

Innovation China 2015 Conference Summary

Government speeches

- Shanghai is tasked to build global technology innovation center
- National NDRC established a \$6.5 B VC FOF
- CAS Advanced Research Institute has 1000 researcher, 5 research focus, and has incubated several successful companies in the last five years - amazing! Prefers to work with industrial/corporate VCs who can also provide management/business team

Min - Hard technology investing

- Silicon Valley VC models and Chinese VC models are completely different, so far VC successes in China are built on different criteria
- But both SV VC and Chinese VC find hard technology investing hard - many factors contribute to it
- Hard technology investing is hard - needs lots of money, multidisciplinary talents, protective market, policy drive. China has the best environment for these factors
- China needs to 1) improve efficiency of capital deployment - get money to right people, 2) break wall of institutes to allow bigger talent pool, 3) establish policies like the semiconductor-sector policy, 4) creates protective market for start-ups

VC Panel on hard technology investing

- Hard + Soft - inject software, information, IOT concepts into hard technology
- Build ecosystem (intel approach), rather than just build and sell
- Invest in consumer-facing sectors and products
- Invest at inflection point
- Pudong's main industry focus - IC design & Health/Medical

Josh Lerner

- \$ 1 invested in VC creates same amount of innovation as \$3-4 of corporate R&D

- VC is limited in geography, sector
- Flexibility of VC + large R&D spending of corporate is a good combination
- Higher probability of success for corporate VC with strategic tie
- Government role: 1) much easier to do the 100th deal than the 1st, cluster effect, 2) build ecosystem and environment. Not enough to just hand out money, needs to improve overall environment
- Three key principles for government role: 1) make sure table is set, 2) catalyze outside funding - reality test, 3) long-run perspective
- Six key challenges for corporate VC: 1) invest in areas you know, 2) speed of approval process, 3) incentives for CVC staff, 4) create failure-tolerant environment, 5) staying power - doesn't swing, 6) systematic knowledge transfer

Yu Le, MD, Pingan Ventures

- Corporate VC to respond to fast-changing environment
- Focused on six areas: 1) TMT, 2) Overseas technology (Israeli funds etc), 3) health and medical, 4) internet-car, connected car 5) games
- How IBM turned around: 1) customer first, 2) change - continuous change

Cyrille Arnould, Head of GEEREF

- FOF (fund-of-funds) backed by Norway, Germany and EIB, supports project financing funds in energy efficiency and environment protection
- Provide preferred return (10%) to private investors
- GEEREF provides 25% of first closing of a fund, 10% of final closing (1:10 public:private match)

Corporate VC panel

- IFC invests - \$100 M a year in 10-12 projects in IT, Resource and energy, health and education
- SAIC: 8.5 billion RMB, auto-related new materials etc
- Difference in innovation in China: 1) lots of money, 2) government role, 3) different channel/partners

- Strategic vs financial: IFC - invest in new sectors (catalyze), doesn't want to follow hot money at high valuation, strategic as important as financial; 2) JAIC: invest in industry value chain, 3) Shell is currently looking for affordable technology in china, aim for scalable, quick-turn-around deployment

VC panel (opportunities in China's economy transformation)

- Three transformative opportunities:
 - new system,
 - old products address new market opportunity,
 - new business models
- There is VC opportunity in companies that help the economy transformation
- There is no bad industry, only bad companies. Good company and management team can integrate the industry as the industry shrinks and smaller companies lose traction
- Industrials working together with VC and work out win-win deal structure is key
- Selection criteria for deals: 1) right direction, 2) right people, 3) solid business model

IP Panel

- IV ventures in China went from being frowned upon (09-10), to being watched (11-12), to generate curiosity (13-14), to being copied everywhere (now)
- IP environment is in general improving a lot, but still needs street-smartness to protect IP
- IP turned into economic profit: Tsinghua 7%, Zhejiang University 13%, IV 50%
- IP doesn't need to be made into product to generate value - can be commercialized, traded etc
- IV has extended business model to include SME-big company matches

Entrepreneur panel

- Challenge of corporate R&D center in China: find local talents who speak corporate language
- Why returnee entrepreneurs: 1) market opportunity, 2) government support, 3) access-to-decision-makers, 4) everything is possible feeling
- Best entrepreneurial trait: tech/market/finance complete in one person or in team

Economist Zhou

- Innovation is the most important driver for China's economic development going forward
- China has only 3.7 billion RMB true-sense VC
- Challenge for government \$ 6.5 B VC FOF - can you give it to the right VC? Few VCs understand technologies
- Need much more reforms
- Suggest government to attract more foreign universities to China

