, UK.

Service description: Campus Car at Cranfield University is a service that offers University Staff and students access to a car-sharing scheme. The University has seven cars on Campus. Cars can be used in two different ways: as Day Membership, which is more convenient for the infrequent users, and Full Membership, which is more convenient for frequent users. Booking can be done online. Each of the cars has a specific price but all of them include insurance and petrol in the price. This service offers the opportunity to 'known' people to share different vehicles for personal use.

Points of Interest: This is a clear example of a service that offers a personalised experience shared with people we know.

[16]

Name: Neighbourhood Bus
Promoters: The Metropolitan Transport Company of Barcelona (TMB)
Place: Barcelona, Spain.
Year: 1999

Service description: The Neighbourhood Bus service supports people that live in areas of Barcelona where conventional buses have difficulties circulating. They are assisted with a small bus that allows them to move to areas with better access to other modes of transport. The service allows passengers to access the major transport networks, commercial areas and other services.

Points of Interest: This is an example of service that offers collective experience with people that we may know.

[12]

Name: Bogotá Project
Promoters: The Council of Bogotá
Place: Bogotá, Colombia
Year: 2002

Service description: This is an initiative promoted by the Council of Bogotá. The initiative can be seen as a service provided by a Public Institution (The Council of Bogotá), to offer all citizens the opportunity, through different events, to increase their awareness about mobility issues. This initiative includes numerous, wide-ranging, integrated solutions including automobile use restriction, car free days, TransMilenio bus rapid transit, and a public space program, among others. The initiatives have attracted a lot of interest from the people of Bogotá.

Points of Interest: This is an example of an initiative that offers a collective experience shared with people we don't know.

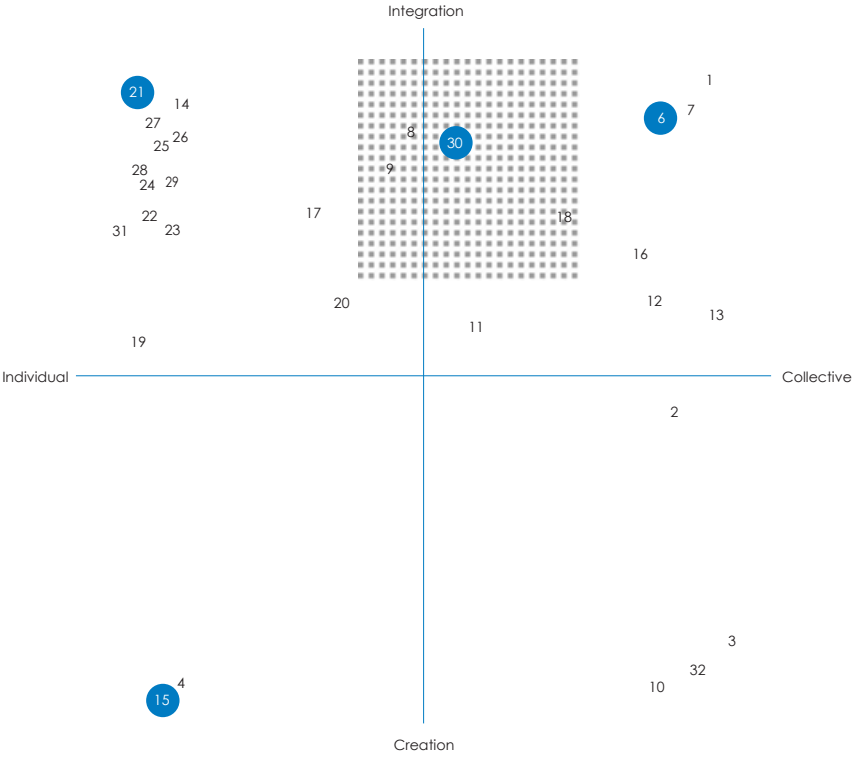
Value

In this map we explored the combination between the value of mobility to people and the different areas that have been innovated.

About the Map

In this map we can see that a majority of the mobility related services are designed for individuals where the innovation comes from integrating different existing elements (by existing elements we mean those parts embedded in the service which are pre-existing, such as vehicles, web-interface, public transportation).
There is a group of mobility related services where the innovation also comes from integrating but the focus is placed on a groups of people e.g. A project originating in Bremen [6] to integrate public transport with car-sharing. A few services innovate in mobility by creating new elements e.g. ZEV-NET Station cars [15] mobility systems that enable people to access different electric vehicles (EV) in mass transit and station car areas.

There are a couple of services where the innovation also comes from creation and adds collective e.g. Torino Hydrogen bus [10]. Another group of mobility related services are those that innovate through the integration of different elements and focus on groups of people e.g. The Dancing Rabbit Vehicle Co-operative [9], that shares cars and bicycles.



5 Case study reference number Representative cases A possible direction for the brainstorm

Map: Where the value of the service comes from

Vertical Axis: Different areas that have been innovated

Horizontal Axis: Value of mobility to people

A Possible Direction for Innovation

The last case study, The Dancing Rabbit Vehicle Co-operative [9] may be interesting to look into further because there is an opportunity to focus on people values (rather than demographics). Furthermore, we think that it is worthwhile to build on existing sources rather than always creating new ones.

[6]

Name: Bremen
Promoters: Moses project
Place: Bremen, Germany
Year: 1998

Service description: This is an initiative carried out under the Moses Research Project supported by the European Commission. This initiative helped to bring an intermodal solution to the city of Bremen. By intermodal we mean a mobility system that brings together different modes of transport. In June 1998 the Authorities arrived to an agreement with a car-sharing company to develop an electronic car-key to combine the car-sharing service with the monthly or annual pass for public transport. The success of the initiative resulted in car-sharers using public transport more often. The intermodal service offered in Bremen adds new values to citizens by the integrating different mobility services.

Points of Interest: This is an example of a service that innovates through the integration of different elements and creates value for collectives.

[30]

Name: Campus Car
Promoters: Cranfield University
Place: Bedfordshire, UK

Service description: Campus Car at Cranfield University is a service that offers University Staff and students access to a car-sharing scheme. The University has seven cars on Campus. Cars can be use in two different ways: as Day Membership, which is more convenient for the infrequent users, and Full Membership, which is more convenient for frequent users. Booking can be done online. Each of the cars has a specific price but all of them include insurance and petrol in the price. This service offers the opportunity to 'known' people to share different vehicles for personal use.

Points of Interest: This is an example of a service that innovates through the integration of different elements and creates value for communities.

[21]

Name: MobilZentral
Promoters: Styrian Public Transport Association, the City of Graz, the county of Styria
Place: Graz, Austria
Year: 1997

Service description: Mobizentral offers citizens and visitors to the city, information regarding public transport fares on all Styrian public transport, Austrian and European rail services and mobility services. The service gives users a personalised service by finding specific timetables and helps them to choose the best route. All professionals working for Mobizentral have been trained in mobility issues. Besides these basic services, MobilZentral offers various mobility consulting services.

[15]
Name: ZEV·NET
Promoters: National Fuel Cell Research Centre and The Institute of Transportation Studies (ITS) at University of California in cooperation with Toyota Motor Sales, U.S.A., Inc
Place: City of Irvine, USA
Year: 2002

Service description: The ZEV-NET is a station car project. Station cars are mobility systems that enable people to access different electric vehicles (EV) in mass transit and station car areas. The service provides the user with specialised parking slots where they can charge the car. There is an added value to the service as parking slots are difficult to find in mass transit areas. ZEV-NET provides to commuters with a variety of vehicles types including City EV's, Full-Featured EVs, and Hybrid vehicles. At the moment they have fifty cars and are in planning to upscale to one hundred.

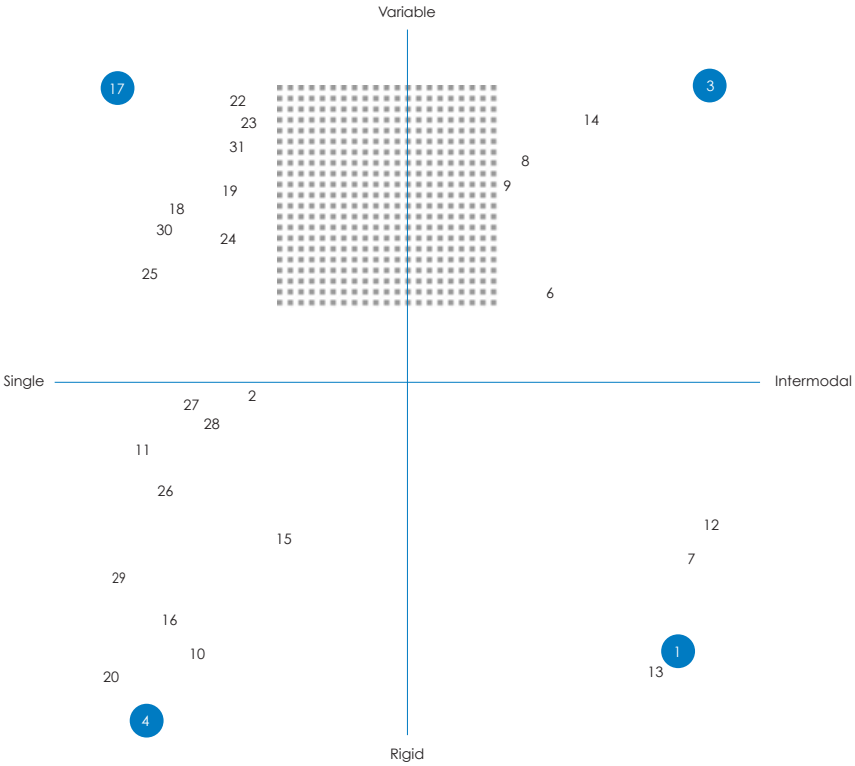
Organisation

In this map we explored the combination between the 'flexibility of the service organisation' and the 'number of different modes of transport'.

About the Map

In this map most of the services are designed for a single mode of transportation. Some of these services have rigid organisational structures e.g. The ULTra Project [4] that is an on-demand system of driverless automated taxis traveling on a guide way network.

The other grouping of services are those with adaptive organisational structures e.g. The Drinbus [17] in Genova that is an on-demand transport service. There is group of initiatives developed by public institutions that are rigid in their structure and affect different transportation modes. There are a group of more flexible intermodal services e.g. A Mobility Lab Research project focused on a mobility platform that brings together a range of modes of transport, from electric cars to ecological buses.



5 Case study reference number

Representative cases

A possible direction for the brainstorm

Map: The interaction of the elements of the service

Vertical Axis: Flexibility of the service organization

Horizontal Axis: Number of different modes of transport

A Possible Direction for Innovation

The area that may be interesting to explore is the one that combines modal and intermodal solutions with adaptable organisational structures.

[1]

Name: Octopus Cards Limited
Promoters: It is a joint venture of six major transport operators in Hong Kong.
Place: Hong Kong, HK
Year: 1997

Service description: Octopus is an electronic payment system using a contact less smart card trademarked as Octopus Card. The Octopus Card offers users a way to integrate different mobility related services. The Octopus card can be widely used in over 180 different organisations covering 30 mobility services (ferry, bus, light rail, heavy rail and the underground) also parking, retail, self services outlets, conferences and exhibitions, recreational facilities, school campuses and access control. The Octopus Smart Card is the world's leading contact less smart card system with 7.13 million transactions a day.

Points of Interest: This is a clear example of a service that offers intermodal transportation (different means of transport) through rigid structures (fixed timetables).

[3]

Name: Mobility system
Promoters: Mobility Lab, experimental project
Place: San Diego, USA
Year: 2002

Service description: The Mobility Lab designed a Platform consisting of a hybrid-station and supporting infrastructure that allows different modes of ecological transportation to be integrated. The system provides the service of integrating the different transports but also publicly promotes their use. The platform is intended to be seen as a "mobility centre" for Neighbourhood Electric cars, City Electric cars, Segways, ecological buses, car-sharing services and to be a place for package delivery. Each mode of transport supports and allows for different trip experiences

Points of Interest: This is a clear example of a service that offers intermodal transportation through flexible structures.

[17]

Name: DRIN BUS
Promoters: Genova public transport
Place: Genova, Italy
Year: 2002

Service description: The Drin bus is a flexible on-demand transport service that offers to all kinds of citizens the opportunity to have access to a door-to-door service for an almost public transport price. Door-to-door service gives the user the opportunity to choose where to begin their journey and where to finish it as well as the pick up time, with half an hours advance notice. Bookings are made by contacting the service call centre. The operator at the call centre puts the demand into the system, which instantly suggests the optimised itinerary.
Points of Interest: This is a clear example of a service that offers a single mode of transportation through a flexible structure.

[4]
Name: ULTra project
Promoters: University of Bristol and Advanced Transport Systems Ltd
Place: Prototypes at Cardiff, Ireland
Year: Experimental project, to be fully implemented in 2005

Service description: ULTra (Urban Light Transport) is a new transport system that has been devised to meet the need for an effective and sustainable mobility. ULTra is an 'on-demand' system of driverless automated taxis traveling on their own guide way network. In the ULTra there is no waiting, no stopping and no transfers within the system. ULTra allows access for six people at time including the capacity for transporting wheelchairs, bicycles, luggage or shopping.
ULTra is also complementary to existing forms of transport. By providing a network link to major rail or bus stations, it can improve the attraction of current transport services. It is also well suited to be used as transport to other major activity centres such as airports. In essence, ULTra replaces the old mass transit paradigm for transport with a new paradigm based on just-in-time transit.

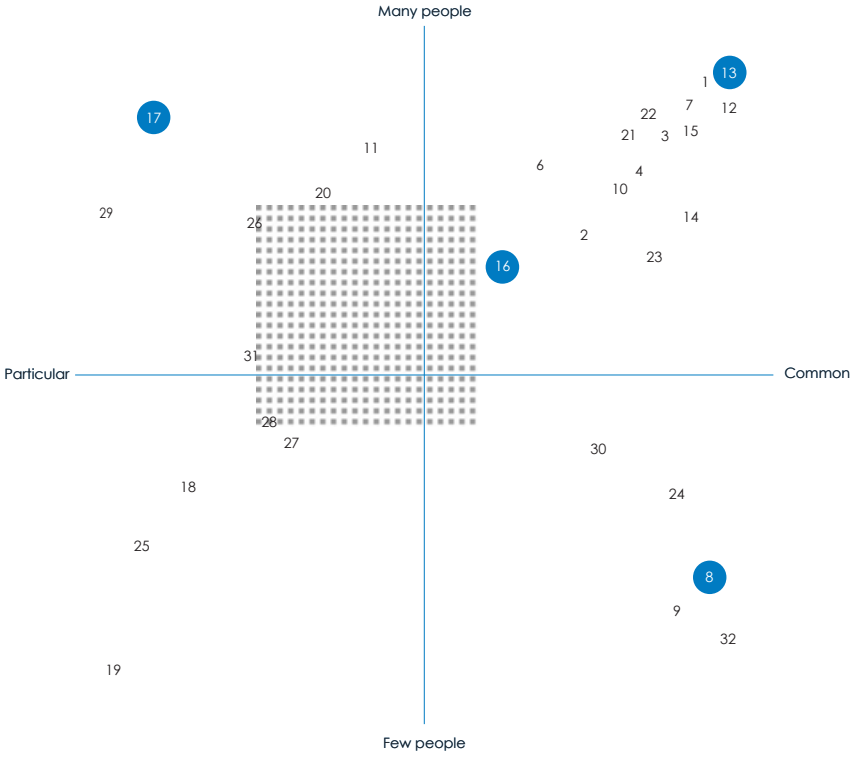
Points of Interest: This is a clear example of a service that offers a single mode of transportation through rigid structures.

Situation

In this map we explored the combination between common and particular circumstances with the number of people the service is designed for.

About the Map

In this map we can see services that have been designed for different circumstances and different volumes of people traffic. The majority of services provide for large numbers of people using transport in common circumstances. Only a few services focus on groups of people with particular needs e.g. Paratransit [19] that is an on-demand service for disabled and elderly people. Other services focus on a larger number of people but for specific circumstances e.g. The EventPool [29] service developed with the aim of matching car drivers and passengers going to specific events. Another group of services concentrate on offering access to few people to meet everyday needs e.g. Campus Car at Cranfield University [30] A service that offers University Staff and students access to a car-sharing scheme.



5 Case study reference number Representative cases A possible direction for the brainstorm

Map: How the service adapts to real world situations

Vertical Axis: Number of people the service is designed for

Horizontal Axis: Common and particular circumstances

A Possible Direction for Innovation

The area that may be interesting to look into is one that combines community numbers of people and specific circumstances. Developing services that fit a communities more specific and individualized needs and circumstances could support the community in ways that public transport or private cars are unable to.

