

The 'Xcar' in Your Future

An Thinking Exercise

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Huh? Xcar? Immaterialisation?

Xcar? What does it mean? Since this is a thinking exercise, I guess we can fairly leave it to you to figure that one out in the context of what follows.

Quick word of history for you on this though. Under The Commons we have been following and working actively on the Xcar agenda for close to three decades now. Most of that work has used a more familiar word, “carsharing”, as you can see in abundant detail if you go to the World Carshare Consortium at WorldCarshare.com.

The trouble with carsharing as a topic of discussion is that everyone turns out to be an instant expert on the subject, even if they have never really looked into the topic at even a fraction of the depth that it deserves. Say carsharing and nine out of ten people will already start to tell you why it can’t work. They’re experts, you see.

Anyway, the author of this piece just happens to think that this alternative form of car ownership and use is or rather might be part of a long term process of changing consumer behavior that is, if you look at it carefully, as good an example of immaterialisation as we have seen to date. And the ASSIST project needs as many good examples of this as it can get, since at present we seem to be in rather short supply.

So here you have a quick first fling at this example of immaterialisation, concerning which I look forward to reading and learning from your well reasoned comments. If it for some reasons does not pass your immaterialisation test, well let’s move on to another and better example. I am waiting to see what they might be.

Eric Britton, Paris, 18 July 2001

Also in this series on immaterialisation and Xcars:

- [The 'Xcar' in Your Future](#) (18 July 2001)
- [Immaterialisation? A Poor Man's Guide](#) (27 July 2001)
- [More Thinking About Xcar](#) (8 August 2001)
- Also check out the [Assist Discussion Forum](#)

What is Xcar? Ten Point Introduction?

An Xcar is what you have when you 'decouple' car ownership from car use. Let me explain quickly.

1. Xcars are fleets of (semi-public) vehicles used by people who need a car to get around from time to time. But who do not feel they necessarily need to buy a car and in the process buy into all the expenses (purchase, upkeep, insurance, parking, etc.) and inconveniences (garaging, maintenance, repairs, parking tickets, lost time, worrying about your car, etc.) associated with car ownership (when you think about it).
2. The main reason why people move over to Xcars is that they are cheaper and more worry-free than traditional car ownership.
3. But, as you can well imagine, Xcars have a very specific public. They are not equally attractive for everyone, for every place.
4. Experience shows that Xcars appear to flourish today in more densely cities, in part because it is there that the costs and inconveniences of car ownership tend to be highest. But it also tends to be more attractive in situations where the city happens also to offer relatively good alternative transport possibilities (public transport and good conditions for cycling and walking) as well as nicely clustered development such as neighborhood centers that offer a wide range of possibilities within, say, walking distance.
5. Now let's move from theory to practice. They have been around here and there on a small scale for several decades, but the main thrust of development and progress has been over the last several years. Today, in 2001, there are more than 500 cities around the world in which you can already sell your car (or maybe your second or third car) and start to use Xcars every day. (A list of those cities appears on the next page, and if you want to check out the details at www.worldcarshare.com.)
6. Since it exists in many places and language areas, it is inevitably known by many names. Here for example are those associated in real life situations with only the first three letters of the alphabet: Andelsbilkklub, AutozumTeilen, AutoCom, Autodeled, AUTOparat, AutoShare, Auto-taxi, Autotaxis, Autoteilen, Autovermietung, Bilföreningen, Bilkooperative, Bilkklub, Bilpool, Block cars, Buurt Auto Service, Caisse Commune, CampusCar, CarLink, carsharing, CHOICE, City Car Club, City CarShare, COgOCar, CommunAuto, community cars, Cooperative Auto Network (CAN), Crayon. . .
7. Research in this area suggests that anyone who lives in a city and drives less than ten thousand kilometers a year should look into this possibility if there is a Xcar operation already in service.
8. From a sustainability perspective, there is a two step advantage. The first is the immediate result of a shift to usually newer, better maintained vehicles that are better optimized for urban use, with a reduced demand for scarce urban space (parking). Also since there is a "mental space" when it comes to using a Xcar for a trip, this tends to lead to some rationalization of travel (more trip sharing, hopping onto a bike, etc.).
9. But it is in the long term that the real sustainability advantages tend to kick into high gear. Those people and places that do it have in effect moved from a fascination with a material object to a utilitarian approach which thinks in terms of service needed. They have, to use a phrase, immaterialized this environmentally and resource intrusive corner of their daily lives. The implications as our paper will show are considerable. As is the role of ITS in making this happen.
10. There are at present something like 700 million cars on the planet. At least half of these are targets for shared ownership and use. For immaterialisation.

If you wanted to, you could already Xcar today in . . .

