

# Green Payment Contributes to China's Carbon Neutrality

Weixin Strategic Research Institute  
Tencent Digital Insight  
Tencent Financial Research Institute  
International Institute of Green Finance, CUFU



# Report Framework

- 01 Greening of Payment Solutions & Green Payment Development
- 02 A Roadmap for the Green Payment Supporting Carbon Neutrality
- 03 Scenario Analysis for the Green Payment Applications and Exploration of Low-Carbon Models
- 04 Market Application of the Green Payment and Survey Results
- 05 Recommendations and Outlook



# Greening of Payment Solutions & Green Payment Development

# Definition and Connotation of Green Payment

While there is no unified definition of green payment at home and abroad, this report defines the term based on policies such as Electronic Payment Guidelines (No.1) by the People's Bank of China.

## Green Payment

identifies as an innovated payment service that incorporate green and low-carbon concepts and support enterprises, individuals and households in eco-friendly production, green consumption or sustainability practices.

1. As an infrastructure in the field of green finance, the green payment drives sustainability-oriented allocation of social resources and increase public awareness about environmental protection. Green payment **promotes market moving into green transformation, the circular economy formation and leads to carbon-reduce behaviour at institute, company, group, household and individual levels.**

2. While embracing a low-carbon development approach, the payment industry is actively exploring ways to reduce energy consumption amid innovations in digital technology and the pursuit of sustainable operations.

# Five Big Foundations Supporting Development of Green Payment

## Theory: Digital Technology for Green Development



- Digital technology helps financial institutions optimise structures, improve efficiency and take on environmental responsibilities, driving the development of green finance.
- It helps promote industrial transformation and optimise the demand structure, ultimately leading to green production and consumption.

## Market: The Rapid Rise of E- payment laid foundations for the Development of Green Payment



- As an enhancement and complement to traditional payments, e-payments can record, identify and track transactions, while they also provides an environmentally-friendly, convenient, efficient and secure process. These all helped to build a foundation for the development of green payment.

## Policy: “Dual Carbon Goals”



- The "Guiding Opinions on Accelerating the Construction of a Green Low-Carbon Circular Economy System" point out the direction of the green transformation of the payment industry.
- The "Guiding Opinions on Fully and Faithfully Implementing the New Development Concept for Peaking Carbon Dioxide Emissions and Carbon Neutralization" provides an opportunity for the payment industry to go green.
- The Action Plan for Carbon Dioxide Emissions Peaking Before 2030 proposes 10 major actions including comprehensively promoting scientific and technological innovation.
- In August 2021, the Payment & Clearing Association of China released its support for the "Dual Carbon Goals" initiative and issued a clear message of innovative ecological payment services.

## Financial: Role of E-payments in Green Finance



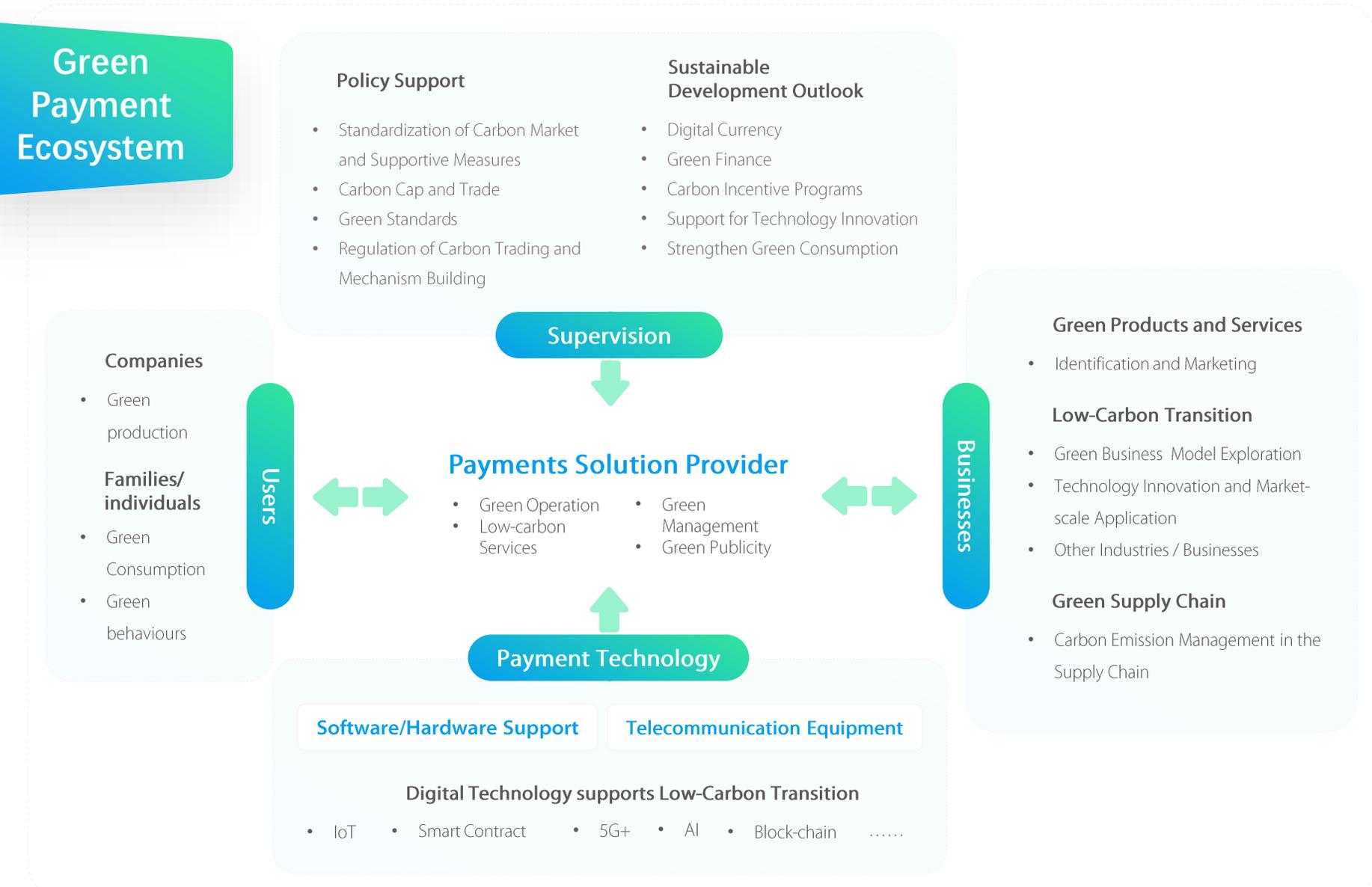
- On the demand side, green consumption behaviour has a strong demand for e-payments, on the other hand green payment can guide the upgrade of green consumption.
- On the supply side, greening of e-payments can improve the supply efficiency of green products and expand green options for consumers.

