



重新发明汽车迎接电车时代

Re-invent Cars to Enter the EV Era

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新能源汽车推动行走文明进步，电动汽车的初衷是为了能源安全、环境保护；据称新能源汽车“十三五”规划中，加入了自动化、轻量化、智能化等新内容，提高了行走安全的地位。为此，必须重新发明汽车，迎接电车时代。

电车文明或将应运而生

循此以往，“汽车”下一代的形态很可能完全超乎我们的想象，而其商业模式也必然会颠覆传统商业运营。电车文明或将应运而生！

“汽车”这个名词即将完成其历史使命，或将从未来人的语言中消失。随着新能源革命的深入，电气电子技术的进步，“汽车”这个20世纪“宠物”的命运，正面临着重新被发明——除了它从“马车”继承的轮子和椅子，以

New energy vehicles can promote walking civilization. The electric car is designed to ensure energy security and environmental protection. According to the 13th 5-year plan for new energy cars, new contents are added, e.g., intelligent automation, lightweight, and etc., so as to enhance the safety. So we must reinvent the cars to enter the EV era.

Trams civilization may arises at the historic moment

The form of the next generation of cars may be completely beyond our imagination, and its business model is bound to reinvent the traditional commercial operation. EV civilization may arises at the historic moment!

The term "car" is about to complete its historical mission, or will never come to language. With the deepening of the new energy revolution and the progress of electrical and electronics technology, the "car" as a "pet" in the 20th century will be re-invented again. Except for its wheels and a chairs and interiors, the other parts will change to a great extent. Then time, it may not be

及“汽车”的外壳和内饰被保留下来外，不仅面目全非，而且内脏全无。这，还叫“汽车”吗？

“汽车”的下一代应该是电驱动、无污染、高效率、低成本及轻量化的“电车”。它可能像手机、笔记本电脑那样随身携带的“个人移动工具”；也会是随时按照你的需求马上就能获得的“电车”。

电车千奇百怪超乎想象

按照“一个问题有多个解”的思维方式，电车文明的理念引领人类行走的形态，也将千奇百怪超乎我们想象。看几个案例：

其一、CityCar是一辆集合各种新奇特点的“电车”。通用汽车与麻省理工学院联合出版的《重塑汽车：21世纪的城市移动人》书中，描述的麻省理工学院研发的CityCar，它更多地以数字化操控软件为载体，而不是硬件。不难设想，CityCar的形态可以如iPhone一般，成为第三方软件开发者的平台，以提升它的驾驶体验。

其二、SegwayPT是前开门的双轮“电车”。2009年4月，通用汽车和Segway共同在纽约展示PUMA“电车”，时速达到25英里，一次充电可以行驶25英里。锂电池供电；电机驱动；两轮动力平衡系统；车车通信；遥控操作；自动驾驶与停靠等等就睡，更为紧凑地体现了“人元素最大化，机械元素最小化”的设计理念。

其三、丰田第4代i-REAL概念车。该车的驱动轮由两个前轮和一个后轮组成，只要两手握住手柄摇杆，就能控制前进，制动和转弯的动作。在人行道行驶时，可选择两轮直立行驶的“步行模式”，使占地空间相对减少，驾驶员视线可以与步行者保持平行，能与周围的步行者交流。如果在车行道行驶时，则可以切换至三轮同时行驶的“驾驶模式”，重心降低，提升车辆操控性。这是最新的“个人移动工具”。

其四、日产的Pivo2。名字源自英语Pivot，意思是旋转。Pivo2的驾驶舱像个气球，可以360度全向旋转，能旋转的客舱设计成可爱的圆形，就像是Q版的卡通形象，旋转起来非常可爱。其车轮可以90度旋转，可以学螃蟹横着跑。尤为特别的是驾驶室中控台有一个可爱的机器人Robotic Agent。除了语音提醒，还帮助你找想要去的地

called as a car.

The next generation of "cars" should be electric, nonpolluting, highly efficient, low in cost, and light in weight. They might be like mobile phones, laptops and so forth as a kind of "personal mobile tool". They may meet your needs at any time.

