

# 社区电动汽车租赁服务系统设计

## The Design of Electric Car Rental Service for the Community Based on the Product-Service System Design

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[摘要] 本文介绍了基于以人文本理念的社区电动汽车租赁服务系统设计方法以及相关设计工具的服务设计。

[关键词] 服务系统设计；工具；社区电动汽车租赁

[Abstract] This paper introduces the basic concepts, methods and tools of the theory of Product-Service System Design(PSSD).Based on its concept of people-centric,designing the system of electric car rental service for the community with related design tools.  
[Key words] Product-Service System Design;Tools;Electric car rental service for the community

### 一、服务系统设计概述

#### (一) 服务系统设计简介

系统设计注重方法的系统性和创造性。它的价值在于为用户和服务提供者提供交互方式和需求解决方法。它的目的在于，从客户角度看，服务接口是有用的、可用的和可取的；从服务提供者角度看，服务是有效的、高效的和可取的。

服务设计发生在逆向过程当中，首先预期什么样的体验是服务对象希望的体验，之后为这一预期进行设计并使之得以实现。作为服务的设计者，是为问题制定和编排方案——即便这个问题目前并不存在。他们观察需求并理解需求，并将可行的方式进行转换，从而将它们融入未来的服务当中去。成功的服务设计应该有效实现以下3个结果：(1) 创造的服务能够被运用到市场上去；(2) 人们喜爱这一服务；(3) 为服务提供者创造良好的商业意义<sup>[1]</sup>。

服务系统设计(PSSD, Product-Service System Design)是系统设计和系统设计的融合，其基于以人为本和科技创新的理念，关注人的需求，适用于在较高的社会文明条件下，提供系统解决方案设计。服务系统设计中，用户处于核心位置，其原因简单明了：它直接关注用户真实需求从而明确系统用途和方案，可以最大程度方便系统设计和发挥系统效用。

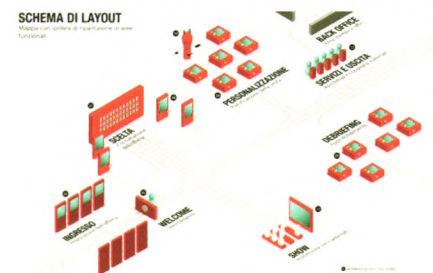
#### (二) 服务系统设计研究工具

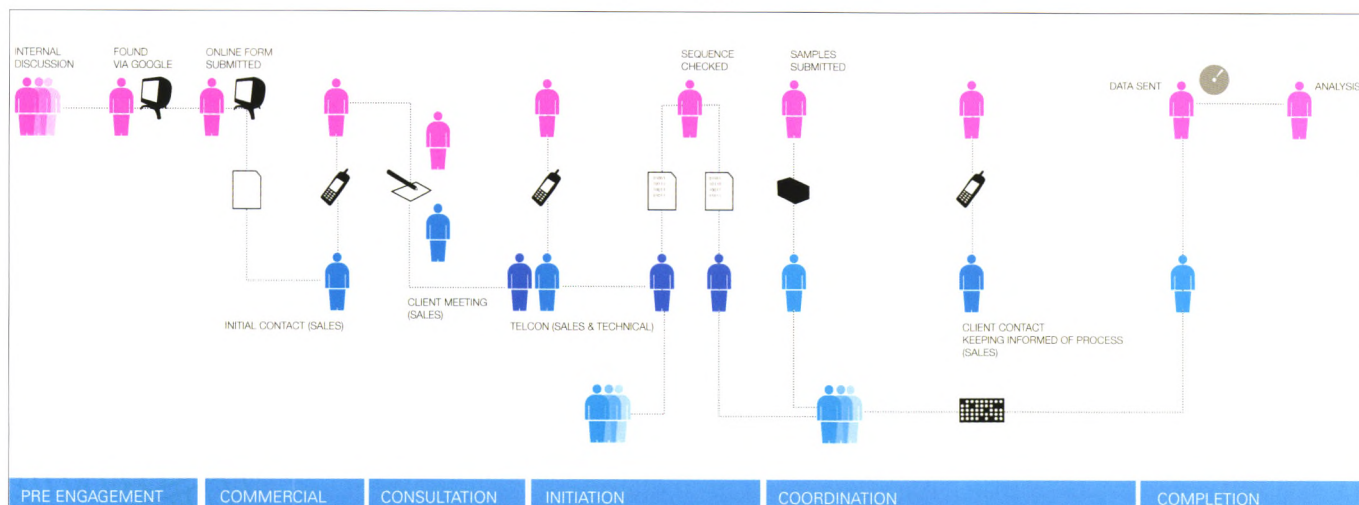
服务系统设计研究工具包括情绪

板(Moodboard)、海报(Poster)、故事板(Storyboard)、系统网络图(System Map)、客户旅程图(Customer Journey)、角色模型(Personas)、利益相关者模型(Actors Map)和动机矩阵(Motivation Matrix)等<sup>[2]</sup>。