## Digital Ecosystem: Moving Towards Sustainable Future



- E-payments have established extensive connections between people, services, and consumption scenarios, played role of living infrastructure, and helped reduce carbon emissions as well.
- Digital currency will help accelerate the intelligent and green transformation of payment terminals and will become a driving force for the green, low-carbon and high-quality development of the payment industry.

# Green Payment Ecosystem



An important part of the eco-friendly transformation of the modern payment system with many environmental benefits.

Compared to ordinary payment services, green payment shares the characteristics of financial swaps and bond transfers, and act as infrastructure in the economic and financial system to guide and allocate resources. Unlike general payment services, green payment also focuses on the environmental benefits of consumer behaviour and seeks to accommodate environmental protection, resource conservation and ecological balance with the aim of achieving sustainable development.

# Green Payment Ecosystem and Criteria

## Payment participants mainly involve B-side (enterprise) and C-side (family or individual):

Participation in payment by the Business-side entity mainly involves manufacture-sim activity, determining a green payment activity mainly depends on whether the supplier merchant is green. Therefore, defining whether the payment behaviour of the business-side is green or not depends on the existing national green standards.

**Reference Criteria:** Green Industries Guidance Catalogue, Green Bond Support Project Catalogue, Special Statistical System for Green Loans, etc.

The Consumer-side is more related to green consumption and eco-friendly lifestyle, mainly based on activities or products according to relevant national measures or regional standards. Therefore, whether the C-side payment behavior is green or not can correspond to the current green consumption policies, green life policies and other relevant policies. The family or individual payment behaviors that conform to the catalogues involved in the relevant national policies can be regarded as green. At the same time, the standard catalogue can be supplemented according to local standards based on the specific implementation situation in each region.

**Reference Criteria:** Guiding Opinions on Promoting Green Consumption issued by ten ministries in February 2016; Implementation Plan for Promoting Green Consumption issued jointly by the National Development and Reform Commission and six departments in January 2022, etc.

## Assessment Indicators for Consumer-Side National Standards

Categories	Assessment Indicators
Eco-Friendly Lifestyle	<ol style="list-style-type: none"> <li>① Donation of used clothing to people in need through charitable organizations;</li> <li>② Recycling and reutilization, including but not limited to reuse of clothing and textbooks;</li> <li>③ Low-carbon travel choices, such as walking, cycling and travel through public transport;</li> <li>④ Avoiding white trash and disposable item, such as use tableware and bringing personal care products when travelling;</li> <li>⑤ Effective use of personal unused resources, including online carpooling, self-owned vehicle rental, homestay rental, and the use of old goods exchange, etc.</li> </ol>
Green Consumption	<ol style="list-style-type: none"> <li>① Consume green and organic foods;</li> <li>② Purchase energy-saving home appliances and smart home appliances such as air conditioners, refrigerators, and water heaters with an energy efficiency label of level 2 or above;</li> <li>③ Purchase eco-friendly furniture;</li> <li>④ Purchase renewable-energy vehicles;</li> <li>⑤ Choose green building and home decoration materials, such as energy-saving doors and windows, and products made with recycled construction waste;</li> <li>⑥ Consume environmentally-labelled products including paints and dry cleaning agents with low VOC content as well as pesticides and fertilizers with lower emissions of NOx;</li> <li>⑦ Purchase water-saving products such as taps, toilets and washing machines</li> <li>⑧ Purchase energy-efficient products, such as high-efficiency lighting products</li> <li>⑨ Consume green electricity</li> </ol>



# A Roadmap for the Green Payment Supporting Carbon Neutrality

# Green Payment Contributes to Carbon Neutrality

## Macro-view

### Plays a vital role in economic and social development

Economic transition; rural revitalization: local green industries and improvement of rural living environment

### Boosts “Carbon Peaking and Carbon Neutrality” Goals

Satisfy people's desires for a better life; expanding carbon incentive programs; wider cross-border use of RMB with the popularity of green payment abroad

## Meso-view

### Drives high-quality development of the payment industry

Tech support through 5G, IoT, Big Data, blockchain, convenient and efficient and contactless features

### Empowers the green transformation of other industries.

Transformation of the real economy, sustainable development of green industries and innovation in the fintech industry

## Micro-view

### Shapes consumer behavior into green consumption and low-carbon lifestyle.

The green payment scenario guides the low-carbon lifestyle, connects payment with various scenarios, and accelerates the shift to a low-carbon lifestyle.