Various electric cars beyond imagination

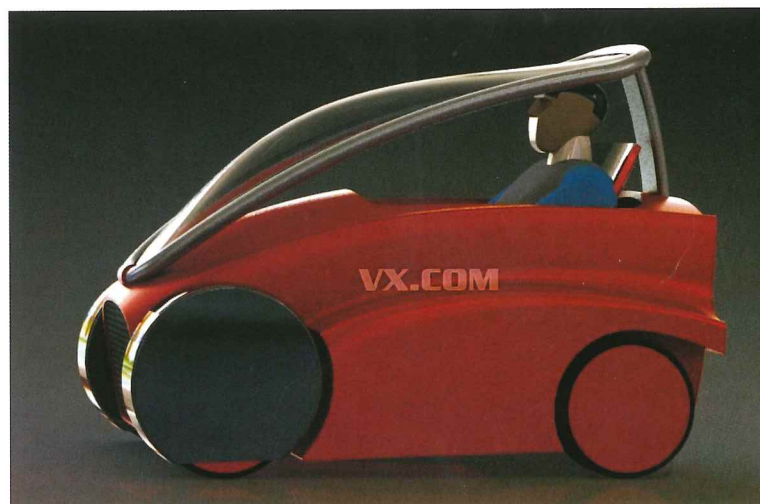
According to the train of thinking that a problem has multiple solutions, a variety of electric cars as a leading concept in our human world will be beyond our imagination. Look at a few cases:

First, CityCar is an electric car having a variety of novel characteristics. General Motors and Massachusetts Institute of Technology jointly published a book named Reshape Cars: Urban Mobile People in the 21st Century. In this book, CityCar developed by Massachusetts Institute of Technology is described to be more with digital control software as the carrier, rather than hardware. It is not difficult to imagine that the configuration of CityCar can be like that of the iPhone to become a platform for third-party software developers, in order to enhance its driving experience.

Second, SegwayPT is a two-wheeled EV. In April 2009, GM and Segway jointly showed PUMA EV in New York whose speed was 25 miles per hour. It could travel 25 miles on a single charge. It features lithium batteries, motor drive, two-wheel dynamic balancing, car-car communications, remote control, automated driving and etc. Therefore, it reflects the design concept of being people-oriented and being mechanical compact.

Third, Toyota 4-G i - REAL concept car. The car's driving wheel is composed of two front wheels and a rear wheel. As long as the handle rocker is held, then you can have a good control for the advancing, braking, and turning. When driving on the sidewalk, you can choose the walking mode so as to occupy a less area. The line of sight for the driver can be keep in parallel with the pacers and can communicate with them. When driving on the roadway, the driving mode can be set to lower the center of gravity and improve vehicle handling. This is the latest mobile tool for the users.

Fourth, Nissan Pivo2. Its name is derived from English Pivot, meaning rotation. Pivo2 cockpit likes a balloon and can rotate 360 degrees. The design of the cabin that can rotate is like a Q version of cartoon image that is very lovely in case of spinning. The wheel can rotate 90 degrees and run in a crab-like manner. It also has a robot Robotic Agent. In addition to voice remind, it can help you find a place and look for a parking lot. The dual-eye sensor system



方，找停车场。双眼的感测系统会判断你的表情，与你适度沟通。开创了人与车相互交流的新方式。该车是一款面向城市用户提高停车便利性的“电车”。

可以预料，未来电车会越来越小越轻，自动驾驶，智能交通，□联网，使交通事故和塞车现象成为历史。

创新网络运营的商业模式

更值得注意的是电动车公共事业运营商业模式的出现。随着互联网、车联网及导航系统等技术的应用、创新电车网络运营的商业模式，运营尤为便捷。

以色列沙伊·阿加西，在40岁前因所创公司被SAP收购而成为后者最年轻的董事会成员，并有望成为SAP下一任CEO接班人。但他选择离开创业，创办运营电动车网络的乐土公司（Better Place）。

公司已经在世界各地建立了测试基地，包括加拿大魁北克省以及中国的某些城市都在接触。这家公司已经募集了汇丰投资的3.5亿美元，预计不久也会步Tesla的后尘上市。

乐土（Better Place）日前宣布与中国汽车制造商签订的首项协议，中国有潜力成为未来电池驱动电车的最大市场。这家美国公司与中国最大的独立汽车制造商奇瑞于今年4月26日签订了一项谅解备忘录，将在地方政府支持的试点项目中，合作开发电动汽车原型。

