Contents

Foreword 01
SME Development 02
SME Challenges 09
SME Policy 23
Expert Perspectives 25
Enterprises in recent years are significantly impacted by global climate change and frequent occurrence of natural disasters. As the global economy grows increasingly interconnected, even disasters at regional scale will lead to severe influence, such as suspension of operation, and further undermines the global economic recovery and the supply chain of the trade-based member economies and enterprises. The appropriate preparation against major disasters and the immediacy to integrate into industrial value chain are often the key to weathering the crisis. Thus, dealing with the unpredictable supply chain changes caused by the catastrophe has become an issue for enterprise management.

Considering the importance of natural disaster management and the accessibility of the latest information, Google, the world-renowned IT company, establishes "Google Crisis Response" in United States, Japan and Taiwan. By cooperating with the local government, Google builds tools to collect and share emergency information, making critical and first-hand information more accessible in times of disaster.

As an information panel, APEC SME Monitor similarly strives to offer related information and knowledge for enterprises. In this issue, we review the global natural disasters in 2012, and continue to deliver a wide variety of topics discussing the development of SMEs, including the crisis management and entrepreneurship issues. In the first section, the expert suggests OEM/ODM industry to "understand customers better than themselves" and seize the initiative. In another article, the expert examines the transformation story of MIGO Corp., analyzing how the company outshines their international competitors by reclassifying CRM platforms and offering entirely cloud-based platforms with virtual reality integration. In the "SME Policy" section, the expert summarizes the experience and lessons from the expert group meeting following the great East Japan Earthquake in 2011, and proposes the importance of integrated disaster risk management in terms of the recovery and reconstruction. Also, in the last section, the expert indicates that the pioneering technique of 3D printing may benefit the hardware industry of Chinese Taipei and stimulate the startup and entrepreneurial ecosystem.

We appreciate everyone's support for APEC SME Monitor, and we are convinced that our constant observation and trend analysis will benefit the operation of SME and stabilization of the supply chain in Asia Pacific area. In the future, we will also continue to keep track of the up-to-date development trend and provide our readers with the latest news.

Johnny Yeh
Executive Director
APEC SME Crisis Management Center
I am currently teaching a course of Innovation and Entrepreneurship in the EMBA program at National Tsing Hua University, Chinese Taipei. One student from my class once asked, "How can the OEM/ODM industry restructure themselves"? A general answer to this question is to switch the focus into brand development. However, my opinion has always been different. The mindset and capability to operate the OEM/ODM industry and to develop a brand are two totally different stories. Developing a brand is never a "national activity" for the industry, and even leading economies of ICT industry have only developed few major brands. The focus of brand development actually consists in its brand connotation, value, and its influence on the global industry.

The board chairman of the ODM/OEM of the electronics industry once said, "As an OEM/ODM, we ought to understand customers better than themselves". I have two interpretations for this: First, it means to understand customers more than customers themselves. And secondly, it also refers to understand customers more than they understand their (end) customers. In fact, OEM/ODM industry has a variety of choices to restructure themselves, including to become mittlestand companies or service-oriented manufacturing companies. This could be taken as the answer to my student’s question. The research and innovation of the OEM/ODM enterprises are mostly made in response to the request of their brand customers, yet this will results in a "locked-in" effect of mindsets and research issues, restricting the effectiveness of research and innovation.

Take the electronics industry as an example. OEM/ODM industry mostly makes research and development based on the existing product lines and orders. However, we have witnessed the impacts that tablets have brought on the existing PCs and laptop in recent years. The New York Times issued a report on 12 May entitled "In Chinese Taipei, Lamenting a Lost Lead". This article points out Chinese Taipei’s problem of inadequate innovation and slow reaction by quoting the point of view of Jonney Shih, Board Chairman of Asus Company. The article further illustrates that Taiwan failed to seize the initiative in the wave of smartphone. While Google's tablet products stands out from the market by applying its Android-based operating system, most business in Chinese Taipei are unable to follow the trend and restructure themselves in time. More importantly, with the exposure of new launched products like Google Glass, iWatch, the main structure of smart devices are undergoing a drastic change, and the elements of "wearing" is being introduced, which means that, in the future, the smart devices will not be restricted to the traditional "hand-held" structure. These new elements and new product structure are very likely to alter the content and development outlook of the "smart services", and all these new developments will impact the supply chains and relevant OEM/ODM enterprises on the existing product line.

Nevertheless, if the OEM/ODM companies can manage to "understand customers more than
themselves" and also to "understand the end customers better than customers themselves", they will be more likely to see the context of the changes, to broaden the horizon, to recognize the situation, and therefore to come up with their unique market strategy. Otherwise, they will be confined to the current development, or be easily influenced by the "main/product structure" of the industry.

I expect my EMBA students to "be able to understand the overall situations and to deliberate their layout strategy" when returning to their work. This mode of thinking also applies to OEM/ODM and brand enterprises. From the perspective of innovation and effectiveness, most of R&D outputs, patents, and innovation that Chinese Taipei has long been working out are made for the profit of others. If we are able to have an in-depth understanding better than the customers, we may more or less alter the current dependency relation of Chinese Taipei’s industries in the future.
“MIGO Corp.” was established in 1999 by Chung-Ho Tai, who is one of the founders of Acer Inc., and Yi-Feng Lin and Shih-Chieh Yang, who are founders of Prairie Technologies, Inc. In the past, the company focused on product development and sales of the database marketing system and had a wide range of customers, covering the financial, distribution and media industries, such as Bank of Taiwan, Shin Kong Life Insurance Co., Ltd., Fullerton Technology, Far Eastern Amart, CommonWealth Magazine, Business Next Publishing Corp., etc. Although MIGO Corp. had a solid shareholder group and a strong technical team, its business model of platform development and project sales impose restrictions on its revenue and profitability.

Started from Asus’ CRM Project......

At the end of 2011, Asus organized public bidding for its Customer Relationship Management (CRM) Project, which attracted several international tenders, such as IBM, Oracle, and Ogilvy to bid for the project. However, MIGO Corp., though internationally unknown at that time, outshone the competitors and won the bidding.

Actually, the new CEO Chieh-Hao Chen, who had several successful entrepreneurship experiences in the United States, was leading MIGO Corp. to conduct transformation at that time. Chieh-Hao Chen joined in MIGO Corp. in 2010 and discovered that the company had solid strength in technology and fine products but showed very weak ability of business model innovation and business marketing. Therefore, he prepared and conducted transformation of MIGO Corp.

Transformed as a result of listening to the voice of the market

By serving the post of Executive Assistant to General Manager, Chieh-Hao Chen not only exhibited outstanding sales skills and penetrating market olfaction but also brought his 14-year experience and resource in the CRM field into MIGO Corp.. He introduced numerous international cooperative partners and personally led the sales team to win key customers in Taiwan and Mainland China as well as the Asia Pacific area.

Since excellent performance was recognized by the Board of Directors, Chieh-Hao Chen was promoted as CEO. He continuously led the sales team to create higher performance and visited all customers MIGO Corp. provided service to in the past one by one. He accordingly realized that what the market needed was not only the CRM platform but information integration service and customer behavior analysis designed based on the marketing flow.
Market demand is the key to transformation

Having observed the Asia Pacific Area for many years, Chieh-Hao Chen found that MIGO Corp. had strength in its platform with high quality price ratio. Furthermore, it was more familiar with the China market and the special local social platforms (such as Weibo, Renren, QQ, etc.) than other international large companies were thanks to its operation in Beijing and Shanghai for more than 8 years.

Due to emergence of e-business, popularity of intelligent mobile devices and consumption habit under virtual reality integration (for example, online reading of product evaluation and testing, experiencing products at bricks-and-mortar shops and making purchases via online shopping), Big Data and O2O (Online to Offline) became the core value of CRM required by the new generation market. After further analysis and planning, Chieh-Hao Chen decided to define Big Data/O2O CRM as the corporative core of MIGO Corp. (as shown in the table below) and aim at becoming the leader of the CRM market in the Asia Pacific Area.