[17]

Name: DRIN BUS
Promoters: Genova public transport
Place: Genova, Italy
Year: 2002

Service description: The Drin bus is a flexible on-demand transport service that offers to all kinds of citizens the opportunity to have access to a door-to-door service for an almost public transport price. Door-to-door service gives the user the opportunity to choose where to begin their journey and where to finish it as well as the pick up time, with half an hours advance notice. Bookings are made by contacting the service call centre. The operator at the call centre puts the demand into the system, which instantly suggests the optimised itinerary.

Points of Interest: This is a clear example of a service that offers to many people a means of transportation for specific needs.

[8]

Name: Stadthaus Schulmp
Promoters: City Institution and the German team Gessner and Raap
Place: Hamburg, Germany
Year: mid-1990's

Service description: This service was born as part of a larger project as the result of a developer competition in the mid-1990's. Participants were called by the city to encourage innovative solutions for the reuse of heritage-listed former hospitals. Stadthaus Schlump are 45 residential units that offer a "mobility package" consisting of a public transit travel card, access to four shared cars and communal bikes for rent. Fifteen parking spaces are available for the residents and on-street parking is permitted.

Points of Interest: This is a clear example of a service that offers to few people a way of transport for general circumstances

[13]

Name: Civitas Initiative
Promoters: The European Commission
Place: Various cities in Europe
Year: 2002

Service description: The Civitas initiative can be seen as a service provided by the European Commission to offer different European Union cities the opportunity to develop and implement more sustainable urban transport policy strategies. The initiative is composed of four projects that aim to achieve a significant change towards sustainable modes of transport.

Points of Interest: This is an initiative that offers to many people a means of transport in specific circumstances.

[16]
Name: Neighbourhood Bus
Promoters: The Metropolitan Transport Company of Barcelona (TMB)
Place: Barcelona, Spain
Year: 1999

Service description: The Neighbourhood Bus service supports people that live in areas of Barcelona where conventional buses have difficulties circulating. They are assisted with a small bus that allows them to move to areas with better access to other modes of transport. The service allows passengers to access the major transport networks, commercial areas and other services.

Points of Interest: This is an example of a service that offers a group of people a means of transport that could be described as between specific and general circumstances.

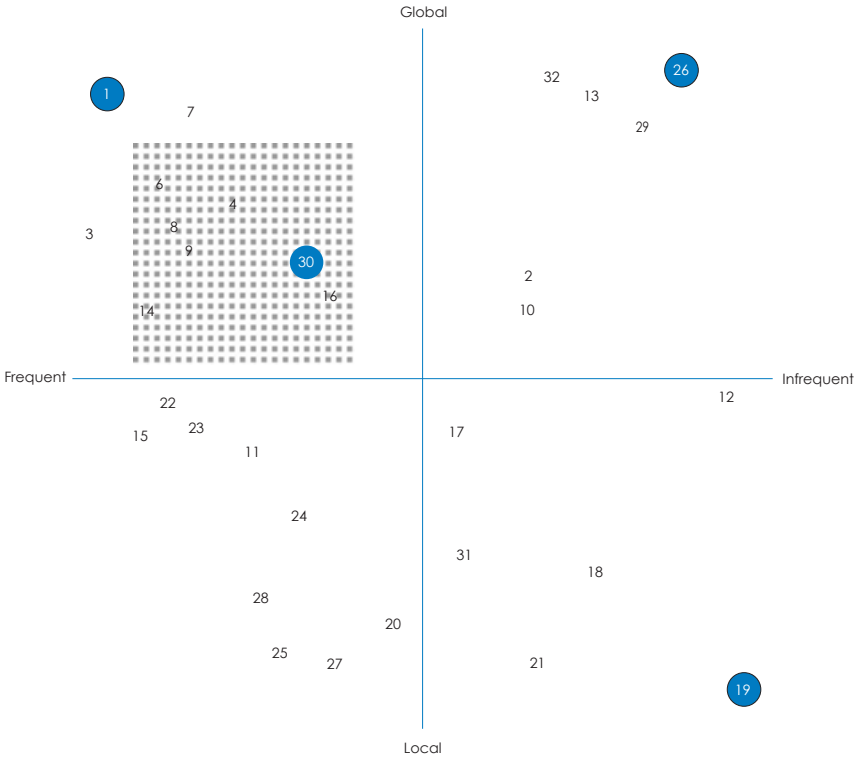
Time & Place

In this map we explored the combination between frequency of use (i.e. everyday/ once a week) and the area covered.

About the Map

In this map we can see that a majority of case studies describe projects that are intended to be used frequently. Of this group some cases are more locally based i.e. Casual Car-pooling [25] as opposed to projects that are globally orientated i.e. Octopus Smart Card [1] a service that includes a wide range of services such as rail or ferry.

There are a minority of services in this map that are designed to be used infrequently. Some focus on local areas i.e. MobilZentral [21] a mobility center that assist citizens in mobility related issues. Other projects cover a geographically wider area i.e Drive2day [26] which matches car drivers and passengers for long distance trips.



5 Case study reference number

Representative cases

A possible direction for the brainstorm

Map: The presence of the service in every day life

Vertical Axis: Geographical area covered

Horizontal Axis: Frequency of use

A Possible Direction for Innovation

An area that may be interesting to investigate can be described as 'frequent use services for more than local distances'. Currently Public transport does not provide an efficient service for this need and where there is provision it is rarely flexible, human or supporting personalisation. For this reason we think this area may be suitable for new services.

[1]

Name: Octopus Cards Limited
Promoters: It is a joint venture of six major transport operators in Hong Kong
Place: Hong Kong, HK
Year: 1997

Service description: Octopus is an electronic payment system using a contact less smart card marketed as the Octopus Card. The Octopus Card offers users a way to integrate different mobility related services. The Octopus card can be widely used in over 180 different organisations covering 30 mobility services (ferry, bus, light rail, heavy rail and the underground) also parking, retail, self services outlets, conferences and exhibitions, recreational facilities, school campuses and access control. The Octopus Smart Card is the world's leading contactless smart card system with 7.13 million transactions a day.

[26]

Name: Drive2day
Promoters: Drive2day
Place: Worldwide

Service description: Drive2day is a service used by travelers (students, businessmen and backpackers) to match journey routes to enable them to share the drive. The service is offered worldwide focusing on people that often travel between cities. The service matches car drivers with people that want a ride and vice versa. The service is offered through the Internet and wap-enabled mobile phones.

Points of Interest: This is an interesting example of a service that is used infrequently and covers long distance areas.

[19]

Name: Paratransit Services, Inc.
Promoters: Paratransit Services, Inc.
Place: Bremerton, USA
Year: 1980

Service description: Paratransit offers the elderly, disabled or those who live in rural areas without personal means of transport a way to access transportation. They are a private transport company that operates the Paratransit service in local areas inside their region. The paratransit service aims to provide a more specialised and specific service for infrequent journeys between local areas. Paratransit uses a light vehicle to transport the passengers.

Points of Interest: This is an interesting example of a service that is used infrequently and covers local areas.

[30]

Name: Campus Car
Promoters: Cranfield University
Place: Bedfordshire, UK.

Service description: Campus Car at Cranfield University is a service that offers University Staff and students access to a car-sharing scheme. The University has seven cars on Campus. Cars can be used in two different ways: as Day Membership, which is more convenient for the infrequent users, and Full Membership, which is more convenient for frequent users. Booking can be done online. Each of the cars has a specific price but all of them include insurance and petrol in the price. This service allows users an alternative between the cheap short distance trips supported by public transport and the long distance of rail, plane or car rental. The high cost of using the car sharing service prevents people from using it frequently.

Points of Interest: This is an interesting example of a service that is used time-to-time and covers medium areas.

Four Stories

Freeway commuters, Parents of Active Children, The Social Retired and Foreigners in Ivrea

The field research for the Multi+ project was carried out by Laura Polazzi in the City of Ivrea and its local surroundings.
Her brief was to provide stories on the topic of people/cars/ transportation that would work as an inspiration source to support the design phase. The stories should include examples of car sharing within different communities from Ivrea.

Identifying four mobility communities

The first phase of this research was to identify relevant contexts for story building. She identified the most relevant areas to explore through discussion with the design team which is summarised in the following questions.

Topics: What is mobility? What is a community? Which kinds of relationships create communities? What are interesting mobility-centred communities? Which kinds of communities are excluded from mobility?

Laura then met with selected people from the local community with the aim of understanding the general situation in Ivrea. Her preliminary interviews were with the "town councillor for traffic" and the manager of the main shopping mall.

As a result of the first phase four contexts were identified:

1. Freeway commuters
People that commute everyday by car or by bus going through the freeway entrance of Ivrea: car pooling, bus sharing and individual travellers.

2. Families of active children
Families where children practice several after-school activities during the week and need to be transported to different locations: lift exchanges amongst families.

3. Foreigners in Ivrea
Groups of non-residents that share one or more cars: informal borrowing and group sharing.

4. Elderly people at the shopping mall
Different categories of retired or aged people: the ones who spend time at the mall for social reasons and the ones who are excluded for mobility problems.

Stories and characters for the different contexts

The second phase of the field research involved a range of methodologies used to enable Laura to create stories based on the communities.

Formal interviews
Nine semi-structured one-hour long interviews with selected users from the different groups.

Explored topics: mobility habits, motivations, relationships within (and outside) the community, rules and modes of communication within the community, experience of travelling.

Observations
Visiting the contexts where the activity takes place, taking notes and photographs on what happens.

Visited locations: Freeway entrance, IDII, Multi-functional recreation centre for children, Meeting point of children, parent and teachers, the shopping mall.

Field interviews
Short interviews to people randomly met at the locations where the observations were carried out. These interviews are intended as complementary to the observations.

Community portraits
As a result of the second phase Laura created four narrative descriptions based on the real field data but fictional in nature. The stories aim at portraying in a realistic manner the mobility-based communities and the different characters that make them up. These descriptions are inspired by the "personas" technique; starting from real data collected on the field and generalising them to build realistic narratives.

The organization of the stories follows a top-down structure; they start from a general description of the context and go down to illustrate specific cases and individual characters.
Each narrative is structured according to five categories:
- People (who's in the community)
- Relationships (how do they relate to each other)
- Motivation (what motivates their mobility habits)
- Rules (how the community is organised)
- Modes of communication (how people communicate with the other actors)
- Experience of the trip (what are the individual experiences of people while mobile)

The categories are distributed within the text following the flow of the narration; some of them are repeated for each group of people included into the general category or for different individuals belonging to the same mobility context.

Freeway Commuters

"Every parked car is the sign of a meeting"

Convenience-based Mobility

If during the day you go through the tollbooth in Ivrea, you will see a long line of parked cars on both sides of the road. Each car is the sign of a meeting and for each car there is at least one person who has decided, for some reason, to travel using a vehicle which is not his/hers.

Parking at the entrance of the freeway happens frequently in some Italian cities. Ivrea is one of these cities. It can happen for different reasons. For example, Ivrea is very much influenced by two important attractions, Turin and Milan, and by its proximity to the Aosta Valley. Ivrea is a junction, a sort of a 'halfway place' between popular destinations.

In this place, cars begin to arrive early in the morning, before seven, and the flow continues for approximately 1-1.5 hours.
Several people park by the side of the road, though, some think parking there is forbidden since someone has been recently fined.
In front of the tollbooth there is a small parking lot with six parking spaces, but these spaces fill up immediately and as a result the parking lot does not meet the demands of the people.
When the road before the tollbooth is also full, the latecomers park at the sides of the adjoining roundabout, or in a parallel country road, even though that is a private road.

Despite the lack of pedestrian walkways, people usually cross the road at the Toll entrance and at that time of the morning there are more cars stopping to park than going straight to the tollbooth.

The Common-goal Car Poolers

For many people stopping at the sides of the freeway entrance is not a daily practice, but just an occasional event.

Relationship
Sometimes it is all about meeting and taking a colleague from another city to the local branch of the company. The person you are waiting for could be a friend, an acquaintance, or just someone you spoke to on the phone. If there was a meeting in Turin you may wait for a colleague by the entrance to the Freeway so you can make the rest of the journey together.

Motivation
The aim of all this waiting is to park the extra cars and leave together in one single car.
By using just one car you can reduce travelling expenses and that can be an advantage for the employee or for the company he works for.
If the destination is a very traffic-congested place, this is also a good way to reduce the need for parking spaces.

Experience of the Trip
Some people use the commute to the workplace to talk about work problems with their colleagues. The car can be a very good place to prepare a meeting, to exchange opinions, or to define a strategy before meeting a customer. As for routine trips or for the people who have a less demanding jobs, traveling with company is a good chance to chat and make the trip a little more pleasant.

Communication
In most cases colleagues plan and agree to commute together at least one day before the trip. Typically, this conversation takes place in the workplace. For those people working in different locations, arrangements are made on the phone or via email.

Rules
It often happens that someone is late, waiting is part of the trip organization and is not considered as an inconvenience. Choosing the car to use depends on different things. If there is a company car, you will certainly choose that one. If there is a person who loves driving, it's quite clear that you will take his/her car. If people travel quite often, then they will get organized in order to take turns; as a rule, every week they use a different person's car.

The Everyday Bus Commuters

During specific times of day the number of cars stopping by the road side rapidly increases. People arrive there all at the same time, alone or in small groups. They work for different companies and according to a fixed schedule they go there to take the bus that drives them, via freeway, to their respective workplaces. Some ladies stay into their cars until the very last moment. They write SMSs, make phone calls or just use those spare minutes to put on some make-up. Other people get out of their cars and stand waiting in the small open space close to the freeway entrance. They usually don't chat much; at this time of the morning you wish you were still lying in your bed.

There is a big group, made up of fifteen people who work for a computer company located in the Aosta Valley, twenty kilometres away from the tollbooth. Since the company moved away from Ivrea, every morning they wait for the company bus which takes them straight to their workplace.

Motivation
When the company moved, the trade unions managed to arrange a free bus service on the way to and from the workplace. The first big advantage is an economic advantage, but lots of people also appreciate the convenience of traveling by bus, where you can relax and be taken to direct to your office.

Rules
The bus leaves from the centre of Ivrea and there is a stop halfway before it reaches the freeway. For the people who don't live downtown, going to the freeway entrance is the best solution. According to work schedules and personal needs, each employee can choose among three different times, between 7.30 and 8.30 am and between 4.45 and 6.15 pm.
Lots of people travel to the freeway entrance alone by car, because they live near the freeway or because they come from a village where none of their colleagues live. Some choose to travel alone, so after work, they are free to go to the supermarket, to the doctor's, to run some errands or to simply spend the evening in Ivrea. Those who get there in a group are usually pretty well organized. For example, there are three men who come from a village that is several kilometres away from Ivrea. Every day at 7am they meet in a street which they can walk to. Every week they alternate using each other's cars. This is the simplest way to optimize travelling for them as a group and they share the burden of expenses and effort.

Relationships
On each bus the same people are present on a daily basis, and everyone tends to sit next to the people that he/she knows the best. In fact, the seat distribution is pretty much the same every day. Some people sit in the front because they get car-sick.

Experience of the Trip
The outward trip is usually silent; lots of people sleep, one man brings crossword puzzles with him, others read the newspaper. In the evening, on the way back, the trip is more lively. People are happy their working day is over and most of them chat in twos. They usually make small talk and they tend to avoid topics of work. Passengers often receive phone calls or SMSs. They are mainly private messages, where they tell friends or their family the time they will reach home or they decide about something they will do later. Some people turn their mobile phone off because they don't want to be disturbed by calls from work.

An Outsider: The Lonely Traveler

He works for the same computer company. He hardly ever takes the bus to go to and from the workplace, though for different reasons it could be more convenient and surely cheaper for him.

Motivation

There is however a very important reason which makes him take his car nearly every day and that is: he needs to be flexible. Despite the company paying for the bus service, having a car available at any time is something really important to him. He often has to work late and would then miss the last bus, or he has to travel around during the day without previous notice for some emergencies. In these cases, since the company doesn't have a company car for him to use, he would have a hard time surviving without his own car.

He stresses the fact that at the beginning all the employees used the company bus, while now only 10 per cent of them use it and these things never happen by chance.

He believes that the people taking the bus are those who "are backing out", they have decided to reduce the amount of energy and effort they put into their work. It's not only about roles and responsibilities, in fact there are also some managers (usually older ones) who take the bus, but it is a matter of enthusiasm and willingness.

Besides satisfying the needs for mobility, traveling by car offers him some other advantages. First of all, the car is a "private space", where he feels free to do what he wants. Moreover, driving to work can, for example, allow him to stop to buy cigarettes, to have lunch in a restaurant and not at the canteen and also to leave work earlier whenever he can.