创立不久的乐土获得了很多巨头的青睐，日产为其提供标准化的定制车，前者还将在日本启动一个“验证”项目，展示其可更换电池相关技术：4辆东京出租车将连续行驶100天，每天只停车3次更换电池。

这些汽车将配有可更换电池，可在电池更换站换掉旧电池，换上充满电的电池。Better Place正在以色列、丹麦、加拿大等国家建设这样的电池更换站。乐土相信，只有配备了可拆卸的电池，电动汽车才会被大众市场接受，

will judge your expression and moderately communicate with you. It creates a new way to talk with the user. with new ways to communicate with one another. The car is urban and user-oriented and provides parking convenience.

It can be expected that, in the future, the EV will become smaller, more automatic in driving, smarter and more connective with the car network, leading to the new situation where no traffic accidents or traffic jams occur.

Business model re-invented in the network operation

Even more remarkable is the emergence of operation business model of EV utilities. As the Internet, car networking and navigation systems and so forth are used, the business model for the EV is innovated. Especially, the operation is convenient.

In Israel, Agassi before the age of 40 became the youngest member of the board of directors in SAP because of his company acquired by SAP. He was expected to become a SAP's next CEO successor. But he left it and set up an electric car network company (Better Place).

Better Place has established a test base around the world, including the Canadian province of Quebec, and set up a contact with some of the cities in China. The company has raised HSBC's investment of \$350 million, and is expected soon to be listed, as does Tesla.

Better Place recently announced the first agreement signed with the Chinese auto maker. China has the potential to become the largest market in the field of the battery-powered EV in the future. The company and China's largest independent auto maker Chery in April 26 signed a memorandum of understanding about the development of the EV prototype for the local government supported pilot project.

The company has won the favour from a lot of giant of giants. Nissan provides it with standardized custom cars. Nissan will also launch in Japan a verification project to show its replaceable battery related technology: 4 Tokyo taxi cars will run 100 days which stop only 3 times a day to replace batteries.

These cars will be equipped with a replaceable battery. Namely, the old battery is replaced by the new one. Better Place is in Israel, Denmark, Canada and other countries to build such a battery change station. It believes that only equipped with a removable battery, can the electric car be accepted by the mass market,



因为这样能降低汽车售价，并使其更适合长途旅行。

乐土的模式，不仅仅是标准化换电池那么简单，移动互联网将应用于乐土运营的电动车网络，你可以通过手机，操作车库中电动车的充电，并实时查看状态。未来在行驶过程中可以在挡风玻璃上的屏幕看到下一个最近的电池更换站在哪里。

重要的是，车载网络管理软件，即电动车OS和Network可以根据电网的负荷，优化本地汽车的能源使用情况，最大程度上熨平电网的峰谷。预计几大汽车厂商都可能会建立自己的运营网络。但随着一体化的大趋势，终极的形态也许是电动车云计算提供商的出现，和个别追求更高体验的个性化电动车的诞生。

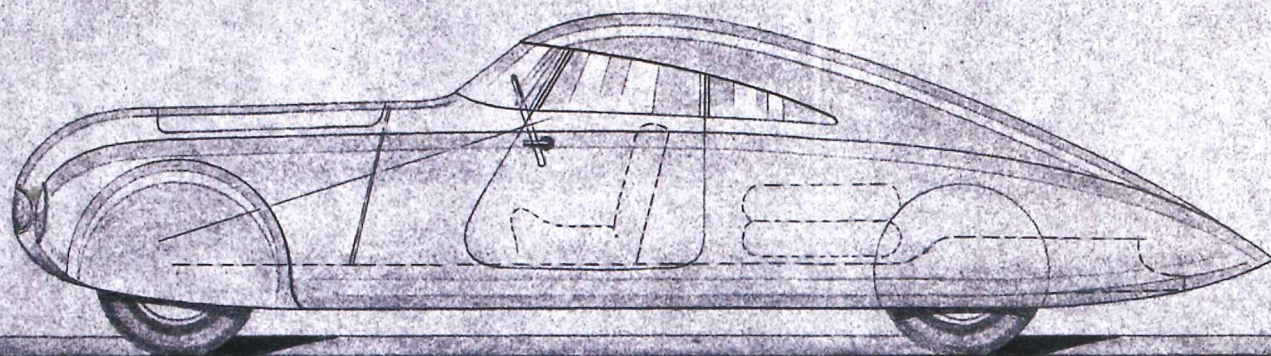
毫不夸张地说，未来电车行业的网络商业模式一定不同于现在汽车的销售模式，未来参与的玩家也会超出你的想象。或许有一天，苹果也会推出自己的电动汽车，而这辆车会在某个运营商的管理下，像iPhone手机一样用套餐价格很便宜地卖给你——当然，你要签署协议，缴纳服务费。