Table 1. Core value and comparison of the new generation virtual reality integrated CRM

<table>
<thead>
<tr>
<th></th>
<th>Traditional CRM / BI (Business Intelligence)</th>
<th>Virtual reality integrated (O2O) CRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope of market</td>
<td>Existing customers</td>
<td>Existing and potential customers</td>
</tr>
<tr>
<td>Type of communication channels</td>
<td>Telephone calls and mails</td>
<td>Internet, mobiles, social network, media</td>
</tr>
<tr>
<td>Quality and efficiency of communication</td>
<td>Limited ways of communication</td>
<td>Infinite channels</td>
</tr>
<tr>
<td>Effectiveness of terminal service</td>
<td>Tremendous amount of manpower is required</td>
<td>Numerous tools can be employed</td>
</tr>
<tr>
<td>Levels of marketing relationship</td>
<td>Repurchase and recommendation</td>
<td>Follow-up → Consumption → Repurchase → Recommendation</td>
</tr>
<tr>
<td>Effectiveness of marketing follow-up</td>
<td>Following up after-consumption conversion rate only</td>
<td>Be Able to follow up multi-level conversion rate optimization</td>
</tr>
<tr>
<td>Orientation of marketing flows</td>
<td>Product and customer oriented</td>
<td>Market and consumer oriented</td>
</tr>
</tbody>
</table>

Business model changes along with the market

With the clear demand motive and corporative objective, transformation of products and platforms was the next step. In the past, MIGO Corp. conducted sales on the basis of product modules or project sales, which delivered short revenue cycles and limited profitability. In order to pursue long-term value and expand operation in-depth in the Asia Pacific Area, MIGO Corp. has reclassified CRM platforms and offered entirely cloud-based platforms according to its operating size and service scope required by customers to transform itself as a SaaS (Software as a Service) company through long-term lease and technical service.
With transformation from technical orientation to market demand, "Customer Relationship Management" which MIGO Corp. focused on in the past has been upgraded as a marketing flow cycle (as shown in the chart below), attracting many leading companies in China and multinational corporations in the Asia Pacific Area to become indicative customers, which is a preliminary success for the transformation MIGO Corp. has made efforts in.

![Image of a diagram showing the new generation Consumer Relationship Management (CRM) cycle](image-url)
Reflection of Largeness and Superiority

Confronted by continuous economic weakening in Chinese Taipei, urgent need of industrial transformation and upgrade, and the return guidance in response to serious industrial migration, the governmental agencies, competent authorities and think tanks are trying all-out to bring up sensible economic revitalization policies and relevant guidance. However, how to let the public feel sensible?

Economic development and transformation in Chinese Taipei has always been cultivated on the basis of Small and Medium Enterprises (SME) industrial development model. Even though SMEs delivered outstanding performance time after time and achieved the so-called "Economic Miracle", its applause and affirmation only come after the success. Before that, prominent economists, scholars or think tanks in the competent authorities never seem to be optimistic about the SME-based industrial development model, and the development model was never the center focus of the government policy.

Looking back the time after World War II, driven by post war economy, the United States pushed forward an era of mass production and manufacturing by increasing production efficiency and lowering production cost, which brought the world a golden period of manufacturing economy and trade economy involving giant enterprises, great trade, large financial institutions and grand perspectives. This pattern influenced the global economic development for almost 50 years and became the model and paragon for post-war economic recovery development, such as Japan and Korea. Most prominent experts, scholars and competent authorities in Chinese Taipei also promote numerous economic policies based on this pattern, in an attempt to integrate SMEs in Chinese Taipei, such as great trading companies, large co-brands, corporate headquarters, expansion of corporate merger and acquisition, etc. However, the results were not as good as expected. On the contrary, under this American-style economic pattern, the SME-based industrial development model constantly delivered outstanding performance beyond the expectation of experts– The Asian financial crisis was the best proof.

While developed economies gradually come up with creative industrial economic model in response to the issue of industrial migration and the need for economic transformation, the SME-based industrial development model in Chinese Taipei results in weak economy of scale and low profitability of OEM, thus initiating a new thinking model of industrial economy: fashion industry. The U.S.A- and Japan-based large enterprises that once dominated the global economic artery in the past were on the brink of collapse and transformation. On the contrary, European-style SMEs engaging in traditional industries have become the mainstream of this trend of aesthetic creative economic development under resource integration and development of cross-field talents, such as profound culture, superior experience of manufacturing technique and knowledge of fashionable design.
During the period of American-style economics, the SME-based industrial development model of Chinese Taipei indeed impose restrictions on its development. However, it is still strength rather than weakness under the trend of aesthetic creative economic development. In the past 40 years, SMEs in Chinese Taipei has accumulated high quality experience of manufacturing technique, the most quality strength in the OEM of high tech industry, profound Chinese cultural cultivation, and design talents with international perspectives. Furthermore, China expresses intense interest in our development experience since its reform and opening. China market is also strongly identified with Chinese Taipei’ s cultural innovation industries, and Chinese tourists visiting Chinese Taipei may as well stimulate development of local specialized industries and designer brands. It is the time to center on our SME-based industrial development policy, to rebuild the core value, to open up unique style and to recreate the new economic miracle.

The United State emerged after the World War II, and established superior European industrial pattern twenty years later thanks to its background originated from Europe. Whether the rapid emergence of China nowadays will bring forth the transformation and innovation of the industries in Chinese Taipei is something worth waiting.
"You had to be a bit savvy and connect the dots......that made a huge difference to our business"—Health Systems Ltd. CEO

Overview

What happens when a small ICT company is hit by a major crisis? Here we present a case study of Health Systems Ltd., a technology company, focusing on specialised software sales, service, and maintenance. Health Systems Ltd was badly affected by the 2010/2011 earthquakes in Christchurch, New Zealand; they have agreed to share their story.

On 4 September 2010, the city of Christchurch was struck by a magnitude 7.1 earthquake. The event caused significant damage but no fatalities. The earthquake, however, triggered a sequence of more deadly and damaging aftershocks. In particular, on 22 February 2011, Christchurch was struck by a magnitude 6.3 earthquake, centred within 10 km of the central city. One hundred and eighty five people died. This earthquake caused significant damage to the city, and large parts of the Central Business District remained cordoned off to the public for two years.

The Resilient Organizations Research Programme began to trace Health Systems Ltd. approximately three months after the 4 September 2010 earthquake and has continued to track its business progress for the following 3 years. The case of Health Systems Ltd. offers insights into a company that previously emphasized rapid reaction to issues as they emerged, rather than supplementing responsiveness with strategic planning and constant evaluation and learning. Health Systems Ltd. performed well at some aspects of their response and recovery

---

1 This is a pseudonym. All the information collected from this business was done with the approval the University of Canterbury Human Ethics Committee under the condition of confidentiality.
to the earthquake, but struggled to implement improvements and maintain relationships with some staffs and customers. As a result of their experiences following the Christchurch earthquake, Health Systems Ltd. has implemented actions to identify vulnerabilities and put systems in place to ensure business continuity and on-going development. The lessons learned by this business, though sometimes painful, could help other organisations anticipate the challenges brought by complex crisis and mitigate the loss with more resilient response and recovery.

**Description of the Organisation**

Health Systems Ltd. was founded in 1980s, and grew to have offices in Auckland and Christchurch, New Zealand as well as Sydney and Melbourne, Australia.

By the time of the September 2010 earthquake, the Christchurch office had around 40 full-time equivalent staff. Health Systems Ltd. has local as well as international customers. Almost all of the growth and development of the organization reside in its international market.

Prior to the September 2010 earthquake, Health Systems Ltd. was comprehensively insured but had done no emergency or business continuity planning.

**What Happened to Health Systems Ltd.?**

For many other organisations in Canterbury, the September 2010 earthquake was also a major shock, but Health Systems Ltd. suffered no damage and only minimal disruption to their operations took place. Their building, located in the Central Business District of Christchurch, was inaccessible behind the official cordon for four days (Table 1) after the first earthquake. Health Systems Ltd. allowed their staff to work from home and rerouted business-related calls through their offices in other cities.

