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World Indigo, Inc.

Deciding the right strategy to enter global markets

It was half past eleven on a raining night in October 2004 when Yiping Goh's cell phone rang. Even before she answered her phone, Yiping, co-founder and Executive Director of World Indigo, knew it was a long-distance call from her co-founder and CEO, Carlos Garcia, in Philadelphia. Yiping was based in Singapore (12 hours ahead of Philadelphia) and had gotten used to speaking with Carlos at odd hours. Their telephone meetings were scheduled either first thing in the morning or late in the evening; the only times when the both of them would be awake and working.

World Indigo was founded in 2003 with the aim of becoming a global wireless network operator that provided passengers onboard airplanes and ferries with access to text messaging (SMS), voice & Internet via their mobile phones. It was a bi-locational start-up with its headquarters in Singapore and an office in Philadelphia, US. Three members of the four-person team, including Yiping, were based in Singapore, while Carlos was based in Philadelphia (See **Exhibit 1** for background of the World Indigo team). It had not been easy working together on a fledgling start-up half the world away from each other, but the team had coped well so far.

Carlos dived straight into business:

Carlos: I was working on my part of our presentation for our first round of funds and have incorporated some of the comments we received at the Global Start-up@Singapore business plan competition[1]. We need some decisions about our global strategy. With our FAA certification in the works, we have to show clarity in our long-term plans in order to convince our potential investors. How're things with CAAS[2]? I'm quite optimistic about our certification with them helping us.

Yiping: Well, I've been working with CAAS on getting our products certified in Singapore and they've been very helpful, but it's still a lot of documentation and paper work. Nevertheless, I'm optimistic about them too. While that's happening, we need to move fast in order to establish

[1] Global Start-up@Singapore is a business plan competition that invites winning teams from other regional or country–based business plan competitions around the world to present their business plans to a distinguished panel of international judges, comprising prominent venture capitalists and entrepreneurs in Singapore.

[2] CAAS stands for Civil Aviation Authority of Singapore

This case was prepared by Kae Fong Tay, Researcher at National University of Singapore Entrepreneurship Centre under the supervision of Poh Kam Wong, Associate Professor, National University of Singapore, Thomas J. Kosnik, Consulting Professor, Stanford School of Engineering and Lena Ramfelt, Assistant Professor, Royal Insitutte of Technology as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. It was made possible in part through financial support from the National University of Singapore.

ourselves in the market before the big players move in. By the way, did you see the article on Starling Advanced Communication I forwarded you? The Israeli startup just raised US$5 million.

Carlos: Yes, I did. It seems we have more to watch out for than the big players. Although Starling is developing solutions for in-flight broadband connection and not focused on mobile connection, it's possible for them to use VoIP to provide the same service. While VoIP may be cheaper than regular mobile phone services in general, I suspect Starling's service as a whole would be more costly than ours, since it's focused on providing broadband Internet connection. Let's get more information about them before we discuss this next meeting.

Yiping: Sounds good. Let's focus on our agenda. I think the main issues we face moving forward is: which industry to focus on – airlines, ferries or both? Also, which geographical markets should we enter, when should we enter them and in what sequence? So far, ferry companies and airlines I've spoken to in Singapore have been keen on exploring our solutions, so we're off to a good start here.

Carlos: Well, given there's no extensive certifications required for the ferry industry, it's an attractive choice, a low-hanging fruit for us. But in terms of market potential, I think it's clear that the airline industry is our main market. The decision is how we will allocate resources to developing each or both markets. As for regions to target, we've talked about China, Russia and other countries in Asia. Europe's a market to consider as well. One thing's for sure: it won't be the US for now …

There was a slight pause before Carlos concluded.

Carlos: Yiping, I have another meeting to attend in fifteen minutes and need to leave the office now. You should get some rest too. Let's both take some time to think about the issues. Let's get back to this when we talk tomorrow.

After she hung up the phone, Yiping glanced at the news report about Starling and decided she would do some thinking before heading off to sleep. She started writing on her notepad the various ideas she had discussed with Carlos over the past week as the two of them worked on updating their company presentation to the VCs.