The new retail model of "social + payment" encourages people's participation in low-carbon activities and leverages social features to spread the concept of green consumption.

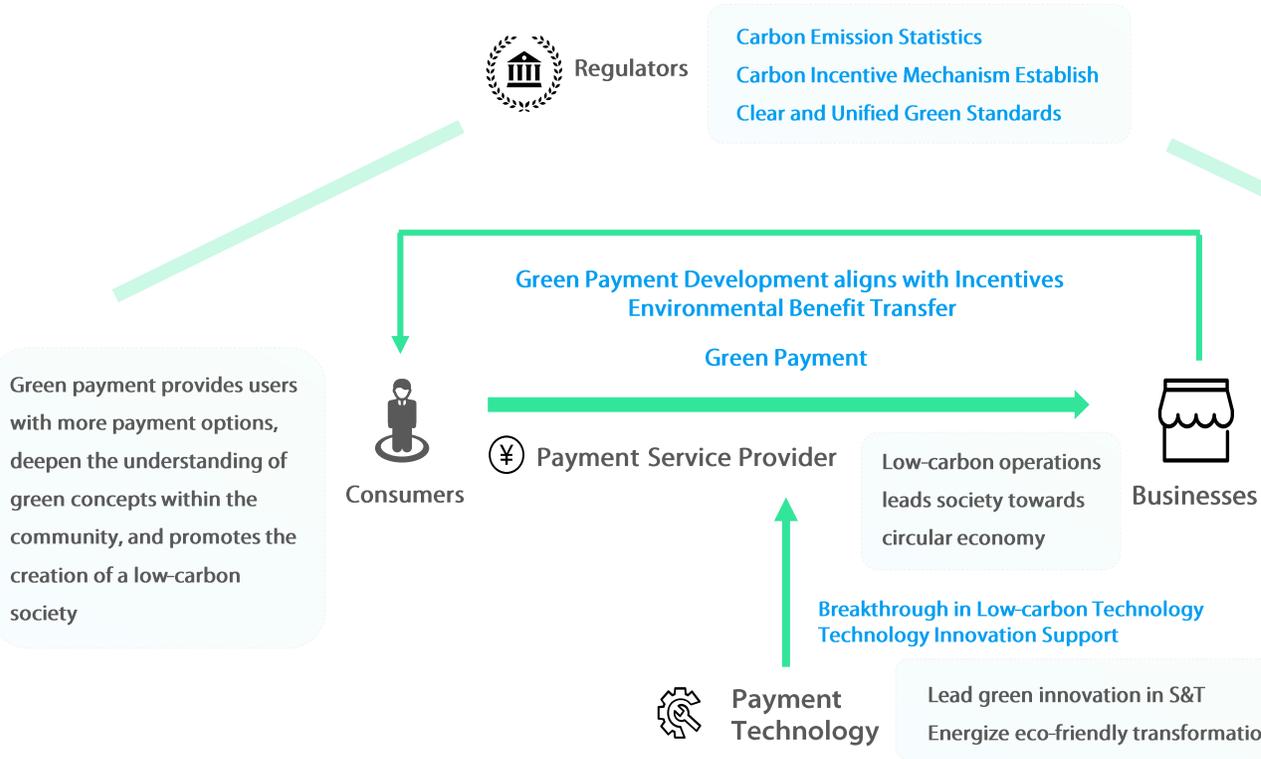
# Carbon Reduction Roadmap

Green transformation integrated into payment methods,  
Play a key role throughout business activities and tailor society with sustainable elements.

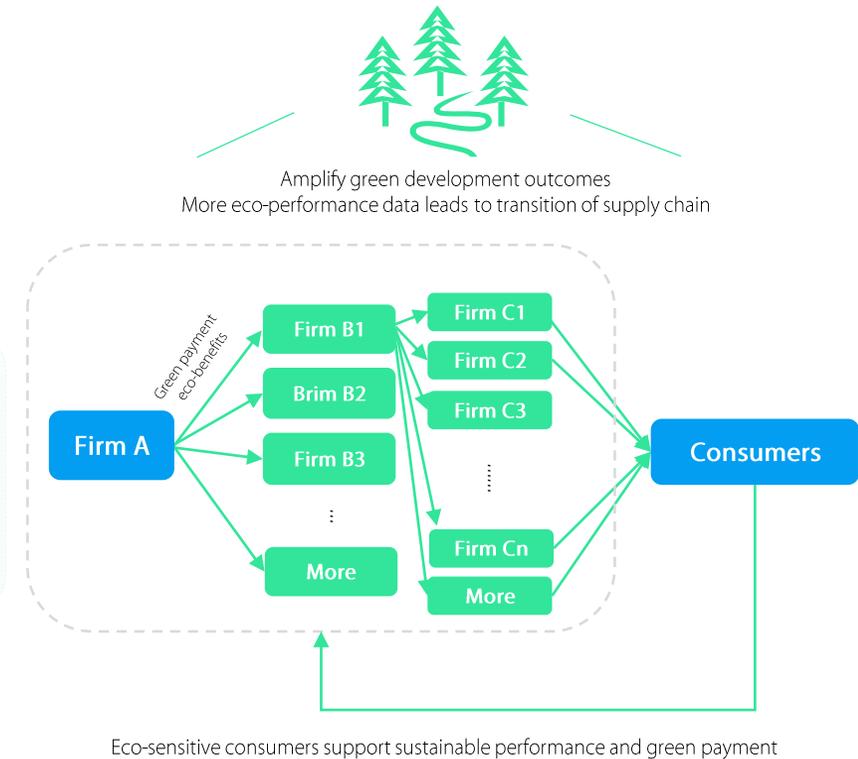
Generally, green payment guide transformation of economic and social structures into a green model, from "low carbon" to "net zero emissions" through tech innovation and applications.