<table>
<thead>
<tr>
<th></th>
<th>September 2010 Earthquake</th>
<th>February 2011 Earthquake</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building</strong></td>
<td>Located within the CBD cordon for 4 days, then approved for safe re-entry</td>
<td>Located within the CBD cordon, &quot;red tagged&quot; and demolished in 2012</td>
</tr>
<tr>
<td><strong>Equipment/Computers/Non-structural damage</strong></td>
<td>No damage</td>
<td>Moderate damage to equipment, computers, inventory, and other non-structural features</td>
</tr>
<tr>
<td><strong>Utility Disruption</strong></td>
<td>Electricity disrupted for up to 4 days</td>
<td>Electricity disrupted (~ 1 month)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communications disruptions (~1 month)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Road networks (reduced capacity for ~6 months)</td>
</tr>
<tr>
<td><strong>Closure</strong></td>
<td>Temporarily closed for 4 days, reopened partially with many staff working from home for 2 weeks</td>
<td>3 weeks</td>
</tr>
<tr>
<td><strong>Staff Loss</strong></td>
<td>No loss</td>
<td>2 full-time employees (FTEs) resigned soon after the February earthquakes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 additional FTEs resigned during the recovery</td>
</tr>
<tr>
<td><strong>Staff Hiring</strong></td>
<td>Hired 1 FTE</td>
<td>Hired 5 FTEs in 2012</td>
</tr>
</tbody>
</table>

2 The term “red tagged” refers to Canterbury’s tri-color building assessment scheme. If a building was red tagged, it was deemed unsafe for entry.
The 22 February 2011 earthquake was far more disruptive. Health Systems Ltd.'s building in Christchurch was cordoned again, but their building and the surrounding areas were far more damaged than in September. Their IT server had gone down, and they had no way of restarting it or accessing their data without entering the cordon. Health Systems Ltd.'s CEO in Christchurch responded quickly, trying multiple avenues before connecting with a well-placed employee of a critical public service organisation who enabled Health Systems Ltd.'s staffs to access their cordoned building, to restart their server and retrieve important files. By resolving this issue as quickly as possible, Health Systems Ltd. greatly reduced potential income losses and avoided damaging their international reputation.

Health Systems Ltd.'s employees worked from home for approximately six months following the February earthquake, seeking spaces for group meetings as needed. The organisation eventually relocated to a relatively undamaged suburb of Christchurch.

Health Systems Ltd. lost 5 full-time staff members in 2011 and 2012, in large part due to earthquake-related stress and ongoing uncertainty, within the business and Christchurch in general. They were forced to operate understaffed for nearly a year before new staff fully replaced those who had left.

The company's revenue remained stable between 2010 and 2011, but decreased from 2011 to 2012. Health Systems Ltd. management attributed this decrease mostly to slow implementation of business improvement projects, which were planned before the earthquakes, delays to new product development, and decreased sales. All of these issues were caused by earthquake-related disruption, but exacerbation caused by reactive and often slow decision-making and an organizational culture which led to poor morale, reduced productivity and resistance to change.

What Can We Learn from Health Systems Ltd.?

Crises and disasters can be excellent learning opportunities for organisations, but often an organisation waits for months to review their systems, evaluate their vulnerabilities, and assess their response and recovery procedures. A salient lesson generated by the Canterbury earthquakes is that the next crisis could be sooner than anticipated.

*It is paramount to evaluate vulnerabilities and implement any necessary changes as soon as possible following a crisis.*

The September 2010 earthquake caused no damage and little disruption for Health Systems Ltd. Instead of incorporating lessons learned from this 'near miss', Health Systems Ltd. delayed the improvement process to focus on the immediate needs of the business.

Under remote business operation with their onsite server breaking down, Health Systems Ltd. had no data or services on the cloud and no apparent way of transferring operations. Prior to the September 2010 earthquake, Health Systems Ltd. had no business continuity or emergency response plan, and did not implement one after this event. In February, even though they were able to restart their server quickly enough to avoid major losses, the situation served as a major impetus for change in the way Health Systems Ltd. approached business continuity planning.
What Could Have Gone Better?

- The earthquakes actually made staff resistant to further changes that should have occurred prior to the earthquake. Employees were run down by the persistent nature of the earthquake series—in some cases, they have to deal with disruptions to their own homes and families, in addition to their remote business operation. Despite the need for restructuring business operations, Health Systems Ltd.’s upper-level management received push-backs from staff when trying to implement these changes. As a result, they delayed changes, with the consequence of slowed growth and development throughout 2013.

- It took 6 months after the February earthquake for Health Systems Ltd. to relocate to a permanent location. The commercial real estate market in Christchurch was in turmoil after the February earthquake, and short-term leases were generally unavailable. Health Systems Ltd. waited for an available location in a desirable area before committing to the relocation, which was in many ways a prudent decision. Working from home, however, put a burden on staff members and their families. Staffs needed more options to work together and options for working outside their own homes. The strain of the situation could have been further mitigated by clear communication about why the relocation process was so lengthy and by further consultation about how Health Systems Ltd. could have supported their employees’ needs of work space.

- Following both the September 2010 and February 2011 earthquakes, Health Systems Ltd. had significant issues maintaining staff morale and preventing burnout. The CEO reported that the culture of the organisation took a major hit during the recovery. They lost 5 employees in the aftermath of the earthquake. Health Systems Ltd. found that it was difficult to find technically proficient staff in Christchurch and to attract new staff to Christchurch during the recovery. They were forced to operate at sub-optimal staffing levels for nearly a year following the February earthquake.

- Customers were generally empathetic and supportive of the disruptions caused during the recovery. However, with delayed improvement to their software delivery and supporting systems, goodwill eventually ran out. The CEO feels that their reputation has been compromised, potentially costing them new business.

What Went Well?

- Health Systems Ltd. effectively redistributed workloads to other sections of the organisation where possible. Following both the September and February earthquakes, Health Systems Ltd. was able to reroute calls and redistribute their workloads through offices in other areas of New Zealand and Australia, so the Christchurch office could focus more effectively on needs to recover.

- Health Systems Ltd. rapidly implemented domestic work. They were able to bring their finance team together and work from an employee’s house. Staff members also offer their homes as meeting rooms.
• Health Systems Ltd. was well insured and maintained a good relationship with their insurance company. They received advance payment that allowed them to meet their immediate needs during the recovery process.

• Health Systems Ltd.’s managers began to have regular meetings with owners and managers from other earthquake-affected ICT companies in 2011. These meetings provided a supportive environment for organisations to share their stories and discuss recovery as well as redevelopment strategies.

• Health Systems Ltd. sought sources of additional financial support as below to supplement their revenue during the recovery:
  - Receiving a travel grant from New Zealand Trade and Enterprise for earthquake-affected businesses and utilizing this grant to visit existing customers to reinforce relationships and connect with new markets.
  - Applying for a technology development grant through the Ministry of Science and Innovation.
  - Receiving the Earthquake Support Subsidy\(^3\) following the Canterbury earthquakes.

• Health Systems Ltd.’s Board of Directors recognised and rewarded the employees that went above and beyond of their duty during the earthquake.

How Have They Changed?

• Throughout 2012, Health Systems Ltd. has worked to identify areas of vulnerability and has increased security and resilience of their data, services, and IT systems to ensure business continuity in advance of another disruptive event. They have
  - replicated data so it can be held in multiple offices;
  - installed improved firewalls for their systems;
  - put more uninterruptable power supply (UPS) systems in place; and
  - transferred emails and a number of services to the cloud\(^4\)

• Health Systems Ltd. has recognised the fact that planning does not have to come at the cost of flexibility and responsiveness, and that appropriate business continuity planning can actually allow organisations to think on their feet and find post-crisis opportunities. They now have someone in a business continuity role.

• They are currently reviewing their management systems to improve customer relationships and relations between internal staff.

---

\(^3\) The Earthquake Support Subsidy was administered through Work and Income New Zealand to help employers continue paying wages. Eligible employers received a payment of NZD 500 gross per week for each full-time employee and NZD 300 gross per week for part-time workers, paid to the affected worker.