##### 1、情绪板(Moodboard)

情绪板是一个提供具有创造性和启发性的可视化工具，可以突出环境与人的互动关





**TERRENCE TAO**  
AGE 37

Tao credits his start in mathematics to watching Sesame Street as a toddler.

By the age of 2, while most of us are still getting adjusted to walking and talking, Tao was able to calculate basic arithmetic.

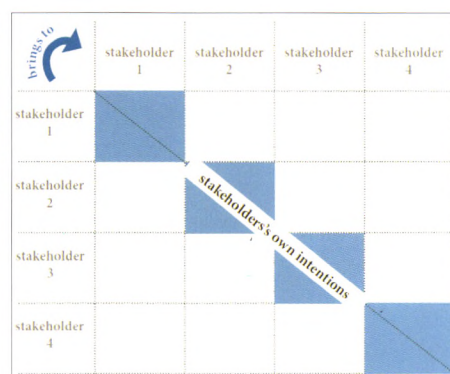
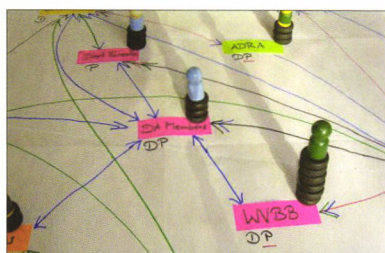
By age 9, he was taking college-level math courses and received a Ph.D from Princeton at 20.

At 24, he became the youngest ever full professor at UCLA.

IQ 230

Tao was the youngest participant to date in the International Mathematical Olympiad, winning the gold medal when he was 13.

Tao has published over 230 research papers.



**Steven**

- Gender: male
- Age: 24 years old
- Identity: Enterprises Workers
- Work time: 2years
- Residence: Rent a room with a friend.
- Car: No
- Monthly income: 4000yuan

Steven need to work from Monday to Friday. And he always go to work by bus. After work, there is no entertainment.

At the weekend, he likes to go to the gym or meet friends.

Because there is no private cars, his mode of transportation is usually bus or taxi.

His character is willing to try new things. And he has a strong philosophy of environmental protection.

**Bonny**

- Gender: female
- Age: 33 years old
- Identity: Kindergarten teacher
- Work time: 9 years
- Residence: Living in Wanke with her family.
- Car: One
- Family monthly income: 10000yuan

Bonny has a kind husband and one child. Her husband open a flower shop.

Her husband needs to go to the florist to take care of the business from Monday to Friday. His transport a private car.

But her time is relatively free. Normally, she would like to transfer their children to school, and do some household work. Bus and subway are her main means of transport.

She also wants own a car. But the requirement is not high. It do not need to be fast, but to be environmentally friendly and be safe.

**John**

- Gender: male
- Age: 27 years old
- Identity: Sales staff
- Work time: 5 years
- Residence: Living in Wanke with a friend.
- Car: No
- Monthly income: 7000yuan

John works from Monday to Friday. His work is with the company's shuttle. Going home for dinner at night after job.

John has a beautiful girl friend.

At the weekend, he always be with his girlfriend. Usual activities is walking in the park, go shopping, watching movies, or just playing around the city.

They are likely to select public transportation, subway or taxi to travel.

Their goal is to work hard, buy a house as soon as possible, and then buy their own car.

