FORESIGHT AND INNOVATION — THE AUTOMOBILE

Foresight and Innovation returns to Stanford

With Stanford colleagues Bill Cockayne and Tamara Carleton, I have started to revive our research interest in Foresight and Innovation, anticipating, plotting future scenarios, as a part of the Center for Design Research. Bill pioneered this effort when we worked together in Stanford Humanities Lab with Jeffrey Schnapp and

Henry Lowood.

Here’s something about the future of the automobile – a hot topic as car corporations set up research units in Silicon Valley to keep up with the transformation of automobile into robot. Futures are always about the past, and I take up that focus here, drawing upon my experiences over the last few years with the Revs Program at Stanford under an archaeological sensibility tuned to what is to become of the history of the automobile over the last century – and the debris left behind.

In an attempt to prompt reaction and reflection I have tried to be quite blunt and a little provocative.

Planning for the death of the automobile – an impending mass extinction

The automobile is evolving

In the 1970s cars still offered autonomy, the freedom of the roads. Their styling conveyed hope, aspiration, status. Cars had character, even a soul; you’d have your photo taken with what could almost be a family member, a sign for you and your times. Though it might be a chore, the automobile needed care and attention – regular service and repair trips to shop or dealer. Though industrially manufactured, you could even make the car quite your own – shop customized.

Cars are not what they were thirty years ago. Since the 1980s information technology especially has laid the foundation for the current shift to artificially intelligent mobility systems far removed from the mechanical machines of the 1970s. We have now the prospect of the robot car, autonomous, driving us carefully in the chore of the daily commute. The challenge has become – how we might rethink our relationship with such intelligent machines?

The shift from a carbon-based economy involves exploration of new fuels and powertrains, alternatives to gasoline and the internal combustion engine. Automotive design and engineering is embracing a whole range of possibilities. The use of battery powered electric motors, for example, offers quite different options for the whole look and functioning of an automobile, when the structural configuration of internal combustion engine, transmission, fuel supply, and control

systems no longer holds, when motors in wheel axles mean the driver and passengers don’t have to sit behind or in front of an engine – there’s room for the designer to play with completely different arrangements.

Information and communications technologies are absorbing other hitherto discrete technologies and classes of artifact. The car is increasingly a computer on wheels, another mobile media device tied into global information networks. More so – the global trend towards densely populated urban dwelling will make the automobile, inasmuch as it survives in a recognizable form, another component of interconnected mobility systems facilitated through ICT technologies. How are cars to be part of these futures? We are seeing new modes of use and ownership – Uber drivers offer their cars as a shared service.

Which corporations are leading such innovations in automotive design? Not General Motors, Ford, Toyota, Volkswagen. The initiative in automotive design has shifted to corporations not typically associated with the automobile. Apple and Google have committed significant resources to automotive design. Uber offers a different model of automotive use. Tesla, while adhering to conventional automotive styling, treats the car as an information technology platform.

The Tesla still looks like a smart executive car. Cars look pretty much as they did in the 70s. But they don’t have to now. It’s just that radical change can upset people and disrupt markets. As the 20th century recedes in memory and becomes history, the old associations people make with the automobile will become more malleable. Designers, if they are up to it, will ask – how might we design an Uber car to be fit for easy short-term sharing? The Uber car of the future might not look like anything you’ve seen before, as the automobile becomes an aspect of policy and design concerned with mobility and communications in a densely populated urban world.

The friendly Google car – unlike some other robots, it won't plot the extinction of inferior humans

The slate cannot be wiped clean. The prospect of the car as an intelligent robot is bring up many old associations – stories of robots that turn against their human owners. Reframing the robot, at least in the west, as friendly and caring, is the biggest challenge facing car designers. This is a break with what we have been used to – up to now the car has been an avatar, as Chris Bangle puts it – an extension of personal identity. Though it might not be openly acknowledged, the world has become used to the automobile as the key defining artifact of the 20th century – a reference point in politics and personal life. The automotive industry remains a key component of the global economy and there's much room for expanding markets

into developing economies. So what will become of what remains of the 20th century automobile?