Aachen, Aarau, Aarhus, Adiswil, Adligenswil, Aesch, Affoltern a.A., Allschwil, Alpnach, Altdorf, Altstätten, Amriswil, Amsterdam Zuid, Andelfingen, Andermatt, Appenzell, Arbon, Arnstadt, Arth-Goldau, Baretswil, Boblingen, Bulach, Baar, Bad Homburg, Bad Ragaz, Bad Sackingen, Bad Schwartau, Bad Vilbel, Baden, Basel, Bassersdorf, Bauma, Bayreuth, Bellinzona, Belp, Bergdietikon, Bergen, Bergisch Gladbach, Bergsjöns, Berikon, Berlin, Bermgarten, Bern, Beromunster, Biberach, Biel, Bielefeld, Binningen, Birsfelden, Bochum, Bolligen, Bonn, Bonstetten, Bordesholm, Bottmingen, Boulder, Braunschweig, Bremen, Bremerhaven, Bremgarten, Brig, Brønshøj, Brugg, Brugg Weiermatt, Bubikon, Buchholz, Buchs, Buochs, Burgdorf, Colbe, Calgary, Carouge, Castrop-Rauxel, Celle, Checirc;ne-Bourg, Cham, Chur, Coburg, Copenhagen, Corburg, Cottbus, Cranfield, Dubendorf, Dudingingen, Duren, Durnten, Dusseldorf, Dachau, Darmstadt, Davos, Degersheim, Den Haag, Dessau, Dielsdorf, Dietikon, Domat/Ems, Dordrecht, Dornach-Arlesheim, Dortmund, Dossenheim, Dresden, Duisburg, Ebikon, Ebnat-Kappel, Ecublens, Edinburgh, Effretikon, Eglisau, Einsiedeln, Elgg, Elmshorn, Emmen, Emmenbrucke, Enzingen, Eppstein, Erfurt, Erlangen, Erstfeld, Esbjerg, Essen, Esslingen, Esslingen, Ettlingen, Eutin, Fallanden, Furth, Farum, Faulensee, Fellbach, Filderstadt, Flawil, Florence, Fort Collins, Frankfurt/M, Frauenfeld, Freising, Frenkendorf, Fribourg, Frick, Frutigen, Gegrave;neve, Gottingen, Garching, Gauting, Gebenstorf, Gelsenkirchen, Gelterkinden, Gevelsberg, Gieszlig;en, Gipf-Oberfrick, Giswil, Goldach, Gossau SG, Göttingen, Grafelfing, Grut, Grabs, Grenchen, Greven, Gstaad, Guelph, Huckelhoven, Haarlem, Hagen, Halberstadt, Halle, Hamburg, Hameln, Hanau, Hannover, Hannover, Hausen am Albis, Hedingen, Heerbrugg, Heidelberg, Heidenheim, Heimenschwand, Helsinki, Herbrechtingen, Herdecke, Herisau, Herning, Herrliberg-Feldmeile, Herzogenbuchsee, Heuchelheim, Hildesheim, Hinwil, Hisingens, Hitzkirch, Hochdorf, Hofheim, Holzwickede, Hombrechtikon, Horgen, Horw, Ilanz, Illnau, Ingolstadt, Interlaken, Iserlohn, Ittigen, Jena, Jona, Köln, Koniz, Kusknacht, Kusknacht, Kalmar, Karlsruhe, Karlstads, Kassel, Kempten, Kiel, Kingston, Kirchheim/Teck, Kitch.Waterloo, Klosters, Kloten, Koblenz, Konolfingen, Konstanz, Kreuzlingen, Kriens, Lorrach, Lubeck, Ludenscheid, Luneburg, La Chaux-de Fonds, Laatzen, Lachen, Landquart, Landshut, Langen, Langenfeld, Langenhagen, Langenthal, Langnau , Laufen, Lausanne, Lausen, Lehrte, Leipzig, Lenzburg, Leverkusen, Lichtensteig, Liestal, Ligerz/Twann, Lilienthal, Littau, Locarno, Ludwigsburg, Ludwigshafen, Lugano, Luzern, Lyss, Mannedorf, Mohlin, Monchaltorf, Mulheim/Ruhr, Munchen, Munchenbuchsee, Munchsteinach, Munsingen, Munster, Magdeburg, Magden, Mainz, Majornas, Mannheim, Marburg, Marl, Meggen, Meilen, Memmingen, Merseburg, Mettmestetten, Minden, Montreal, Montreux, Muri, Muri-Gumligen, Muttentz, Nanikon, Nurnberg, Nagold, Neckargmund, Neuchacirc;tel, Neuhausen, Neuss, Nidau, Niederhasli, Niederlenz, Nussbaumen, Nyon, Oberdorf/Stans, Oberhausen, Oberkirch, Oberursel, Oberuster, Oberwil, Obfelden, Odense, Offenbach, Oldenburg, Olten, Opfikon, OsloOttawa, Osnarbruck, Ossingen, Ostermundigen, Ostfildern, Overijssel, Oxford, Pansdorf, Paris, Passau, Petit-Lancy, Pfaffikon, Pforzheim, Pfullingen, Plannegg, Plochingen, Portland, Potsdam, Pratteln, Preetz, Puchheim, Pully, Quebec City, Rumlang, Ruschlikon, Russelsheim, Ruti, Rafz, Rannebergens, Rapperswil, Ratzeburg, Ravensburg, Rebstein, Refrath, Regensburg, Regensdorf, Reichenbach, Reinach, Renens, Reussbuhl, Reutlingen, Rheinfelden, Rhein-Neckar, Richterswil, Riehen, Rodovre, Roggwil, Romanshorn, Rombach, Rorschach, Rostock, Rostock, Rothenburg, Rotkreuz, Rottenburg, Rotterdam, Rudolfstetten, Ruswil, Suszlig;en, Saarbrücken, Sachseln, SaintQuentin, Samedan, SanFrancisco, Sargans, Sarnen, Schofflisdorf, Schoftland, Schonenwerd, Schupfen, Schaffhausen, Schattdorf, Schiedam, Schiers, Schlieren, Schliern, Schopfheim, Schwabisch Hall, Schwarzenburg, Schwerin, Schwerzenbach, Schwetzingen, Schwyz, Seattle, Seeheim-Jugenheim, Seelze, Sempach, Siegen, Sindelfingen, Singapore, Sion, Sissach, Soest, Solothurn, Speyer, Spiez, Stafa, St. Gallen, Stade, Stans, Stansstad, Starrkirch-Will, Steffisburg, Steinbach a.Ts., Steinen, Steinhausen, Stockholms, Stuttgart, Suhr, Sundbybergs, Sursee, Tübingen, Thalwil, Therwil, Thun, Thusis, Tornesch, Toronto, Trubach, Traverse City, Trimbach, Tübingen, Turbenthal-Wila, Turgi, Ulm, Umkirch, Unna, Urdorf, Uster, Utrecht, Uznach, Uzwil, Valby, Vancouver, Växjö, Veltheim, Venezia, Vevey, Victoria, Vienna, Viernheim, Vinterviken, Volketswil, Wadenswil, Wurzburg, Wabern, Waiblingen, Wald, Wallisellen, Waltrop, Washington, DC, Wattenscheid, Wattwil, Weinfeld, Weingarten, Weinheim, Wettenberg, Wetter, Wetingen, Wetzikon, Wetzlar, Wiesbaden, Wiesendangen, Wiesloch, Will, Willisau, Winterthur, Witten, Wittenbach, Wittenberg, Witzenhausen, Wolfenbuttel, Wolhusen, Worb, Worms, Wunsdorf, Yverdon, Zurich, Zofingen, Zollikerberg, Zollikofen, Zuchwil, Zug, Zurich, Zweisimmen

