

# Information and Communications in the Chinese Countryside:

A study of 3 provinces

中国农村信息化：三省研究

2014年1月



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[www.worldbank.org/ict](http://www.worldbank.org/ict)

- Introduction 介绍

- Library landscape 公共图书馆现状调查

- Impact evaluation 农村信息化工程影响评价

- Demand survey 农村信息化需求调查

- Observations 观点

# Aims

## 研究目的

The World Bank “China Rural Information and Communications: Technical Assistance on Design and Impact Evaluation” program has two key aims: 世界银行“中国农村信息化：设计与影响评估的技术援助项目”有两个主要目标：

1. Support the Chinese government to make decisions about potential scaling up of innovative ICT pilots that improve access to relevant information to enhance income opportunities and competitiveness of individuals and businesses in rural areas

支持中国政府推广农村信息化的创新模式，以改善农民和农村地区经营主体获取相关信息的能力，提高农民收入，提升他们参与社会竞争的机会

2. Generate and disseminate the knowledge about the socio-economic impacts of introducing ICT in rural China

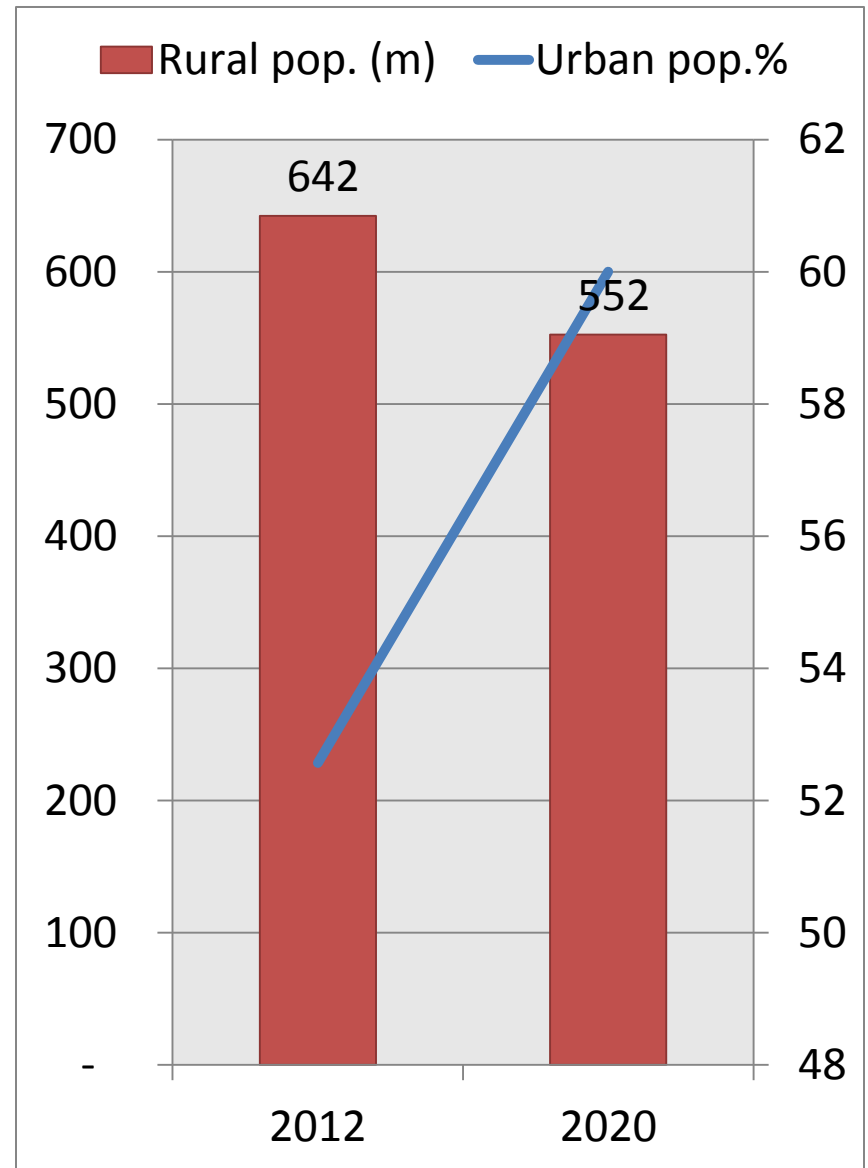
对中国农村信息化所产生的社会经济影响进行评价分析，并将相关发现分享给有关部门

# Context: Rural population

## 背景：农村人口

- Although urbanization is growing, China's rural population still remains significant and is the second largest in the world after India

虽然城镇化水平日益提高，中国的农村人口规模仍然巨大，仅次于印度居世界第二



Source: China Bureau of Statistics, World Bank.