Founding of World Indigo

World Indigo was founded in October 2003 under interesting circumstances. Yiping, a third-year student from the National University of Singapore (NUS), was in Philadelphia under the NUS Overseas Colleges (NOC) program. NOC was part of an University initiative known as NUS Enterprise that was started to groom promising NUS students into entrepreneurs. Under NOC, participants spent a year in entrepreneurial hot spots, like Silicon Valley, Philadelphia and Shanghai, where they interned in high-tech start-ups full-time and attended entrepreneurship classes at partner universities part-time (see **Exhibit 2** for more information on NOC).

In Philadelphia, Yiping interned as a content manager in NRoute Communications, a wireless network company offering Internet and digital entertainment to passengers on trains and buses. In NRoute, she met her future co-founder, Carlos Garcia, CEO of NRoute. The idea for World Indigo arose when Yiping found it hard to contact Carlos on his mobile phone whenever he was traveling in an airplane or on a ferry. This was a huge inconvenience for the two, who had come to expect an always-on connection with their mobile phones. Convinced there should be a low-cost and convenient solution to this pain, Yiping and Carlos decided to start a company that would solve the problem.

The two contributed US$88,000 from their own pockets and founded a company they named World Indigo, a word play on the phrase "world in the go". The start-up registered its headquarters in Singapore after Yiping returned in September 2004. By then, World Indigo had received close to US$182,000 in seed funding. In addition, Yiping and Carlos won US$18,200 in a Singapore business plan competition, Start-Up@Singapore and went on to become a finalist in the global version of the competition, Global Start-Up@Singapore. By October 2004, the company was looking for its Series A funding and hoped to raise US$2.8 million.

Issues Facing In-flight Mobile Usage

In order for World Indigo to provide SMS, voice and Internet access via mobile phones on planes and ferries, they had to tackle three main issues. On the technology front, the issue was coverage. Passengers on planes and ferries would not have any signal once they were outside coverage zones of mobile service providers. People who wanted to make calls onboard an aircraft had to use phones installed in the aircraft, such as those by Verizon Airfone or AirCell, and pay several dollars per minute[3], provided the plane had the service.

In addition, World Indigo had to consider whether demand for mobile phone usage would pick up and generate viable returns when the service became available, especially when taking into account the aircraft environment. Given the compact seating arrangement, a business traveler would think twice before discussing the company's latest marketing efforts with his colleague on the phone lest a competitor was sitting behind him! Other than privacy, most passengers also expected to get some quiet time for rest on longer flights, and airlines would need to reconcile this expectation with the noise from passengers talking on their mobile phones.

Finally, the biggest issue facing World Indigo was safety and government regulations. Concerns about interference from mobile phones prompted the US government to ban their usage onboard aircrafts. The US Federal Aviation Administration (FAA) forbade mobile phone calls out of concern that they would interfere with the plane's avionics equipment, while the Federal Communications Commission (FCC) issued a ban to prevent calls from interfering with ground networks. World Indigo had to ensure that its device and services did not have any safety issues and acquire the necessary certifications from FAA.

Apart from these issues, World Indigo also had to operate in an ecosystem that had players from the transport and wireless industries (see **Exhibit 3** for a pictorial representation of World Indigo's ecosystem). Most of these companies, like airlines and mobile carriers, were large, established companies and may not want to working with newer start-ups like World Indigo. This posed a challenge for Yiping and Carlos because it was crucial for them to form strategic partnerships and acquire customers in the ecosystem. In addition, they had to deal with competition that came in the form of large companies, like Boeing and Airbus, and smaller start-ups, like Starling.

World Indigo's Solution

Of the three issues, technology was perhaps the easiest to overcome. New devices that could facilitate mobile phone usage on airplanes had already been developed. Known as picocells or nanocells, they were small radio cells capable of transmitting signals from a few meters up to 10 meters. A picocell or nanocell installed on a plane acted as a mini mobile base station and, depending on the system, connected with a satellite or directly to base stations on the ground to provide mobile signal. By localizing the connection hub within the plane, these miniature radio cells solved the two main issues of interference.