0. Is Xcar a good example of “immaterialisation”?

12 points you might wish to consider ¹

Here are a dozen arguments that one might reasonably conclude that this is indeed at least a possibility.

1. Xcar is not a theoretical construct but an actual practice, a “product” if you will, that is in 2001 being sold and bought on the marketplace in an increasing number of places and contexts around the world.
2. Xcar deliberately substitutes a service for a product. Thus from the very beginning the “Xcar-er” shifts to thinking not so much in terms of the hardware that is involved, but rather the trip that needs to be accomplished to achieve a specific objective.
3. If the user context is appropriate (usually this means cities that are well served by public transport and with good possibilities for non-motorized movements), the practice of Xcar offers significant economic advantages to consumers on its own (i.e., does not need to be supported by taxpayer subsidies).
4. It is based on a business concept (actually there are a range of them) which is being steadily honed and improved in a wide variety of CSOs (carshare organizations) around the world. This suggests to the careful observer that there is going to be a lot more of it in the future.
5. A commonly cited ratio is that one properly configured and supported Xcar can substitute for something on the order of eight or more single-owner cars.
6. When a Xcar is being driven at any point in time, it is reasonable (but not necessarily correct) to assume that no particular environmental or resource saving is being achieved. There is still this driver-occupied vehicle taking up lots of road space and propelled by an independent energy system. At first glance this does not look like much of an environmental gain, if any.
7. The most immediately noticeable environmental gain is in terms of savings of scarce urban infrastructure, and in particular costly parking space (that has many important alternative uses).

¹ There is a very substantial information and research base on the subject of carsharing on which this paper draws. Some of these results are summarized in the body of this report. For the rest, we would direct you to the @World CarShare Consortium of The Commons at <http://www.ecoplan.org/carshare> and their overview report Carshare 2000 which is freely available on the site.