\(^4\) The cloud in this instance refers to an internet-based network of servers.
Review: Lessons Learned

- Have offsite and cloud-based backup systems (backup systems for your backup systems) – sooner rather than later.

- Be together. Even if staffs are fully capable of working from home, spaces where staffs can work together helps communication, collaboration, and reinforce organisational identity.

- Recover smartly! If possible, redistribute core workloads to other sections of the organisation to ensure that employees directly dealing with the crisis are not overloaded. Other businesses that have suffered from similar crises can also be supportive (especially for owners or upper level management).

- Don’t underestimate the psychological influence of a disaster. Monitor and manage staff stress, and also note that uncertainty and strain can be greatly reduced through clear communication and transparent goal setting.

- Be honest and realistic with customers, communicate clearly, and ensure these relationships are maintained. Post-crisis empathy is finite.

- Utilise aids available. Although Health Systems Ltd. would have survived without the grants and subsidies they received, these resources reduced the financial burden from the recovery and allowed additional activities (i.e. sales travel) that may have otherwise not occurred.

Health Systems Ltd. 'connected the dots' during their recovery by accessing support from other sections of their organisation, other businesses dealing with the recovery, and forging new connections to serve their needs of immediate response, accessing the cordon and paying their employees, for instance; and their longer terms needs grants to connect with customers and development of new products. However, formation of connections for the near miss of the September earthquake is rather slow, and they did not make use of these experiences into events that may happen in the future. They emphasised reactive responses over strategic and transparent planning, and decision-making, which damaged their relationships with employees and customers. They are currently re-evaluating their systems and developing into a more resilient enterprise. 📊
Global natural disasters in 2012

2012 represented a welcome return to a normal level of losses after the extreme economic and insured losses of 2011 caused by Japan’s earthquake and South Asia’s tsunami— an outcome reflected in the very strong reinsurer and strong insurer results posted during the year. However, according to the statistics of the reinsurance broker Aon Benfield, global natural disasters in 2012 combined to cause economic losses of USD200 billion, just above the ten year average of USD187 billion. The disasters caused insured losses of USD72 billion, about 36 percent above the ten year run-rate of USD53 billion. In contrast to 2011, when the largest events occurred in the Asia-Pacific region, the two largest global events of 2012 occurred in the US: Hurricane Sandy and a yearlong drought. These two events accounted for nearly half of economic losses but, owing to higher insurance penetration in the U.S., 67% of insured losses globally. The drought, however, also contributed to lower U.S. tornado and severe weather losses than 2011. The U.S. accounted for nearly 90% of all insured losses in 2012.

The most deadly event of 2012 was Super Typhoon Bopha, which left more than 1,900 people dead after making landfall in the Philippines. Major flooding affected China and the United Kingdom, with other floods recorded elsewhere in Asia, Europe and Oceania. Italy was also struck by deadly earthquake for twice. Finally, 2012 ended as the eighth warmest year in world history since global land and ocean temperature records began in 1880.

Europe, Asia and North America (outside the U.S.) all sustained aggregate insured losses above USD1 billion due to flooding, earthquakes and tropical cyclones. The losses in Asia and Oceania were well below their recent 10-year averages, while Europe was slightly below its average. The top 10 insured loss events in 2012 were six U.S. severe weather outbreaks, two tropical cyclones (hurricanes Sandy and Isaac), the U.S. drought, and a nine-day stretch of earthquakes in Italy.

Table 1. Top 10 Global Economic Loss Events

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event Description</th>
<th>Location</th>
<th>Deaths</th>
<th>Structures/Claims</th>
<th>Economic Loss (USD)</th>
<th>Insured Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 23-29</td>
<td>HU Sandy</td>
<td>U.S., Caribbean, Bahamas</td>
<td>254</td>
<td>1,800,000</td>
<td>65.00 billion¹</td>
<td>28.20 billion¹²</td>
</tr>
<tr>
<td>Jan. 1-Dec. 31</td>
<td>Drought/Heatwave</td>
<td>United States</td>
<td>123</td>
<td>Unknown</td>
<td>35.00 billion¹</td>
<td>20.00 billion¹²</td>
</tr>
<tr>
<td>May 20 &amp; 29</td>
<td>Earthquake</td>
<td>Italy</td>
<td>25</td>
<td>10,000</td>
<td>15.80 billion</td>
<td>1.30 billion</td>
</tr>
<tr>
<td>Sept. 7-13</td>
<td>Flooding</td>
<td>China</td>
<td>21</td>
<td>100,000</td>
<td>4.92 billion</td>
<td>148.00 million</td>
</tr>
<tr>
<td>July 20-24</td>
<td>Flooding</td>
<td>China</td>
<td>147</td>
<td>175,000</td>
<td>4.80 billion</td>
<td>234.00 million</td>
</tr>
<tr>
<td>Aug. 28-30</td>
<td>Flooding</td>
<td>China</td>
<td>35,000</td>
<td>4.63 billion</td>
<td>144.00 million</td>
<td></td>
</tr>
<tr>
<td>Apr. 28-29</td>
<td>Severe Weather</td>
<td>United States</td>
<td>1</td>
<td>355,000</td>
<td>4.25 billion</td>
<td>2.40 billion</td>
</tr>
<tr>
<td>Mar. 2-3</td>
<td>Severe Weather</td>
<td>United States</td>
<td>40</td>
<td>280,000</td>
<td>4.25 billion</td>
<td>2.40 billion</td>
</tr>
<tr>
<td>June 28-July 2</td>
<td>Severe Weather</td>
<td>United States</td>
<td>28</td>
<td>430,000</td>
<td>3.75 billion</td>
<td>2.00 billion</td>
</tr>
<tr>
<td>Aug. 1-3</td>
<td>TY Damrey</td>
<td>China</td>
<td>14</td>
<td>300,000</td>
<td>3.28 billion</td>
<td>104.00 million</td>
</tr>
<tr>
<td>All Other Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>55.30 billion</td>
<td>15.20 billion</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200 billion¹</td>
<td>72 billion¹²</td>
</tr>
</tbody>
</table>
Total losses in 2012 were only slightly above the ten year mean of USD187 billion on an inflation adjusted basis. (Global losses during this period are skewed due to the losses seen in 2011.) 2012 becomes the fifth-costliest year since 2002, and the sixth-costliest year on record since 1950.

Nine of the top ten insured loss events occurred in the United States during 2012, six related to severe weather, two were tropical cyclones and one was a drought. Hurricane Sandy, which made landfall in New Jersey as a post-tropical cyclone, was the costliest insured event of the year, though the prolonged drought in the U.S. also prompted a significant level of claims and crop insurance payments by the U.S. Department of Agriculture’s Risk Management Agency program. Both events combined accounted for nearly two-thirds of all global insured losses in 2012. It becomes the third-costliest global insured loss year on record since 1950, following only 2011 (USD133 billion) and 2005 (USD123 billion).

Table 2. Top 10 Global Insured Loss Events

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Location</th>
<th>Deaths</th>
<th>Structures/Claims</th>
<th>Economic Loss (USD)</th>
<th>Insured Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 23-29</td>
<td>HU Sandy</td>
<td>U.S., Caribbean, Bahamas</td>
<td>254</td>
<td>1,800,000</td>
<td>65.00 billion¹</td>
<td>28.20 billion¹²</td>
</tr>
<tr>
<td>Jan. 1-Dec. 31</td>
<td>Drought/Heatwave</td>
<td>United States</td>
<td>123</td>
<td>Unknown</td>
<td>35.00 billion¹</td>
<td>20.00 billion¹²</td>
</tr>
<tr>
<td>Apr. 28-29</td>
<td>Severe Weather</td>
<td>United States</td>
<td>1</td>
<td>355,000</td>
<td>4.25 billion</td>
<td>2.40 billion</td>
</tr>
<tr>
<td>Mar. 2-3</td>
<td>Severe Weather</td>
<td>United States</td>
<td>40</td>
<td>280,000</td>
<td>4.25 billion</td>
<td>2.40 billion</td>
</tr>
<tr>
<td>June 28-July 2</td>
<td>Severe Weather</td>
<td>United States</td>
<td>28</td>
<td>430,000</td>
<td>3.75 billion</td>
<td>2.00 billion</td>
</tr>
<tr>
<td>May 25-30</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>200,000</td>
<td>2.75 billion</td>
<td>1.60 billion</td>
</tr>
<tr>
<td>Aug. 26-31</td>
<td>HU Isaac</td>
<td>United States</td>
<td>5</td>
<td>180,000</td>
<td>2.00 billion</td>
<td>1.40 billion</td>
</tr>
<tr>
<td>May 20 &amp; 29</td>
<td>Earthquake</td>
<td>Italy</td>
<td>25</td>
<td>10,000</td>
<td>15.80 billion</td>
<td>1.30 billion</td>
</tr>
<tr>
<td>June 11-13</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>135,000</td>
<td>1.75 billion</td>
<td>1.05 billion</td>
</tr>
<tr>
<td>June 6-7</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>120,000</td>
<td>1.75 billion</td>
<td>1.00 billion</td>
</tr>
</tbody>
</table>