系。它的基本组成是一个拟定整体环境的图片，图片需要描绘场所、参与者和解决方案。

## 2、海报 (Poster)

海报是具有易吸引人关注的方法，它可以描绘一个简单的内容丰富的故事等，集成了文字信息和图片信息，描绘和渲染主题，进而展示服务设计的特点。

## 3、故事板 (Storyboard)

故事版是将使用过程通过一系列按照顺序进行排放的图片来展示的方法。故事版展示每一个接触点发生的行为和发生者之间的关系。

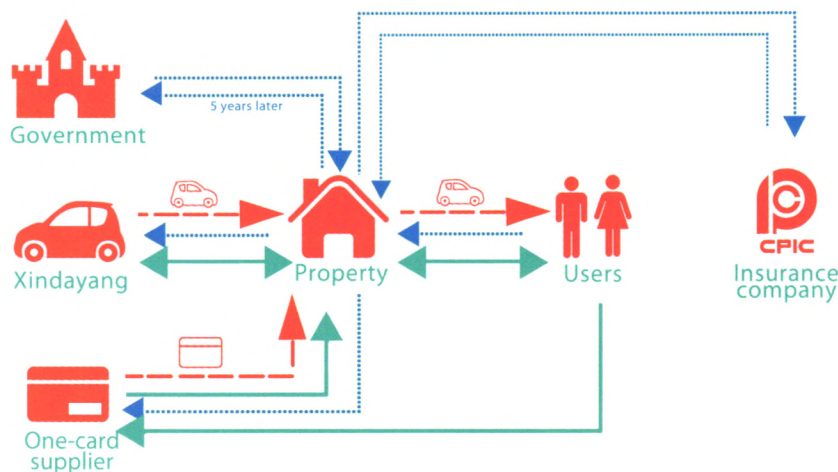
## 4、系统网络图 (System Map)

系统网络图是一个用可视化的方式展示服务系统组织的方式，其中涉及不同的参与方，参与方之间在系统中产生包括材料、信息、金钱等的联系。

## 5、客户旅程图 (Customer Journey)

客户旅程图用以明确参与者的角色和作用。每一个旅程图上都应有对应的用户需求和用户感受，且应当着重完整呈现客户旅程图的内容，而不是将重点放在一个图上。一个产品中可能会有多个客户旅程图，即有不同





需求的客户角色对应不同的客户旅程图<sup>[3]</sup>。

6、角色模型 (Personas)

每一个角色模型都是一个虚拟人物，这种方式可以使每一个角色模型拥有其所代表群体的群体属性。

7、利益相关者模型 (Actors Map)

利益相关者模型展现的是参与系统的利益相关者之间的关系，是一种展现系统服务及其背景的方式。

8、动机矩阵 (Motivation Matrix)

动机矩阵主要展现两方面的信息，第一是系统参与者将为系统带来什么，第二是系统参与者需要系统提供什么。

二、基于服务系统设计的社区电动汽车租赁服务设计

(一) 服务模式界定







通过相关研究，我们总结出人们对电动汽车认知的四大特点：1) 可以接受使用电动汽车；2) 目前不会考虑个体购买电动汽车；3) 对电动汽车如何充电提出疑问；4) 对电动汽车安全产生质疑。