8. On the other hand, it is reasonable to assume that as the Xcar movement continues to mature, the vehicles used will be increasingly optimized for their specific use environment. And since will be mainly for short trips in cities, we can anticipate such things as greater energy efficiency, considerably fewer effluents, probably lower noise levels, lower top speeds (safety), etc.
9. Research shows that users tend to modify their driving habits almost immediately when they come into a CSO (carshare organization), which translates into fewer kilometers driven per year.²
10. If that is the short term reality, the longer term trend appears to be one in which this annual 'car requirement' in many cases continues to be steadily reduced, year after year. Thus, we have a situation in which the free citizen is by himself and in full consciousness actually modifying a significant part of their own daily life choices. In a way that has a considerable impact on the environment and resource use.
11. And while there is no solid research yet on this point, there is anecdotal evidence that suggests that in the long term people who Xcar tend to make residential, work and activity choices that reduce the need for mechanical travel of all kinds.
12. And remember this! The "Xcar-er" is also a citizen and voter. She thus is not only a practitioner of a new set of transport and resource habits but also someone who can vote to influence the environment so that these trends will be reinforced in a variety of other ways. One of these is increased public support for better alternative (non-car) transportation services and use circumstances, as well as better clustering of activities, which has the result of removing the requirement for travel. Which of course is the greatest saving of all.

² Since they are "Xcar-ers" by choice, they do not for the most part appear to think that they are living in privation. What they do instead of hopping into their car for a spin is to walk, bike or take public transport. But also, and this is important, since there is a let's call it "decision layer" involved in getting to the shared vehicle (even in the very best of cases) is to think about their travel, their access requirement. This appears quasi-automatically to lead to more careful travel planning and more trip-chaining.)

1. Introduction

The following is offered as a “think exercise”. It looks at a concept called “Xcar” and tries to place it in the concept of something called “sustainable development”, on the claim that it is a good example of a third thing called “immaterialisation”. The first step in this process is to ask you to put aside for the moment any impressions that you might have concerning the word “Xcar”. Thank you.

2. First Definition:

The difficulty lies, not in the new ideas, but in escaping the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds. – J. M Keynes

Xcar refers to an alternative vehicle ownership and use system wherein individual vehicles, cars, are no longer separately owned by individuals or families (or even companies) but rather are owned and maintained by some sort of provider organization. The immediate analogy might be a short term rental car which, when it works well, is a short walk from wherever it may be that you are and which can be entered, used and then left in a highly convenient cost-effective manner.

The individual car is thus part of an autonomous ‘vehicle delivery system’ which may in turn be owned by any of a range of “owner-operators”, ranging widely from causal pick-up or informal neighborhood groups all of the way to a, perhaps, highly organized for-profit group.

Xcar in this context thus needs to be distinguished from the more familiar concepts of “lift-sharing”, “ride-sharing” or “carpooling”, where an owner-driver gets together with others not in the immediate family to share a ride.

3. A Short History

For several decades there has been in transport circles some marginal discussion about the concept of people sharing cars -- as opposed to the familiar owner/driver model which dominated virtually all of the last century. Over the years there has also been a certain amount of experimentation and examples of people in specific places actually doing it in a variety of manners and with a considerable range of degrees of success. But by and large these developments have attracted little interest from the mainstream transport or policy experts.

But as we all know, past patterns do not always hold forever, particular in a climate of resolute change. Never mind the extremely rapid changes that we have been seeing in recent years in terms of people, our mobility choices, the environments in which we move around in our daily lives, and the exploding universe of technologies that make all this movement possible, including in new ways that few of us have ever even dreamed about in the past.

Have you ever, for example, thought about what it means to own your own car in a city? Let's put aside such things as traffic congestion, air pollution, accidents or the like, and simply consider what it means to someone like you or me, the owner/drivers of this world, in the daily run of things. Typically for instance, we are saddled with a large chunk of expensive machinery that sits out there on the street and that we use barely an hour a day, less than five percent of the time, while costing us something on the order of anywhere from ten percent to up to a third of our hard earned net income. Doesn't that sound to you like something that might be a candidate for a bit of imaginative re-engineering?

This thing we are calling "Xcar" is in effect an alternative transportation arrangement that directly addresses this anomalous situation and does indeed, for the first time, promise some interesting alternatives from a variety of perspectives.

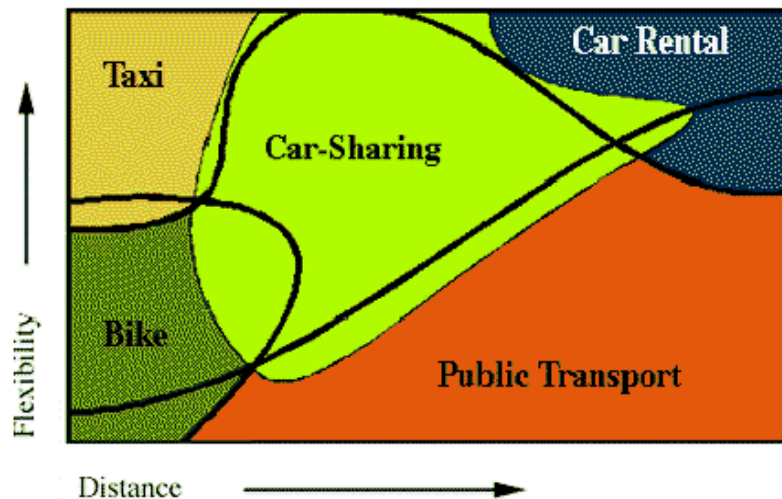
4. How does it work?