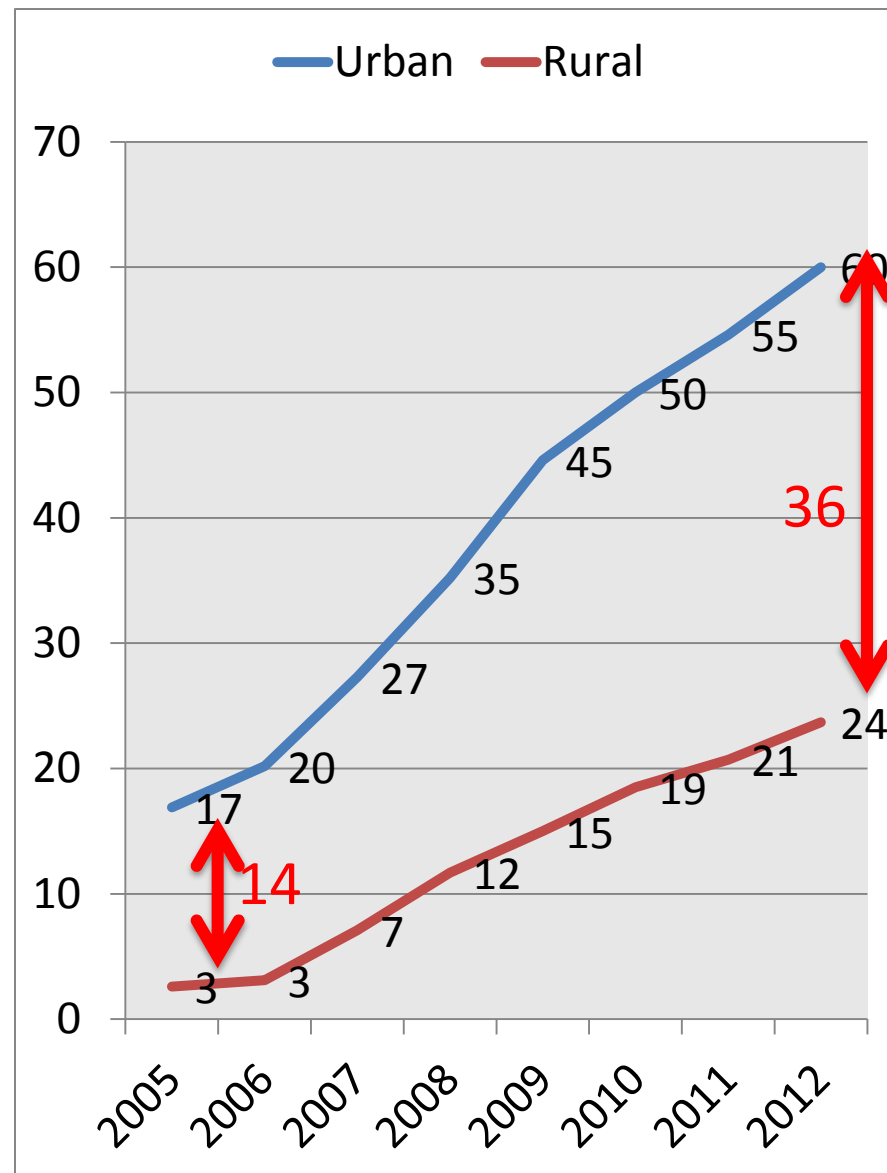
## Context: Growing urban-rural Digital Divide

背景：日益扩大的城乡数字鸿沟

The gap in Internet penetration between urban and rural areas has risen from 14% in 2005 to 36% in 2012

城乡间的互联网普及率差距从2005年的14%扩大到2012年的36%

Internet users, % of age 6+  
互联网用户，6岁以上人群比例



Source: CNNIC.

# Context: Demographic transition

## 背景：人口构成变化

Although fertility is higher in rural areas than in urban areas, the large-scale migration of the young population will hollow out villages and leave behind older people, women, and children.

尽管农村地区的生育率高于城市，但是大量壮年劳动力流入城市，导致乡村空巢化严重，剩下老年人、妇女和儿童

67522

Public Disclosure Authorized



DIRECTIONS IN DEVELOPMENT  
Human Development

## The Elderly and Old Age Support in Rural China

*Challenges and Prospects*

Fang Cai, John Giles,  
Philip O'Keefe, Dewen Wang

Public Disclosure Authorized



THE WORLD BANK

# Provinces

## 调研省份

At request of Chinese government, 3 provinces selected for study  
根据中国政府的提议，调研选择了三个省份 – 吉林、贵州、山东



# Activities 调研内容

Study on Libraries Landscape  
公共图书馆现状调查

Rural ICT Impact Evaluation  
农村信息化工程影响评价

ICT Demand Survey  
农村信息化需求调查

Supported by

BILL & MELINDA  
GATES foundation



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# LIBRARY LANDSCAPE STUDY

## 公共图书馆现状调查

- Compiled a report based on desk research covering the public libraries situation in China.

对中国公共图书馆的现状进行桌面信息搜集，形成报告

- Field visits to the 3 provinces. 三省实地调研
- A sample of at least 1,000 administrative villages in each of the three provinces were surveyed between March and May 2012.

2012年3月-5月对三省1000个行政村进行问卷调查



# Public library projects

## 公共图书馆项目

- Several national projects have provided library and information services in rural areas:

国家实施了若干为农村地区建立图书馆和信息服务项目

- Comprehensive Cultural Station Construction 综合文化站
- Farmers' Book Houses 农民书屋
- Cultural Information Resource Sharing 全国文化信息资源共享工程
- Modern Distance Education for Party Members and Cadres in Rural Areas 农村党员干部现代远程教育
- 'Free to All' 对所有人免费开放
- Public Electronic Reading Room Construction Plan 公共电子阅览室建设计划

- The result of these initiatives has been to establish an infrastructure for rural library-style services

所有这些为农村地区提供了图书馆形式的信息服务基础设施

# Challenges facing public libraries

## 公共图书馆面临的挑战

- **Library services are relatively lightly used. Constraints include:**  
图书馆服务使用率不高。难题包括：
  - Lack of resources, including permanent staff and operational budget beyond project stage 资源缺乏，缺少固定的工作人员和项目以外的运营资金
  - Lack of ICT knowledge and service management skills among staff 工作人员的信息化和知识和管理技能欠缺
  - Lack of useful space and functioning equipment, including uneven network connectivity and equipment maintenance problems 缺少场地和设备，包括网络连接不稳定，设备维护不足
  - Absence of effective administrative networks for libraries, which could enable larger libraries in urban areas to support and act as ‘hubs’ for rural 缺乏有效的图书馆管理网络来使城市中的大图书馆能够支持农村地区的图书馆并成为后者的基地
- **Despite the above, the study suggests more intensive use of public libraries in rural areas than in more ‘mainstream’ urban library settings**  
尽管有上述问题，研究表明，农村地区公共图书馆的使用比主流城市更集中