There are only some very unique situations which encourage him to opt for alternative solutions. In the case of an organized excursion with other colleagues, then they agree to travel together, especially if one of them has a company car. He rarely travels by train, if he does, it is usually combined with a flight, but he doesn't consider this a feasible solution, because of schedules and crowds.

Experience of the Trip

When he travels alone by car, he likes to listen to the radio because voices help him not to fall asleep. He always wears the hands free kit, both because the phone is a fundamental working tool for him and also because he likes to keep his hands free any time.

He often talks to himself aloud, he practices a presentation or a speech he will make to a customer. This happens mostly when he has to give some bad news. He would love to record himself and then have his whole speech printed out.

Sometimes he travels together with some colleagues to go to a business meeting. In these cases, on the outward trip people usually talk more, most of the times in order to plan the meeting with the customer, while on the way back they are more silent and each person is lost in his/her own thoughts.

When he occasionally takes the bus, if he meets a colleague then he will have a chat, otherwise he just reads specialized magazines or the emails he has printed.

When he takes the train, which happens very rarely, he likes to use his computer.

If he has to talk to a customer, he respects their privacy as much as possible, and attempts to never use the names of people and companies.

Foreigners in Ivrea

"If someone needs a car and I'm not using mine, it would be a waste not to let this person use it"

Friendship-based Car Pooling

There are many people moving to different cities or Countries to work or to study, sometimes for limited periods of time. For different reasons, Ivrea's area has always created these temporary stays whose aim is linked to professional choices. In these cases it is not always possible or convenient to have our car with us, if we own one, or buy a new one.

Interaction Design Institute hosts many people, most of them students and foreigners, who are in this situation and feel the need to have a car. Just a few of them own a car, while most of them have a bicycle or no means of transport at all.

Relationships
At the Institute they all know each other, though there are different levels of intimacy, and everyone knows who owns what means of transport.
On the other hand, only few people have friends and acquaintances outside the Institute. Social life is connected to the working/studying environment, while everyone has deep contacts with people who are physically far away.
Generally the people who have a car, especially the students, easily lend it to the others.
Lending a car is done according to the depth of the friendship and the trust existing between people, usually within small groups.
However, the roles and behaviours of each person vary according to each individual case.

The Open Lender

He is a professor at the Institute who has leased a car. He seldom uses it, since he usually walks to work and anyway he doesn't it use it during his working hours. The monthly fee to lease the car is very high, though up-keep and maintenance costs are included. Anyway for him this is just a temporary solution while he is waiting to buy a car.

Motivation
Having a leased car makes him lend it very easily. On one hand, there are no risks for him, since the service covers all possible damages. On the other hand, he believes the price he pays is a good reason to use the car as much as possible, allowing people to take good advantage from this.

Communication
Since he often walks to work, if someone needs the car, he/she just has to write an email to him in advance, or if they see him driving to work, then they can just stop by his office and ask for it.

Rules
If he is not using the car, then anyone belonging to the Institute is welcome to use it.
However, since he doesn't want the lending to be taken for granted, he asks the people using the car to put some fuel in the tank. It's not much, just some euros for local trips in the area and double if they go out of town. In this way he can save some money on fuel and, above all, he won't lose money.
This system works pretty well, also because there are not many requests and thus it is easy to handle them in a very informal way. Besides that, in most of the cases people use the care for short drives and they don't need it for a long time. They basically need to go to the supermarket and carry their shopping back more easily: usually three to four students decide to go together and they take the car. It's not important for him who and how many people take his car.

Experience of the Trip
He doesn't own the car and he knows that it's just a temporary solution, so he is not spurred to personalise it; he only wants the car to be clean and tidy.
He gets annoyed if someone takes the car back and leaves it dirty or very untidy, but that doesn't happen very often.

The Selective Lender

She has a second-hand car she just bought. That car was a real bargain, but its condition is not excellent and it has already had to be fixed several times and one time it suddenly stopped in the middle of the road.

Motivation
She is a very sociable and active person, she loves to share her passions with friends. She loves to join group trips and since she is one of the few people at the Institute who own a car, she often uses it to drive other people.
Since the car is not very reliable, she thinks it is not safe to lend it to anyone. She fears the car could break down and leave someone in trouble. Besides that, she feels she is responsible for damages and problems that might arise.
However, knowing how useful a car can be, she willingly lends it to some friends she particularly trusts, especially if they drive short distances.

Rules
She knows that the people using her car share her idea that who is using the car is responsible for possible damages.
She doesn't ask for money or petrol. She'd rather ask for a favour to these people. For example, if they go to the supermarket, they can get some shopping for her, too.
Another typical example is when she has to take a flight: she usually asks a friend to take her to the airport, which is only half an hour drive away, and to go and pick her up when she comes back, the friend can use the car while she is not there.
When she goes to the mountains with friends, she usually meets the other participants outside the students' residence; the people owning a car drive there, then according to the number of participants, they will decide how many car they can take.

Experience of the Trip
She loves owing a car, though she doesn't use it every day.
Driving is more a way to escape for her, a way to relax and think, while listening to some music and smoking a cigarette.
Unfortunately Italian roads are full of traffic-lights and the ugly views you can have from the freeway are not really what you need to fulfill this aim.
She keeps the music on most of the time, even if there are other passengers, she might turn the volume up or down if they are chatting. In any case, she tries to respect other people's desires.
Next to her seat she keeps some small souvenirs from her car trips. These are usually small objects that remind her of a nice moment, someone she met, an experience. She wouldn't mind the people she lends the car to, to do the same and leave a trace of their experience. What matters is that no one can throw away or ruin her things.
When someone brings the car back, she can often tell the presence of the person who used it by small signs: the position of the car-seat, sometimes cigarette smell. She doesn't mind about those things, but she is very sensitive to perfumes; she cannot stand being overwhelmed by someone else's scent.

The Trustable User

He is a foreign student who despite having always owned a car, couldn't buy one while in Ivrea, both because he cannot afford it and also for bureaucratic reasons.

Motivation

The car is very often a real and an extreme need. Going to the supermarket, to a shop outside town or to the post-office, all these activities require double the time and effort if you don't have a car. Moreover, carrying heavy shopping bags or cumbersome stuff on foot for long distances can be almost impossible.
That's why he often asks some friends to lend their car to him, especially two very generous ones.
He usually needs it for a short time, half a day or a bit more. If someone is leaving for a trip and he can get their car, he takes the chance to go outside town, in the evening or on weekends. The fact that he doesn't have his own car readily available to him is a big limitation. He has given up planning meetings and activities outside Ivrea: going to see an exhibition in Milan, or viewing a movie in its original language in Turin, and spontaneous outings to restaurants in the countryside. As for food shopping, he has to plan what he wants to buy in advance and get everything at one time, while he wishes he could just be more flexible in his decisions.

Communication

When he knows he will need a car, he writes an email to a friend who works at the Institute and asks her to lend him the car. He waits for the reply via email.
If the car is not available, he turns to another friend, and in the case of an emergency he asks other people who are students or employees from the Institute. They seldom offer the car to him, in case they are leaving for some days and they might ask him to drive them to the airport.

Rules

He seldom asks for the car because he doesn't want to abuse his friends' kindness and when he can have the car he tries to make the most of it and tries to concentrate in one trip most of his movements. If he just goes to the supermarket that is only a short distance away, he will not put any fuel in the car. He usually goes with a friend and they rarely give lifts to other people. Organizing a group trip would take more time, and if they drive to all go for some shopping there could be a problem of lack of space in the car; he'd rather ask the people he shares his work studio with if they need anything from the shops, and he buys it for them. If he is driving someone else's car, he is very careful. He feels pretty confident of his driving ability, but prefers not to run the risk of damaging the car and having a car accident, because he is worried about the possible economic consequences.
Every time he asks the car owner when she needs the car again, he always tries to return the car back to her on time. He feels that it is his duty, and he knows that by behaving differently (i.e. returning the car to her after the time she needed it), it might be more difficult to get the car the next time. The people lending him the car are friends and they trust him. Probably because they consider him a responsible person and they know that in case of a problem, he would try to solve it. He knows that they don't do the same with the other people and he thinks this depends on the fact that friendship implies a sort of moral obligation, which somehow works as an implicit contract. If there is no friendship, then you will need a formal agreement.

The Unsatisfied Car Sharer

She belongs to a small group made up of three foreign students. One of their colleagues left and he has entrusted the car to them for a long period of time.

Motivation

Before coming to Ivrea she had decided to give up some conveniences, one of these was using a car. This was part of her idea about coming to Italy and she never thought that that would be a problem.

As soon as she arrived in Ivrea she bought a bicycle. As time went by she started to change her mind, especially because she realized that travelling by train was not so easy and cost effective as she would have expected. That's why she started to think about having a car again, above all for the freedom it gives you to leave town whenever you feel like.

The opportunity her friend gave her by letting her use his car, only partially satisfies her needs. She can go to the supermarket and carry heavy stuff, even for the projects she makes at the Institute. Despite that, she doesn't feel as free as if she owned the car herself. First of all, she feels responsible on behalf of the car's owner, and then sharing the car with other people doesn't allow her to have it whenever she wants it.

Rules / Communication

From the beginning, there were no set rules about how to use the car, it became hard to know when the car was available or not. Each person has his/her own key and can use the car whenever he/she wants, without feeling the need to tell the rest of the group, especially if it's for short-distance trips.

Unfortunately this system does not always work. It happened she looked for the car in the parking lot and she couldn't find it. She found out later that someone was using it.

Another issue is the fuel and the maintenance of the car. Once after she had filled it up, she found the tank fairly empty, but she had not used the car. Thus she has decided she will only put the quantity of petrol she needs every time.

In addition, it's usually very hard to control the conditions of the car. Every time a problem arises the person using the car should take care of it, this may sound convenient, but it doesn't help a good management. If someone takes the car to the mechanic's, they all share the price for the repairs, but the effort and the burden of taking the car to the mechanic's is not shared.. Once she happened to feel uncomfortable , after she got to know someone else offered to take the car to be repaired.

Families of Active Children

"I'm happy to be committed and to show solidarity because my son is there"

Reciprocity-based Community

Ivrea is a small town, but this doesn't mean that everything is easy to reach there. Schools, gyms, amusement places as well as friends' houses are often located in different places, scattered in the centre, on the outskirts and in the neighbouring villages. These places can be reached by car, sometimes by bus, but public transport is not always convenient and not everyone has a car. Above all, letting children travel alone is often difficult, sometimes impossible, and parents have to get organised in order to take them where they need to go.

Extra-school activities usually take place in the afternoon, when most parents are at work, and they last from one to two hours. It's too much time to stay there and wait and not enough time to get back to one's tasks. These trips really break up your afternoon and sometimes they happen on precious Saturdays and Sundays.

In a family where there are several children, the trips are as many as the number of the children and getting organized can become hard and expensive, it could even be seen as extra-work.

There are some families living in the area of Banchette which manage to optimize trips by getting organised among themselves.
Each family has one or two children who are not the same age, between 6 and 13 years.
All the parents have a driving licence and each family owns at least one car.

Relationships
Two of these families live in the same building, the others in the neighbouring buildings and they all live within 200 metres away from each other.
The children belonging to the same age group are friends, sometimes they go to the same school or share the same classes. Since they are friends they often choose the same extra-school activities: two children attend the same theatre lab, two little girls go to the swimming pool together, a small group plays football in the same sports team.
The parents met at school. They cannot be considered as real friends, but it often happens that they respectively meet at their houses, at school, at the children's shows, etc...

Motivation
The fact that they all live close by can help coordinating the trips. When there are several children who need to be taken to the same activity, it's more convenient for the parents to take turns in driving their children and their children's friends, without having to take a longer road or taking a detour.

Rules
In these cases, one of the parents offers to take them while another one goes to pick them up. The same parent can perform both tasks, if he/she has something to do in the neighbourhood of the swimming pool, of the gym, etc... and he/she can wait until the children are done with their course.
If for a period of time, one of the parents is not totally available, because he/she is very busy, he/she can rely on the parents whose children do the same activities as his/hers. The best way to repay for that is to organize an afternoon snack or a lunch for the group of children, or in case there is a closer relationship, invite the parents for dinner.
When it comes to specific needs, the trips are organized according to the type of car each family has. For example, when there are the school shows, materials need to be carried. In this case, they use the most spacious cars for objects and the smaller ones for people.
The cost of traveling is not a problem at all, because everyone has his/her part and there is often a great rotation.
The community is neither fixed, nor self-sufficient. Each child has in fact friends outside his/her district and does activities together with other children.
This means that the parents alone are responsible for those trips or must get organized in a different way.
The closest relatives, especially grandparents, sometimes drive or walk their grandchildren. They rarely take other children, both because they don't feel like taking on this responsibility, and also because they want to make the most of their grandchildren's company.

Communication
The easiest way to get in touch and organize everything is using the fixed line phone. If something unexpected happens or there's a change in the schedule, they use the mobile phone. The families living in the same building usually go upstairs or downstairs and knock at their friends' doors.
The parents of some children attending the same school take turns in taking them to school and they communicate by phone rings. One ring in the morning from the accompanying parent means that it is time to leave home and meet in the courtyard.
The children don't have mobile phones, yet. At their age they don't really need a mobile and they don't even want it.

Many children communicate with their parents by leaving small notes for them. Sometimes they use post-it notes with the name of their friends living nearby written on it; if they go to their schoolmate's house they just put a post-it on the wall in the house hall.

In the Car

Children are happy to travel with their friends. Inside the car they behave as if the parents were not there; the children create their own world and adults are usually excluded from it.

They usually immediately cause a big confusion. They can't keep still, they take things from the boot, they jump on the seat, sometimes they fight or they have a punch-up, especially among brothers and sisters. They talk a lot to each other; they tell jokes they have often invented themselves and they laugh loudly. On the other hand, if they had a fight, they would sit one far away from the other and never speak to each other for the whole trip. This usually happens if there are only two children, but if there are more it's hard for them to be silent for too long.

One of their favourite activities is exchanging Magic and Pokemon cards. This game has difficult rules which adults hardly understand.

Some little girls love singing songs, or if there is a small table inside the car, they draw.

Since the journey is short and they usually drive through the same road, the view and what is happening outside the car is not very interesting to them.

Parents usually ask questions, but if there are friends, they can hardly have a conversation with the children. There is just one occasion when children can pay attention to adults and that is when an adult starts fighting with other drivers, they find it very amusing and it makes them laugh.

While talking to each other some parents found out that their children talked more with the other parents; in fact, children seem more likely to chat and talk about their day to other adults, but not to their own mum or dad.

The Zen Mother

She has two children and she likes to support their choices, allowing them to do the activities they prefer. Her children take ballet and theatre classes, they do sports and in the summer they go to a summer school.
Since she is a full time worker having someone whom she can rely on and who can sometimes take the children for their activities would is a great help.
When she is the driver she likes listening to the children chatting. She thinks dialogue is really important, but it is also often neglected at home because of TV, videogames, etc... while in the car children are more talkative, since there are no other distractions. She usually never interferes in the conversation, unless they are fighting or if she thinks the children have too extreme opinions about someone or something.
Taking other children or leaving hers with another parent is not a problem for her. She drives very carefully and she avoids taking needless risks, she wants her passengers to wear seatbelts and never to lean out of the window.

The Critical Mother

She is a full time worker and has two daughters, one is 7 and the other one 11. The youngest child is still not very busy: in the winter time she stays at school most of the day, and in the summer she spends her afternoons with her grandparents. However the eldest daughter does a lot of sports and that implies traveling and driving her around.
This mother is usually very busy with her work and so she can't always drive her and pick her up.
Whenever she can, she chooses those sports groups which organize traveling by bus, especially for long trips such as up to the mountains to go skiing. Anyway she often has to exchange lifts with other parents, despite that worries her a lot and she'd rather do without it. She is more worried about having to drive other people's children than leaving hers to be driven by someone else. She sees that as a too big responsibility and she feels her car insurance will not cover enough for that.

The Supportive Father

He has to children, 16 and 12, and since his wife's working hours are very flexible, he takes care of the children during their extra-school activities.
In order to reduce trips he has always pushed his children to do the same courses and to choose schools, sports and activities as close as possible to their home.
He encourages them to go alone whenever that is possible; it is important for the children to be independent and it's good to trust them and not be too anxious. Since the area has a quite good public transports system, for some years he has got them accustomed to traveling by bus to go to school and using the bicycle to go downtown, especially because one of the children is old enough to take care of the youngest brother.
However, he likes to drive them and pick them up when he is free, so he can spend some time with them.
On this occasion he also offers to drive the other children back, since they are his children's friends and he believes it's nice to have a good relationship with their parents. He has always been very committed on this issue, because he wants to optimize times and he also believes this is a form of solidarity.
Nevertheless he has also had some negative experiences. When his children attended nursery school and primary school, he and his wife both worked full time so they couldn't go and pick them up after school. Some parents offered to do that but the real problem was that there was no-one at home to stay with the children and they were still too young to be left alone. He insisted a lot with other parents trying to organize some after school activities at school, but he had to give up and hire a babysitter.