Using this technology, mobile phones would not interfere with ground networks since they obtained their signal from the nanocell in the plane, nor would they interfere with the plane's navigation and communication equipment since they would no longer need to transmit at high powers due to their close proximity to the nanocell. In addition, nanocells had power-limiting mechanisms that could force handsets to transmit at low powers. An extra benefit of nanocells was their cost savings over the expensive wiring and equipment needed for existing seat-back phones.

World Indigo's hardware solution for airlines and ferry operators was the proprietary and patentable CG 101 Communication Gateway (see **Exhibit 4** for more details). It was a low-cost and convenient nanocell system that could be easily installed in aircrafts by certified engineering companies and in ferries by the similar engineering companies or by World Indigo engineers. One nanocell would be

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[3] The cost to place international calls outside US and Canada with Verizon's Airfone Service was US$5.99 to connect and US$5.99 per minute or partial minute plus applicable tax (U.S. & Mexican airlines).
Source: Verizon Airfone website (http://www22.verizon.com/airfone/service/af_service_genrates.html)

sufficient to provide all the passengers in a typical short-haul aircraft access to mobile services (see **Exhibit 5** for comparison between short and long-haul airplanes). By October 2004, the company was about to file for a patent for CG 101 in Singapore, US and Europe.

With the CG 101 developed, World Indigo could focus on its main business of becoming a wireless operator onboard planes and ferries. In order to provide mobile services, the airlines needed to either take on the role of a wireless carrier or partner with network providers. While this requirement wasn't a technological barrier per se, some airlines would prefer to focus on their core competency and outsource the development and maintenance of their in-flight mobile communication system. For them, World Indigo would be an ideal partner.

In order to further entice airline and ferry operators to partner with them, World Indigo was prepared to share 15% of the revenue earned from communication services provided to the passengers. The company could afford to do so because of it had a 65% gross margins from charging international rates of US$0.35 per sent SMS message and US$1.50 per minute for voice[4] (see **Exhibit 6** for the company's financials). The founders had not decided the pricing of their Internet services, which they had developed but not incorporated into their system in late 2004. In the future, World Indigo also planned to offer entertainment content services such as game, gambling, music and video.

Market for In-flight Mobile Phone Usage

In October 2004, World Indigo estimated its total available market at US$1.1 billion in terms of potential revenue. Of this number, 83% or US$900 million of revenue would come from airlines and air passengers, while the rest would come from ferries and ferry passengers. In terms of passenger numbers, World Indigo reported 1.8 billion airline passengers worldwide for 2002 with an annual growth rate of 4-7%[5]. Yiping and Carlos had already identified China, Russia, other parts of Asia and Europe as countries and regions they would target before the US airlines market (**Exhibit 7** shows the market figures for selected countries).

While the airlines market size was large, an important factor to consider was whether there would be profitable and sustainable demand for the service. Fortunately, results from market research were encouraging. In a July 2004 survey conducted by UK-based In-flight Management Development Centre, nearly half of the international travelers polled would prefer to travel on airlines that allowed mobile phones usage in-flight[6]. This result was supported by the fact that the world's two major aircraft manufacturers, Boeing and Airbus, were developing mobile service capabilities for their planes.

Within the airlines industry, World Indigo had segmented the market into short-haul airlines (this includes privately-owned turbo-propeller aircrafts) and long-haul airlines (see **Exhibit 5**). After careful consideration, Yiping and Carlos chose to focus on the short-haul airlines for the following reasons:

- There were more short-haul aircrafts than long-haul ones. 75% of all commercial planes around the world were designed for short-haul flights. Since each plane would require a nanocell installed onboard, this translated to a bigger market for World Indigo's CG 101 Communication Gateway.
- Short-haul flights would generate more revenue because they had more new passengers onboard in the same period of time as compared to long-haul flights. This translated to a higher mobile phone usage per hour because passengers on long-haul flights would spend a certain percentage of their time sleeping, eating, or using the plane's entertainment system instead of using their mobile phones.

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[4] Source: World Indigo executive summary, November 8, 2004.

[5] Source: World Indigo executive summary, November 8, 2004.