In a narrow sense, payment industry stakeholders at multiple levels contribute to carbon reduction endeavors.

## Green Payment Network



## Green Supply Chain with Green Payment Conductive Pathway





# Scenario Analysis for the Green Payment Applications and Exploration of Low-Carbon Models

# Green Payment Scenarios Analysis

## Production Mode Change

### Sharing Economy

Sharing Car  
Sharing Bike

### Green Product

Renewable-Energy Car  
Green Household Appliance

## Low-Carbon Lifestyle Transfer

### Second-Hand Market

Digital gadgets, clothing, books, home appliances, etc.

### Green Shopping

Tree planting, green tag, green logistics, etc.

### Charity and Donations

Charitable foundations, Third-party public welfare platform, etc.

### Transportation

Public transport, walking, bicycle, etc.

## Paperless Payment

### Charges of Utilities

Electricity, water, gas, mobile phone, broadband, cable TV, property management fees, traffic tickets, taxation, etc.

### Online Medical Service

Online pharmacy, online registration, e-report receiving, etc.

### Financial Services

Insurance, credit card repayment, crowdfunding, etc.

### Online Ticket

Movies, shows, attraction tickets, etc.

### Catering and Accommodations

Online orders, e-receipts, e-invoices, etc.

### Government Services

Administration

Green Payment  
in Life

## Green Payment

Green payment has penetrated into people's daily life. In order to support the realization of the "Dual Carbon" goal, payment-related technologies need to meet or exceed people's expectation in all aspects of life and allow consumers to enjoy a greener, more low-carbon and sustainable lifestyle.

The application of green payment scenarios mainly reduces carbon emissions through three aspects: paperless payment process, low-carbon travel and low-carbon lifestyle. The carbon reduction model is mainly reflected in paper saving and green travel.

Green

Low-Carbon

Payment

Environment

# Green Payment Scenario– Shaping Low-Carbon Lifestyle

## Second-Hand Market

With the development of internet technology, second-hand markets and platforms have become more and more popular. Such platforms offer various categories of goods ranging from electronic gadgets and appliances to vehicles, second-hand books and clothing. Consumers purchase goods they need at relatively low prices and sell their unused items, giving them second life and helping to save resources. These platforms also shape consumers' consciousness about environmental protection and green consumption.

## Green Shopping

Green shopping refers to purchasing products with green labels and energy saving features. Many resellers offer incentives for such products, and these products will be more popular because consumers can receive extra-benefit from their consumptions.

## Charity Donation

The development of online donation platforms such as Tencent Charity, Qingsongchou, Zhongchou and online platforms by foundations make it easier to donate to charities. Online donations reduce the carbon emissions since physical donations (offline donation) people need to visit charitable organizations through transportation. Besides, some platforms also allow donors to donate second-hand items, such as second-hand shoes and bags, which further promoting green lifestyle formation.

## Second-Hand Market

Resource recycling, resource saving, favorable prices, convenient and secured transactions, etc.

## Green Shopping

Green products, reduced pollution, green logistics, recycling of resources

## Charity and Donations

Charity can be recorded, published, can be interacted with and provides high transparency

## Low-Carbon Lifestyle

# Green Payment Scenario– Transportation

Public transit is key to transport services as are new energy vehicles. New energy buses accounted for more than 66% of urban buses in 2021, according to statistics from the Information Office of the State Council.

The mushrooming number of bicycle sharing services has been well received by consumers due to convenience, and the green and healthy method of transit. Bike sharing effectively reduces carbon emission in urban traffic and alleviates traffic congestion, bringing additional benefits.



# Green Payment Scenario Analysis– Paperless Payment

## Charges of Utilities

Paperless and online transaction

## Online Medical Services

E-medical records, online booking and payment

## Financial Services

Convenient payments, simplified payment procedures, wide accessibility



## Online Ticket

Paperless, saves time, and easy to pay

## Catering and Accommodations

E-invoice, efficiency, convenience and lower labor costs

## Government Services

Streamlined approvals, e-documents, e-management, safety and reliability

### Charges of Utilities

Through online payment system, people's charges of utilities most can pay it online: electricity, water, gas, broadband, landline, vehicle ETC, traffic tickets, etc. Each transaction paid online will generate corresponding electronic vouchers and reduce the use of paper.