Xcar is above all a local phenomenon. At least it has been until now. And this means that since it is practiced in hundreds of places and in many different ways, it is hardly surprising that there are many different definitions offered as to how it works.

Here is one rather good explanation that you can find on the Web site of [Carshare Portland](http://www.carshare-pdx.com/) at www.carshare-pdx.com/.

Car sharing is an alternative to individual car ownership for people who don't need to drive every day. It is based on joint access to a fleet of vehicles, located throughout neighborhoods, close to your home or work. You pay for the hours and miles you drive. Insurance, gasoline and maintenance are included in the rates. When you want to use a car, you simply make a phone call to reserve a car for immediate or future use. To use the car, simply walk or bike to the location, typically 3 to 5 blocks away, use your access key and drive away. At the end of your trip, return the car, lock it up and you're done. You pay only for what you use.

Here roughly is how Xcar fits in with the other near-by modes in the new transport configuration:



Source: The first time I saw this graphic was in 1973 in a pioneering study by the Urban Institute. This adaptation comes from the [Bremen Web site](http://www.bremenweb.com/).

5. Why would anyone ever want to X a car?

In the original small spontaneous neighborhood projects back in the seventies and eighties, people joined Xcar clubs because they knew each other, shared values, because it seemed like a good sustainable thing to do, and because it appeared to be convenient enough and could save them some money. Many of the early practitioners came to it as a personal commitment to a better environment. But as Xcar has begun to take hold for a larger public, the reasons for doing it have shifted a bit.

Today it seems that people are deciding to convert to Xcar above all because it saves them money and hassles. Most of the calculations show (bearing in mind that there are major variations from person to person and place to place) that Xcar becomes an economically attractive alternative for people who live in built-up areas, who do not necessarily need a car every day (because they have other ways of meeting most of their daily access requirements, including public transport, walking, biking, ride sharing or even using technology to remove some of their previous travel requirements as per videoconferencing, telework, et al, and who normally drive their cars less than some minimum number of kilometers in the year.

One of the most commonly cited figures is 10,000 kms or less per year, and you are a candidate for economical Xcar.

The car-sharer is freed of a number of more or less small nuisances, such as the constant struggle to find parking in most urban areas if you do not happen to have off-street parking, the costs, losses of time and sheer inconvenience that are associated with maintaining and repairing your own vehicle, the cost and trouble of parking for parking tickets for those times when you did not manage to find a proper parking slot, and numerous other small inconveniences that car owners duly and daily suffer, almost always without even being aware of it.

There is also the matter of flexibility. You can try it for a while, and if it doesn't do the job you just stop. Unlike buying a new car, you are not locked into your choice.

One study for example (Energy 2000, Switzerland, 1998) reports that in Switzerland :