# Libraries, ICT and senior citizens in China

## 中国的图书馆、信息化和老年居民

1. Collect and analyse sound empirical data about the information and skills needs of senior citizens in rural areas  
收集并分析有关农村地区老年居民的信息和技能的实证数据
2. Establish a system of 'joint conference' between stakeholders in the development of rural informatisation for seniors  
建立针对农村老年人的信息化相关机构的联席会议机制
3. Expand training in digital skills and information awareness to senior citizens in rural areas; targeting specific needs including effective use of mobile devices. Draw upon the emerging experience of public libraries in China and elsewhere.  
增加对农村地区老年居民的数字技能培训，提升他们的信息认知水平；针对特殊需求，包括有效使用移动设备。借鉴中国和其他地区的公共图书馆的经验。
3. Train rural information service workers  
培训农村信息服务人员

# Libraries, ICT and senior citizens in China (cont.)

## 中国的图书馆、信息化和老年居民（续）

6. **Encourage and facilitate family support for seniors' use of digital skills and ICT, including:**  
鼓励并帮助家庭支持老年人使用数字技能和信息化手段，包括
  - joint use and learning by seniors and their grandchildren 老年人和孙辈共同使用和学校
  - building on the need for migrant adults to monitor and support their aging parents and children 'left – behind' in rural areas 根据农民工的需求，监测并帮助他们在农村地区留守的年迈双亲和孩子
  - Integrating existing public access point initiatives and libraries under combined management to ensure the implementation of best practice, avoid duplication and waste of resources 将目前的公共接入点和图书馆工程合并管理，以保证最好的实施，避免重复和资源浪费。
7. **Initiate a more integrated and holistic approach to rural informatisation planning for seniors, reducing fragmentation and overlap of activities. Pilot approaches to integrated services for seniors** 实行更统一完整的针对老年人的农村信息化规划做法，以减少条块分割和重复。实施针对老年人的一体化服务试点。
8. **Test the potential benefits of active partnerships between libraries, library-like institutions and other governmental and community bodies with a stake in learning and quality of life for seniors, including Universities for Senior Citizens**  
尝试让图书馆及类似图书馆机构与其它与老年人的学习和生活质量有关的政府和社区机构（如老年大学）更积极地合作，试试效果如何。
9. **Consider ways of integrating funding and support for rural informatisation for seniors within current mainstream policy developments including China's Broadband Strategy, fiscal reform and strategies for equalizing basic public services.**  
考虑将资金与扶持农村老年人信息化工作结合起来的途径，纳入目前主要的政策工程中，包括中国的宽带战略、财政改革以及基本公共服务均等化战略。

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# IMPACT EVALUATION OF RURAL ICT

## 农村信息化项目影响评价

Assessing impact of rural ICT interventions in 3 provinces: 对三省农村信息化的政府干预项目进行评估

- Telecentres in Guizhou 贵州省综合信息服务站
- 12582/12396 platform in Jilin 吉林省 12582/12396 服务平台
- e-commerce in Shandong 山东省电子商务

2013年对三省开展了问卷调查



8°C 23°C  
风向：东北风  
风力：静风-5级风  
发布日期：17日

EVOLISH  
山东省  
国内 国际

天气预报

“防灾减灾日”科普专题  
中国气象局令 第16号  
气象灾害预警信号图解  
农村防雷专栏

供求信息发布专栏

发布信息  
浏览信息  
会员专栏

山东省委多县失业保险征缴实现... 16日  
菏泽市气象局为飞机的测风尺... 16日

供求热线

鲢鱼	16日	求购稻种、菜粕、麸...	16日
优质鲢鱼	16日	小麦 玉米 高粱	16日
长期提供有机蔬菜	16日	求购玉米稻种大豆	16日
常年供三元仔猪、苗...	16日	玉米稻种菜粕大豆米...	16日
供应响铃干	16日	鹿茸肉	16日

价格评估曲线

山东天气  
Shandong Weather

济南市电视天气预报

发展在线

农事建议类

- 乡村季风 (9月27日..)
- 乡村季风 (9月14日..)
- 乡村季风 (9月7日)..
- 乡村季风 (8月31日)..
- 乡村季风 (8月24日..)
- 乡村季风 (8月16日..)

农业热点

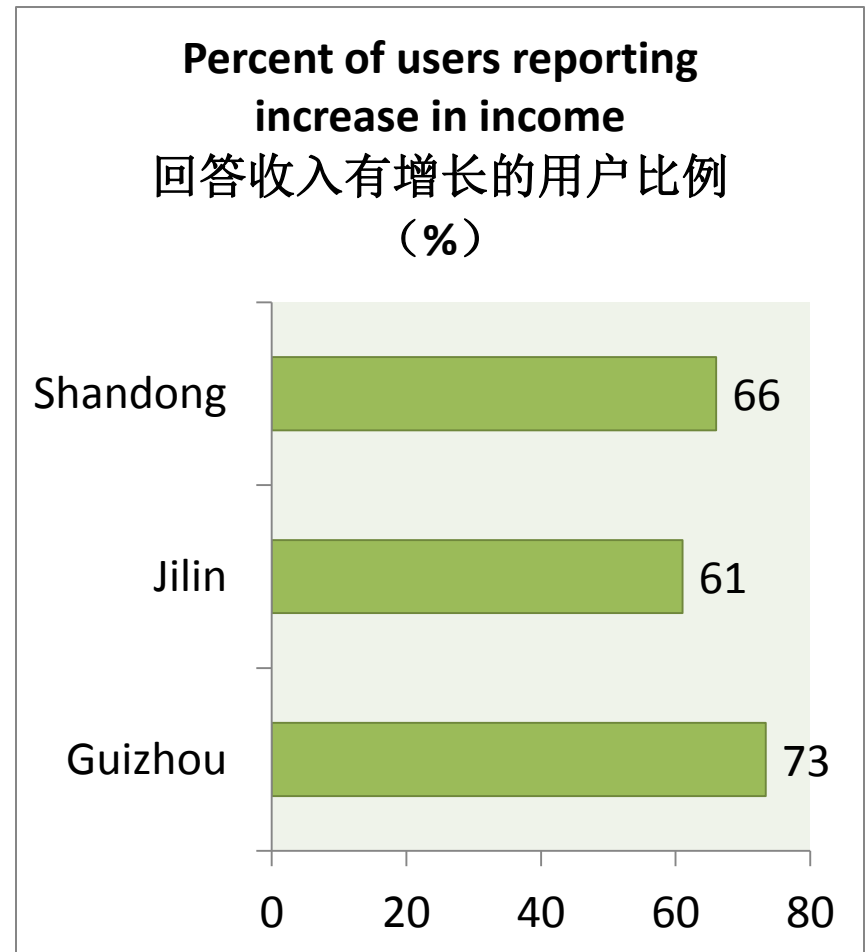
- [生态农业] 台湾技术助推西光生态农业发展
- [观光农业] 青海休闲观光农业发展达1467家