¹ Subject to change as loss estimates are further developed
² Includes losses sustained by private insurers and government-sponsored programs

Nine of the top ten insured loss events occurred in the United States during 2012, six related to severe weather, two were tropical cyclones and one was a drought. Hurricane Sandy, which made landfall in New Jersey as a post-tropical cyclone, was the costliest insured event of the year, though the prolonged drought in the U.S. also prompted a significant level of claims and crop insurance payments by the U.S. Department of Agriculture’s Risk Management Agency program. Both events combined accounted for nearly two-thirds of all global insured losses in 2012. It becomes the third-costliest global insured loss year on record since 1950, following only 2011 (USD133 billion) and 2005 (USD123 billion).

In spite of a slight difference on the ranking of the causes of insured losses proclaimed by Swiss Re. and Munich Re. in early January this year, the top five natural catastrophes bringing about insured losses are identical.

The number of human fatalities caused by natural disasters in 2012 was approximately 8,800, with nine of the top ten events occurring outside of the United States. The deadliest event of the year was Super Typhoon Bopha, which left more than 1,900 people dead in the Philippines after making landfall as a Category 5 cyclone in early December. Of the top ten deadliest events, four were flood-related, three were tropical cyclones, two were winter weather-related and one was...
earthquake-related (Iran). When comparing to recent history, 2012 saw the fewest natural disaster-related casualties since at least 2002.

### Natural Disasters Defined and Total Events

According to the latest report of Aon Benfield, an event must meet at least one of the following criteria to be classified as a natural disaster:

- Economic Loss: USD50 million
- Insured Loss: USD25 million
- Fatalities: 10
- Injured: 50
- Homeless or Displaced: 2,000

Based on this definition, there were at least 295 separate natural disaster events in 2012, above the 2002-2011 average of 257. The second and third quarters are typically the most active during the year, which was also the case in 2012. Asia sustained the highest number of events, but given the continent’s large size and susceptibility to natural disaster events, this is to be expected. The

---

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Location</th>
<th>Deaths</th>
<th>Economic Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 2-5</td>
<td>STY Bopha</td>
<td>Philippines, Palau</td>
<td>1,901</td>
<td>1.04 billion</td>
</tr>
<tr>
<td>Jan. 24-Feb. 17</td>
<td>Winter Weather</td>
<td>Eastern Europe</td>
<td>824</td>
<td>800 million</td>
</tr>
<tr>
<td>Aug. 21-Nov. 10</td>
<td>Flooding</td>
<td>Pakistan</td>
<td>571</td>
<td>2.64 billion</td>
</tr>
<tr>
<td>July 22-Oct. 31</td>
<td>Flooding</td>
<td>Nigeria</td>
<td>363</td>
<td>636 million</td>
</tr>
<tr>
<td>Aug. 11</td>
<td>Earthquake</td>
<td>Iran</td>
<td>306</td>
<td>900 million</td>
</tr>
<tr>
<td>Dec. 7-31</td>
<td>Winter Weather</td>
<td>Central and Eastern Europe</td>
<td>277</td>
<td>25 million</td>
</tr>
<tr>
<td>Oct. 23-29</td>
<td>HU Sandy</td>
<td>U.S., Caribbean, Bahamas</td>
<td>254</td>
<td>65 billion</td>
</tr>
<tr>
<td>June 23-July 1</td>
<td>Flooding</td>
<td>India, Bangladesh</td>
<td>243</td>
<td>90 million</td>
</tr>
<tr>
<td>July 18-31</td>
<td>TS Khanun</td>
<td>North Korea, South Korea</td>
<td>175</td>
<td>11.4 million</td>
</tr>
<tr>
<td>July 7</td>
<td>Flooding</td>
<td>Russia</td>
<td>171</td>
<td>635 million</td>
</tr>
</tbody>
</table>

---

Table 3. Top 10 Human Fatality Events

---

**Figure 2. Total Events by Quarter**
United States was the second-most active region of the globe.

**Climate Review**

2012 was the 36th consecutive year of above average global temperatures. Using official data provided by the National Climatic Data Center (NCDC), combined land and ocean temperatures for the earth in 2012 averaged 0.57°C (1.03°F) above the long-term mean, making 2012 the tenth warmest year ever recorded since official data on global temperatures began being kept back in 1880. The year 2010 remains the warmest on record, when the combined land/ocean global temperature was nearly 0.66°C (1.19°F) above NCDC’s 20th century average (1901-2000). The last below-average year for the globe occurred in 1976, when global temperatures registered 0.08°C (0.14°F) under the long-term average.

**Figure 3. Total Events by Region**

- United States was the second-most active region of the globe.
With reference to the statistics of natural catastrophes by Munich Re., the total number of natural disaster taking place after 2005 has a noticeable increase in the range of 1980-2012. Among these natural catastrophes, tropical cyclones (meteorological events) including hurricanes and typhoons, and floods (hydrological events) have a comparatively prominent tendency to increase in number.

Business Suspension Causes Greatest Amount of Loss from Hurricane Sandy

Generally, it takes a great of time to compile specific statistics of loss from catastrophic natural disasters. According to statistics proclaimed in early February from state governments of New York, New Jersey and Connecticut, Hurricane Sandy led to some USD 82 billions of loss. However, Bureau of Economic Analysis of the Federal Government reported USD 38.5 billions of loss of private fixed investment, among which USD 8.6 billions accounts for the loss of the federal government. Though far below the loss of the state governments, the figure is the official statistics announced for the first time.

The statistics above accounts for the loss of fixed asset only, while the consumption asset is not included. However, it is noteworthy that in this statistics, the losses caused by business suspension and output values produced per working day are not taken into account. For example, two days of stock market holidays as well as work/school suspensions are estimated to cause losses up to USD 25 billion.
There exists an obvious increase in recent years in the number of natural catastrophes caused by climate change. Hurricanes and floods striking the States in 2012 are raked, respectively, the sixth and ninth major economic loss, according to the table below that lists top 15 costliest global economic loss events from 1980-2012 by Aon Benfield, and the natural catastrophes occurring after 2005 account for eight events.

According to the Munich Re. research comparing the period over the past 10 years and the one over the past 30 years, the means of economic loss and insured loss are both on the increase and the number of fatality decreases accordingly. The research indicates an awakening of risk management.

This journal refers to the researches conducted by Aon Benfield, world-wide prominent Munich Re. and Swiss Re, to offer a clearer framework of information regarding the statistics on natural catastrophes in 2012, and to provide a clearer sketch of tendency of natural catastrophes.