because this can reduce cost price and make it more suitable for long-distance travel.

In the company, standardization in the battery change exists, and the mobile Internet is used in the EV network. You can charge the EV in the garage and view the real-time status through the mobile phone. In the future, you can use the screen of the windshield to see where the nearest battery change station is.

Importantly, the on-board network management software (i.e. EV OS and Network) can be based on the load of power grid to optimize the energy used in the local car and flatten the grid peak or valley to the max extent. It is expected that several major car manufacturers will set up their own networks. But with the trend of integration, the ultimate form of electric cars will be the emergence of cloud computing providers and the birth of the very personalized electric vehicles.

It is no exaggeration to say that, in the future, the electric car industry network business model must be different from now the auto sales mode. Players to participate in future will be beyond your imagination. Perhaps one day, Apple may launch its own electric cars which are under the management by a certain operator, as does iPhone. Of course, you are required to sign the agreement and pay the service charge.



解读电动汽车产业发展趋势

Trends in EV Development



文/ 庞义成 Text/Pang Yicheng

近日，根据工信部发布的数据，2014年11月，我国新能源汽车生产9728辆，2014年1-11月，新能源汽车累计生产5.67万辆，加上12月的销量，2014年度新能源汽车销量在6-8万辆。

Recently, according to data released, in November 2014, China produced 9728 new energy cars; Jan to Nov, 2014, total 56700 new energy cars were produced. In whole 2014, the number of new energy cars sold was 60000-80000.

Pang Yicheng

It is expected that, in 2015, China will sell 200000 to 300000 new energy cars, and this figure is the same as that in America. The proportion will be 1% in the car market. This shows that we will enter a point of the of high-speed growth. In 2016, the size of the market in China will surpass that in the United States, which is expected to reach 500000 cars.

This optimistic forecast is due to the following changes in the auto market of China:

First, in 2014, more than 24 million cars were produced and sold, growing 8% to 10%. This is the first in the world for five consecutive years, followed by the United States, Japan, Europe and other countries and regions. According to the growth rate, it is expected that, by 2015, more than 25 million cars will come out, and by 2020, 35 million cars equal to the sum of the other seven major car countries.

Second, China's oil shortage exists. Oil prices will gradually rise. There is a fall sometimes, but the big trend will not change. China's current oil import dependency is very high. With annual car huge increment, the oil supply is difficult to support. Moreover, China's leading oil import routes are affected by the military base from the other country, except that in Russia. At present, China's oil supply is not cut off, but China should be safe in the major energy lifeline.

Third, China's economic growth falls back. The golden age by China's economic engine - the real estate industry has passed by. In the future,



庞义成

在中美经济“错肩”的关键十年甚至更长，预计2015

年，中国新能源汽车产销量将达到20到30万辆，与美国持平，占汽车销售市场1%的比例，并进入高速增长的拐点。2016年，中国市场将超过美国的规模，预计将达到50万辆。

如此乐观的预计，源于中国汽车市场现下正在发生的变化：

其一、2014年全年预计产销量将突破2400万辆，增速8%—10%，连续5年全球第一，快速拉开与美、日、欧等国家和地区的差距。按此增速，2015年将超过2500万辆，2020年将超过七大汽车国的市场总和，预计达3500万辆。