[6] The research was conducted for Telenor and ARINC by In-flight Management Development Centre, an independent company that focused on management support services for the in-flight business sector. Survey results came from 1,200 international business and leisure travelers at London Heathrow and Gatwick airports.
Source: Telenor press release (http://presse.telenor.no/PR/200409/960596_5.html)

- There were normally no in-flight entertainment systems in short-haul aircrafts (mainly no-frills, budget flights), and mobile phones represented a low-cost alternative. In addition, it presented future possibilities for World Indigo in terms of providing other entertainment for passengers via mobile phones.
- The short-haul airlines market was a global market. (See **Exhibit 8** for a breakdown of airplane distribution by region) For example, countries like China and Russia each had a large market for short-haul domestic flights.
- Finally, entering the long-haul airlines market meant having to compete with big firms like Boeing and Airbus, which were developing in-flight mobile service capabilities to integrate with their existing entertainment systems onboard.

Already, World Indigo had generated strong market interests in Asia by late 2004 with several airlines indicating interest in installing the CG 101 system and engaging World Indigo as their communication service provider. Yiping had met with representatives from a few of the airlines and was in the midst of negotiations.

Regulations for In-flight Mobile Phone Usage

One of the unique challenges World Indigo faced was the impact of government regulations of the airline and wireless industries, which varied from country to country. In fact, obtaining the necessary approval and certification required to install the CG-101 nanocell in aircrafts around the world had been one of the biggest challenges for Yiping and Carlos since the founding of World Indigo.

One consistency among most airlines, whether US-based or not, was that they followed the regulations laid out by the US FAA, the world's de-facto aviation authority. This meant mobile phone usage was banned on most airlines round the world. Moreover, most airlines required equipment partners or suppliers to obtain the necessary FAA certifications before they could install anything on their airplanes.

The private aviation industry was the exception. Some companies operating smaller turbo-propeller airplanes and executive jets outside the US weren't as strict about following FAA regulations, which were targeted mainly at larger commercial flights. In addition, business jet operators were more concerned about catering to the needs of their passengers, and mobile service access would definitely rank high among these needs. Aviation Week & Space Technology reported the total number of turbo-propeller business aircraft in the worldwide market to be just over 2000 in year 2004[7]. This would represent about 12% of the total world fleet and 16% of the short-haul aircraft fleet.

However, FAA regulations were in review and could change in World Indigo's favor in the near future. In 2003, FAA began to review its policies on portable electronic devices on aircrafts and requested the Radio Technical Commission for Aeronautics (RTCA), a federal advisory committee, to publish guidelines on technologies best suited for in-flight wireless Internet and phones[8]. The new guidelines were scheduled for release in October 2005, and Yiping heard news that the FAA ban could be lifted by 2006. Already, US airlines had began to allow passengers to use mobile phones onboard just before the plane left the aerobridge or after planes landed and were taxiing to the gate.

While the regulations were being reviewed in the US, Yiping was able to obtain support from the Civil Aviation Authority of Singapore (CAAS) in getting the required local certification for installation and operation of World Indigo's CG 101. CAAS was one of the first countries in Asia to sign a bilateral agreement with FAA allowing them to process FAA certification and being based in Singapore meant that World Indigo was able to seek the support of CAAS in their certification. By October 2004, Yiping was in the midst of the application and predicted the process to be completed by middle of 2005, about a year ahead of Boeing and Airbus' forecast for obtaining the same certification.

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[7] Source: Aviation Week & Space Technology, 2004 Aerospace Source Book (http://www.aviationnow.com/avnow/news/channel_awst_story.jsp?id=news/2004sb09.xml)
[8] Source: RTCA website (http://www.rtca.org/comm/sc202.asp)

The Ferry Market

As a result of airline regulations, World Indigo also considered the smaller but less restrictive ferries markets. Yiping and Carlos forecasted the potential revenue in this segment to be US$150 million (13% of their estimated total available market), of which the majority would come from Europe since it had the largest ferry industry worldwide. In 2002, the company reported 156 million ferry passengers in Europe, of which the bulk came from ferries serving the English Channel, and the number was predicted to grow 3-5% annually for the next 5 years[9]. In Asia, the countries with active ferry markets were Singapore, Hong Kong, Philippines and Indonesia (see **Exhibit 9** for market figures for selected target countries)

So far, Yiping had gotten the support of two ferry companies based in Singapore – Gembira Ferries and Interpacific Ferries. A four-month pilot project with Gembira was scheduled in the first quarter of 2005 on a two-hour ferry route between Singapore and Tanjong Batu, Indonesia. Yiping hoped the pilot would be the proof-of-concept that World Indigo needed to back up its lab results and provide the opportunity for the team to implement its system and get feedback on its performance.