Table 4. Top 15 Costliest Global Economic Loss Events ((1980-2012) (Actual))

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Country/Region</th>
<th>Deaths</th>
<th>Economic Loss (USD)</th>
<th>Insured Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2011</td>
<td>EQ/Tsunami</td>
<td>Japan</td>
<td>15,879</td>
<td>210,000,000,000</td>
<td>35,000,000,000</td>
</tr>
<tr>
<td>August 2005</td>
<td>HU Katrina</td>
<td>U.S., Bahamas</td>
<td>1,833</td>
<td>125,000,000,000</td>
<td>66,900,000,000</td>
</tr>
<tr>
<td>January 1995</td>
<td>Earthquake</td>
<td>Japan</td>
<td>5,502</td>
<td>102,500,000,000</td>
<td>3,075,000,000</td>
</tr>
<tr>
<td>May 2008</td>
<td>Earthquake</td>
<td>China</td>
<td>87,587</td>
<td>85,000,000,000</td>
<td>366,000,000</td>
</tr>
<tr>
<td>July/Dec. 2011</td>
<td>Flooding</td>
<td>Thailand</td>
<td>813</td>
<td>45,000,000,000</td>
<td>15,500,000,000</td>
</tr>
<tr>
<td>October 2012</td>
<td>HU Sandy</td>
<td>U.S., Caribbean, Bahamas</td>
<td>254</td>
<td>*65,000,000,000</td>
<td>*28,200,000,000</td>
</tr>
<tr>
<td>November 1994</td>
<td>Earthquake</td>
<td>United States</td>
<td>60</td>
<td>44,000,000,000</td>
<td>15,300,000,000</td>
</tr>
<tr>
<td>Summer 1988</td>
<td>Drought/Heatwave</td>
<td>United States</td>
<td>7,500</td>
<td>40,000,000,000</td>
<td>935,000,000</td>
</tr>
<tr>
<td>Yearlong 2012</td>
<td>Drought/Heatwave</td>
<td>United States</td>
<td>123</td>
<td>*35,000,000,000</td>
<td>*20,000,000,000</td>
</tr>
<tr>
<td>September 2008</td>
<td>HU Ike</td>
<td>U.S., Caribbean</td>
<td>153</td>
<td>33,520,000,000</td>
<td>15,600,000,000</td>
</tr>
<tr>
<td>Summer 1998</td>
<td>Flooding</td>
<td>China</td>
<td>3,656</td>
<td>30,500,000,000</td>
<td>1,000,000,000</td>
</tr>
<tr>
<td>Dec. 2010/Feb. 2011</td>
<td>Flooding</td>
<td>Australia</td>
<td>38</td>
<td>30,000,000,000</td>
<td>2,420,000,000</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>Flooding</td>
<td>Pakistan</td>
<td>1,985</td>
<td>30,000,000,000</td>
<td>200,000,000</td>
</tr>
<tr>
<td>October 2005</td>
<td>HU Wilma</td>
<td>U.S., Caribbean, Bahamas</td>
<td>63</td>
<td>29,000,000,000</td>
<td>12,500,000,000</td>
</tr>
<tr>
<td>October 2004</td>
<td>Earthquake</td>
<td>Japan</td>
<td>40</td>
<td>28,000,000,000</td>
<td>750,000,000</td>
</tr>
</tbody>
</table>

Table 5. 2012 Statistics of Natural Catastrophes by Munich Re. (USD.millions)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
<th>Average from 2002-2011</th>
<th>Average from 1982-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total loss</td>
<td>160,000</td>
<td>400,000</td>
<td>165,000</td>
<td>115,000</td>
</tr>
<tr>
<td>Insured loss</td>
<td>65,000</td>
<td>119,000</td>
<td>50,000</td>
<td>29,000</td>
</tr>
<tr>
<td>fatalities</td>
<td>9,500</td>
<td>27,200</td>
<td>106,000</td>
<td>56,000</td>
</tr>
</tbody>
</table>

※The original article was available in Risk + Insurance Quarterly Spring 2013.
SMEs Ought to Respond to Exchange Rate Fluctuations with Diverse Strategies

For SMEs that engage with import/export businesses or with multinational investments, their operating performance will be influenced to a certain extent under drastic fluctuations of foreign exchange rates. Restricted by their inadequate capability and insufficient information, SME entrepreneurs usually find it difficult to accurately predict the time and range of the fluctuations. Therefore, rather than forecasting and analyzing the exchange rates for nothing, examining the possible impacts that exchange rate fluctuations may bring upon the enterprises, and take feasible measures and strategies will be a better solution.

When it comes to the impact of enterprises caused by fluctuations of exchange rates, SMEs could infer the possible influences first by understanding its position in foreign currency, and using the listed forward exchange rate as the indicator.

The enterprise is able to analyze its endurance level under the fluctuation of currency by taking potential influence, the constitution and competitiveness into account. Understanding enterprises’ endurance level could help customize appropriate strategies so that they are able to take effective and viable measures.

Fluctuation of exchange rates does not necessarily cause negative influences on the SMEs. For example, if we compare banks' spot exchange rate with their forward exchange rate, we can see a strengthening in foreign exchange (and depreciation in domestic currency), which actually will bring positive influence on export-oriented enterprises. As a result, the enterprises will naturally adopt strategies that do not use hedging tools, meanwhile making use of this opportunity to expand its business.

On the contrary, if the fluctuation between spot and forward exchange rate brings negative influences (such as a decrease in export earnings or an increase in import costs) on the enterprises, all kinds of hedging tools should be prioritized.

Enterprises negatively influenced by the fluctuation will take countermeasures to reduce the potential damage as much as possible. However, the SMEs should not limit their responsive strategy to pre-ordering or pre-selling the forward rate; instead, they should take diverse measures into consideration.

Putting the entire foreign exchange position on forward exchange agreement (FXA) seems to transfer the unknown exchange risks to the banks. Nonetheless, the strike price between the bank and the enterprise is not necessarily the same as the spot exchange rate of the market on the delivery date. Sometimes the enterprise will feel gratified to purchase a better rate in advance, yet sometimes they will feel regretted. In other words, using the forward exchange rate to deal with the fluctuations is a half-and-half bet, and the outcome may be either pleasant or unpleasant.
Another measure is to split the enterprise’s foreign exchange position into two parts: one for the pre-purchase or pre-sell of forward foreign exchange, and take the other half by themselves (they may as well consider spot exchange rate). In so doing, the pleasant outcomes brought by the better deal will offset the other undesirable one, and vice versa. After all, placing the eggs in two different baskets will still be safer than betting on the whole forward exchange rate.

Moreover, there are definitely more than two baskets to put in the eggs. The more diverse hedging tools that an enterprise has in hand, the more satisfactory effects they will probably get.

In addition to "forward exchange contracts" and "knocking spot exchange rate", the risk aversion of the foreign exchange could also be achieved by utilizing a mix of operating and trading methods. These non-financial means will bring even more direct and significant obvious effects.

Operating methods avoids the risk by changing the structure of assets and liabilities. Linking the assets to a stronger currency can help preserve or appreciate its value, whereas linking the liabilities to a weaker currency will make the repayment easier when the currency is depreciated to a certain extent.

On the other hand, avoiding exchange rate risks with trading methods refers to adjust the payable period of procurements and the receivable period of sales. If the procurement's account payable uses a strong currency, the enterprise should eliminate this liability account as soon as possible before it becomes unaffordable, or even take a step forward to turn the account payable into a prepayment. In this way, it can not only turn the strong currency from a liability account to an asset account but also earn some discount from the suppliers through the terms and conditions of prepayments.

As to the accounts receivable of exports, the depreciating currency should also be eliminated as soon as possible so as to avoid being influenced by the unfavorable exchange rate in the future.

To sum up, enterprises could take following measures in response to the fluctuating exchange rates:

1. **Adjust the currencies of assets and liabilities.** Adjust the currency of liabilities. Borrow the weak currency from the financial or non-financial system within the current/increasing credit line and exchange it with a strong currency. Assets using strong currency include bank savings, securities, prepayments, temporary payments, and refundable deposits.
2. **Adjust the terms of transaction payments.** The enterprise can make use of various assurance mechanisms of the banks (such as guaranteed notes, performance guarantee, and so on) as well as the discount conditions agreed by both the seller and buyer, so as to prolong the payable period and shorten the receivable period of the weak currency, and vice versa.
3. **Calculate the endurance length before knocking spot exchange rate.**
4. **Locking up the price with forward exchange rate.**

For the above mentioned measures, the forward exchange rate should be the last option to think of. As the first three measures are done, the enterprise may probably only need to arrange one fourth of its total position in forward exchange rate.
The record magnitude 9.0 earthquake and tsunami that hit the Tohoku region along the Pacific coast of Japan in March 2011 was unprecedented in both scale and scope. The subsequent tsunami washed away many towns and communities along the seashore, resulting in a record level of human casualties. Damage to nuclear power plant and subsequent electric supply problem also brought extensive and serious impacts on SMEs together with damage by the earthquake and tsunami. According to the 2012 White Paper on SMEs, about 780,000 SMEs are located in the earthquake affected area, while 1.36 million SMEs under the service area of Tokyo Electric Power Company.