Elderly People

"I know that I could ask my neighbours to drive me where I have to go, but I don't want to feel a burden to anybody"

The Hidden Communities

In the last few years in the town centre several shops have closed because people prefer to go and buy in big supermarkets on the outskirts. In fact, they can get everything they need there at lower prices.
For the people who don't drive (or cannot drive), this means several discomforts. On one hand, the shops in the centre are few and expensive; on the other hand going to the big malls and supermarkets using public transports becomes very difficult, without even considering having to carry back all the shopping bags.
For the elderly, shopping habits have changed a lot because of this situation. For some of them the shopping mall has become a place where they can gather, besides going there for their daily shopping. Some others have resigned to buy in the local shops in their area. For some others food shopping has turned into a weekly event, linked to their family's and friends' availability because these are the people who drive them to the big malls outside town.

In Ivrea's locality there are two main shopping centres, both situated on the outskirts of the town. One is Bennet and it is next to a village called Pavone, not too far from the centre and very close to the freeway entrance. The people coming from the freeway and going to the centre of Ivrea and back have a perfect view from the freeway of the hypermarket and its parking lot. It's a huge building where you can find the supermarket and a big gallery with shops and some refreshment places.

Rules

Unlike some other shopping malls belonging to the same chain, Bennet in Ivrea has not a shuttle bus service for its customers. This happens because the area where the supermarket is connected to the centre of the town through public transports buses and the bus stop is roughly a hundred metres away from Bennet parking lot. Buses run more or less every half an hour and the municipality cannot have buses running more frequently because they reckon the number of customers using them is not so high to justify it because buses going to Bennet are mostly half full. The standard opening times of Bennet shopping malls is from nine in the morning to eight thirty in the evening, they are closed on Sundays. These malls are located on the outskirts and, just like the one in Ivrea, extend their opening time until ten pm for two days a week. This is a way to provide people who work during the day more time to get to the supermarket. Both the parking lot and the building were built to provide an easy access to handicapped people, too. There are reserved parking spaces and trolleys checkout counters and exits which can be used by wheel-chair users, and the staff are always ready to help those who are in need.

The Social Retired

In the morning the shopping mall is not very crowded, but the galleries are quite busy anyway. There are mothers with their children, housewives, but above all, elderly men and women. For many retired people living in the area the shopping mall has replaced the village or the town centre. They don't go out in Pavone or in Ivrea, they'd rather go for a walk inside the mall. The bar is their favourite place, they spend the morning there drinking coffee and chatting. They also often have a look at shop windows or they buy something from the supermarket.

Motivation
Most of these retired people can walk to Bennet and they are happy they don't have to drive to go to the centre. Even for those people who always drive everywhere and they live close by, the fact of coming to the mall gives them the chance to avoid traffic problems and looking for a parking space. Temperature is another positive element which they really appreciate: inside Bennet it is always quite warm in winter and nicely fresh in the summer, while going for a stroll in the village wouldn't be so easy and so comfortable. Everyone thinks the place is nice and pleasant; some people even think Bennet in Ivrea is a "posh resort", much cleaner and more elegant than the one in Acquiterme, for example.

Relationships
Lots of people come to the mall alone since they are pretty sure they will meet some acquaintances of theirs there. Going for food shopping is a good way to "escape" from your wife, this is what some old men say. Some others go there in twos, but once inside Bennet they part; each one stops and chats with different people, or usually the wife goes to do the shopping while the husband waits for her and chats with someone. For some elderly ladies who live in more remote areas coming to Bennet for their food shopping is a good way to escape their solitude and to meet a girlfriend.

Communication
These people don't usually plan their meetings in advance. They meet by chance, although they have informal understanding of when friends will be there, and this is what they like about the shopping mall. This place is just like the bar or the main square in a village where you know you will always meet someone, but you don't know who that person will be.

The One-day-per-week Shopper

He is an elderly man who lives alone on the outskirts of the town. He usually goes shopping on Saturday mornings when his son and daughter-in-law can drive him. They regularly go there on Saturday mornings anyway and so are happy to take him with them. He loves going with them, too, though sometimes he has to rush because they don't have much time and they are very quick in choosing what they need. His son and the wife usually have five or six full bags, while he just has one. He sometimes prefers to give his shopping list to his son while he waits for him sitting on the benches near the supermarket checkout counters. This is a good way to speed things up and he doesn't feel a burden to his family.
His son works on shifts and sometimes he has Wednesday mornings off, so he goes to the supermarket with his father. The elderly man finds this situation more relaxing; without his daughter-in-law everything can be done more calmly and they can even just spend time hanging out without buying. In fact, when they go there alone they spend most of the time in the hardware and gardening departments.

Motivation
If he could, he would love to go shopping every day to get fruits, vegetables and fresh bread. Moreover he likes to hang out with people. Unfortunately there are no shops close to his home and he cannot reach the supermarket by himself, so he is happy to go with his son, because he also helps him to check the change and the receipt. He doesn't trust his mind anymore.
To tell the truth, the car trip and the shopping at Bennet are very precious moments for him, since these are some rare occasions when he can spend time with his son. Sometimes they also invite him over for lunch and he stays at his son's house to take care of his grand-daughter while her parents are at work. He regrets he cannot take her out, but they can have fun staying indoors, too.

Relationships
It might happen that his son is away on holiday or, for some reasons, he is not free. In this case it is the son himself who calls some of his father's neighbours and asks them if they wouldn't mind driving him to the supermarket for his shopping or buying things for him. The neighbours would do that for him any time, but the elderly man never asks for it because he doesn't want to be a burden to them. He heard that some people just order their shopping on the phone and then they have it delivered at their houses. It could be an interesting solution, but he doesn't like the idea of opening his door to someone unknown, even if he is wearing the supermarket's uniform. That could also be too expensive.

Communication
He usually doesn't need to plan it with his son, because they always go for their shopping on Saturday mornings, more or less at the same time. He waits for them at home until they ring his doorbell. If they change their plans, his son will call him and let him know the night before.
His shopping list is always the same because he buys the same things one week after another. Sometimes he even leaves it in his son's car, on the dashboard or on to the seat, so he won't have to rewrite it again and he will already find it there for his next shopping.

The Excluded Customer

She is an old lady, with a clear mind, but she has some mobility problems. She fell a couple of times in the street and thus she no longer feels confident to go out alone.

Motivation

This lady is retired, so she has a lot of time, but not as much money available. Whenever possible she always tries to make the best of her purchases. She took her driving licence when she middle aged and she enjoyed driving. In fact, she used to go to all the supermarkets in the area almost every day, and in each one she used to buy the best quality-price product. She was always well-informed about special offers, discounts, promotions concerning every single supermarket and thus she could save money, besides being proud of herself and feeling helpful. She liked to share all this news with her children, who usually had no time and will to be busy with those things.
When she stopped driving she kept going to the closest supermarket to her house, where she could go by bus, but as time went by she had to stop doing that mostly because she could no longer carry her shopping bags.
Since she wanted to be able to live by herself, she had to hire a lady who lives with her and looks after her. Every day they both go for a walk in the neighbourhood, they stop to have a chat with the neighbours and for some shopping at the local shops. This lady helps her in her walking, she reads prices for her because they are written too small, and she carries the heavy stuff. However, she is not so happy with this kind of shopping, and above all, she keeps complaining because prices are too high and they keep going up. The food choice is too limited and they very rarely have special offers.

Relationships

Her grand-daughter lives close to Bennet and even though she is very busy she offers to do the shopping for her. The lady is happy that the grand-daughter is in charge of her things and she can get the most cumbersome stuff but she usually prefers to do her daily shopping herself. This happens because she doesn't trust her grand-daughter very much when it comes to choosing food and also because shopping for her is a reason to leave home and get busy somehow.

Communication

Sometimes a younger friend who still drives invites her to join her and go to the shopping mall, but she has only taken up the offer a couple of times so far. Her friend usually decides to go at the very last minute, so she calls her right before leaving home. On the other hand, she gets all her shopping organized during the week, sharing it between her grand-daughter and her morning's going out and when her friend calls her, she usually has everything she needs. In addition, going to the supermarket means she has to go through some preparations which need time: she needs to check what she's run out of, to think about a menu for every day of the following week and to write a list. She also has to dress and get ready what she needs to go out. Without those preparations going out would become useless.

Workshop

Day One + Day Two and
Five Ideas Explored

Workshop Participants

Fiat Auto - Centro Stile Fiat
Michael Robinson

Fiat Auto – Advanced Design Studio
Roberto Giolito, Salvatore Cacciatore, Lara Gareffa and Gabriele Cossu

Live|work – Service Design
Chris Downs, Ben Reason, James Gibson

City of Ivrea
Alberto Redolfi

Interaction Design Institute Ivrea
Simona Maschi, Michael Kieslinger, Silvia Rollino, Holly Coleman, Molly Steenson, Roberto Bolullo, Laura Polazzi, Dave Slocombe.

Innovation Workshop

An Innovation Workshop was held at Interaction Design Institute Ivrea on the 22nd and 23rd of July, 2003.
The goal of the workshop was to share knowledge and establish a common design language between Fiat Auto and the research team from Interaction Ivrea. It was a place for discussing existing case studies on mobility related services and for the participants to share their experiences working within the field of mobility. In this fun and productive two day workshop, a multidisciplinary group of attendees from Fiat Auto, Interaction Ivrea, Live|Work and the City of Ivrea created four scenarios for community car use, and in doing so, created a shared vision for the project.

The materials from the workshop including the key-ideas emerging from the design discussions have been collected in this booklet and on the project website.

Specific material was created for the workshop. The material daims to transfer the knowledge from the six week research to inform and inspire participants.
The material are a set of tools to analyses and understand the most representative case studies and to be inspired by real people and real world situations.

MULTI+

Day One + Day Two

Two Days

The innovation workshop consisted of two parts, knowledge sharing and concept generation. The aim of the first day was to share the knowledge created by the research and come to a common understanding of the language and general issues concerning mobility. The second day of the workshop involved the participants generating design solutions based on the interviews and discussing the possible design directions through working on service ecologies.

Day One: Analysis

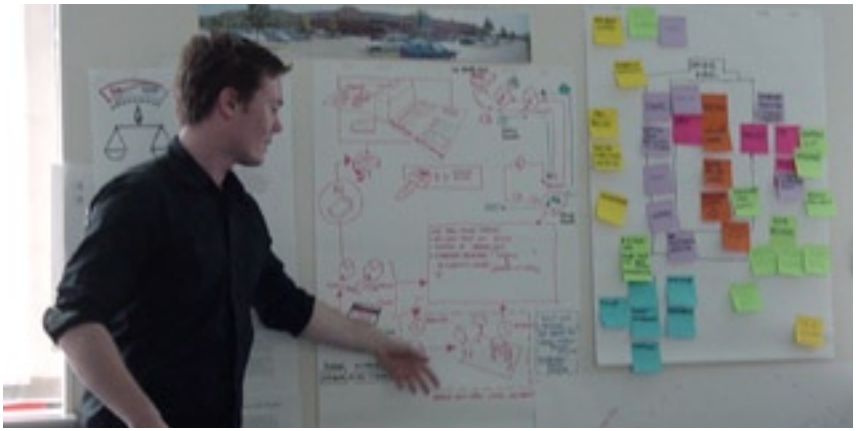
This day was divided into three stages. In the first stage the expectations and aims of the workshop were shared and a common understanding of the specific terminology relating to service design was reached. Also participants introduced themselves and explained their roles in the project.

The second stage was based on the desk research. The case study research process was introduced along with the knowledge maps the participants were going to use. Participants were split into six groups, one for each map, and were asked to discuss and identify the 'stakeholders', 'value exchange' and the 'value for Fiat' in the representative case studies. Lasting an hour and half, the brainstorming ended with each group making a presentation of their design directions based on the knowledge map. The third stage was based on the user experience research. The interview process was presented and participants were split in four different groups, one for each of the stories. Participants were asked to analyse the relevant 'stakeholders', 'value exchange' and the 'value for Fiat' in each of the stories. Each group presented their thoughts and design directions on the interviews. To close the day Michael Robinson made a summary of the different impressions and ideas that had arisen during the day.

Day Two: Concept Generation

On the second day participants were asked to continue with the groups from the day before and to continue working based on the previous day's work but with the aim of generating new concepts. The idea was to look for real solutions based on a specific context, the city of Ivrea. After three hours of brainstorming the groups presented their proposed solutions and design directions.

To close the session and the workshop impressions were exchanged between participants and key themes and directions were agreed for the next stage of the project.



Five Ideas Explored

Using the Knowledge Maps in the Workshop

Many design issues were explored by the six groups based on the case study research. One issue raised was the observation that the private sector has traditionally worked on a 'vehicle' scale, focusing on the business and design related to vehicles as industrial products while the Public sector has primarily worked at the infrastructure level on aspects related to large scale organisation or logistics. In a group discussion on the added value that services can provide two cornerstones to a successful service were agreed upon as being, trust and credibility. Different means of achieving of service credibility and consumer trust were discussed in particular how brand value can change or improve when the service goes wrong. Following this discussion it became clear how brands and especially brand fidelity is interrelated with product or service performance.

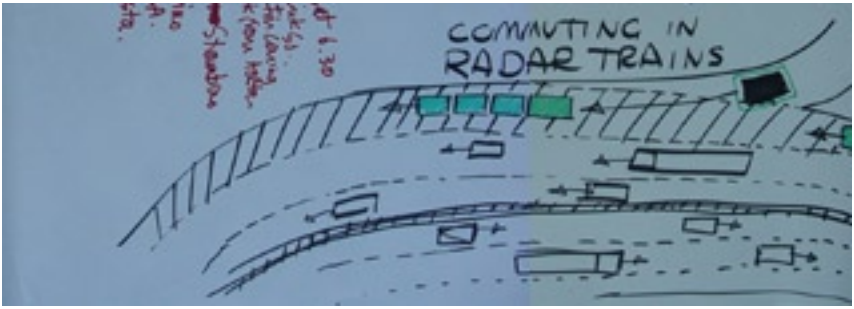
The use of emerging technologies to track people through different service structures and how this could lead to an emergence of smart, responsive environments was also a topic of discussion. The design of smart environments naturally includes the dangers of infringing personal privacy in an infrastructure that intrinsically tracks your behaviours and movements. The movement of values and multitask performance were also brought up in regards to the experience the user may have of the service. Community behaviours were discussed through their location, time and situation. The main issues were related to the task perfomance and the spontaneity of the task that the community was to perform.

How people define themselves through being a member of a community and in turn how they are defined through the community gave valuable insights into the interrelationships at play. Mobility services provide both individual and collective experiences and therefore need to support the subjective individual values aswell as community values and identities.

Freeway Commuters

This group explored design for spontaneity and how services can support this spontaneity. They suggested a service in which cars could exchange information about the user's preferences. In the exploration they recognised different relationships such as people-car, infrastructure-car or car-car and asked themselves how a car could identify and facilitate habits or support them.

Some of the questions they suggested to ask between cars were: Are you going to Ivrea? When are you going? Why are you going? Are you "one of us"? Are you coming back? Where are you from? These questions brought up the conflicting issues between convenience and privacy.

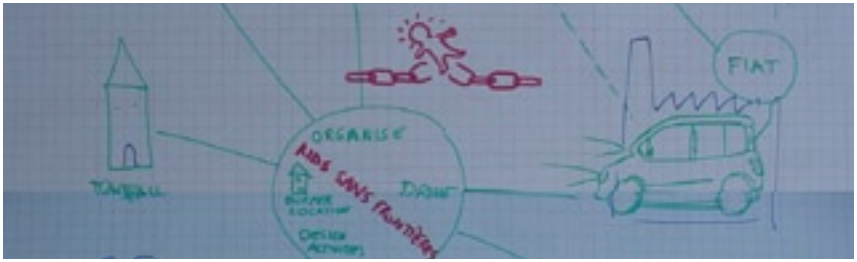


Foreigners in Ivrea

This group explored the different relationships between the students attending Interaction Ivrea, Fiat Auto and Fiat Car dealerships. They identified the IDII students as having sub groups with different types of communities, with international members and all of them being early technology adopters. They suggested that a possible service that provides the students with a car-sharing schema could benefit all actors. Students would have the opportunity to access a service that provides them with different cars in an easy and flexible way. To Fiat the service will be used by people that can provide them with specific feedback on the service and car design. The students could use 'prototype' in car telematics and service systems giving suggestions on improvements, perhaps even working on them as part of a collaborative academic project. Further to this the students could use the cars, donated by Fiat, as a platform for prototyping, developing and testing their own in car services, interfaces and devices. The value for Fiat would lie in the close relationship with a research institution and having access to the latest research in their domain of car, telematic and service design.