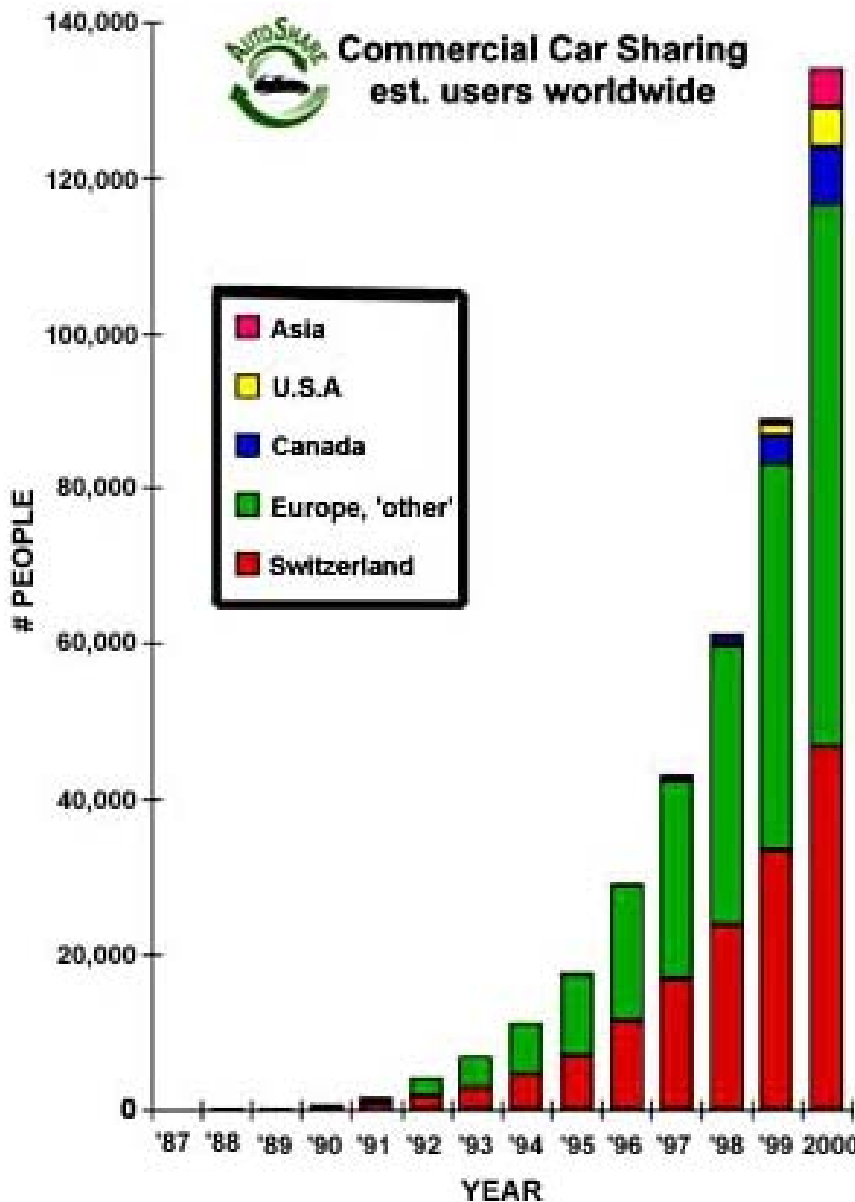
People who give up their car as a result of joining a Xcar scheme reduce their degree of car travel by around 6,700 kilometers (approx. 72%) per annum. This is partly compensated in that they travel more by motorbike (+ 1,300 kilometers p.a.), bicycle (+ 800 kilometers p.a.) and, above all, by public transport (+ 2,000 kilometers p.a.). In all, the average distance traveled by those who give up their car decreases by 2,700 kilometers per annum.

After joining a Xcar scheme, the mobility behavior of former car owners is remarkably similar to that of people who do not have access to a car. So while the mobility behavior of Xcar customers and people without access to a car is very similar, it differs greatly from that of car owners. This is referred to as reciprocal mobility behavior.

Here is one perhaps unexpected wrinkle in the profile of car-sharer that is worth noting. It constitutes what we would refer to as “post-modern” behavior. Thus, if the modern man is/was in many way defined by his car (see Bernard Shaw’s hilarious *début de siècle* play *Man and Superman* for a great take on that), the post-modern person just couldn’t care less and only wants to get around. (And of course if you know that, you then have a pretty good idea as to where it is likely to work. And where quite possibly not.)

6. Sounds reasonable, but does it really work?

Fair question. There are in transportation and sustainable development circles a lot of talk of fine sounding, right-minded concepts that will doubtless never see the light of day. Xcar though is not one of those. It's real. It's here today. It works.



Xcar is a relatively recent phenomenon, if we judge it in terms of on-the-street working operations that people actually use every day in some numbers. Ten years ago there weren't very many people Xcar anywhere in the world.

Today? Today there are literally hundreds of going Xcar operations, thousands of vehicles being used, and tens, soon hundreds of thousands of people who walk down to the corner and climb aboard each day. In a phrase: it's not just one more pretty theory.

Source: www.autoshare.com.

If you look at what is going on, you will quickly spot several outstanding characteristics of these projects.

- The first is that a handful of countries in Europe have taken the lead over the last decade.

- The second is the great diversity of the various operations: whether in terms of size, ambition level, motivation of the organizers, basic organization, technologies, institutional sophistication, competence and, of course, their success.
- A third notable point is the very strong and successful development push of late, after many years of barely marginal existence. As a result car sharing in these opening years of the new century is an option that is worth taking seriously

What is perhaps most interesting about all this activity is not only that it give every appearance of working and doing a useful job for individuals, groups and neighborhoods who have decided to try it, but that it is fast growing and fast changing. Also, it is virtually all paid for by the people who use it and enjoy the benefits, and not the poor taxpayer. A rather agreeable pattern change for the transport sector, wouldn't you say?

As you can well imagine, this is not an arrangement which will do the job for all people all of the time. But experience is now demonstrating, experience in literally hundreds of places, that with proper organization, Xcar can be a very satisfactory transport arrangement for some people, in some places, some of the time. And that, by the way, is precisely how you build a sustainable transportation system: piece by careful piece.

7. Is Xcar good for the environment?

This is a loaded question actually, but as it happens the analysis shows that Xcar is very good for the environment indeed! The early edge of Xcar activism had a strong, personal environmental (green) commitment. But in order to understand its full environmental potential, it is important that to look not only at the shared vehicles; rather we need to consider the impact of that larger whole of which they are but one useful part.