After the disaster, International Recovery Platform* (IRP) and Asian Disaster Reduction Center (ADRC) have regularly organized Expert Group Meetings by inviting government officials and multi-sectoral experts from around the world since May 2011 in collaboration with international and national partner agencies. The objective of the meeting is to discuss latest developments and underlying issues at moments regarding the Great East Japan Earthquake and to share experiences and lessons learned from past large-scale disasters. This report is an overview that summarizes the findings of the past meetings.

The First Meeting

The First Expert Group Meeting: "Toward Creative Reconstruction from the Great East Japan Earthquake" was organized in Tokyo in May 2011. The meeting featured analysis of the disaster impacts response behaviors by various sectors. During the session, Dr. Yuichi Tatano of Kyoto University presented impacts of the disaster on infrastructure and economy in Japan by reviewing supply-chain impacts, shortage of material industries, critical infrastructure damage such as energy, port and harbor as well as demand losses due to negative images or harmful rumors against agricultural and fishery produces such as the one in Fukushima due to the nuclear power plant accident.

Integrated disaster risk management is really needed by taking both structural and non-structural countermeasures as well as risk and crisis management. Proactive preparation is the key. In addition, trade-offs between economic efficiency and safety are clearly recognized. Shortage of gasoline, parts for automobile, IT industries, petro-chemical materials, and so on affected many other sectors of the economy. In general, it could be concluded that structural damage by the earthquake could be relatively small, but major ones were caused by the tsunami. The affected areas being enormous, the earthquake/tsunami caused a major problem of recovery of logistic systems and the disaster caused cascading effects in the economy. The economic impact was large but could be within financial capacity of the country.
The Second Meeting

The Second Expert Group Meeting held in Tokyo in December 2011, had three thematic sessions: 1) early warning system and public awareness and education, 2) resilience of critical infrastructures and society and 3) organizing response and recovery.

The sessions highlighted the international collaboration to make use of experiences and lessons of mega-disasters in other parts of the world. Experiences demonstrated the importance of multi-functionality and redundancy of infrastructure including ICT, quick recovery enabled by pre-disaster investments and further mainstreaming of disaster risk management into development planning. Also, the issue of bridging the gaps in response and recovery by utilizing tools/mechanisms and emerging principles and practices were stressed. These include promoting partnerships, engaging community in the planning processes exercising government leadership, and preparing recovery plans proactively.

The Third Meeting

The Third Expert Group Meeting: "Applying Lessons on Recovery from Mega Disasters to Reduce Impacts of Future Disasters" was organized in July 2012 in Sendai, Miyagi Prefecture, featuring three issues – governance, health and environment, any of which could affect recovery from large-scale disasters. In terms of governance, the importance of effective leadership and planning were underlined for adequate recovery, while wide range of collaboration and knowledge accumulation in health and establishment of debris monitoring and guidelines in environment.

The subsequent panel discussion focused on how lessons on health, environment, and governance issues in recovery can be applied to reduce the impacts of future disasters. A number of recommendations from the floor were made, such as pre-disaster recovery planning, capacity building programs, developing stronger partnership, and improving a framework for more effective information sharing.

The Fourth Meeting

The Fourth Expert Group Meeting: "Lessons from Tohoku and Other Mega Disasters for the Post-2015 Global Framework for DRR" was organized in January 2013 in Kobe, 2013. After presentations on recovery status of the 2011 earthquake and tsunami and recovery framework for Post-2015 framework on DRR, participants discussed in groups over how the lessons on recovery and reconstruction from disasters can be effectively integrated into the Post-2015 Global Framework in terms of emerging principles, development outcomes and local action.

The meeting had many discussions and recommendations. The discussion groups agreed that there is a need to explicitly state recovery and reconstruction in any post-HFA frameworks and to incorporate concrete and measurable indicators to determine progress of implementation and achievement of set goals.

* IRP, established in 2005, is a thematic platform of UNISDR system. The key role of IRP is to identify gaps and constraints experienced in post-disaster recovery and to serve as a catalyst for the development of tools, resources, and capacity for resilient recovery. IRP consists of 15 national and international partner organizations at present.
The Implications of 3D Printing for Chinese Taipei's Startups and SMEs

Although 3D printing has existed for the past three decades, only in recent years does this technology develop its disruptive potential as a prototyping and digital manufacturing tool drawing worldwide speculation. Due to the decreasing cost and increasing sophistication of 3D printing, economists, technology specialists, and consumers alike have been addressing and debating on the potential of 3D printing to shake up traditional mass manufacturing, to pioneer niche markets for custom-designed products, and to spawn a new industry altogether through its consumer-level applications. While the potential of 3D printing to eliminate economies of scale remains debatable, the potential of the growing technology to generate viable business models and scalable economic impact offers promising implications for startups as well as small and medium enterprises.

As the second largest IT hardware manufacturing economy in the world, Chinese Taipei is at an advantageous position to harness the potential implications of 3D printing. Currently owning the majority of the worldwide semiconductor foundry capacity, Chinese Taipei remains a global leader in semiconductor design and manufacturing. However, as mobile and cloud technologies become increasingly prominent in the global IT market, Chinese Taipei’s hi-tech industry faces heightening pressure to transition from its traditional reliance on PC OEM manufacturing and to strengthen its capacity to create new innovative devices and integrated hardware/software solutions.

As a key driver of Chinese Taipei’s economic development in the past few decades, SMEs remain a stabilizing force in Chinese Taipei’s manufacturing and IT sectors. Investment in R&D and product innovation is imperative to strengthening the competitiveness of Chinese Taipei’s hi-tech SMEs and to facilitating their entry into the global marketplace. In the case of SMEs and startups, internal 3D printers could significantly reduce cost of entry by expediting the prototyping processes and proof of concept of new technologies and products.

As a faster, low-cost, and compact alternative to traditional rapid prototyping machines, in-house 3D printers could offer Chinese Taipei’s hi-tech SMEs and startups a competitive advantage in building conceptual and working models. In-house 3D printers eliminate the need to outsource the manufacturing of prototypes to outside service providers, which previously required the exchange of confidential STL data. As an ideal complement to CAD modeling, 3D printing could significantly reduce the costs of material, machine depreciation, system maintenance and labor of rapid prototyping—such that a part using traditional rapid prototyping technology could cost nearly
twice as much compared to a 3D printed part. While the difference in costs between enlisting a service provider and internal 3D printing certainly depends on a variety of variables, including part complexity and size, 3D printers could greatly benefit in-house innovation for Chinese Taipei’s hi-tech manufacturers.

Current 3D printing technology is also gradually proving its potential to drive the expansion of niche markets. Besides its application in highly specialized sectors, such as the manufacturing of prosthetics in the biomedical sector, 3D printing is also unlocking the potential of shorter supply chains serving localized niche markets for custom, artisanal goods. In this new digital manufacturing ecosystem, Chinese Taipei’s smaller firms and startup businesses could leverage the benefits of mass customization by creating product lines, marketing strategies, and business models focusing on the specific, untapped needs of consumers. Through employing a long tail retailing model, small companies could distinguish new niche markets with clearly differentiated, low individual demand. Utilizing social network mechanisms, such as Kickstarter’s crowd funding approach, new businesses would be able to gauge the viability of their business models. The efficiency and low cost of low-volume customization would enable new businesses to incorporate user-driven innovation and to respond to trends circulating on crowd-sourced design platforms. In such a supply chain, small companies would have direct control over both design and manufacturing; rather than having to maintain a stock inventory or keeping customers waiting for ordered products, the company itself could print products and tailor the specific needs of consumers on demand.