Parents of Active Children

This group also explored possible services related between children and the extra curricular activities they perform. The group proposed a service where the main 'actors' where the children and the trip or event organizers, which included teachers, who planned and ran the trips for the children. The different 'actors' included Town hall, brand sponsors, parents and grandparents, schools and Fiat. The town hall provided funding to the service to create community value, brands sponsoring different activites with materials (e.g. Nike provide shoes for football activities), grandparents support the fans club, schools provide the knowledge and Fiat provide the transport facilities. The activities that the service provided were: fixed activities (tennis, language classes etc), competitions and mobile activities. Mobile activities are a new kind of activities that could be develop through the trip or develop the activity in a outdoor space.
In discussion was the concept of a thematic car that allow children to explore a theme or activity while moving or parked in the context of the activity, one application was a 'star gazing' trip.



Elderly people

This group explored the relationship between elderly people that have restricted mobility and their going to shopping malls to shop and socialise. They explored the idea of how to design an interface in a mobility related service for elderly, mobility restrictive people and how it would evolve over time. They came up with a friendly approach to provide this type of user an easy way to access to the service. They proposed multiple touch points to the service that are designed to speak within the semiotic language of an older generation. One design was the paper wrapping on a loaf of bread to act as interface to the service i.e.The wrapper would have a service order form on it aswell as local community news content. The user could collect supermarket points and later use them to exchange for a lift to the supermarket. Another idea was a multipurpose vehicle that could deliver food in the morning, become a community market at lunch time and be a flexible transport in the afternoon and evening. This service would benefit elderly people needing transport, the supermarket through having more reliable business and the Fiat brand would benefit from creating more value for the community.

Service Explorations

Multi+ : Actors, Relationships, Scenarios, Access, Rules, Time, Sync and Network

Services operate in complex networks of people that use them, organisations that provide them and infrastructures that enable them. As designers, we need tools to help us deal with this complexity. In the following pages a service design language is introduced and put into practice through concept development based on the prior desk and field research.

In the first section 'Actors' we find that Actors can be people, such as customers, or groups of people in organizations but places and technologies can also be considered actors. From the map we can see which actors are most important in order to enable mobility services.
The diagrams called 'Relationships' allow actors to be associated into clusters. These clusters allow us to identify the 'enablers' for a service that could be designed for the clusters. This analysis is continued in the development of service scenarios in the 'Scenarios' diagrams.

The five key ideas that were developed further into scenarios and 'touchpoints' were, Access, Rules, Time, Sync and Network. Each of these concepts is demonstrated by a 'touchpoint', a design example of one aspect of the service that helps to communicate the service as a whole.

The five scenarios developed were used as the basis for creating the four final video scenarios.

MULTI Actors

Service Ecologies

This map shows the range of actors that have been taken into consideration in the area of mobility services. Actors can be people, such as customers, or groups of people in organisations. Time is an actor, represented by a calendar, as are places like a school or office. Technologies from keys to GPS can be considered as an actor as well as enablers such as cars and trains.

Multi+ Actors

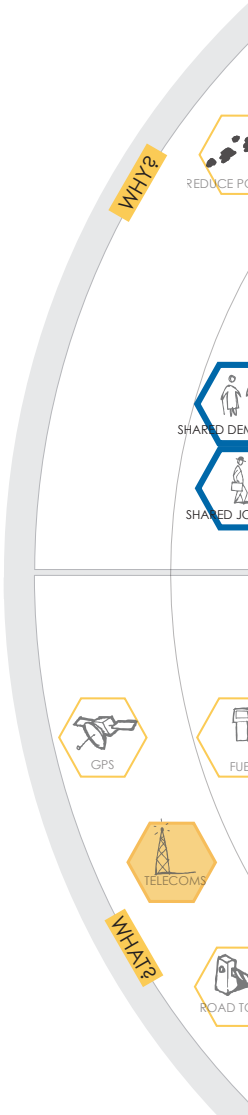
From this mapping we could see which actors are most important in order to enable mobility services, and how they relate to each other. This process reveals new opportunities and inspires new service ideas and broadens our understanding of the context that the service operates within.

The actors have been drawn from desk and field research and the IDII/FIAT workshop.

Multi+ Actors

ENABLERS

MOTIVATIONS



SCALE - MICRO TO MACRO

IN CAR

CAR - PASSENGERS

CAR - CAR

CAR -OTHERS

CAR - COMMUNITY

CAR - TRANSPORT SYSTEM

ACTOR SEGMENTATION

WHO - people & organisations

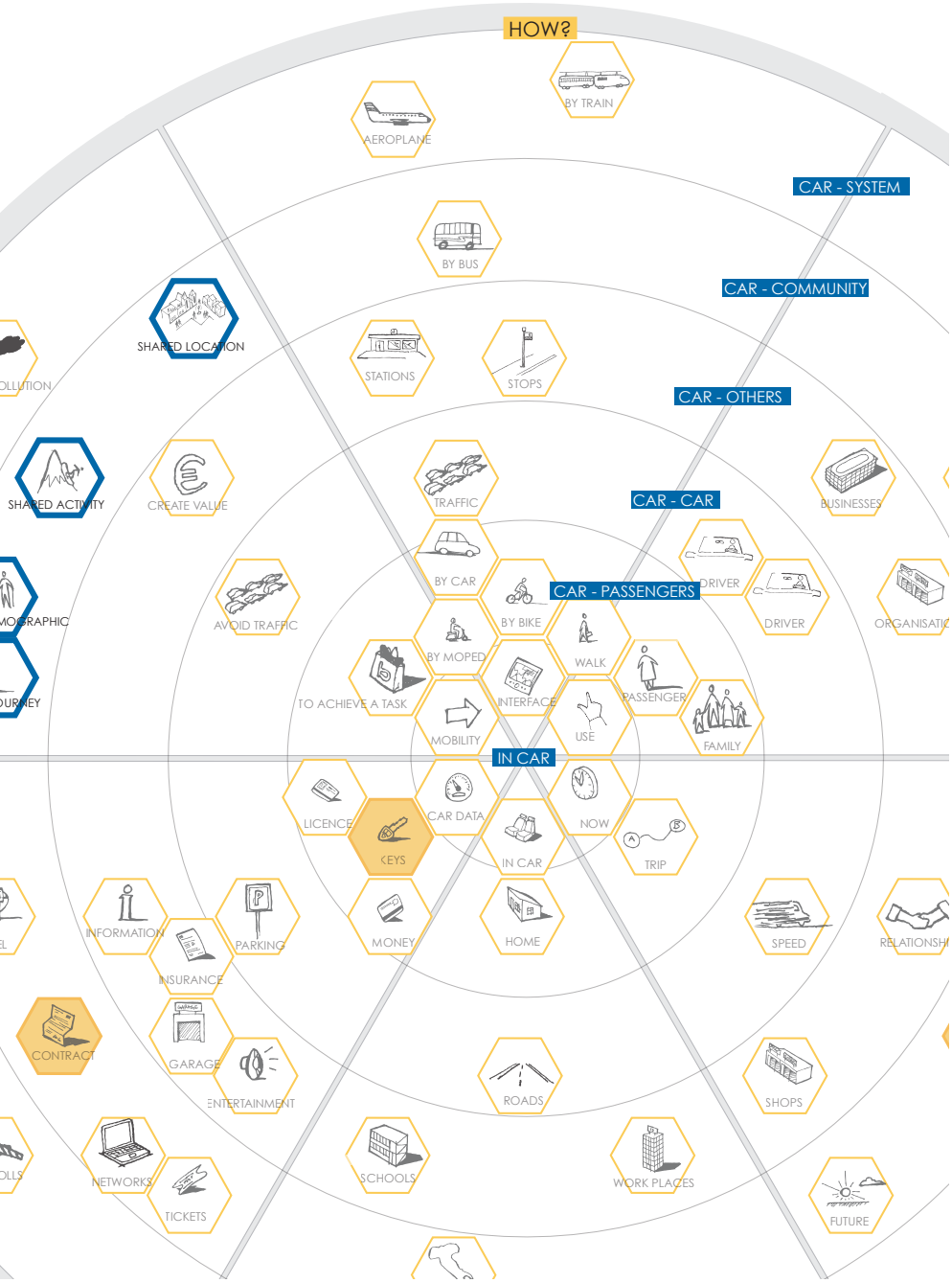
WHEN? - times and timing

WHERE? - location & place

WHAT? - enabling stuff

WHY? - motivations

HOW? - mode of mobility


HOW?
BY TRAIN
AEROPLANE
CAR - SYSTEM
BY BUS
CAR - COMMUNITY
SHARED LOCATION
STATIONS
STOPS
CAR - OTHERS
SHARED ACTIVITY
CREATE VALUE
TRAFFIC
CAR - CAR
BUSINESSES
BY CAR
DRIVER
DRIVER
AVOID TRAFFIC
BY BIKE
CAR - PASSENGERS
ORGANISATIC
BY MOPED
WALK
TO ACHIEVE A TASK
INTERFACE
PASSENGER
MOBILITY
USE
FAMILY
IN CAR
LICENCE
CAR DATA
NOW
KEYS
IN CAR
TRIP
INFORMATION
PARKING
MONEY
HOME
SPEED
INSURANCE
CONTRACT
GARAGE
ENTERTAINMENT
ROADS
SHOPS
NETWORKS
SCHOOLS
WORK PLACES
TICKETS
FUTURE

Relationships

These clusters identify enablers for the design of a community car.

These are community relationship issues dealing with how people share, coordinate, set rules and communicate.

By examining these relationships we end up with briefs for the details that need to be designed in the service. For example, we see that a shared calendar will enable a group of people to negotiate the use of a community car.

We can also pick out essential relationships that to detail further in scenarios.

Multi+ Relationships

IF A COMMUNITY SHARE CARS

BASED AROUND A ROUTE

THEN WHAT INFORMATION IS

USED TO SHEDULE THE JOURNEY?

IF A COMMUNITY SHARES MOBILITY

INFORMATION & COMMUNICATION

THEN WHAT IS THE NATURE THIS

FUTURE MOBILITY NETWORK?

IF A COMMUNITY SHARES A CAR

IN A PARTICULAR LOCATION

THEN WHAT ACCESS MECHANISM

DO THEY USE TO GET INTO THE CAR?

IF A COMMUNITY SHARE MOBILITY

BASED AROUND A DEMOGRAPHIC

THEN WHAT RULES MANAGE THE

COMMUNITY REALTIONSHIPS?

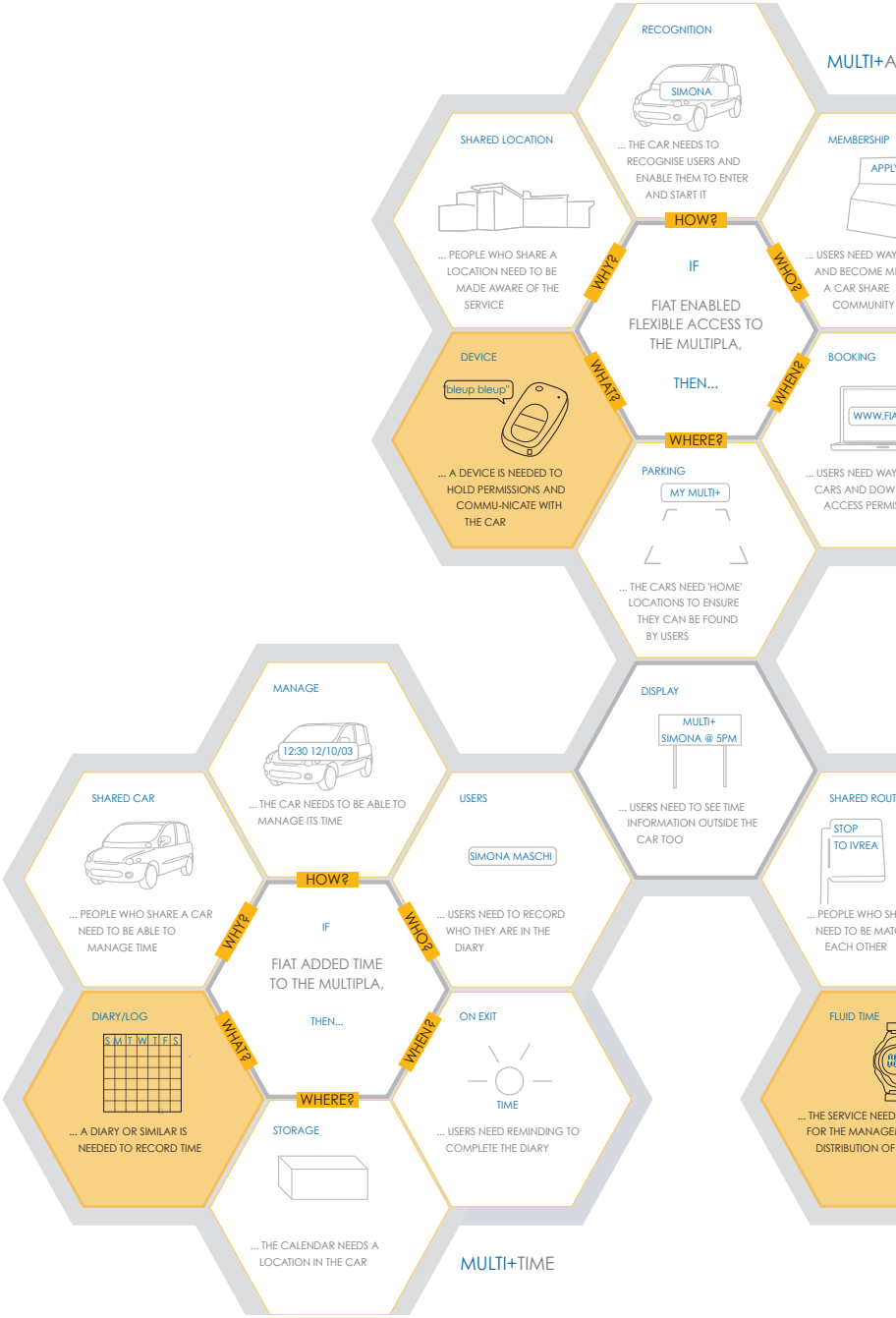
MULTI Scenarios

Building on relationships mapped out in the service ecology, scenarios enable us to envision how people might use a service over time, using different features in different settings. They also help us refine design features of particular service touch-points.

This diagram shows service scenarios designed to enable spontaneous community car use. It shows how the enablers identified could link together different scenarios of use to create more powerful service possibilities.

The enablers marked orange in this scenario map were developed further through detail design.
These touch-point designs convey the experience in detail of using Multi+ services.

Multi+ Scenarios




REMINDERS
CLEAN ME!
... THE CAR NEEDS TO REMIND USERS OF THE RULES AND GIVE THEN USEFUL DATA
MULTI+RULES
SHARED DEMOGRAPHIC
SEARCHING...
... PEOPLE WHO HAVE SIMILAR NEEDS NEED TO BE ABLE TO FIND EACH OTHERS
TOOLS
WWW.FIAT.IT
... USERS NEED WAYS TO CREATE AND COMMUNICATE THEIR OWN RULES
HOW?
IF
FIAT ATTACHED RULES TO THE MULTIPLA,
THEN...
WHY?
WHO?
WHAT?
WHEN?
WHERE?
LOG BOOK
2/10/03
... THE CAR NEEDS TO HAVE A RECORD OF THE RULES AND A USAGE LOG BOOK
RELATIONSHIPS
ciao Simona...
... USERS NEED TO BE ABLE TO BEND THE RULES PERSON TO PERSON
TIMING
S M T W T F S
... USERS NEED TO KNOW WHEN AND FOR HOW LONG THEY CAN BOOK
LOCATION
SCHOOL
... THE RULES NEED TO BE COMPATIBLE WITH THE EXISTING RULES OF A PLACE
CONNECTIVITY
WED 2ND NOV 2003
... THE CAR NEEDS TO HAVE A TIME INTERFACE
MULTI+COMMS
CONNECTIVITY
... THE CAR NEEDS TO HAVE AN INTERFACE WITH THE NETWORK
IDENTIFICATION
7989524798
... THE CAR NEEDS TO IDENTIFY DRIVERS & PASSENGERS
SHARED ACTIVITY
CONNECTING...
... PEOPLE WHO SHARE NETWORK ACTIVITIES NEED TO CONNECT
HOW?
IF
FIAT ADDED TIME TO THE MULTIPLA,
THEN...
PROTOCOL
IP
... THE CAR NEEDS A PROTOCOL TO CONNECT TO OTHER CARS ON THE NETWORK
HOW?
IF
FIAT ADDED NETWORK COMMUNICATIONS TO THE MULTIPLA,
THEN...
SYNCRONISATION
SYNC...
... THE SERVICE NEEDS TO SYNCRONISE SCHEDULES FROM MULTIPLE USERS
INFORMATION & COMMUNICATIONS
VODAFONE
... THE CAR NEEDS TO CONNECT WITH A COMMUNICATIONS NETWORK
WITHIN COVERAGE
WIFI
... THE CAR NEEDS TO BE WITHIN RANGE OF THE NETWORK THAT IT IS USING
ON ROUTE
A5
TORINO 45
... THE CAR NEEDS TO COMMUNICATE ITS LOCATION AND DIRECTION
MULTI+SYNC

Access

Dynamic access

If cars have multiple users and these users change over time then the traditional two sets of keys is not a flexible enough access mechanism.