### Online Ticket

At present, online ticket purchase mainly includes paying for train tickets, movie tickets, performance tickets, scenic spot tickets, etc. Customers can purchase tickets, change tickets, and refund tickets through electronic devices, which simplifies the operation process of traditional ticket purchases. By paying online, they can also avoid carbon pollution emissions generated during the process of using transportation to go to the site.

### Online Medical Services

Online medical services can realize paperless medical treatment, and patients can view electronic test reports online; hospitals can build paperless electronic files, eliminating paper printing consumption, case transportation costs, and storage and space occupation costs caused by case data preservation, etc.

# Green Payment Scenario– Paperless Payment

Paperless in  
Online contracts  
with E-receipts



## Catering and Accommodations

More and more hotels are launching "paperless check-in". The hotel's documents, various order information, and customer check-in file registration are all replaced by electronic files. "Low-carbon check-in" is a necessary transformation direction for hospitality industry. From paper registration, online room selection and subsequent electronic invoices, we advocate low-carbon and environmentally friendly methods in all aspects.

## Financial Services

Through the applications of financial institutions and third-party platforms, consumers can purchase financial products or handle related financial services online, such as purchasing wealth management products, securities transactions, credit services, credit card services and other financial services. The signing of online contracts can not only reduce the risk of damage and loss of paper documents, but also reduce the consumption of paper.

## Government Services

The streamlined service procedures, including online applications, acceptance, review, decisions and delivery, make it possible to provide one-stop shop services for matters involving multiple departments, thereby reducing processing costs for residents and enterprises. It reduces paper use and minimizes the need for travel.



E-Governance



# Market Application of the Green Payment and Survey Results

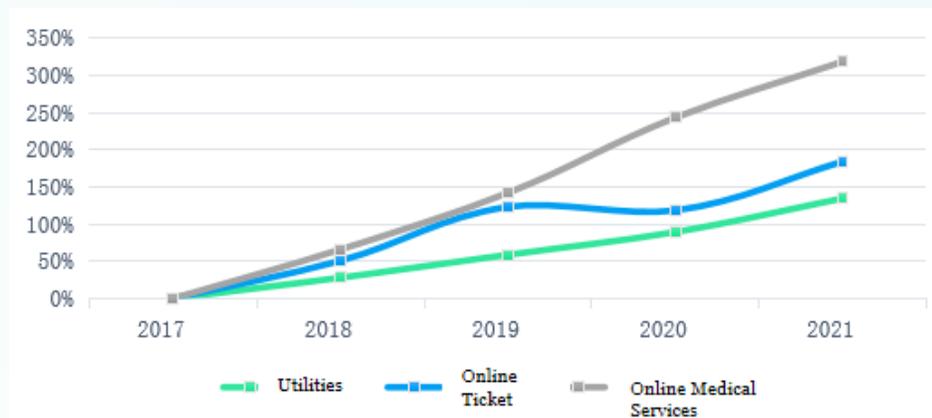
# Weixin Pay green ecosystem and carbon reduction patterns

## Typical payment scenarios



## Scenario 1:

# Weixin Pay Helps Carbon Reduction and Environment Improvement



Fixed-base growth rate of Weixin Pay transactions in three scenarios from 2017 to 2021

- People increasingly choose Weixin Pay as a major payment method in daily business, travel and medical care.
- Users mostly in first-tier, second-tier and third-tier cities, while fifth-tier cities have the most growth potential.
- In the past five years, the paperless receipts helped reduce carbon emissions by 188,200 tons. In terms of travel-related carbon emissions, the carbon footprint has reduced more than 3.34 million tons in total.

Carbon Reduction -- by using E-receipts

Scenarios	Weixin Pay application	1-year carbon reduce (10,000 tons)	5-year carbon reduce (10,000 tons)
Utilities	Electricity, water, gas, heating, telecommunications, telephone, broadband, cable TV, property management fees, highway toll fees, fines, social security, taxation	4.02	13.88
Online ticket	Train, ferry, air, ticket agents, travel platforms, popular tourist attractions	1.50	4.83
Online Medical Services	Registration platforms, health consultation services	0.03	0.11
<b>Total</b>		<b>5.55</b>	<b>18.82</b>

Carbon Reduction -- by less travel

Year	Weixin Pay helps reduce carbon footprint (10,000 tons)
2017	41.28
2018	52.83
2019	65.53
2020	78.16
2021	96.81
<b>Total</b>	<b>334.61</b>

## Scenario 2:

# Weixin Pay Boosts Green Transformation of Production Modes



### Fixed-base growth rate in Weixin Pay transactions from 2017 to 2021

- The number of Weixin Pay transactions in clean energy has grown significantly, providing new impetus to the greening of traditional production models
- Weixin Pay can provide a more convenient channel for the public to consume sharing economy and clean energy products in these two scenarios. It becomes a driving force for development in the sharing economy and clean energy sectors, thereby further guides the transformation of traditional industrial production modes to a green and low-carbon direction.