At present, the medical, aerospace, and defense industries have been benefited the most from 3D printing technology, which has thus far proven most valuable as a prototyping tool to supplement low-volume production with high markups. For manufacturers of highly specialized heavy equipment or low-volume commodities, the strength of 3D printing shines through in its ability to accomplish what existing mass-production technology cannot- to manufacture individual, customized parts on demand. For many leading automotive, aerospace, defense, and medical technology companies, rapid prototyping and direct digital manufacturing has already become standard practices in product development and innovation. In a wide range of engineering and manufacturing applications, 3D printing technology has already proven its worth as a cost-effective tool for mass customization and innovation.

At its current stage, the applications of 3D printing for large commercial enterprises have overshadowed the potential implications of the technology for startups and SMEs. Small digital manufacturers currently lack the skills and budget for profit-generating production, making collaboration with large industrial firms necessary. However, as the material quality and operational accuracy of industrial 3D printers become increasingly advanced, the potential of smaller businesses to disrupt traditional mass manufacturing of hi-tech goods is also growing.

For Chinese Taipei’s SMEs as well as its burgeoning startup ecosystem, the potential implications of 3D printing could be realized through continual government support and refocusing on hardware innovation. In the past few years, the government of Chinese Taipei has increasingly supported innovation-oriented industrial policies, incubation programs, and R&D centers in order to drive economic growth beyond its traditional manufacturing industry. By supporting foreign
investment in its hi-tech hardware industry as well as the development of incubation centers, the government of Chinese Taipei could further promote the development of startups and small and medium sized hi-tech enterprises. If made accessible to research and innovation centers for students, designers, developers, and entrepreneurs, 3D printers could help cultivate creative mindset and conceptual skills necessary to develop new technologies and innovative products.

The use of 3D printing in Chinese Taipei could not only accelerate existing modes of prototyping and production, but also create new incentives for innovation. 3D printing could help Chinese Taipei leverage its technically skilled labor and robust hardware industry. The emerging technology could stimulate Chinese Taipei’s startup and entrepreneurial ecosystem by serving as a cost-effective tool for experimentation. If 3D printing continues to advance in efficiency and sophistication, the technology could provide Chinese Taipei the opportunity to harness its potential in innovative digital manufacturing, to reinvigorate its advanced manufacturing industry, and to cultivate its growing startup ecosystem.
Topic: Who Will Stand out after the Second Round? - Three Strategies other than Price War for E-Commerce Industry

Introduction

Thanks to low pricing strategies on 3C electronic products, JD.com used to gain its popularity in a short time. However, how will JD.com adopts strategies other than the "cutting edge pricing strategy" while facing challenges in "second round" in e-commerce competition?

This year is the tenth year since Jd.com's establishment. It is also the year that CEO Liu, Dong Qiang fulfills his promise of achieving total turnover of 10 million dollars. E-commerce industry used to have its hard time in 2012. Many B2C and group-buying companies got stuck due to broken capital chains. JD.com faced great threats from industry leaders. For example, Alibaba.com established giant logistic network called "China Smart Logistic Network", Tencent and its 51buy.com were at ease because of their huge capital backup and Suning.com reached both online and offline business. The cutting competition between the competitors is undoubtedly a threatening force for JD.com.

"We used to be financed 10 million US dollars but sold only 10 million RMB; this kind of irregular business pattern is not going to happen this year" It is suggested that Liu, Dong Qiang won't involve in price wars anymore as it brought only deficits in the end.

Destruction pricing strategy used to win JD.com a ticket to enter a market. However, this kind of street fighting cannot let JD.com break away from its competitors. Except courage to cut prices, what does Liu, Dong Qiang get up in his sleeve?

First, Logistics- Accuracy and Differentiation

After "next-day delivery", JD.com provides "super express delivery" which allows customers to receive their orders within 3 hours only, three times faster than its original "211 prompt delivery".

"Fast" might be described as one of JD.com's marketing stunts. However, Liu, Dong Qiang also demands "accurate" delivery with differentiation. For instance, "scheduled delivery" lets customers to appoint preferred delivery schedule.

Sheng-Fen Wang
Expert Adviser
Ever Harvest Financial Consulting Co.
Head of Marketing Planning Dept.
Ping An UOB Fund Management Co.

Experience
‧ Head of Financial-Investment Dept., ABC-CA Asset Management Co.
‧ Executive director of Sales-Marketing Dept., China Southern Fund Management Co.
Besides, JD.com also offers "slow" delivery to fulfill all kinds of customer demands. Those price sensitive customers in second- or third-tier cities can choose a relatively slower delivery with discounts on shipping fees.

**Second, Customer Experience – High C/P Ratio and Proactive Service**

JD.com divides customer experience into two categories: first, providing products which are original and with high C/P ratio and invoices and second, offering proactive customer service.

The key points to a more satisfying customer experience are "price and service". However, it is like mission impossible if a retailer wants to sell only original products and always offer the lowest prices. JD.com offers "most competitive" prices and has the guaranteed lowest prices for bundle sales of related products.

"Great Data Analysis" system enhanced JD.com’ s customer service. For example, if there was something wrong during the ordering-delivery process, the system would warn the customer service center so that customer service attendants can inform customers in advance. Besides, if customer calls to inquire about some special products, the system will show automatically related product so that customer service attendants can have enough information to handle inquiries.

At the same time, by adjusting "customer expectation", the analysis system can reduce unnecessary customer complaints. In addition, these statistics can be sent to upstream suppliers to lower mistakes in delivery quantities and help suppliers adjust stock allocation so that the entire supply chain, from manufacturer to retailer, can achieve high efficiency and low costs.

**Third, Inventory Turnover – Faster Turnover Ratio and Larger Stock Capacity**

With efficient inventory management, Wal-Mart is able to earn while its competitors lose money even when they sell products at the same prices. JD.com learnt from Wal-Mart’ s experience and accelerated its inventory turnover ratio to below 30 days, which is far faster than average 60 to 70 days in the industry.

JD.com builds its own delivery system to handle inbound and outbound inventory so that their delivery costs are 50 percent lower than its competitors. However, this kind of background management is complex and requires detailed management. In order to build this system, JD.com’ s first step is to "enlarge inventory capacity". By the end of 2013, Jd.com’ s warehouse will occupy over 1 million square meters. JD.com’ s next step is to build "distributing center" and second-tier "transshipping center". Last, it is also important to ensure a steady growth rate in sales volume. Orders with high value and large quantities can reduce the sale/delivery costs ratio. On the contrary, costs of self-running delivery system are going to soar if sales amount and purchase order continue to drop.
"We face challenges every day, every year and at anytime. It doesn' t matter who the competitors are," Liu, Dong Qiang said with great confidence. However, he never hides his worries on customer experience. 

To summarize Liu, Dong Qiang' s three strategies of outstanding his company, we can see that he looks ahead to emphasize customer experience, and looks back to secure operational performance. He then avoids deficits by lowering logistic costs. Whether JD.com can also have great performance in the second round is definitely worth seeing.
APEC Start-Up Accelerator Leadership Summit 2013 is an exclusive 2-day forum, seeking to connect entrepreneurs with innovation needs of these enterprises, build international business relationships, and facilitate fundraising activities between investors and start-ups across 21 Asia-Pacific economies.

**Honorable Speakers include:**

- Co-Founder of Priceline, Mr. Jeff Hoffman
- Founder of Acer, Mr. Stan Shih
- Co-Founder of YouTube, Mr. Steve Chen
- President of Global Entrepreneurship Week, Mr. Jonathan Ortmans

---

**Time**
August 13-14, 2013

**Venue**
Sheraton Grande Taipei Hotel

**Website**
http://www.apecaccelerator.org/

For more information, please contact Mr. Chen (asasummit@tier.org.tw or 886-2-2586-5000 ext. 342)

*Please note that the organizing committee reserves the right to limit the number of attendees. A confirmation letter will be sent when the registration process is completed.*
For more information, please contact Mr. Chen (asasummit@tier.org.tw or 886-2-2586-5000 ext. 342)