其二、中国石油紧缺，油价将逐步上涨，其间会有一些反复，但大趋势是不会改变的。中国现在的石油进口依存度很高，伴随每年汽车的巨大增量，石油供应是难于支撑的。而且，中国主要的石油进口的途径，除了俄罗斯路线外，其他全部路线上都有美国的军事基地环绕把关设卡。目前，虽然美军还不至于切断或限制中国的石油供应，但是中国的主要能源命脉在竞争对手的把握之中，终究是一个威胁中国能源安全的隐患。

其三、中国经济增长全面回落，曾经是拉动中国经济的发动机——房地产业已经度过黄金时代，未来的贡献度会稳步下降，需要新的经济增长引擎——包括电动汽车的新兴产业。

其四、跨国公司大规模抢占中国市场份额：第一，扩产能：大众2015年销量目标：315万辆(提前一年实现)，预计350万辆；通用：500万辆；日产：230万辆；丰田：180万辆；PSA：200万辆；现代起亚：160万辆；奔驰：60万辆；宝马：70万辆小计：1800万辆；预计2015年占比：70%；第二，沉网络：宝马集团CEO说：我们在中国最大的机会在三级市场(地级市)、大众汽车：把市场沉到四级去(县级市)；第三，降价格：德系率先掀起了价格战，其余外资品牌全线跟进，大众宣布在中国市场推出5万元的车型。

其五、未来五年，随着外资品牌的全面冲锋，三四级市场的正面战争必将打响，本土品牌被迫全面转入五级市场——县城、乡镇及农村，将是大概率事件。

其六、限购的范围在扩大，已限购城市有北京、上海、广州、贵阳、天津、杭州、石家庄等；将限购城市包括深圳、成都、重庆、青岛、武汉、济南、长沙等。限购是应对城市资源无法支撑巨量汽车增长带来的交通问题而采取的不得已的措施。限购将造成销售下降1/4以上，本土

its contribution degree will decline steadily. We need a new economic growth engine, including the electric car industry.

Fourth, multinational companies will carry out a large-scale seizing of the market share: They expand the production capacity. VW's mass sales target is 3.15 million car in 2015; GM 5 million; Nissan: 2.3 million; Toyota: 1.8 million; PSA: 2 million; Modern KIA 1.6 million; Mercedes Benz: 600000; BMW: 700000. The subtotal: 18 million. They focus on the local market. BMW Group CEO says: we in China have the biggest opportunities in the tertiary market. VW sinks its market into the level 4 (county-level city). They reduce prices. Germany cars set off the price war. VW announced a launch of cars at the price of 50000 yuan in the China market.

Fifth, in the next five years, as the foreign brands come, the new market competition will begin. The domestic brands may be forced to the level-5 market, including counties, townships, and rural areas. And this will be a big probability event.

Sixth, the buy restriction scope expands. The restriction cities now include Beijing, Shanghai, Guangzhou, Guiyang, Shijiazhuang, Tianjin, Hangzhou, and Shenzhen etc.; and will include Chengdu, Chongqing, Jinan, Qingdao, Wuhan, Changsha, etc. This is a measure which has to be adopted in order to deal with the traffic jam in the cities. The buy restriction will lead to a fall of more than a quarter in the sales. The domestic brands share will fall sharply.

Seventh, multinational companies will try to reconstruct the car industry of China in the next ten years. There will be a large number of state-owned automobile enterprises subject to mergers and eliminations. For example, FAW and so forth which are inefficient may be merged by multinational companies or divided by insiders. Consumers from the level-4 areas or below including counties, townships and rural areas will become the leading force in the market. Under the condition of the oil and gas supplies in shortage, they will combine with domestic auto brands of China may build a large scale EV market with Chinese characteristics, and therefore will produce "world-class" enterprises with Chinese characteristics.

Eighth, China is taking a "carrot and stick" policy, namely subsidies + energy-saving emission reduction targets. On the one hand, the policy of subsidies now are issued in many pilot cities. On the other hand, May 1, 2013, a policy about the measure for the calculation of fuels consumed in the passenger car company was issued (hereinafter referred to as the "measure"). The measures provides the method of the calculation of the corporate average fuel consumption value (CAFC). The ultimate goal is to promote car companies to implement fuel consumption country target: 6.9 L/100km in 2015 km and 5.0 L / 100km in 2020. For car makers with various models, if they do not develop new energy cars, then these goals will be almost impossible. At the same time, There is a calculation