Proposition: the automobile of the 20th century will become the object of a new branch of the heritage industry.

We are already seeing how the history of the automobile is becoming a significant feature in automotive branding – corporations are drawing upon the history of the automobile as a means of establishing significance and cultural worth. Car corporations can be expected to devote more and more resources to branding and to connecting their cars to lifestyle in new ways as their industry changes under threat from corporations not conventionally associated with the automobile, corporations that are already in the business of designing experiences and meaningful relationships with friends and significant others, including increasingly intelligent machines.

Collecting older and classic cars remains a popular hobby in 2015. In the next 20 years it will become part of the heritage industry. There will be two main features to this transition **from hobby to heritage**.

Owners and collectors of modest characterful vehicles will find it increasingly difficult and expensive to maintain their cars. The infrastructures, the parts, fuels and lubricants, and the skills essential for repair and maintenance of older cars will diminish markedly over the next 20 years. While the internal combustion engine can be expected to play a significant part in the future of the automobile, cars will continue to become less and less accessible to their owners, in terms of maintenance and repair. The proud owner of a 1960s Pontiac will not be able to find suitable automatic transmission fluid even in the near future. Sooner than many anticipate, it will not be possible for anyone of modest means to run and maintain a car older than 20 years. This is not about a declining interest in old vehicles. This is not about a new generation who cannot appreciate the qualities of a classic car. This is simply about what happens to all artifact and cultural systems – they disappear when infrastructural costs outweigh the perceived benefits. NASA retired the space shuttle not because it was an inferior technology and couldn’t do what it was supposed to do, not because it wasn’t needed, but because the information technology infrastructures, specifically IBM 286 chips, the heart of the shuttles control systems, were no longer available at reasonable cost.

Some will continue to see opportunities to serve the needs of the auto enthusiast. There is a long tail of specialist suppliers of parts and supplies, accessible globally online. But don't expect to be able to have a 50s carburetor 3D printed from old engineering drawings. Sooner or later the costs of acquiring parts and supplies will outweigh the rewards to the enthusiast that come from running and maintaining most ordinary cars. This happened very quickly to analogue photography – less than a decade. While there remains a market for equipment and supplies, it is an increasingly specialized niche compared with the ubiquity of digital mobile media.

Nevertheless as the automobile evolves, acknowledgment will grow of the historical significance of the automobile to the 20th century. Some vehicles will pass into organized curation, as well-endowed collections, public and private, are consolidated and made into institutions. To become secure institutions that will survive, most of these will need state support. Limited infrastructures, in the way of parts, materials, and skills, will be made available, just as it is still possible to run, maintain and repair a 19th century steam locomotive. But the costs will rise far beyond the reach of most collectors. A great museum may be able to secure an endowment that will ensure the oil changes for a Duesenberg for the foreseeable future. Few owners of a modest 60s Mustang will be able or willing to do the same.

Heading the way of the dinosaurs

Mercedes-Benz Classic is an interesting test case in this regard. This recently

formed subsidiary of Daimler AG serves the needs, it claims, of the owner of an older Mercedes. The spare parts inventory is worth 500 million Euros. The company runs a very impressive museum and visitor center in Stuttgart. The support for classic Mercedes cars, and the company's collection of historic vehicles wheeled out for public shows, is acknowledged as a key component to the Mercedes brand. It remains to be seen whether the company will succeed in tending to the needs of the modest owner.

So the markets for old vehicles will continue to bifurcate. Vehicles deemed worthy of the heritage industry will grow significantly in value as their rarity increases and as their historical significance is more acknowledged. There will be a market for special old cars and people will invest in it. In contrast, the market for modest ordinary cars will shrink markedly, as no one will be able to run an ordinary vehicle; you'll only see them in museums, and at special events. It is only a matter of time before the cherished family car is a pile of rusting metal in the back yard.