# Interventions have benefited those who use them

## 政府干预让使用者受益

- Well over half the users reported monetary benefits  
半数以上的使用者认为得到了经济上的实惠
- Other benefits include acquiring Internet-surfing skills and thereby learning more about the outside world and broadening one's horizon.  
其他好处包括获得上网的技能从而了解外面的世界，开阔了眼界
- The acquisition of new ideas, concepts and skills can help to change the 'small farmer mentality' and open up infinite possibilities.  
获取新理念和技能，从而改变了“小农思维”，打开了无限的可能。



# Largely passive utilization

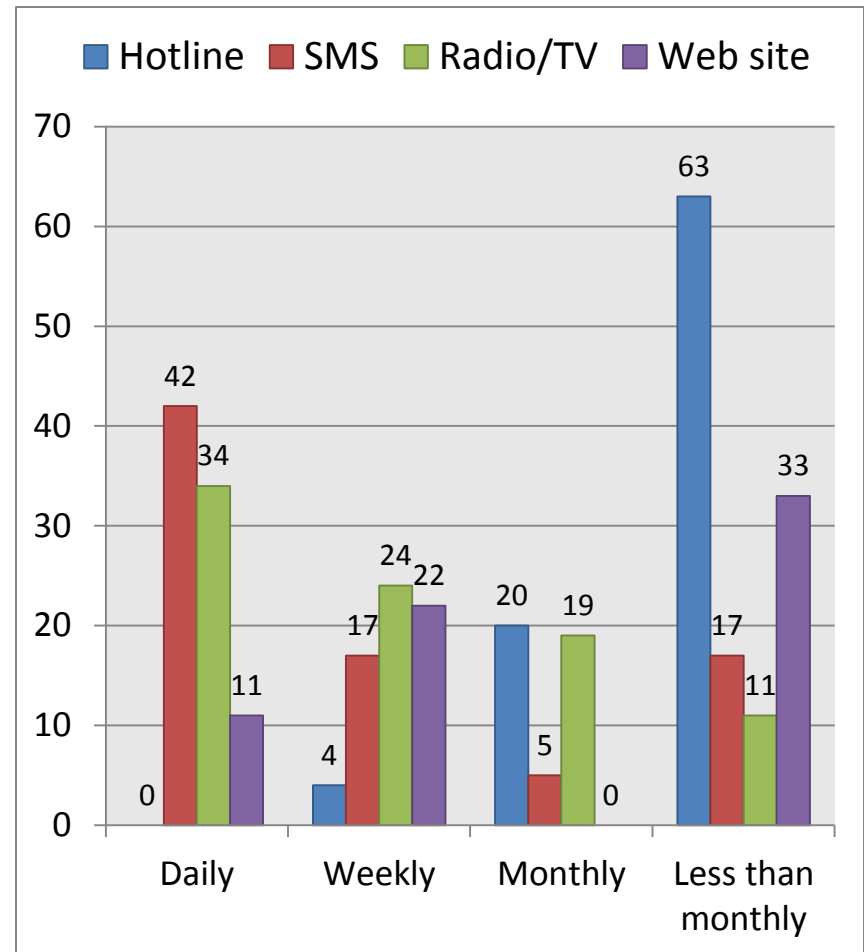
## 使用多为被动方式

- There are significant differences in the frequency of the use of specific services: most of the users dial the hotline less than once a month; most of them receive and read text messages and tune in to radio and TV programs every day; but the website is rarely visited.

不同信息化服务的使用频率差异显著

- Text messaging is a passive service and radio and TV programs are also largely passive. In comparison, dialing a hotline costs money in addition to requiring strong initiative; visiting a website requires, in addition to strong initiative, access to computers and the Internet as well as IT-related knowledge.