This image shows a web interface to manage access to a car. Permissions would be downloaded onto a 'key' that would then unlock one or many cars.

Taking inspiration from mobile phones each users can personalise their 'key' with tones that sound as the car unlocks. these tones could be shared by a group of users as a share identity element.

Multi+ Access

IF THE MULTIPLA BECOMES A COMMUNITY VEHICLE

THEN PERHAPS USERS COULD PERSONALISE THEIR ACCESS DEVICES


Window Help
Tue 1:19 PM
access2.jpg
Google
Investor Relations
Company Profile
MULTI+ TONES
Latest 10 Ringtones
Knight Rider Riddim
Bonnie and Clyde
Baby I Got Your Mon..
No Scrubs
Summertime
Bodyguard
Right Thurr
Pimp (P.I.M.P.)
In These Jeans
Hollywood
SHARE ACCESS TONE
MULTI+ ACCESS
FIAT

MULTI+ Rules

Community rules

If communities share cars then there need to be rules of use. What is an acceptable condition to return the car? Do I get penalised for returning the car late?

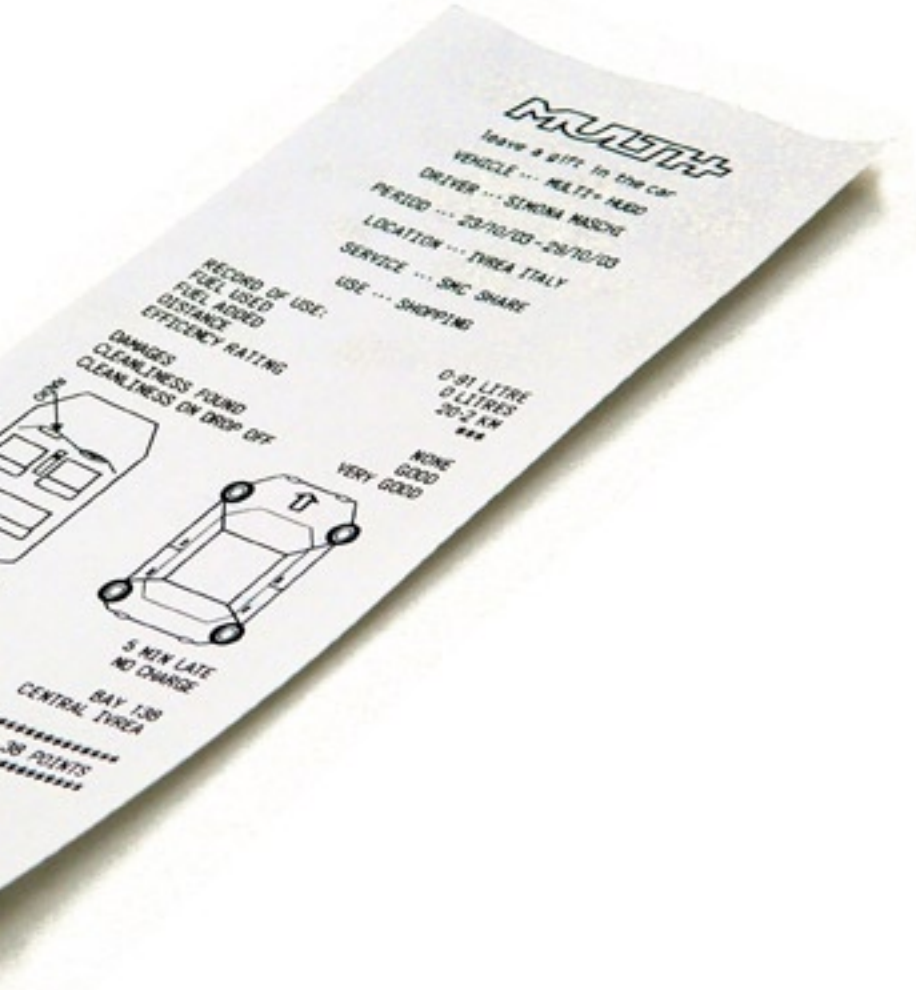
This image shows a reciept for a journey that is printed in the car and kept on record for the service provider and the user. It details the period of use and includes space for a more poetic rule that users must leave a gift for the next user in the car.

Perhaps communities would want to develop specific rules to their character.

Multi+ Rules

IF THE MULTIPLA IS USED AS A SERVICE VEHICLE

THEN THERE NEEDS TO BE A MECHANISM FOR ESTABLISHING AND RECORDING RULES.


MULTI+
leave a gift in the car
VEHICLE ... MULTI+ HA02
DRIVER ... SIMONA MASCHI
PERIOD ... 23/10/03 - 26/10/03
LOCATION ... TYREA ITALY
SERVICE ... SMC SHARE
USE ... SHOPPING
RECORD OF USE:
FUEL USED
FUEL ADDED
DISTANCE
EFFICIENCY RATING
DAMAGES
CLEANLINESS FOUND
CLEANLINESS ON DROP OFF
0.91 LITRE
0 LITRES
20.2 KM
NONE
GOOD
VERY GOOD
5 MIN LATE
NO CHARGE
BAY 138
CENTRAL TYREA
38 POINTS

MULTI+ Time

Sharing time

If a car is shared then we need to keep track of its use. The most simple way to do this is to attach a calendar is to the car (drawn on the window). This calendar enables multiple users to view bookings for the car at the point of use.

This demonstrates the most simple way to augment a car to become a community car.

Perhaps there is a limit to the ammount of time I can book within a given period.

Perhaps there is a record of the past as well as the future - the calendar becomes a momoir.

Multi+ Time

IF THE MULTIPLA IS SHARED BY PEOPLE

THEN THEY NEED SOME WAY TO RECORD WHO IS USING IT WHEN.


WED
THUR
FRI
SAT
SUN
CHRIS
BEN
BEN

MULTI Sync

Syncronisation with networks

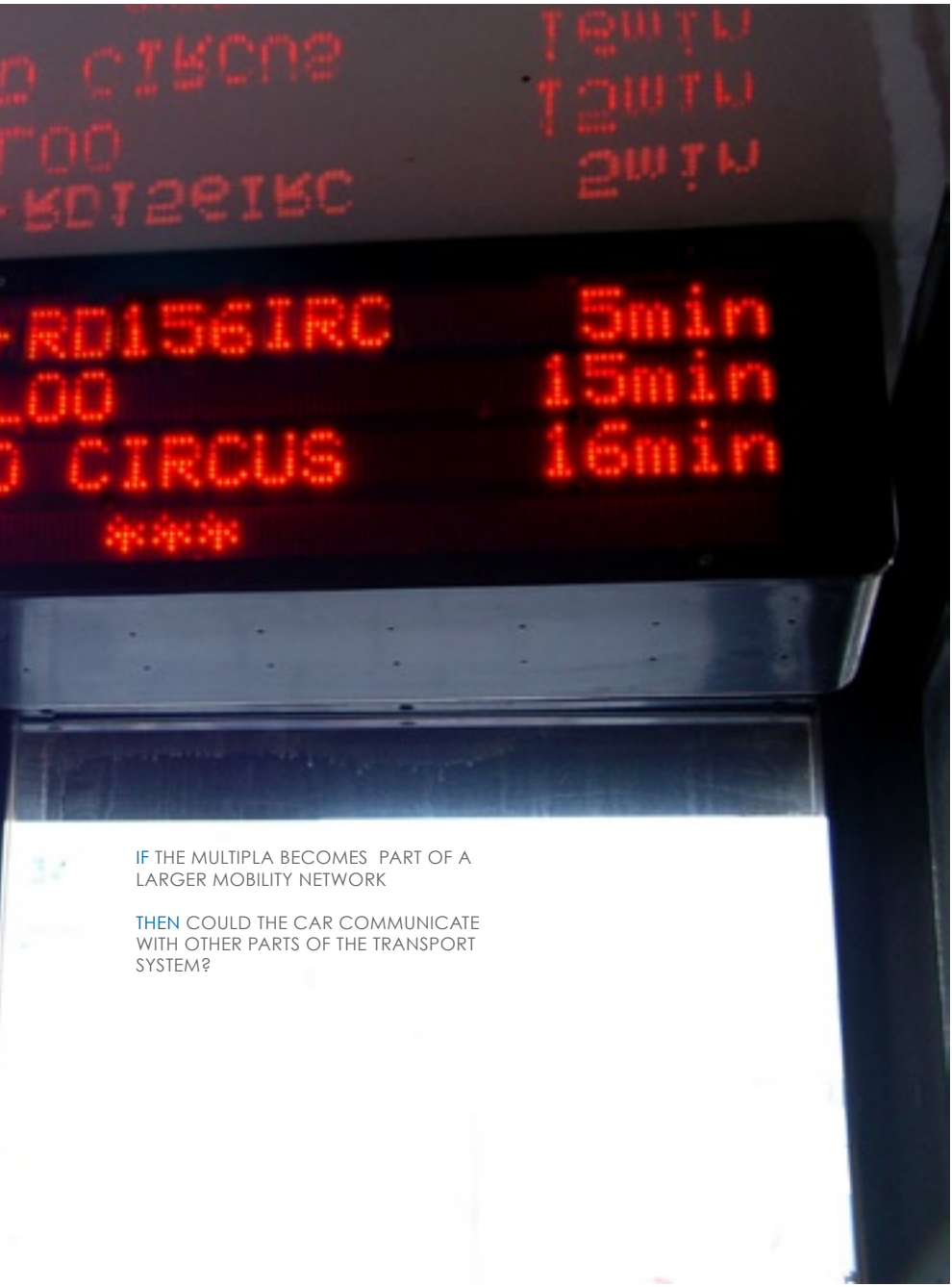
This image shows a private car identified by its registration number, appearing on a bus schedule implying that the car is open for some kind of ride share with passengers waiting at the bus stop.

This suggests that data from the car is syncronising with the bus information system.

Perhaps the driver is complementing on over-loaded public transport system?

Perhaps passengers are able to notify the car that they are waiting?

Multi+ Sync



IF THE MULTIPLA BECOMES PART OF A LARGER MOBILITY NETWORK

THEN COULD THE CAR COMMUNICATE WITH OTHER PARTS OF THE TRANSPORT SYSTEM?

Network

Communication services

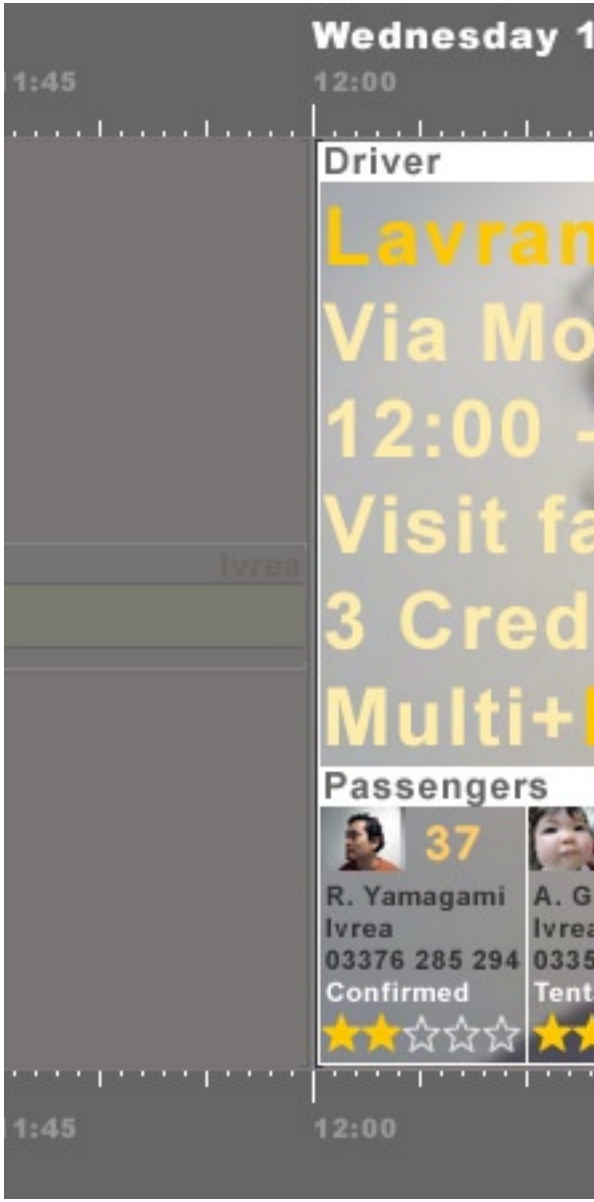
If network connectivity is added to the car it becomes a network device like a PC or a mobile phone. What kind of operating system would be deployed on such a device and how would the interface enable access to mobility related services?

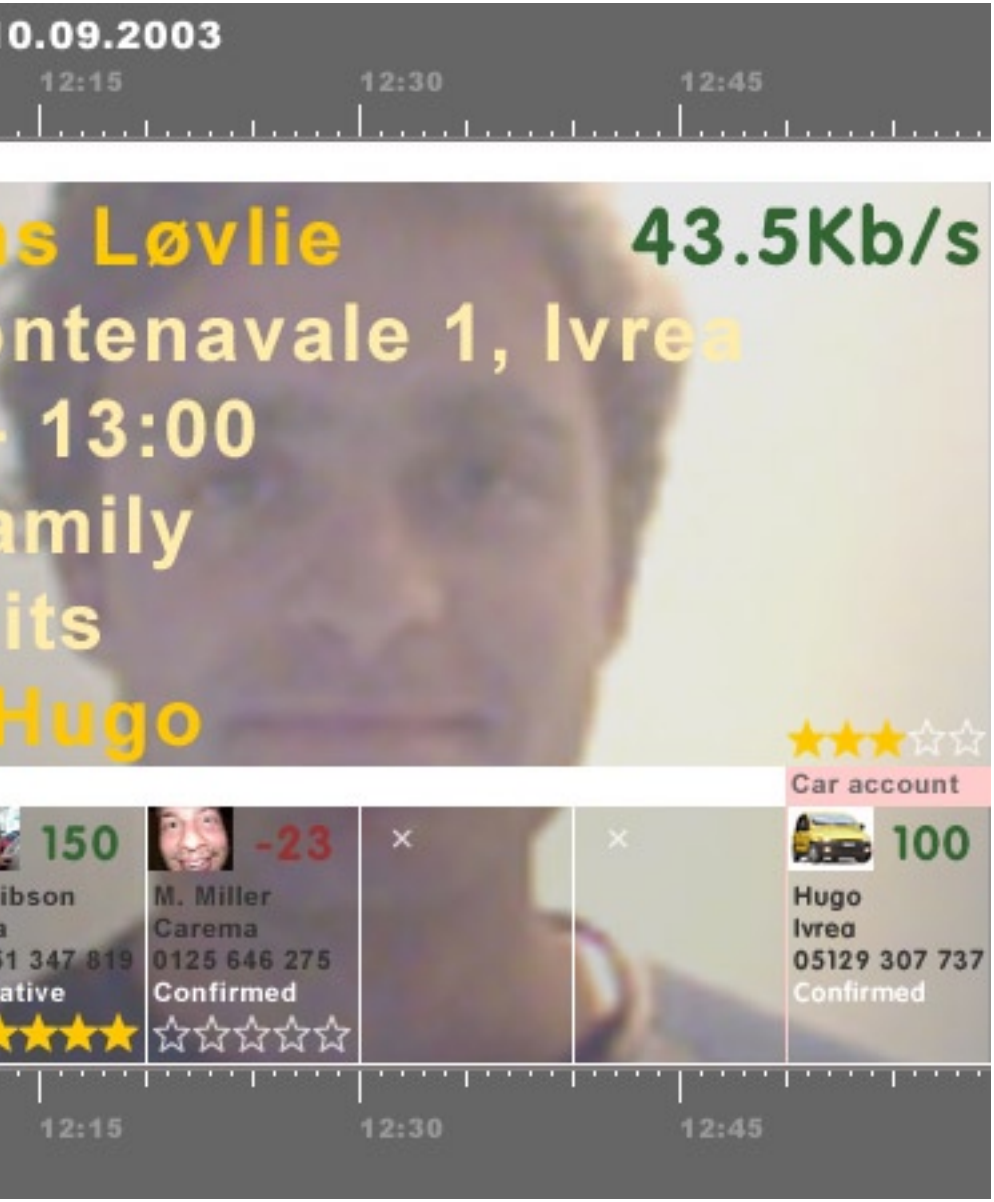
This image shows a screen interface that serves as a access point to to mobility services such as toll roads and suggests that a number of disperate services could come together around an individual user.