Even though it is widely acknowledged that a car exists to be driven, this will become irrelevant to all but the few specialist institutions and very wealthy individuals. Cars older than a few years will, for the most part, cease to run. The limit case is obvious – the amalgam of moving parts that is an automobile cannot be expected to run forever. This will be exacerbated as the 20th century experience of owning and driving cars recedes in memory and into history. Can we expect the experience of driving a 1931 Bugatti to be as exhilarating in 2050 as it was a century earlier? How many will cherish the truck-like handling of a Duesenberg, however impressive it may look? What will be the purpose of driving such a vehicle in 2050, other than adherence to an abstract and museological principle of authentic performance, or as a display of affluence? Computers are a key component of everyday life today. But very few devices from even a few years back still run. How many people actually regret this? Even though it is good to be reminded of how things have changed.

People will make do with stories and accounts, supported by the presence of the artifact, albeit immobile. This is what has always happened to the past. The importance accorded to the automobile by the heritage industry will result in more examples of proxy experience of the automobile – replication, simulation, media appearances, edutainment. The evolution from hobby to heritage will see the growth

of nostalgia and narrative, and investment in the apparatuses of the heritage industry – academic research and popular accounts, national collections and tourist attractions, education and entertainment. The market for automotive heritage will grow, and it will be a competitive market seeking customers and investment.

I suggest that the challenges in the evolution of the automobile should be solely focused neither upon the impossibility of keeping old cars running, nor upon ignoring the past and designing the robotic car of the future, nor upon a heritage industry peddling the past just for profit. The challenges precisely concern **evolution** – neither extinction, nor creation *ex nihilo*, out of the genius of the designer.

The challenge and opportunity for those who care about the future of the automotive past, and we have all been touched profoundly by the automobile, is to let go in a reasoned and planned manner, attending to the realities of the inevitable shift into the heritage industry, and attending to the evolution of personal mobility. Let's not lose what should be cherished. Let's not forget the past in the quest for a brave new world.

How might this happen?

What can be done?

Build an ark.

Be selective. Make the hard decision of actually letting go. Don't be sentimental. If you own an old or classic car, consider if it is truly worthy of keeping. Sell it, if it isn't. There are still plenty of buyers who aren't so concerned with evolution and value cars just for their looks. Focus resources on a reduced inventory of worthwhile cars. Choose the stars of the future, and make sure there are representative support and character actors as well as beauties and beaus.

Give priority to documenting everything about the chosen few. When the cars don't move, this is all that will bring them back to life.

Animate, mobilize, give the stage over to a few select cases that carry rich and nuanced stories and messages. Experiment with ways of animating the whole automotive experience. It is not difficult to do; there are many precedents. A

static artifact is a dead loss.

Make alliances and consolidate disparate collections of cars, and all related automobilia. Seek institutional and state support. Promote the cause. Lobby for acknowledgement and incorporation of automotive heritage into school curricula etc. Consolidate a definitive official inventory. Support the Historic Vehicle Association of America – this is what they're doing.

Model (car) design as the reuse of history – a process of reiteration and return. Forge alliance and sponsorship with corporations, automotive and others. The history of the automobile will grow as a source of meaning and value because significance and meaning are always connected with rich stories – not pastiche and anachronism, but evolution – the past carried forward. Show with test cases and prototypes, in schools, colleges, companies, how this happens.

Create a discipline and profession. Artists know that their work gains value and significance when it becomes part of authorized debates in art history and criticism. This started as art collection turned from a private hobby into the heritage industry of the art market and into the new discipline of art history at the beginning of the 19th century. Recruit researchers, writers, academics, curators, students to develop such disciplinary apparatuses.

Be flexible. The challenge may, in the end, not actually be about saving the automobile, just as the evolution I have sketched may, at heart, be about urban dwelling, trustworthy robots, and mobile connectivity. Evolution is, after all, never about single species but ecosystems.