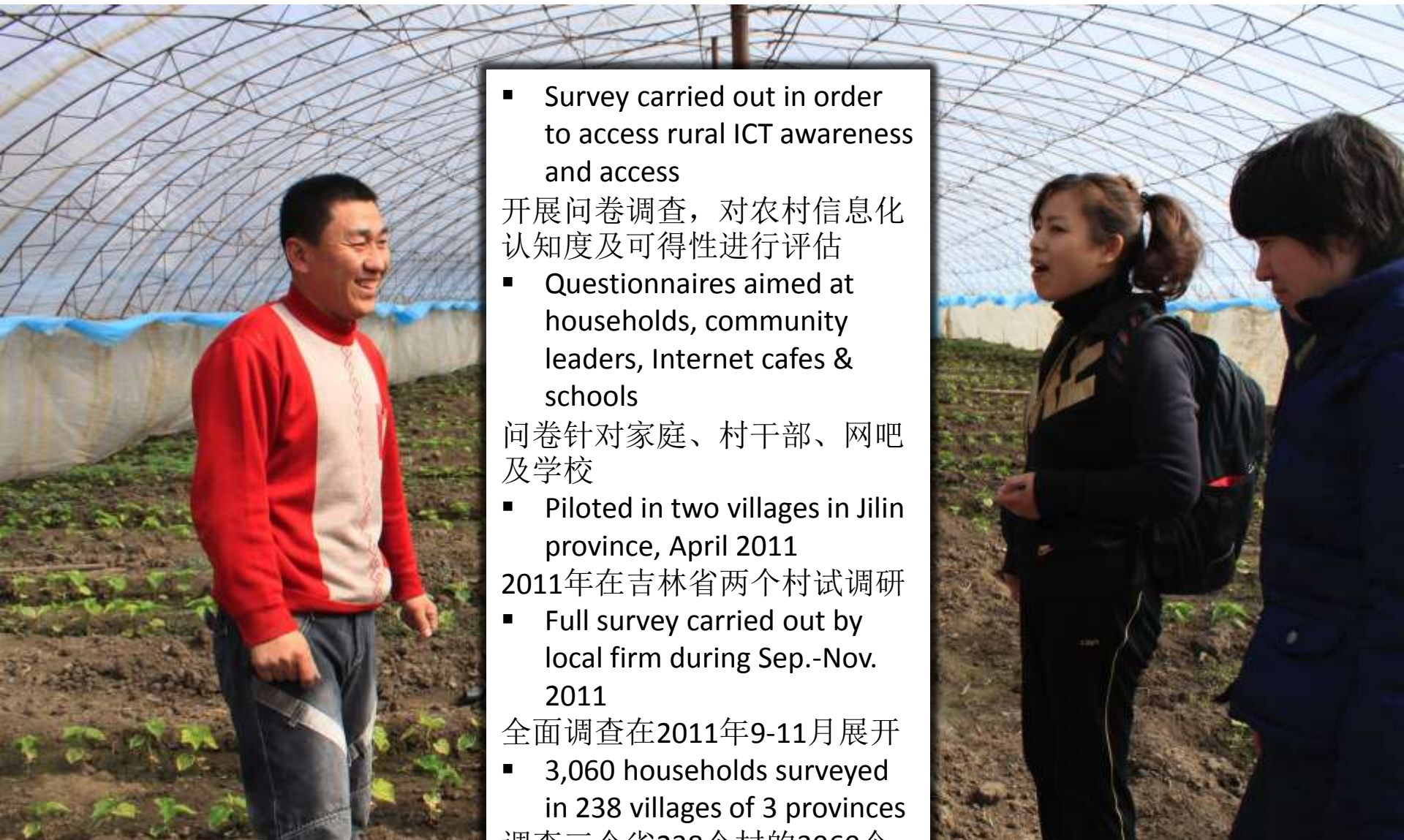
短信以及收听收看广播电视多为被动获取信息，拨打热线电话需要支付费用；而上网不仅需要有强烈的意愿，还需要有电脑和互联网以及相关知识技能。



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# ICT DEMAND SURVEY

## 信息化需求调查



- Survey carried out in order to assess rural ICT awareness and access

开展问卷调查，对农村信息化认知度及可得性进行评估

- Questionnaires aimed at households, community leaders, Internet cafes & schools

问卷针对家庭、村干部、网吧及学校

- Piloted in two villages in Jilin province, April 2011

2011年在吉林省两个村试调研

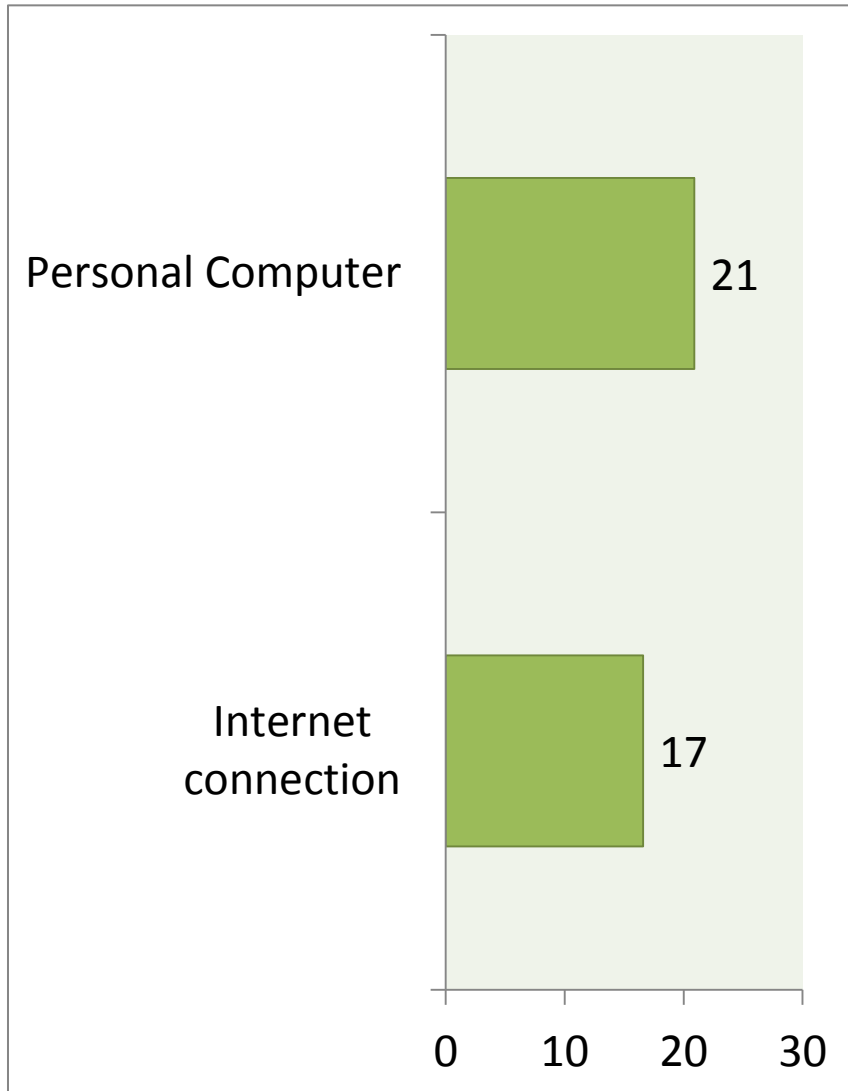
- Full survey carried out by local firm during Sep.-Nov. 2011