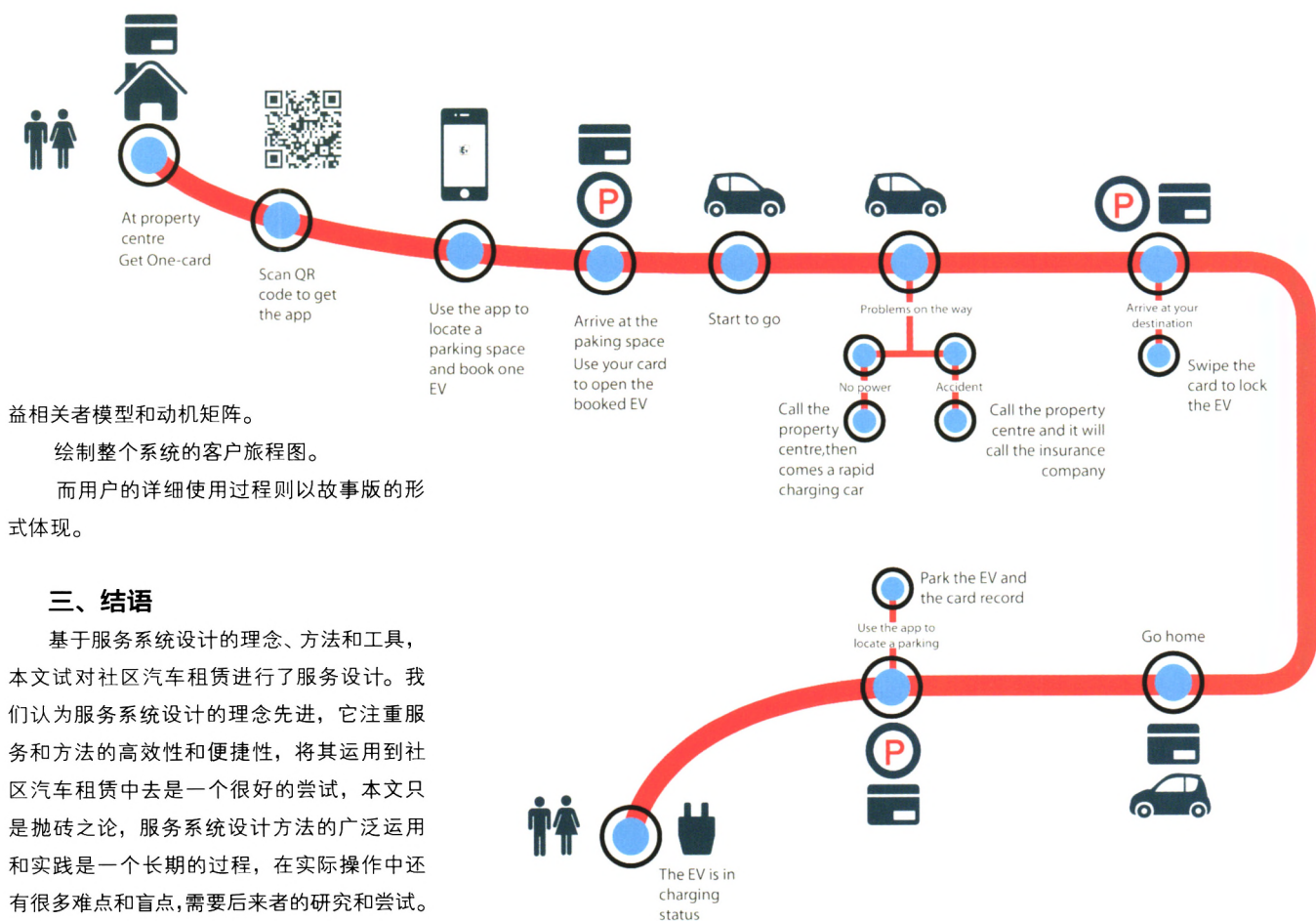
针对这四大特点，我们最终设定，电动汽车通过租赁的方式提供给社区住户；由社区物业负责包括充电和维修在内的电动车日常维护服务；保险公司以为用户提供保障为基本目的参与到整个服务系统中。

(二) 电动汽车租赁服务系统设计

通过桌面调研、实地访谈和问卷调查等相关前期准备工作，我们建立了角色模型。

其后需确定参与到整个系统的利益相关者，有政府、物业、用户、电动车厂商、物业卡系统和保险公司等。基于此我们制作了利

	 Bring to Government	 Property	 Users	 Xindayang	 One-card supplier	 Insurance company
Government		improve the government credibility and social recognition	provide financial support		provide financial support and charging pile	
Property	5 years later, the property will give 10% of the profit to the government	make a profit; win the support of the government	provide more environmentally friendly and convenient EV rent system	make a profit	make a profit	make a profit
Users	promote the concept of environmental protection	make a profit	have a new green transportation	raise the awareness of company; promote the popularity of electric vehicle		
Xindayang	promote the popularity of electric vehicle; spread low carbon transportation	the ownership of the EV rent system	the right to use the electric car	make a profit; promote the development of electric car; have higher social recognition		
One-card supplier		provide the community one-card	more convenient to use the rent system		make a profit	
Insurance company		provide the car insurance (DT, compulsory insurance)	accident indemnity			make a profit



益相关者模型和动机矩阵。

绘制整个系统的客户旅程图。

而用户的详细使用过程则以故事版的形式体现。

### 三、结语

基于服务系统设计的理念、方法和工具，本文试对社区汽车租赁进行了服务设计。我们认为服务系统设计的理念先进，它注重服务和方法的高效性和便捷性，将其运用到社区汽车租赁中去是一个很好的尝试，本文只是抛砖之论，服务系统设计方法的广泛运用和实践是一个长期的过程，在实际操作中还有很多难点和盲点，需要后来者的研究和尝试。

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