Interview with Josh Lerner

- What hasn't changed in VC: 1) funding risk, 2) very unpredictable, 3) cyclic nature
- Future trend of VC: 1) firms are becoming more professional, managed like a business, rather than cowboys shooting buffalos, 2) more complicated ecosystem, more players, decisions of what to do, when to do, and with who are now much more strategic, 3) distribution of returns - one or two deals generate returns for the entire fund while many deals don't make money
- China has been good at absorbing technologies, when you reach the frontier of technology, productivity gain slows down.
- Input and output not necessary connected: the more R&D money spent doesn't mean more outcome. It involves creativity
- Lack of manufacturing expertise in the US hampers US VC's ability in investing in hard technologies

Battery Material and Energy Storage Industry Forum (19th)

Technology analysis of anode / cathode material of Li-ion battery - Michelle Hua, China Materialia

- Battery application is transferring from consumer dominant applications to automotive or energy storage application, which needs 2-5 times more energy density than current li-ion battery can offer. Big demands for high performance Li-ion battery exist

- Cathode and anode materials play an important role in li-ion battery performance: with the improvement of cathode and anode materials, energy density, safety or cost of the li-ion battery could possibly be upgraded. Compared to anode material, improvement in cathode material can play a bigger role in overall battery performance
- No perfect materials exist currently: There are trade-offs among different materials. Various methods such as coating, doping, changing the material morphology, and etc. are developed to improve current material performance. However, there are capacity limitations on existing materials
- A lot of efforts are put in the finding of new materials: high voltage cathode active materials or high capacity anode and cathode electrode materials are being developed, but there are still some problems for the commercialization of these materials, such as cycle time, etc.
- It is better to match the material with the right application: no perfect material exists, need to use the battery in the right applications.

Overview of China's Energy storage market – Tina Zhang, CNESA

- From 2000-2014, 840MW energy storage (not including pumped hydro, compressed air, and thermal storage) project has been implemented globally. In China, market size for pumped hydro is 21.5GW, accumulated project for energy storage (mostly batteries) exceeds 80MW, healthy growth for the past several years
- In US /Germany / Japan / South Korean, there are favorable policies for energy storage, such as government subsidies to support the growth of the industry. In China, though the government began to realize the importance of energy storage, there is no policy directly targeted to energy storage yet
- With the pending reform of the electricity market, the grid will be more open and market oriented. There will be more opportunities for energy storage application with the open up of demand side market in particular
- In the past several years, wind power+ solar + energy storage, and distributed micro-grid is the main applications for energy storage. Going forward, auxiliary service on the generation side would become a valid market for energy storage application

Roundtable Discussion

- Experts from grid, energy storage integrator, research institutes as well as investment professionals had discussed current status of China's energy storage market, its business model and sustainability issues
- Zhejiang electric power academy has implemented several energy storage projects in islands, including Dongfushan island, Nanlu island, etc, using lead acid battery and LFP battery. The cost for using wind + solar + energy storage to provide power to those islands is much lower than connecting those islands to the grid system on the main land, the cost for undersea cable alone

is quite inhibitive. The problems they encountered during these projects are complicated bidding process and less than ideal battery cycle life.

- The market condition for home use solar + energy storage system is not there yet in China. China has a very strong distributed grid network, has the ability to absorb the fluctuation caused by solar, the need for energy storage is not urgent there. Besides, low electricity price + low solar penetration rate, home owner has little incentive to implement energy storage system. In contrast, this is a very valid market in Japan / Germany
- Electricity market reform: if the market for sales of the electricity can be opened as people expected, it will create a valid application market for energy storage and demand response. The business model will be proven in some niche market first, such as frequency regulation

Founders from 7 energy storage related companies participated the road show in the afternoon

Mr. Eldon Mou

Beijing Raypower Technology is a returnee-founded company offering grid-scale energy modulation services with batteries. VC-backed and based in Beijing.

Mr. Bai Ou

Tech 9s is a battery material company focused on the development of high performance lithium titanate anodes and high voltage cathode material. Seeking VC financing, based in Beijing.

Mr. Francois Bordes

WeSmart is an open cloud platform that makes data from smart meters and connected devices accessible online to users both at home and at the office. WeSmart is an open solution collecting multi-fluid data, such as energy, water, temperature, controlling the connected devices through a multi-protocol, patented technology, offering a turnkey solution with minimal installation and configuration to clients. The WeSmart mobile App is available from both Android and iPhone stores. Raising A-round, based in Paris, France.

Mr. Yang Liu

PowerWise Energy is a total solution provider for customer energy storage needs. The company is focused on the R&D, integration and installation of BMS, high power electronics and PACK solution. Based in Shenzhen.

Mr. George Ma

Jiurun Energy is a leading supplier of Fe/Cr flow batteries. VC backed and raising a B-round, based in Suzhou.

Dr. Xiaodong Xiang

E-cube Energy was founded by two “thousand talent” experts. The company is focused on thermal energy storage and solar thermal power generation systems. VC backed and raising a B-round, based in Shanghai.

Mr. Binglun Tian

Pearl Hydrogen is a leading hydrogen fuel cell company in China. VC-backed and based in Shanghai.