全面调查在2011年9-11月展开

- 3,060 households surveyed in 238 villages of 3 provinces

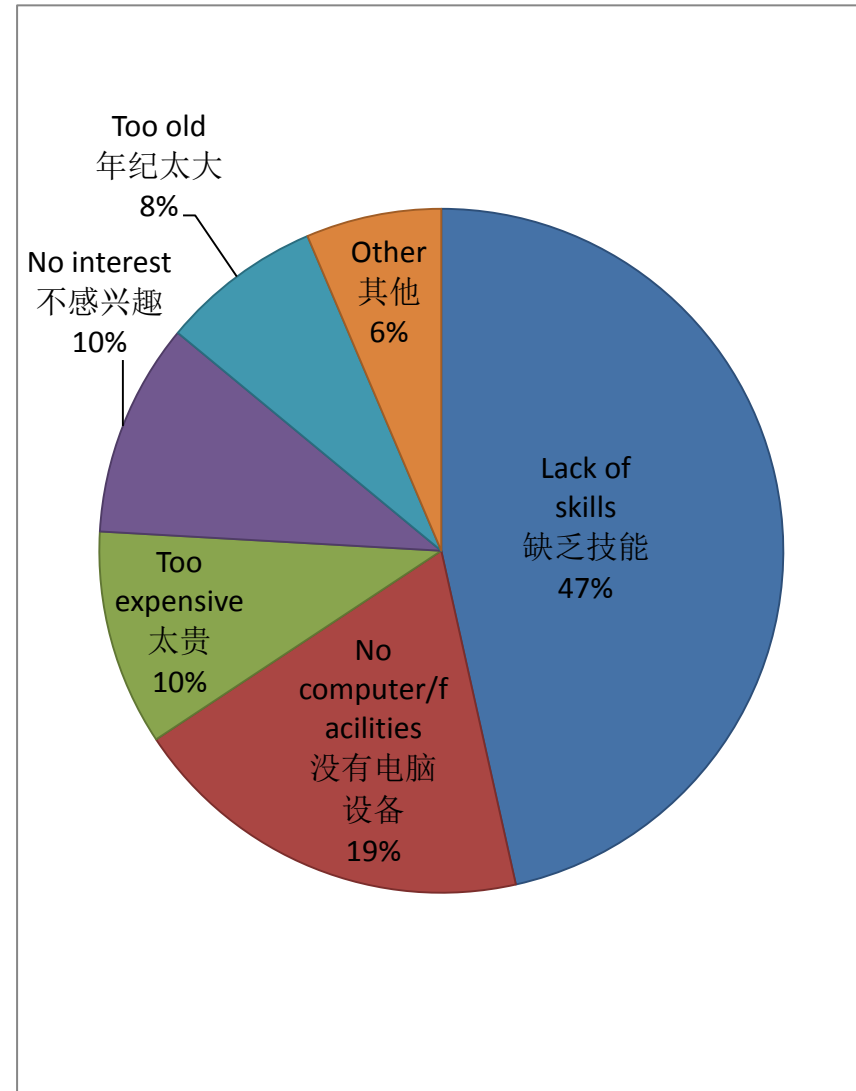
调查三个省238个村约3060个

**Low availability of PCs & Internet in rural homes**  
农村家庭中电脑和互联网普及率较低



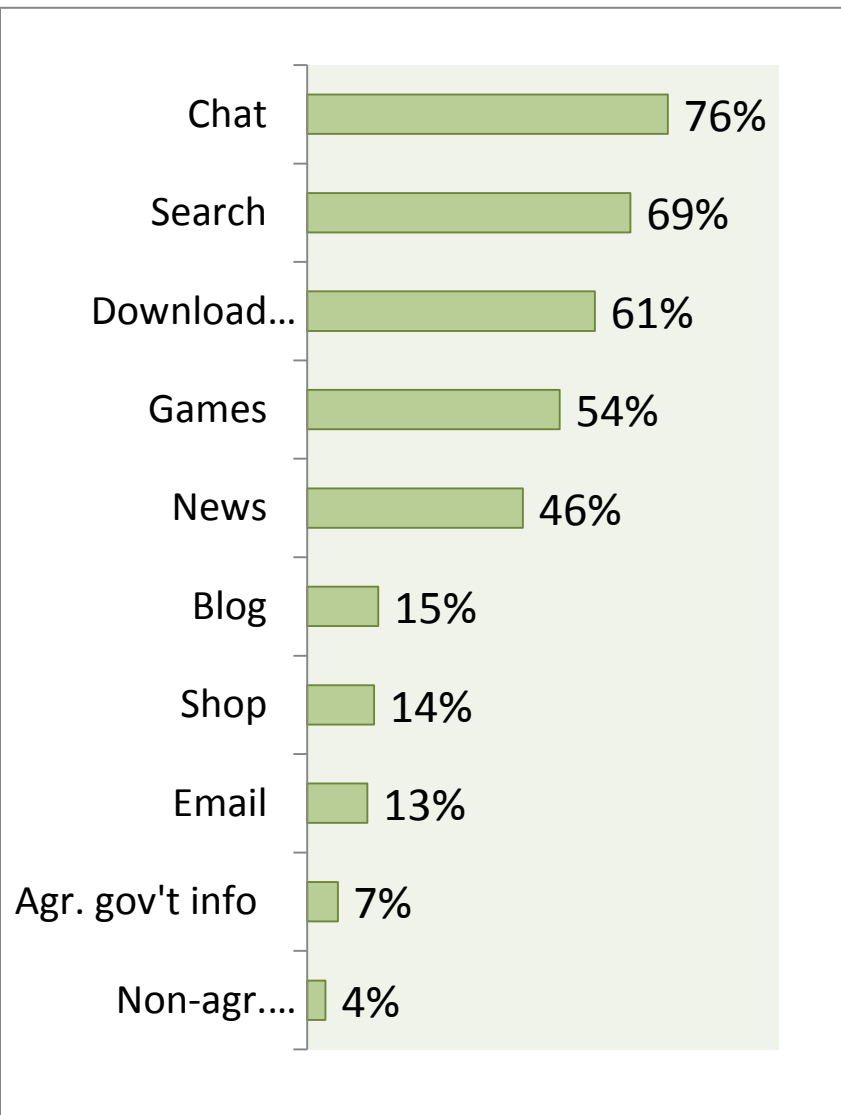
**E.14 Does your household have?**  
您的家里是否有?