So how does this work? Well as we have seen, anyone who uses a Xcar when they need that particular kind of transit for a specific transport task, is far more likely to use either public or non-motorized transport for most of their other daily trips. Thus, by shifting some portion of their travel to these other, more environmentally benign modes the environmental load of their mobility is proportionality reduced. This can lead immediately to lower aggregate fuel consumption, fewer air emissions, cleaner air, and perhaps even less noise and certainly less solid and liquid waste. And in the longer run to fewer cars and proportional resource savings.

The trick is in tying the whole thing together, so that you have the full function alternative system. Here is how Mobility Xcar in Switzerland goes about linking up all these modes:

“Mobility Xcar is your link to public transportation. As Mobility cars are available in all of Switzerland, the mobility cycle of plane, tram, bus, train and Xcar is closed. Combined mobility has become reality. As a result, more and more transport partners consider Xcar as an integral part of their mobility package for regular customers, and include Xcar in their offer.”

Xcar also works to save valuable urban space. For example in one "typical" configuration that aims at something on the order of a one-car-to-10-households service ratio, this could free up to perhaps as many as ten or so parking slots. If we bear in mind the enormous economic and social value of prime urban real estate, and the wonderful ways in which we could put it to use for more important things, this space saving potential has to be among its most important assets. Also by freeing up street space, it can help the remaining traffic move more smoothly, with all the benefits that brings with it.

How much are these savings to the public sector and environmental benefits worth if one were to try to express them in money terms? Well, we have not as yet seen anything that looks solid in this respect, but the benefits of removing a single car from a crowded urban environment have to be on the order or hundreds of dollars per year each, and almost certainly more. As to the advantages of saving 7 to 10 square meters of prime public space each time you remove it from the car support

system, the annual rental value in many cities will run to the thousands of Euros or dollars per year. For the purposes of efficient communications, let us say for now simply: a great deal!

At a time of much talk about sustainability and transportation, and precious little effective action, Xcar offers a real option that one can put to work immediately and without huge public expense. And that is why we sometimes think of it as “A Hammer for Sustainable Development”.

8. Does new technology have a role in this?

Until very recently most carshare operations have been extremely conservative in their use of technology. This was brought about by several factors, one being the fact that most were set up as rather informal low cost operations and targeted for a specific known local user group. So no problem if the car was just any old car, the reservation system based on POTS (plain old telephone service), the keys were kept in a metal box next to the parking space, and all user logs manually maintained. And if this strikes you as a bit primitive, the fact is that it has worked in the past and there are still places where people find it quite satisfactory today. Simplicity does have its virtues.

But at the leading edge of Xcar practice, the technology component is now moving along quite swiftly, as might well be expected given the extent to which information and communications technologies are transforming many areas of society and the economy, including among the most impacted the transportation sector. And what is Xcar anyway, if not, above all, an interlocking, complex puzzle of information and logistics, which is exactly the sort of job that all these technologies do best.

Here are some of the areas in which these new technologies can be expected to shape and influence both the basic functioning and the economic viability and quality of service associated with Xcar operations.

- The vehicles and their special environmental and performance ‘envelopes’
- General information and marketing
- Overall project management
- Reservation systems (including kiosks, automated telephone and Internet-based)
- Interfaces with other cooperating transportation systems and carriers
- Interfaces with Advance Traveler Information Systems (where they exist)
- Vehicle location (both when parked and when moving)
- Vehicle access (getting to the car, unlocking it, using it, then locking it)
- Vehicle condition (monitoring and maintenance assistance)
- Trip logging and billing
- Dynamic mapping and on-board travel information
- Emergency services

If we observe what is going on at the leading projects that are fast expanding in terms of membership, vehicle parc and overall functionality, it can be seen that this process is already well engaged. The idea is to make each service as seamless and easy to use as possible. And it is the technology that is permitting this to happen.

Next big step on the technology front? With no doubt, the marriage of Xcar and mobile communications, for example the use of wireless communications as the

main interface between the user and the Xcar system. After all, though a full sized PC box hooked into a Xcar system with a high quality management interface can be ideal in many respect for the user, how much handier it would be to have all this capability in your pocket for information, access and use as and when you need it.

The Helsinki 24H project, for example, uses the subscriber's mobile phone to (a) locate the user, (b) then locate the nearest available vehicle and to feedback the basic information on it to the subscriber, (c) provide a reserve option, (d) access map if needed, (e) open the reserved vehicle door (uses another code), (f) start the car, and then once the trip has been terminated (g) to lock up the vehicle and terminate the charge cycle.

So look at that mobile phone in your pocket, and think Moore's Law. Moore's Law. That's where we're going with Xcar in 2001, and that's just about how fast we're going to get there.

9. What's in it for cities?

One of the main beneficiaries of the switch to Xcar will be our cities, though until now it has proven somewhere between difficult and impossible to make this case. Both the transport experts and local government have proven quite resistant to these ideas.

