BUSINESS ECOSYSTEMS

Constructs, Configurations, and the Nurturing Process

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Business Ecosystems

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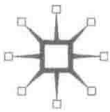

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List of Abbreviations

API	application programming interface
BE	business ecosystem
BELC	business ecosystem life cycle
CISC	complex instruction set computing
CMOS	complementary metal oxide semiconductor
CP	content provider
DFM	design for manufacturing
EDA	electronic design assistant
GEN	global engineering network
GMVN	global manufacturing virtual network
IC	integrated circuit
IDH	independent design house
IDM	integrated device manufacturer
ILC	industry life cycle
IMN	international manufacturing network
IP	intellectual property
ISA	instruction set architecture/international strategic alliance
ISV	independent software vendor
MID	mobile internet device
MTK	Mediatek (Taiwan IC Company)
NPD	new product development
ODM	original design manufacturer
OEM	original equipment manufacturer
OMS	open mobile system
OS	operating system
OSV	operating system vendor
PC	personal computer
PCB	printed circuit board
PLC	product life cycle
RF	radio frequency
RISC	reduced instruction set computing
SC	supply chain
SI	system integrator
SN	supply network

TFT-LCD	thin film transistor liquid crystal display
VC	value chain
UMPC	ultra mobile personal computer

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Introduction

1.1 New industry frontier: from supply chains towards business ecosystems

The mobile phone industry has experienced dramatic changes in the last five years. In the West, while Apple has dominated the industry and Samsung has risen in popularity, previously established players such as Nokia, Sony-Ericson and Motorola have almost disappeared. In the Chinese market, the new smartphone company Xiaomi sold almost 19 million smartphones in 2013, up from only 400,000 in 2011. By taking advantage of established manufacturing resources and integrating them on its business platform, Xiaomi successfully imitated Apple's business model, tailoring it to the Chinese mobile phone market. It co-opted the Chinese mobile phone ecosystem into its value-creation network, delivering unprecedented rapid growth and creating the most popular Chinese domestic mobile phone brand within two years.

Xiaomi's success may demonstrate the end of an era when the vertically integrated firm has been the dominant mode of industrial organisation in the emerging and fast-growing phases of industry development. Its alternative model illustrates that collaboration among complementary organisations, diversified resources and skill sets are essential for nurturing new firms, supply chains, value networks and industries.

A second example of rapid change is that the mobile phone industry has also converged with the personal computer (PC) industry to form a new mobile computing industry, potentially improving the performance for portable devices. Two groups of companies have been engaged in developing potential end-user products in this emerging industry. The mobile phone group produces a portable device used for daily communication while the PC group is normally involved in data processing or

entertainment. However, consumers have an increased expectation to be able to carry out various simple computing operations while they travel, and mobile computing functions such as easy access to the Internet, long standby time and simple computing have become very appealing. To meet these expectations, the mobile phone group has devoted more attention to smartphones or MIDs (Mobile Internet Devices) than to the 2G phone in order to add more computing functions to enable users to carry out simple computing tasks while travelling, while the PC group seeks to make the notebooks much smaller in size, portable and with long standby times, so that the product can perform more functions without being recharged.

However, the convergence of these two industries is not straightforward. Products of the mobile computing industry are still in flux, although iPad dominates the market. Each group hopes to retain its advantages to form new generations of products. They cannot reach an agreement in the design of end-user products. More critically and interestingly, the industrial structures and the business models in the two groups are very different. The PC industry has been dominated by the Win-Tel system for more than 30 years while the mobile phone industry is mainly enabled by ARM IP architecture and more diversified networks domination. The serious competition between these two groups inspires and forces many firms to concern themselves deeply with their selection of business ecosystems (Moore 1993). The new competition in the emerging industry has been transformed from the traditional levels between firms and supply chains towards a new level between Win-Tel–based and ARM-based ecosystems.

The third example has nothing to do with mobile phones but goes back to China again. The Chinese central government has invested a huge amount of money in renewable energy vehicles in the last fifteen years (from its 9th to the 12th Five-Year-Plan periods). Strategically it intends to find new ways to develop the family transportation industry and to solve two longer-term issues. First, although China has emerged as the largest producer and market in the automotive industry, the Chinese government has been convinced that its state-owned car producers have become Chinese subsidiaries of foreign, multinational corporations (MNCs). They are weak in innovation and high-value–capturing capabilities. Secondly, the fusel fuel combustion engine automotive industry is almost towards its own end, and China has yet to develop its own renewable energy vehicle industry. The politically motivated investments have, unsurprisingly, not brought on any significant industrial breakthroughs. However, the grass-roots

entrepreneurs, aligning with their local governments in the Shandong Province (located between Beijing and Shanghai), amazingly created a very successful but quite low-end and largely 'illegal' electric vehicle (EV) industry (it is also called micro-EV) in the last ten years. When its market size almost reached 200,000 units in provincial annual EV sales in 2010, the Chinese central government forbade the EV productions based on Chinese established regulations and policies in the automotive industry.

The serious arguments and thoughts are that, although there are very strong and increasing demands for the low-end EVs from the rural market and even stronger supply capabilities from the province and global industry supports, it is useless unless the automotive industrial policies, regulations and legislation are able to be adapted according to the new development requirements. The emerging EV industry must be the best example to demonstrate the increasingly critical challenge for an industry development. For the Chinese grass-roots EV manufacturing companies and their local and global collaborators, it is not the most serious challenge to understand the increasing demands for the EV, or to set up a supply chain or value network to co-develop the EVs to satisfy the targeted markets, or even to identify the complementors, such as electric charging service providers and their underlying renewable energy infrastructures. It is so essential that all parts – demand, supply, intermediary sides – work together. In the Chinese Shandong EV industrial development case, the intermediary part is obviously the most significant bottleneck.

As a result of the above three examples, industries are facing emerging challenges in order to cope with the dynamic changes and uncertain business environments as well as the fast emergence and transformations of new technologies and market demands. These challenges may not come mainly from an individual firm or supply-chain levels but from a more complex, dynamic and much wider range of business contexts and systems together. Industrial people adopted ecological metaphors and gave the new challenging totality a very imaginable terminology: business ecosystem (BE).

There is no doubt about the BE existence and its strong impact on industrial development and global competition. However, industry also asks, if the business ecosystem is so powerful and critical,

- what a business ecosystem is, and what key building blocks organise a business ecosystem;
- and how a business ecosystem should be nurtured.