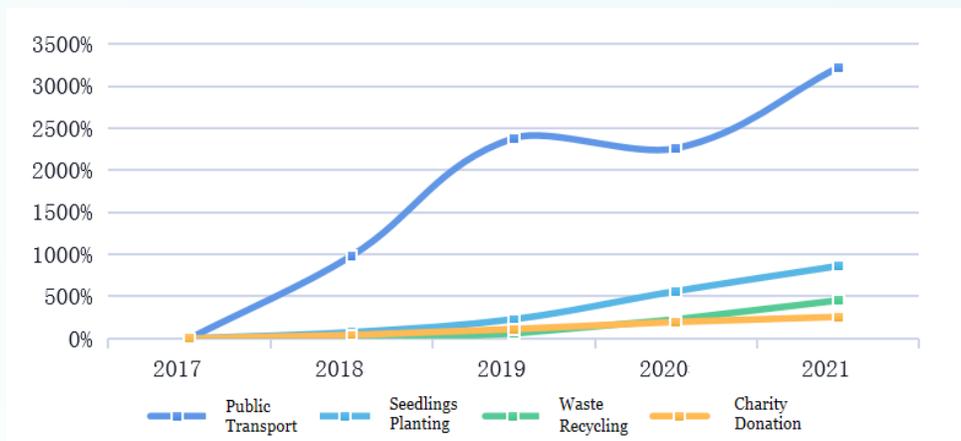
- People in first and second-tier cities favor Weixin Pay in the sharing economy and products that use clean energy.
- The average annual growth rate differs among cities at different levels of development. Third-tier cities and below have steady growth potential despite a small proportion in transactions.

### Proportion of Weixin Pay transactions by cities from 2017 to 2021

City Category	Sharing economy		Clean energy	
	Proportion of 5-year transactions	5-year growth rate	Proportion of 5-year transactions	5-year growth rate
First-tier	17.85%	-8.09%	17.71%	-12.43%
Emerging	25.58%	-4.20%	22.47%	12.90%
Second-tier	22.67%	-0.73%	23.55%	-4.83%
Third-tier	16.07%	4.81%	16.03%	3.39%
Fourth-tier	10.88%	9.21%	10.90%	10.61%
Fifth-tier	6.96%	19.69%	9.34%	11.11%

## Scenario 3:

# Weixin Pay Supports Eco-Friendly Lifestyles Forming



Fixed-base growth rate of Weixin Pay transactions in four scenarios from 2017 to 2021

- More people have started to use Weixin Pay in their daily life. The convenience of green payment makes it easier for consumers to use sustainable services such as green transport.
- Most people in first and second-tier cities prefer Weixin Pay for eco-friendly spending, while its acceptance in other cities needs to be improved.
- In the past five years, bus and subway travels paid through Weixin Pay is equivalent to cutting carbon emissions by 1.874 million tons, or 4.758 million tons when compared with high-carbon travel choices.

Proportion of Weixin Pay transactions by cities from 2017 to 2021

City Category	Public transport		Seedling planting		Waste recycling		Charity donation	
	% in 5-year transactions	5-year growth rate	% in 5-year transactions	5-year growth rate	% in 5-year transactions	5-year growth rate	% in 5-year transactions	5-year growth rate
First-tier	39.99%	-7.77%	14.11%	3.54%	14.42%	19.39%	12.79%	-15.91%
Emerging	18.35%	1.98%	23.05%	6.05%	17.14%	-3.33%	20.45%	3.15%
Second-tier	16.88%	0.21%	18.85%	-7.89%	22.46%	10.19%	18.76%	0.05%
Third-tier	11.25%	25.42%	20.56%	13.23%	19.36%	2.79%	19.07%	2.29%
Fourth-tier	6.47%	7.96%	13.75%	5.67%	14.74%	-2.96%	16.56%	5.88%
Fifth-tier	7.06%	42.88%	9.68%	-1.18%	11.87%	-6.89%	12.38%	10.17%

Carbon Reduction -- public transport paid by Weixin Pay

Year	Carbon reduction for public transportation (10,000 tons)	Carbon reduction in comparison with high-carbon travel choices (10,000 tons)
2017	2.04	5.21
2018	22.09	56.41
2019	49.93	127.50
2020	47.30	120.79
2021	66.05	168.67
<b>Total</b>	<b>187.40</b>	<b>478.57</b>

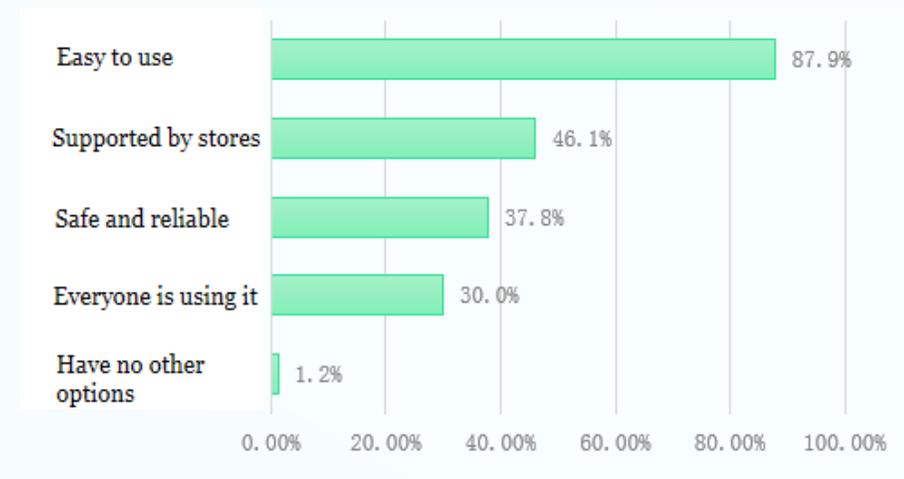
# Willingness in Digital Payments by Netizens

We made the questionnaire based on the definition of green payment in this report and the application scenarios mentioned, to develop an in-depth understanding of the impact on user payment and consumption habits as well as people's understanding and expectations of green payment.