品牌占有率将大幅下降。

其七、跨国公司将在未来十年内努力重构中国汽车工业，会有大量国有汽车企业被兼并和淘汰。类似一汽、二汽效率低下的企业不是被跨国公司兼并，就是被内部人瓜分，也许二者兼而有之。而中国四级(县城)、五级(乡镇和农村)消费者将登上历史舞台，成为决定中国汽车市场走向的决定力量。在油气供应紧张的情况下，他们与中国本土汽车品牌的结合，或许将培育出有中国特色的大规模电动汽车市场，也将因此培育出有中国特色的“世界级规模”企业。

其八、中国目前采取的是“胡萝卜+大棒”的政策，即补贴+设定节能减排指标。一方面补贴政策现在很多试点城市都陆续出台。另一方面2013年5月1日《乘用车企业平均燃料消耗量核算办法》(下称《办法》)正式实施。《办法》确定企业平均燃料消耗值(CAFC)的计算办法，最终目标则是促进车企实现油耗国家目标值：2015年6.9升/百公里，2020年为5.0升/百公里。这对各种车型齐全的车企若不发展新能源汽车，几乎是不可能完成的任务。同时，纯电动乘用车、燃料电池乘用车、纯电动驱动模式综合工况续航里程达到50公里及以上的插电式混合动力乘用车的综合工况燃料消耗量实际值按零计算，并可按5倍数量计入核算基数之和；综合工况燃料消耗量实际值低于2.8升/100公里(含)的车型(不含纯电动、燃料电池乘用车)，按3倍数量计入核算基数之和。新能源汽车在计算中权重极高。对于油耗值偏高的企业来说，生产新能源汽车显然对企业整体达标十分有利，甚至只需少量的新能源汽车，即可起到很大作用。

其九、消费端的利好政策还将不断出现。根据国外的新能源汽车推广经验，除了已经出台的减免新能源汽车车



method (actual fuel consumed is zero) for the pure electric passenger cars, fuel cell passenger cars, and so forth. For models with the actual consumed value less than 2.8 L / 100 km, it will be calculated into the calculation base (3-fold). In the calculation, the new energy cars have a calculating weight which is extremely high. For enterprises having a high fuel consumption value, the production of new energy car is apparently



辆购置税以外，未来可能还会增加交通路权，比如不限行、可走公交快速通道等。想想当他人堵车时，新能源汽车则可从公交车道呼啸而过，这样的示范效应可能比补贴还有效果。另外，还可能有减免停车费和高速费，大力发展充电设施等。

目前，消费者对于电动汽车的三大问题：充电不方便、价格高、续航里程短。瓶颈仍然是动力电池，在大规模的资金进入电池研发后，未来必然会在电池领域出现革命性变革。但是，在现有的条件下，依然有两条思路能够更高效地解决政府和消费者的问题。一方面对中心城市，可以通过集中采购、智能管理——出租车、分时租赁等方式，另一方面在县城及农村，可以通过放开路权，分类准入，大力发展微型电动车的方式来推进当前新能源汽车发展。

(根据第一电动网有修改)

good. In such case, the new energy cars can play a big role.

Ninth, good policies about consumption will also appear constantly. According to the experience in the promotion of new energy cars in foreign countries, in addition to the already introduced the policy about the tax relief for the purchase of new energy cars, the policies about the road right will be issued, for example, the run not limited or run in the expressway. When there is a traffic jam, the new energy car can run in the public bus line. This demonstration has a better effect when compared to the subsidies. In addition, the park fee and expressway fee can be reduced or will be not paid, and the charging infrastructure is developed, and etc.

At present, the consumer faces three major issues of electric cars: charging is not convenient, the price is high, and the mileage is short. The bottleneck is still a power battery. After the massive funds are into the battery research and development, there will be a revolutionary change in the field of battery. But, under the current condition, there are still two ideas can efficiently solve the problems for the government and consumers. On the one hand, the center city can develop the new energy cars through the centralized purchasing, intelligent management, taxis, time-sharing leasing mode and so forth; on the other hand, in the county town and countryside develop the mini electric cars through letting go of the road right and the classification of access, in order to promote the current new energy car development. (This article is from No.1 EV Network, which is modified.)