**Lack of digital literacy is main barrier**  
缺乏信息化知识是主要障碍



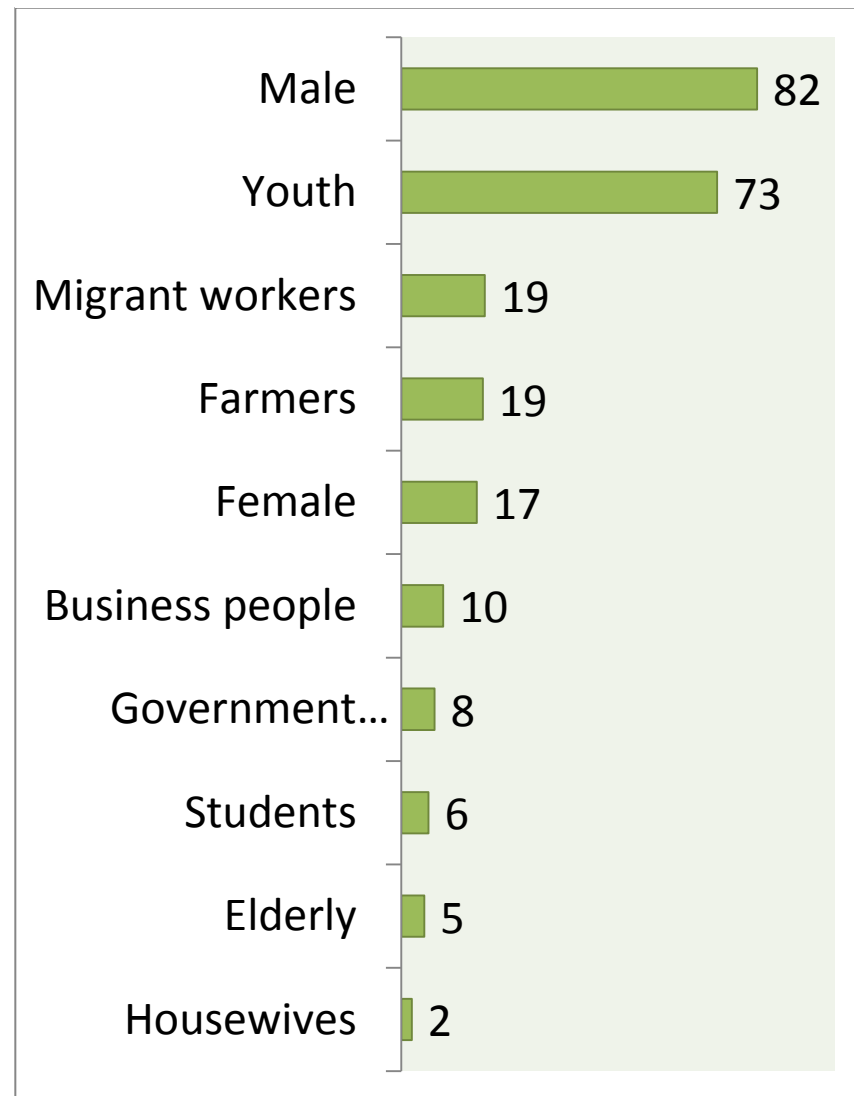
**E.60 If you do not use the Internet, what is the main reason?**  
您不使用互联网的原因是什么?

## Most usage social networking & entertainment 主要用于社交和娱乐



E.64 Do you use the following Internet services? 您是否使用以下功能?

## Low use by women & elderly 妇女老人使用率低



A6. What percentage of users come from these groups? (Public Internet access points) 使用公共接入点的以下人群比例

# ICT in schools

- China's high enrolment rate—over 100% at primary and 81% at secondary level —suggests that if ICTs are available in schools, they would be accessible to most of the school-age population.
- However, there is a gap between ICT availability and use in urban and rural schools. This gap tends to narrow with the level of schooling, partly a reflection that from junior secondary upwards, schools are more likely to be located in towns and urban areas where there are greater resources for ICT.

# ICT in Schools (cont.)

- Leveraging school ICT facilities for student and community use could help to improve digital literacy in China. Even though computers and the Internet may be available in schools, students and villagers are often not allowed to use them. The demand survey found that 58% of schools did not allow students to use PCs and 81% did not allow students to use the Internet. Only 26% of schools with the Internet allowed the local community to use it. Thus the potential of schools as a venue for spreading digital literacy is currently constrained. Legal and other barriers restricting community use of school computer labs need to be overcome.
- The number of computers in schools is relatively limited. Even in urban junior secondary schools, on average there is only one computer for about 13 students. This limits the time available to do research and homework and the ability to use educational software. Further, in rural areas, few homes have computers for students to use. Some countries have launched “one computer for every child” programs involving the distribution of laptops or tablets to children. A potential side benefit of these programs is that, when children bring their computers home, parents and grandparents can also use it. Surprisingly, although China is the leading manufacturer of laptop and tablet computers for one-to-one projects in other countries, there is no such program in the country on a national.
- Higher levels of access among secondary school students are reflected in national Internet usage surveys. It suggests that if the trend continues, future generations of Chinese will be at least basically computer literate, and the focus for training and skills development should shift to older citizens.



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# Progress in rural informatization

## 农村信息化的成果

- China has made impressive strides in extending ICT infrastructure to rural areas.  
中国在发展农村信息化基础设施方面取得了另人瞩目的成就
  - In 2010, all of the nation's administrative villages and 94 percent of natural villages were connected to the telephone network. Broadband was available in 80% of administrative villages.
  - Extensive agricultural content has been created through national and provincial initiatives (e.g., CIRSP, 12582/ , etc.).
  - 156 million rural Internet users in 2012
- Results from this program's studies and surveys illustrate positive results of rural informatization:  
该项目的研究和调查结果映证了农村信息化的积极成果
  - Demand survey found very high use of mobiles, with 95 percent of rural households reporting having one.
  - Library landscape found national projects have established a widespread infrastructure of rural library-style services.
  - Impact evaluation found well over half the users of the programs reported monetary benefits from productivity gains due to learning better production techniques, buying agricultural inputs at a cheaper price and selling farm products through new sales channels.