The first cracks in the dike of resistance were in Zurich and Berlin, followed by a number of other cities in Germany and Switzerland, with some in the Netherlands right on their trail. One wonders why this is proving such a hard sell to the public sector since the advantages appear to be so overwhelming. Might it be that indeed “The difficulty lies, not in the new ideas, but in escaping the old ones ...?”

Here is our considered Year 2001 view on this. If you happen to be a mayor or elected local official in a city that corresponds with the rough profile that is appropriate for Xcar (clustered settlement patterns, with decent to excellent public and non-motorized transport provision), you really should be giving this concept your careful consideration.

Why? Well, first of all your city will benefit from those potential environmental improvements, and of course those savings on costly parking spaces. And with fewer cars out on the street, there will be potential savings for the building and maintenance of your road system.

Moreover, these services put cars at the disposal of people who may not be able to afford one of their own, but who still from time to time need one (social justice). Further, there is the synergistic support for your public transport, since your car-sharers are going to be using it most of the time. Likewise Xcar provides more “customers” for the most sustainable transport modes, walking and biking.

Can Xcar make it without the active and intelligent support of local government?

At best only with great difficulty and considerably less vitality and growth than could otherwise be the case. So if indeed Xcar is an important tool for cities, as we think it is, the politicians and civil servants who are paid to run them must realize their importance and get ready to support them.

As you might expect, the kind and quality of support needed to make Xcar work is quite different from the more traditional role between local government and the transportation system. Experience has shown that what is needed is not great clots of

taxpayer moneys to build and fund the whole thing, and then run it each year at a loss, but rather an attentive and capable local administration that is ready to come in and provide a wide range of “softer” support functions. This is of course going to be a new and unfamiliar working environment for many elected officials and administrators, but it is one that will later serve them well when it comes dealing with other areas of city life that are under stress and which also are going to need entirely new governance and entrepreneurial approaches.

The first task for the administration is to learn how to get out of the way of the spirit of enterprise that is needed to make these things work, and then to figure out how to support it.

Examples of good ways in which you can help include such things as communications assistance in making services better known and accepted in the community, assisting them in making their way through the welter of laws and restrictions which make any form of innovation devilishly difficult, actively encouraging others transporters to link to them, giving a hand in obtaining good central parking access, and encouraging city employees to use it for themselves. And of course, Madame Mayor, using it yourself. Every day! Believe me, Your Honor, that’s just about the most important single thing you can do to make Xcar work in your city and give it a really sustainable transport system.

10. Any other surprises we should be aware of?

Well yes, there are one or two other things that you may want to keep in your sights. One of these is a whole matter of the vehicles themselves. If you think about it, a Xcar is going to be operating in a working environment that is radically different from that of the standard road machine that automobile manufacturers make most of their money on today. Since just about all of these vehicles are going to be used for shorter trips in densely settled areas, it will clearly be in the public interest that they are small and clean. And given that they are destined for collective public use, it will be important that they are more than normally robust. But this is only the beginning.

On average a Xcar can be expected to be used much more intensely than a privately owned vehicle, perhaps as much as a full magnitude more. This suggests to us a very different design, engineering, and eventually technology profile.

Similarly with the economics of ownership. If these vehicles are to be amortized over a period of one or two years as opposed to the usual average, this too will have its impacts. Other important economic differences include those associated with the fact that the vehicles will be purchased by institutional owners rather than individuals, and this physical clustering in turn will have potential impacts on how maintenance is handled.

Taken all together this suggests to us a new and quite different product profile... a brave new world for anyone out there in the industrial world who is willing to seize it. Until now of course this has not been attractive because of the small numbers of vehicles involved. But as we have seen, this is already in the process of changing.

Another surprise in store is likely to be the manner in which the service will be delivered, and who delivers it. Already we are seeing the leading edge of the car rental firms beginning to move in on the market, but who is to say that once they have figured it out, it will not be the automotive manufacturers themselves who move into the breach. Or the petrol companies with all that wealth of service points dotted all over the map. After all, is not this yet one more instance in which more money can doubtless be made in delivering services that people want, as opposed to products that they may not quite know how to deal with. At least in a densely settled urban environment.

There is yet one more wrinkle in the situation which is important to spell out. Making an unfamiliar business concept such as Xcar work is an extremely demanding task. The last thing that the organizers need is to have yet another set of

constraints and problems, which is exactly what you get if you attempt to graft an uncharted new technology experiment or demonstration to such a nascent business enterprise. This is not to say that a Xcar operation cannot accommodate new technology or serve as a first rate, high visibility site for demonstrating it. What it does mean is that the core business should not be put at risk by the economic, technical, and reliability vagaries that are so often associated with the technology.

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Also in this series on immaterialisation and Xcars:

- [The 'Xcar' in Your Future](#) (18 July 2001)
- [Immaterialisation? A Poor Man's Guide](#) (27 July 2001)
- [More Thinking About Xcar](#) (8 August 2001)
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