Multi+ Network

IF THE MULTIPLA BECOMES A COMMUNICATIONS DEVICE

THEN COMMUNICATIONS WILL NEED TO BE REPRESENTED IN THE CAR

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Brainstorm Sketches

In Car, Car+Passengers, Car+Car,
Car+Others, Car+Community and
Car+Transport System

MICRO TO MACRO

In the following pages are brainstorm sketches organised according to a scale from micro ,in car, to macro, a car in relation to a transport system. The brainstorm sketches and following sections on service ecologies were developed by Chris Downs, Ben Reason and James Gibson for Live | Work, a service design consultancy based in london. in collaboration with Dave Slocombe.

In Car
Looks at the possible implications of service ideas on the experience in the car.

Car+Passengers
Explores the relationship between the car and the wider context of the people who use it.

Car+Car
Focuses on potential interactions between cars and between passengers in different cars.

Car+Others
Addresses the possibilities for a car to interact with people and organisations other than its immediate passengers (e.g. breakdown recovery services).

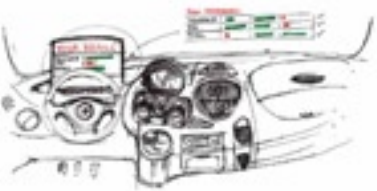
Car+Community
As our starting point this identifies a car in relation to a community rather than to an owner and examines how the car might relate to the whole community.

Car+Transport System
Recognises that the car is only one option for mobility and looks into the synergies between cars and other ways of getting about as well as large systems issues.

In Car

Sync

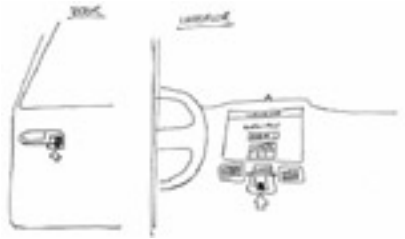
Pop Up Key



Responsible Citizen

Journey Insurance (pay as you go)

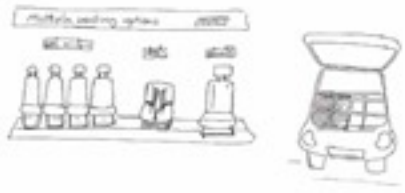
Flexible Lids



In-built Card Reader

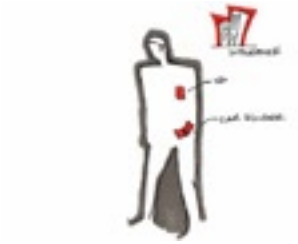
Programmable Brake Lights

Intelligent Hazards

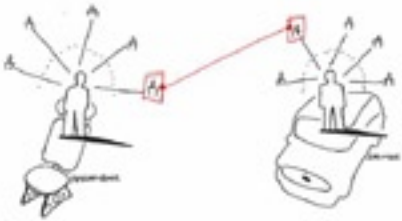


Flexible Interiors

Car + Passengers



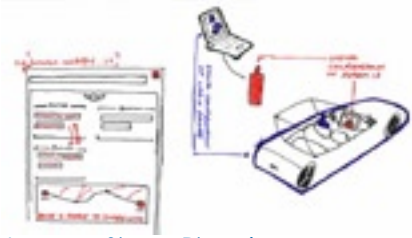
Professional Passenger Tools



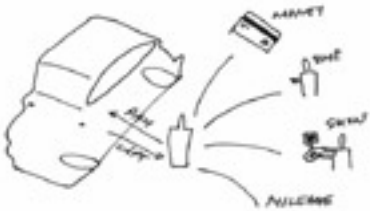
Friends & Family Network Share

Fuel Bill

Log Passengers



Journey Share Planning

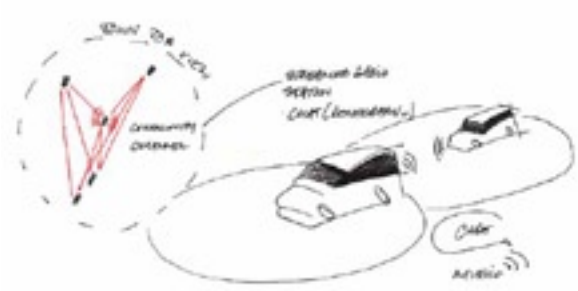


Ways to Pay for a Ride

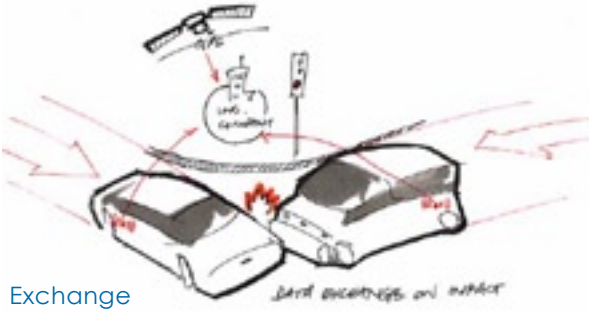
Admin Tools

Lifecycle Design

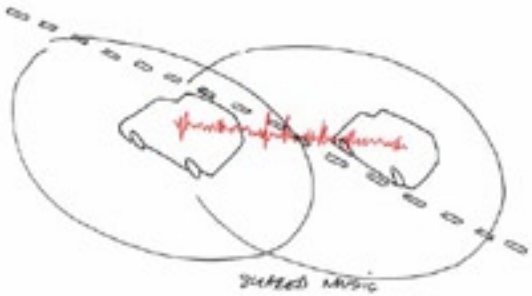
Car + Car



P2P Channels



Auto Insurance Detail Exchange

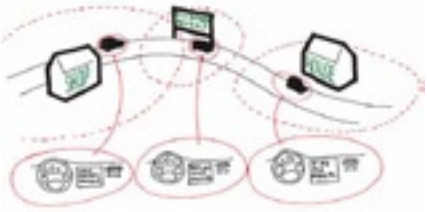


Audio Sharing

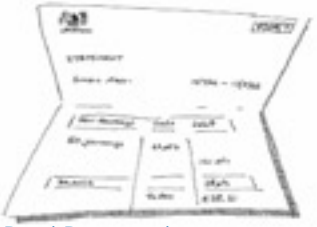
Car + Others

Fiat Vodafone

Service Envy



Leaky Cars



Car Pool Payment

Dynamic Parking

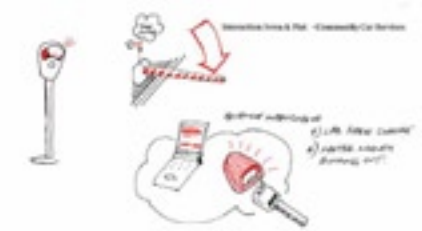
Car Share Rule Set

Community Car Ports

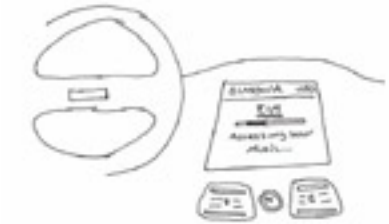
Where's my Nearest?

Car Share in-Car

Car + Community



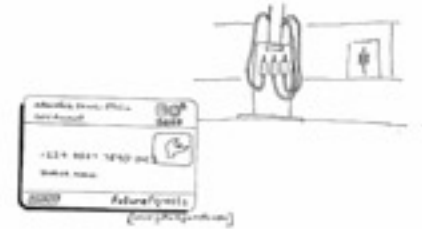
Parking Warnings



My Music

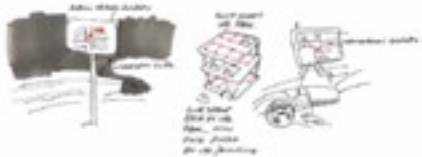
Wi-Fi Accesses

Pre-Reserved Spaces

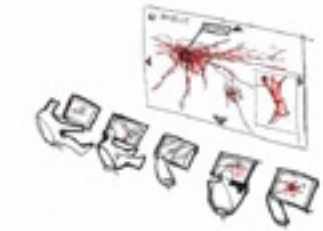


Visible Consumption

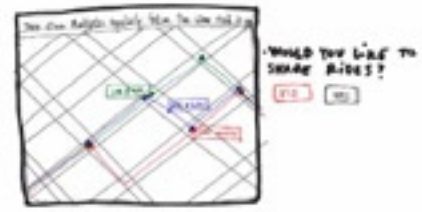
Eco Competition



Space Finder



Fiat Car Monitoring



Invisible Community

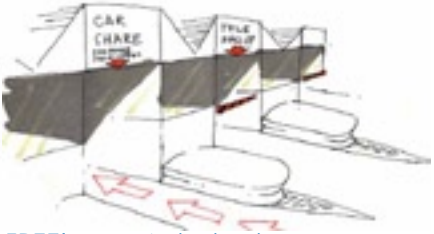
Car + Transport System

Rewarded Mobility

Card of Cards

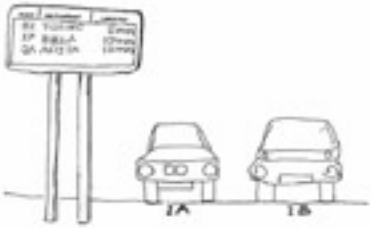
Route Sharing Optimisation

Integrating Travel

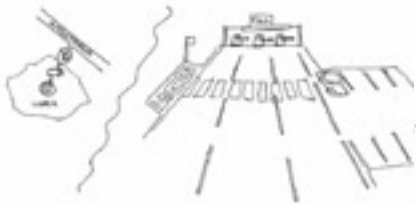


FREE'way - Autostrada

Alternatives



Parking as Mobility Station



Park & Ride meets Car Share

Taxi Share

Four Scenarios

Event Shared Multi+
Private Shared Multi+
Small Business Multi+
Large Business Multi+

Four video scenarios were created to be considered as rich, motivation based, design briefs. They each offer different insights into the research and provide a diverse range of 'design spaces' based around the motivations of the users or customers. They address the question of " How do new mobility services impact the design of the car" with a variety of different approaches.

The language of the designs or 'touchpoints' featured in the videos were created primarily to show each individual 'touchpoint' and to make its presence clear.
We show them in this way so that they can be considered a 'design space', possibly a brief for future development, and not as a fully designed product. You will notice that in each of the videos that wherever there is a 'design space' it is shown in the same graphical style of white and blue. We designed the role of the 'touchpoints' within the communities and how they allow new access to mobility and personalisation services. The natural future development of these 'touchpoints' would be to iterate them through traditional product and interaction design.

Event

Shared Multi+

This scenario suggests possible design spaces within the context of an 'Event shared' car. An 'Event Shared' car could be a service that is available to people wanting to travel to and from events. Short term events such as transport to an evening concert or even long term events such as the Olympics could be considered. Suggested design spaces include in car 'event themed' navigation systems to interactive public displays allowing communities to book the cars and also to serve as a notice board. The notion of extending the cars presence, functionality and role to outside of the confines of the physical vehicle itself using networks suggests the need for car producers to investigate possible partners to enable the provision of these services. Content provision, network and infrastructure management, customer sales/ service and integration with existing infrastructures are necessary considerations for the design of service enabled cars.

This scenario suggests possible ways we can answer the following questions:

How do new mobility services integrate with 'legacy' service systems such as hotel management?

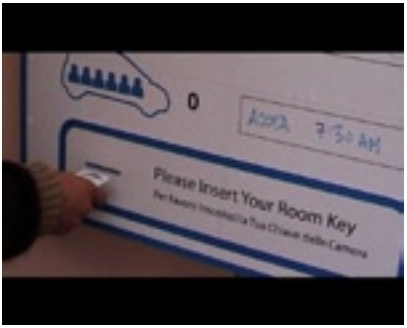
What level of personalisation and customisation can be available to even a low involvement customer, such as a hotel guest?

How can we facilitate the growth of new communities where the car acts as a meeting place?

How can ad-hoc services be integrated with fixed systems for delivering in-car and related content?

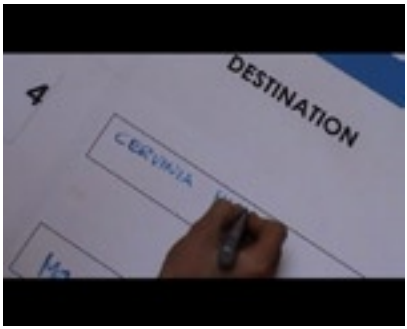
[1]
A young couple are staying in Hotel in the Winter Olympics 2004 resort. In the lobby of the Hotel they are checking the listings on a public 'car sharing' display. The display is showing them that the hotel has three cars that their guests can share. Two of the cars have been booked but have free spaces.

[2]
They decide to book the car that is empty as they would like to go to a different destination to where the other cars are going. They select two car spaces.



[3]
The display requests that they insert their room key.

[4]
Using the room key to book allows the car to be payed for with the same bill as the room. The display confirms their seats are booked by showing icons of two people in the car. The display also shows how many empty seats are remaining.

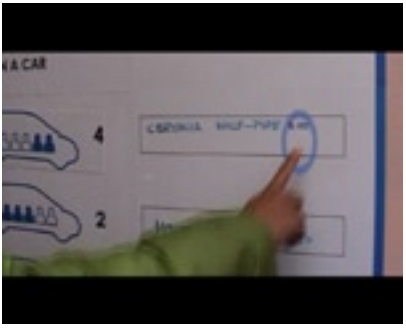


[5]
They write down their destination.

[6]
Once the booking is completed the display asks them to pick up the car key from reception.

[7]
The receptionist gives them the car key.

[8]
Later in the same day a couple walk into reception, they know about the car sharing service and ask if there are any cars free



[9]
The couple see that all of the cars are booked but would like to go to one of the destinations that is on offer. They select the destination.

[10]
They insert their room key. This allows the cost of the car to be shared between the all of the users of the car.

[11]
Their booking is represented by two more space filling up in the car icon.

[12]
The display shows them a departure time and asks them to meet the people they will be sharing with by the 'car sharing' display.

[13]
The next day the two couples meet each other in the lobby by the display.

[14]
They chat exitedly about the day ahead and agree who should drive.

[15]
One feature of the shared car is a display that is mounted inside the rear windscreen. As a group activity they can choose to write messages and have them displayed on it. When it is not displaying a personal message the screen is updated with Olympic event results.

[16]
On the dashboard of the car is the navigation system. The navigation interface is 'thematic' which means the users can find directions by selecting events as opposed to selecting the destination by street and town.

[17]
The group decide they would like to see the snowboarding events of the day.

[18]
They are offered the two events of the day and they select the 'Men's Downhill Finals'.

[19]
The display presents the directions to the event based on the current location and direction of the car.

[20]
(In the video) We see television footage of the Olympic event that the group are watching on the mountain slopes.

[21]
(In the video) We see television footage of a snowboarder winning the Gold Medal.

[22]
The group cheer the snowboarder on together.

[23]
The next day the two couples are out shopping together when one of them receives a mobile phone message inviting them to a party in the evening to celebrate the snowboarder winning the gold medal.

Private

Shared Multi+

This scenario suggests possible design spaces within the context of a 'Private Shared' car. A 'Private Shared' car is one that could be a privately owned vehicle that is lent out to a friend or relative on an infrequent basis. This scenario identifies the need for flexibility in the use of even personal vehicles as it is a common occurrance that a friend or relative that doesn't own a car, needs to use one for a particular trip such as shopping. Existing insurance and car access schemes make sharing a car a laborious and time consuming task. The 'Lend A Friend' community is one that could be based around the building or street in which you live, allowing for trust relationships to be formed as the sharers have a common location. The service allows for one simple 'touchpoint' to manage the task of transferring access to a friend for a period of time. Access control, Insurance and even personalisation features can be managed by this service.