# Challenges with rural ICT access

## 农村信息化面临的挑战

- **Facilities and services are underused**设施和服务使用不足: Providing facilities, applications and content does not automatically create demand. According to household respondents, less than 5% use the internet in their own village.
- **Internet cafes in larger towns not ICT4D oriented**在中心城镇的网吧, 互联网的使用范围狭窄: Those who use public facilities do so in larger towns where they tend to be geared to entertainment and dominated by young males.
- **Women & elderly left out**妇女和老人用户少: Low usage by female and older segments of the population suggests a certain degree of ICT intimidation.
- **Scarce training options**培训机会稀少: Hardly any public points offer training and only a quarter of schools allow the community to use the facilities.
- **Limited emphasis beyond agriculture**农业生产以外的信息服务有限: Majority of interventions aimed at farmers with emphasis on agricultural content. Limited government interventions for livelihood or needs.
- **Significant duplication across provinces**各省同质化严重: Different telecentre, e-commerce and mobile phone information system models result in significant duplication of resources.
- **Lack of long-term sustainability**缺乏长效机制: Lack of model for sustaining interventions after they have been launched.
- **Mobile is not a substitute for computer-based access**移动通信不能取代电脑应用: It is logical to develop mobile-based rural ICT applications given widespread penetration of mobile phones. However, if not balanced with other interventions, this may exasperate digital skill gap between urban and rural areas.

# A new model for rural ICT access

## 农村信息化的新模式

# Don't reinvent the wheel

## 不必重新闭门造车

- Reduce duplication through greater coordination and information exchange among provinces.

通过改进地区间的协调和信息沟通减少重复建设

- Cooperate with private sector to leverage their expertise in user friendliness, e-commerce platforms, etc.

增进与私营部门的合作，充分利用他们的专长

- Scale up successful models both provincially and nationwide.

在省内和全国推行成功模式

# Demand creation

## 催生需求

- **More inclusive programs beyond agricultural applications** -- Applications and services which enrich rural people's quality of life (e.g. health information, one-stop-shop public service delivery)

项目的包容性更强，涉及面不仅仅局限于农业生产方面的应用，而是扩展到提高农村居民的生活质量（例如健康信息，一站式公共服务等等）

- **Strengthening IT Staff 's technical and consultation skill to provide comprehensive advice on rural residents' day to day problems**

提高工作人员的专业技能和咨询技能，帮助农村居民解决日常生活中的问题

- **Basic IT skill training for more vulnerable groups in rural areas (elderly, female, children)**

为农村弱势群体（老年人、妇女和儿童）提供信息技术的技能培训

- **Awareness raising of rural ICT programs and outreach**

提高对农村信息化项目的认知

# Foster rural innovation

## 促进农村创新

***Network rural business and communities, including developing linkages with international and domestic firms for ICT-enabled contract work.***

*促进农村经营主体间和社区间的联系，包括发展与国内外企业的联系，为它们提供基于信息化的服务外包业务*

***Foster use of ICTs by SMEs and entrepreneurs 促进中小企业和业主的信息化应用***

• Foster use of ICTs, including e-commerce and social networking platforms (e.g. alibaba, taobao, QQ) to improve productivity and expand access to global and domestic markets

***Microwork (ICT-enabled contract platforms) “微小工作”（基于信息化的服务外包平台）***

• Promising area aimed at individual workers, such as low-skilled data entry-like labor for rural youth, women and retired farmers

• International platforms are not localized for China and do not have many local users.

• Similar platforms exist in China but are in nascent stage and are geared to higher skill levels.

• Possible steps to foster microwork in rural China include:

(1) Promote the concept among Chinese enterprises

(2) Upgrade domestic crowdsourcing sites

(3) Train and create awareness among the rural population

(4) Develop intermediation services with companies to create microwork opportunities

# Sustainable business model

## 可持续的商业模式

- **Make greater use of partners for operations** 更多让合作伙伴来经营
  - Telecom operators (as a part of universal access obligations) 电信运营商
  - Public Libraries 公共图书馆 (With community-facing infrastructure, libraries can be effective instruments to serve public Internet access venue and provide ICT training)
  - Private sector or public corporation 私营或国营企业 (e.g. Jilin Province Comprehensive Agriculture Information Services Limited Company)
- **Develop income generating services/activities to offset costs** 开发增收服务来抵消成本
  - Extensive agent services (e.g. printing, scanning)
  - Premium applications (value-added applications for target users)



# Computer & mobile:

~~Complement not substitute~~

## 电脑和手机：互补而不是替代

- Computer and mobile ICT should be complementary  
电脑和手机应当是互补而不是替代
- Each has different uses: 用途各有不同
  - Mobile is ideal for personalized, short sessions and small information streams. Smartphones provide additional functionality through “apps” and touch screen, GPS & camera.
  - PC/tablets suited for more intensive applications, extensive searching, e-books
- Leverage complementarities between mobile devices and rural telecentres  
充分发挥移动设备和农村信息服务站的互补作用
  - Wi-Fi
  - Recharging
  - Space for those with laptops/tablets
  - Mobile content development including local alerts, etc.

# Conclusion

## 结论

- Building on the experience of rural ICT initiatives implemented to date and incorporating international best practice, China might consider transforming rural informatization programs to achieve higher impact with economies of scale and lower investment costs.

中国可以结合前期经验以及国际最佳实践，实现农村信息化工作的转型，实现规模经济和降低成本，从而提高政府干预的影响力

- A holistic approach, delivery of desirable information and entrepreneurial management, is likely to have wide economic benefits for local communities, with the goal of integrating villages into modern society.

提供农民需要的信息加上企业家管理的整体模式能够为地方社区创造经济收益，有助于乡村与现代社会的融合

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问答