The questionnaires were randomly distributed to Weixin pay users across the country based on the netizen structure released by the CNNIC. Some 4,648 valid questionnaires were recovered.

Statistics on this page are as of January 2022  
Data source: Tencent Horizon

Respondents prefer non-bank e-payment (third-party payment platforms such as Weixin Pay and Alipay). The majority of respondents who choose to use digital payments are between the ages of 20 and 49. It shows that most young and middle-aged people have become accustomed to using digital payments in their daily life.



# Willingness in Digital payments by Netizens

- Only 35.4% consider buying and reading e-books as a green alternative
- 82.1% say that they will use green payment more often to reduce carbon emissions
- A majority of respondents think highly of environmental benefits, with an average score of over 8 out of 10 for each scenario.



Most people are willing to contribute to reaching carbon neutrality.



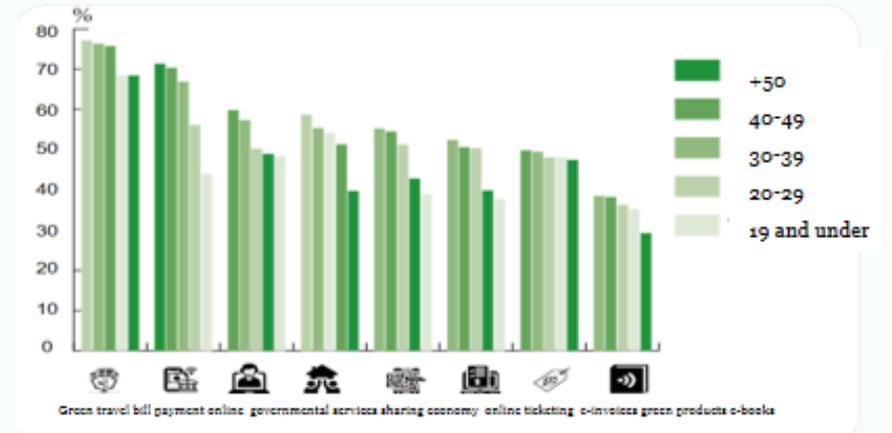
Due to limited knowledge, most people are unaware of the specific environmental effects behind green payment behavior, and they lack understanding of the concept and impact of green payment.



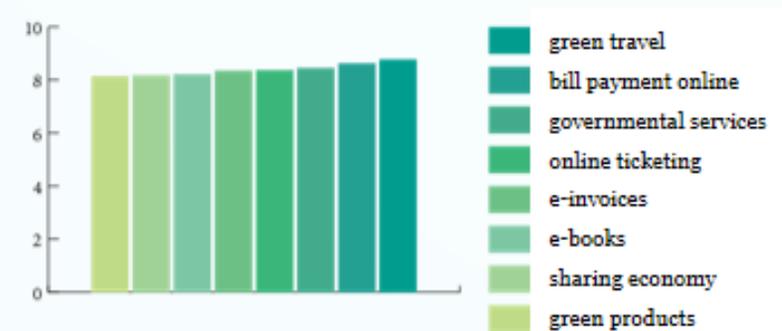
The promotion of green payment is particularly important. When people embrace the concept, a green, low-carbon and environmentally friendly lifestyle becomes a habit, and this helps move the society toward green transformation.

Statistics on this page are as of January 2022  
Data source: Tencent Horizon

Green payment scenarios chosen by respondents



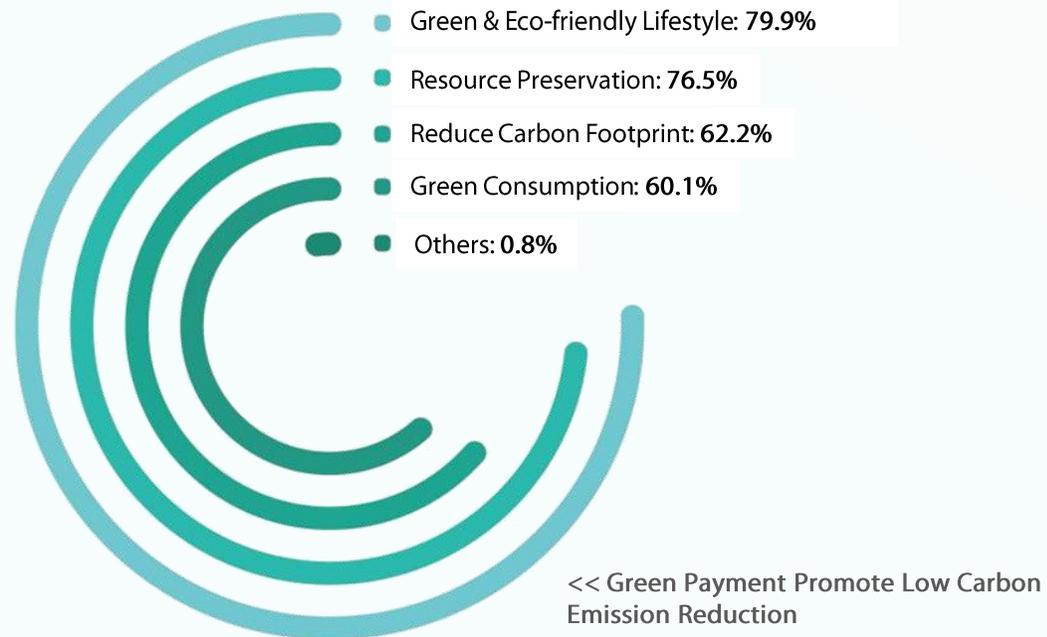
Environmental benefit score of payment scenarios



# User Benefits and Expectations for Green Payment

Respondents believe that through green payment, in addition to green transformation of their own consumption and lifestyle, they can also save resources, reduce greenhouse emissions, and help the society and the world to achieve green and sustainable development.