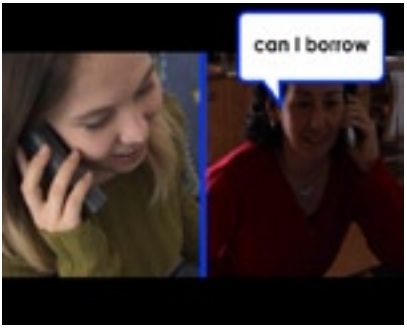
This scenario suggests possible ways we can answer the following questions:

How can we personalise a vehicle we don't own?
How can a mass production car be shared between multiple users?
Can a car support the informal family and friend relationships that so often incude the car as an enabler?

private shared

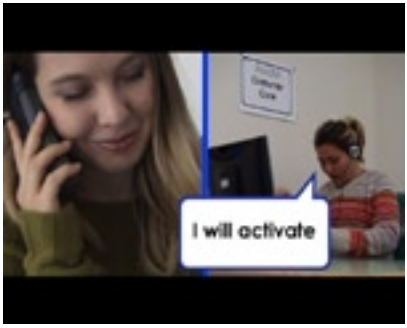
MULTI+

[1]
A poster displayed on a noticeboard outside of an apartment building reads " This Building is a Memebr of the 'Lend A Friend' Community"



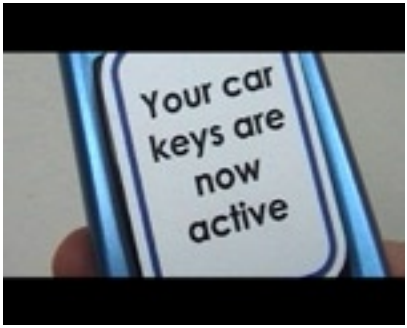
[2]
Lisa, a young mother receives a phone call from a friend that lives in the same building. Her friend asks if she can borrow Lisa's car for the weekend.

[3]
Lisa told he friend that the car was free and says that she will make a quick phone call to the 'Lend Your Car' service. Lisa takes out her car keys and reads a number off from the keyring and types it into her phone.



[4]
An operator from the service takes her call. Lisa asks if she could lend her friend her car for the weekend. The operator replies by saying that she will '…"activate her friends key immediately"

[5]
In her friends house a mobile phone message is received.



[6]
The message reads " Your car keys are now activated"

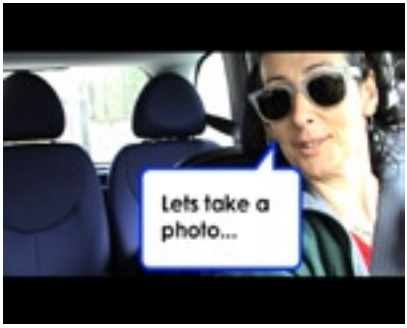
[7]
On the kitchen table her car key starts to glow with a blue light to indicate that it is active.

[8]
The friend calls her son who rushes in and grabs the keyring. He dashes out of the door and down to the car excitedly.

[9]
He points the key at the car and presses the 'open doors' button. (in the video the image is paused) We see some graphics that describe the "Play safe Mode". This mode is active when a achild opens the car doors, it allows the child to play inside the car without the danger of them starting the engine or taking off the handbrake.

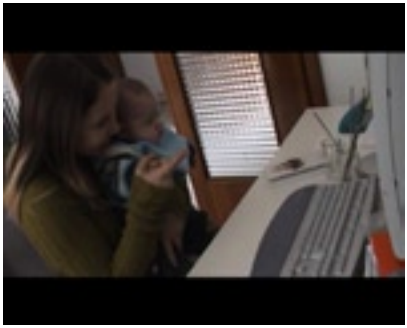
[10]
When the boys mother enters the car the mode automatically changes from "Play Safe Mode" to "Drive Mode".

[11]
From inside the car as it is travelling we see the young boy drawing on the window.

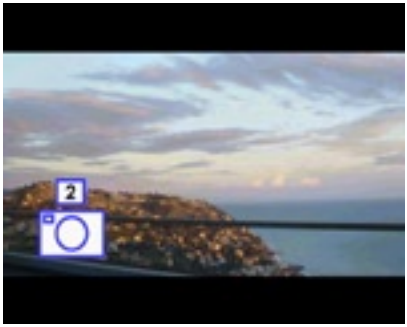


[12]
While stopped at the traffic lights his mother suggests that they could take a photograph and send it to Lisa.

[13]
They both smile and their picture is taken. The picture is automatically send to Lisa's computer.



[14]
In Lisa's apartment we see her and her baby looking at the photo on her computer.



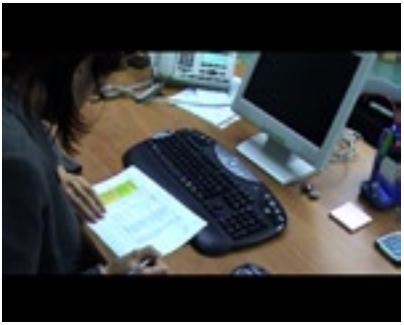
[15]
During the weekend her friend is away Lisa receives more photos.

Small Business

Multi+

This scenario suggests possible design spaces within the context of a 'Small Business' shared car. It is common for small businesses to own a company car but it is usually the case that it is a standard car with no extra 'business enabling' features. This scenario suggests that a simple 'Small Business Service' could be bought along with the vehicle to enable the simple set up of the basic functions of a car sharing system. These basic components are Access, Rules and Communications. The usability of the car is no longer limited to how comfortable or safe it is to drive but now asks the following questions to the car design world, some of which we address in the scenario,

How does the company car enable me to set and enforce rules (cleanliness, refilling with fuel, repair procedure) with close collegues without causing bad feelings in a working relationship?
How does the company car enable a swift set up of the car sharing system?
Is there a simple, flexible and reliable car access for multiple users, that can be set up by an average user?



[1]
Anne is the managing director of an eight person design consultancy.

[2]
She has just bought a new company car with the 'Multi+ Small Business Service'.

[3]
She opens the software that comes with it.

[4]
The software takes her through the different set up procedures. The first step is to set up the 'Booking Software'.

[5]
She remembers when she used to 'look after the car keys'. When deadlines were looming her employees would constantly argue over who needs the car the most. Simply because she had the keys she was expected to decide and always had to let someone down even though it was not her fault.

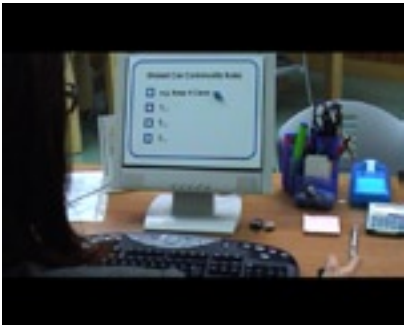
[6]
The second step of setting up the software was to customise it with a 'Weekend and Holiday' booking scheme'.

[7]
She particularly likes this option as it always bothered her that such an expensive car would be left not used for long periods of time during the holidays. She would much rather the employees could get the most out of the company car, with the new booking option they can.

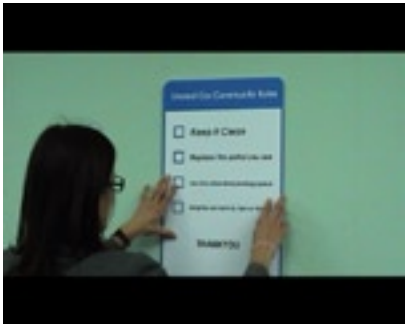
[8]
In the service kit she finds the key to the car. The car showroom customised the keys with her company logo as an option when she bought it. The reverse of the key has her name on it. She is expecting the delivery of the extra keys she ordered within the next few days, a personalised key for each employee. The added feature of these keys is that they can only open the car when it has been booked using the software.

[9]
This makes her think of the times she really needed to use the car but someone would have taken it without asking her because they had the spare key...

[10]
And it would always seem to be the same person!



[11]
One important feature of the new software is that it lets her create simple rules to communicate what is acceptable and not acceptable use of the car.



[12]
She can create posters, booklets and stickers with her simple rules on.

[13]
One issue that would annoy many people in the company was who should clean the car. Now there is a 'peer rating' system. When you enter the car the dashboard asks you how clean the last person left the car. Its amusingly called the 'Cleanometer'!

[14]
When (as often happens) her collegue Adriano leaves it in a mess she gives him a 'Zero' for cleanliness. If he gets too many low cleanliness ratings the car emails him telling him to clean it otherwise it wont let him in!

[15]
This system seems to work as now and again she sees Adriano cleaning the car on a Friday night, which would never

Large Business

Multi+

This scenario suggests possible design spaces within the context of a 'Large Business' shared car. It is common for large businesses to own a fleet of company cars but it is usually the case that it is a standard car with no extra 'business enabling' features. With the increase of 'productivity' tools for the worksplace coming in the form of information and networking technologies, we examined the motivations behind the users of these tools should the company car be considered a mobile workspace.

This scenario suggests possible ways we can answer the following questions:

Would employees embrace time efficiency technologies (which is good for the company) if the system or service enables them to be rewarded with more free time, making personal activities and interests acceptable in a work environment?

Can the car be considered as a 'personal device' much as a laptop or mobile phone? If so how does the car manifest itself on your PC or mobile phone?

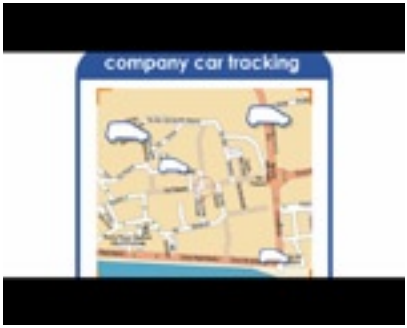
What would the car connect to if it was networked and what new services are enabled?

[1]
The movie begins with an alarm clock going off and 'Antonio' getting ready for a day at work.

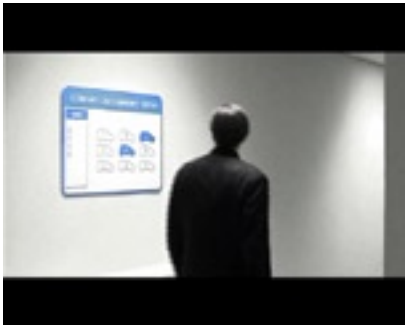
[2]
He disembarks from a train on the way to work.

[3]
As he leaves the train station a car pulls up and the door opens. He steps inside and they drive away.

[4]
Each of the passengers and the driver are listening to personal music or radio channels.



[5]
We see an image of a computer screen that displays many cars positions being tracked. We get the impression that Antonio's car is not the only car on the way to the office.

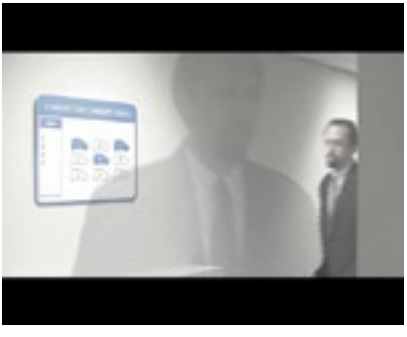


[6]
When Antonio arrives at the office he walks past a ' Company Community Car Display'. We see that an icon that was previously blank becomes blue when he walks past the screen, signifying that he has arrived.

[7]
At Antonio's desk we see him working. A message arrives at his computer coming from a community car asking if he will confirm his presence at at meeting on the same day. He confirms 'Yes'.

[8]
Antonio opens a file on his computer.

[9]
We see him using a menu to send the file to a community car.



[10]
As Antonio passes the display in the corridor on the way out we see his car icon become blank again, signifying his absence.

[11]
On leaving the building a car is already waiting for him.

[12]
In the back of the car on the way to the meeting we see Antonio and a collegue discussing some work on an in-car screen.

[13]
The car stops in a petrol station and fills up with petrol. We see that the whole fill-up only took one minute.

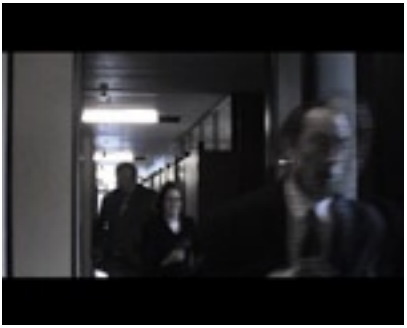
[14]
Antonio and his colleagues enter a large office complex.

[15]
Antonio shakes hands with the client.

[16]
He makes his presentation to the client that lasts only a couple of minutes.

[17]
After the presentation the client goes to shake Antonios hand when an Alarm rings loudly.

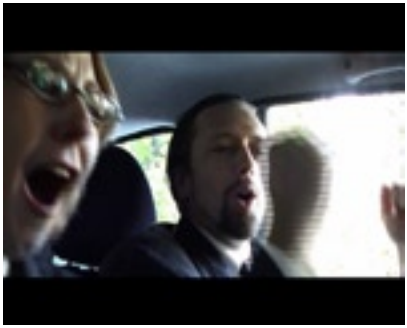
[18]
Antonio reaches into his inner jacket pocket – (we don't see what he trying to get).



[19]
Suddenly we see Antonio and his colleagues running out of the building.

[20]
We see them all jump into the back seat of the car!

[21]
A loud cheer comes from the backseat...



[22]
...and we see them all watching the kickoff of a live football match!

[23]
Video fades out to the sound of the football match.

Biographies

Simona Maschi

Roberto Bolullo

Laura Polazzi

David Slocombe

Live | Work

Line Ulrika Christiansen

** Listed by date of involvement*

Simona Maschi

Simona Maschi is an Associate Professor at Interaction-Ivrea. Her responsibilities include teaching in the service design area of the programme and advising and supporting students in their work on scenario development. Simona Maschi's main focus is on designing and visualising future scenarios of everyday life. She has been a senior researcher and assistant professor at the Milan Polytechnic University since 1996, and worked on EU-funded projects with such companies as Bosch-Siemens, Biologica, Philips Design, DeSter and Dàlt. Key research projects were SusHouse (on developing and evaluating strategies towards sustainable households), HiCS (Highly 'Customer-ised' Solutions, on defining industrialised solutions for delivering food to people with reduced mobility), and SDI (Italian Design System, on understanding the values of the Italian design practice in order to drive its future innovation). She was also in charge of developing EU- funded research proposals and taught strategic design.
In 2002 she was a visiting scholar at Illinois Institute of Technology in Chicago and in 1997 she interned with Material ConneXion. Before 1996, she worked as an interior designer for residential and commercial clients within her family's furniture business.

Roberto Bolullo

Roberto Bolullo is a Design Strategist and Researcher. He has some years experience working in wide range of design disciplines such as product design, multimedia design, web design, 3d modelling, Scripting and Brand design. This has given him a broad perspective on the design process and the value of design for companies, context and users. He has worked for three different companies and as design consultant for clients in Spain, UK and Italy. He holds a BA in Industrial Design from Elisava University in Barcelona (spain), an MA in Interaction Design from University of Westminster (UK) and an MA in Strategy and Innovation from Instituto Universitario de Postgrado (spain).

Laura Polazzi

Laura Polazzi studied communication sciences at Siena University (Italy) and was a researcher at the University of Liege (Belgium). She has participated in different research projects ranging from Co-operative work to educational technologies. From 1998 to 2001 she worked on the Pogo project, designing interactive tools to support children's storytelling.

David Slocombe

David Slocombe is an Interaction and Service Design consultant based in northern Italy. Originally from the U.K. he studied Design Futures at the University of Wales College Newport, graduating with 1st Class Honours. He continued his studies on the Masters program the Interaction Design Institute, Ivrea. His consulting work includes the design and product development of interactive toys for Ragdoll ltd, UK, Product design of luxury large screen televisions and multimedia systems for Roberts Technologies, UK and the development of a gestural and mobile device interfaces to public displays for Hitachi Design, Europe, Italy.
His skills include Filmaking, Scenario Development, Physical Computing, Service and Infrastructure Design, Design Forecasting and Project Management.

Live | Work

Chris Downs, Ben Reason and James Gibson are from Live | Work, a Service Innovation and Design company. They think of services as things we use rather than things we own. From this principle they are building the new discipline of Service Design. By designing from a service instead of product perspective they promote use over consumption. Their studio is based in Islington, North London.

Line Ulrika Christiansen

Line Ulrika Christiansen is an Interaction and Exhibit Design consultant based in northern Italy. Originally from Denmark she had a bachelor degree from School of Design in Kolding, DK with focus on Interactive Multimedia and Visual Design. She worked as a graphic designer, web developer and information architect for various architectural companies in Denmark before she continued her studies on the Masters program at the Interaction Design Institute Ivrea. Her consulting work focuses on that of experience design, space and space perception and affective computing.
Her work includes visual presentation material to competitions for MC Architects, DK, the production and design of the CD-rom publication "Emotion and Immersion in the Interactive Experience" and the exhibit design of "Interaction-Ivrea goes to Salone 2004" for the Interaction Design Institute Ivrea, Italy.