Eco-friendly consumption aligns with the country's dual carbon goals. **In this context, green payment reflects social expectations and values, and contribute to achieving the “dual carbon” goals.**



## User Concerns

- Infrastructure construction, new technology research and development (69.5%)
- Timely access to policy updates, transition to low-carbon (61.3%)
- Policy support and guidance (49.2%)

## User Expectations

- Improve policies and regulations, strengthen supervision (75.8%)
- Accelerate the construction of infrastructure and the application of new technologies (70.4%)
- Increase media publicity and public awareness (67.6%)

Data as of January 2022  
Data source: Tencent Horizon



## Recommendations and Outlook

# Suggestions for Future Development

## 01

### For Policy Makers and Regulators

- Introduce guidelines to encourage the payment industry to go green.
- Set evaluation standards and systems to direct eco-friendly development.
- Clarify the ownership of assets and data, boost the participation of market players.
- Strengthen data governance and build a carbon emission data platform.

## 02

### For Green Payment Service Providers

- Incorporate the concept of eco-friendly development.
- Understand carbon asset and know the carbon emission level.
- Support carbon accounting, and improve environmental benefit calculation methods and tools for green payment.
- Advance eco-friendly development in line with changing scenarios.
- Promote carbon incentive programs.
- Promote international cooperation in green payment.

## 03

### For Consumer Users

- Advocate green lifestyle and low-carbon consumption behavior.
- Promote green lifestyles through incentives, sustainable investment and personal financial management.
- Expand green consumption options and facilitate the green transformation of business models in the market.

## 04

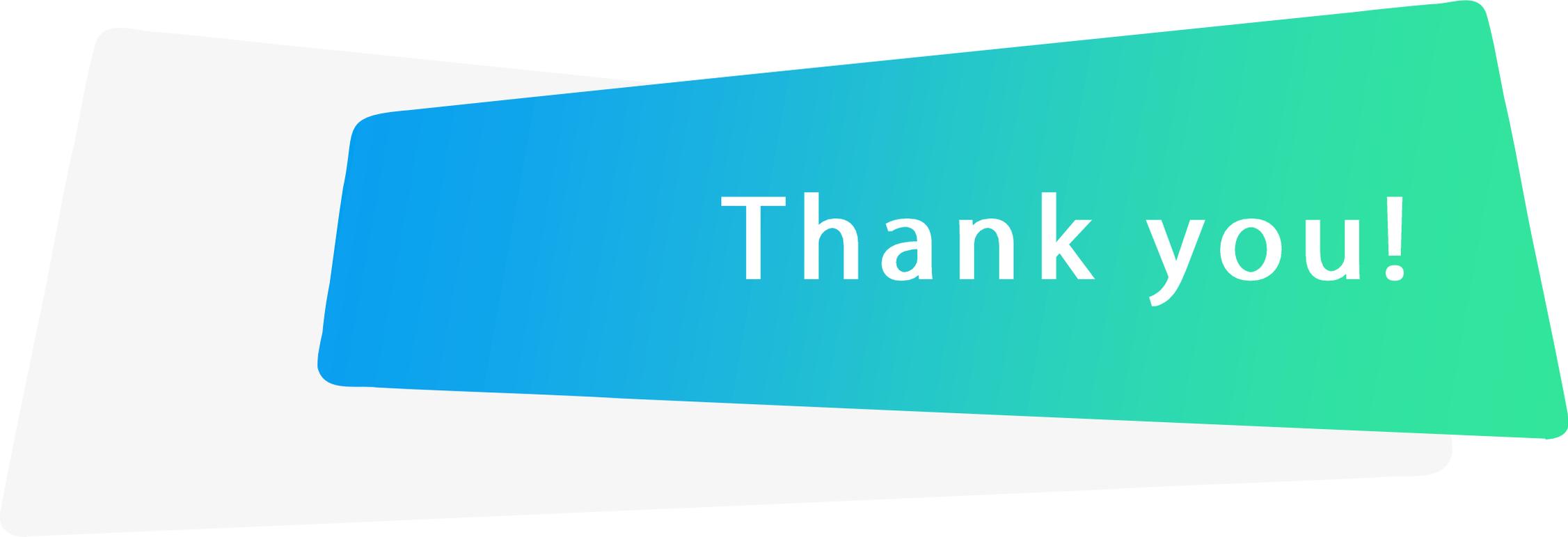
### For Business Users

- Promote carbon asset review and management.
- Focus on supply chain management and product/service lifecycle tracking.
- Innovate green payment scenarios and explore green business models.
- Promote green payment to stimulate cross-border transactions and international cooperation.

## 05

### For Other Market Players

- Accelerate the development of a green payment ecosystem and lay the foundation for the sustainable growth of the industry.
- Make breakthroughs in low-carbon technology, strengthen the technology application and coordination among multiple industries to better support green payment industry.



Thank you!