Apart from the ferry market segment, the related cruise ship market segment was an obvious and lucrative market to target in terms of passenger volume and likelihood to pay for mobile phone access. However, Yiping and Carlos rejected the market segment due to technical reasons: wireless signals were easily absorbed by the many steel walls within the ship. This meant that multiple nanocells, relays and complex wiring would be needed, defeating World Indigo's aim of providing a low-cost solution with minimum installations. Apart from this, the cruise ship market segment, like the long-haul market segment, already had large, established competitors that had close links with cruise ship operators.

Potential competitors in the ferries segment included some players that were already active in the cruise ships segment: French-based Geolink, Norwegian-based Maritime Communications Partner (MCP) and US-based Maritime Telecommunications Network (MTN) (see **Exhibit 10** for more information on the three competitors). By 2004, MTN had partnered with AT&T Wireless to deploy its system onboard a few cruise ships, including those under Island Cruises and Norwegian Cruise Line. In fact, Island Cruises' parent company, Royal Caribbean Cruises, planned to offer mobile connections on all 29 of their ships by 2005[10]. While these potential competitors were focused on cruise ships at this point in time, it would be possible for them to target ferries as well. So far, World Indigo had not identified any competitors in Asia.

In addition, Yiping chanced upon other opportunities in the ferry industry. Operators wanted to know if World Indigo's solutions could be used in times of danger to send distress messages or close-circuit television images from the ferries to operators and police. Ferry companies were also asking if the start-up could provide an economic and reliable way for them to track their ferries. One option was for World Indigo to develop an integrated suite of security and communication solutions targeted specifically at the needs of the ferry industry. This new development meant that the ferry market could be more lucrative than Yiping and Carlos had originally thought. It could also provide the means for World Indigo to become established and generate positive cash flow while negotiating the more complex airline market.

"Born Global"[11]

Whatever market segments they chose to focus on, it was apparent to Yiping and Carlos early on that their start-up would be a Born Global company because they knew World Indigo's lead customer would not be Singapore, where they were headquartered. In fact, World Indigo was literally a Born Global in the sense that the company also had operations in the US as well as Russia, where they had formed a

[9] Source: World Indigo executive summary, November 8, 2004
[10] Source: *The New York Times*' article, "PRACTICAL TRAVELER; Cell Connections Head Out to Sea", November 21, 2004 (http://travel2.nytimes.com/mem/travel/article-page.html?res=9D06E7DD153FF932A15752C1A9629C8B63)
[11] A "Born Global" company is one that needs to go global at birth because its early market or lead customer isn't in the country the company headquartered in.

partnership with Russian-based Cien Technologies for technology development and network operations support.

In terms of long-term growth, World Indigo had been founded with the eventual goal of being a global wireless company. That was the main reason its headquarters was in Singapore rather than Philadelphia, where the start-up had been founded. The reasons for choosing Singapore went beyond Yiping's emotional attachment to her homeland. She knew first-hand the advantages her country provided:

> "Singapore has a high mobile penetration rate. It has a ready ferry industry, which provides a low cost test bed for our technology. The budget airlines industry has also grown in the last few years. The government is stable and the business and financial infrastructure here are also well-established. On top of that, we've received excellent support from NUS Enterprise and government organizations like CAAS, MPA and A*STAR[12]. And I think this is a great place to find talented people to join our team."

By the late 90s, Singapore had begun to transition from a manufacturing-based economy into a knowledge-based economy. Government leaders of the small country, with a population of 4 million, knew Singapore could no longer compete with other Asian countries in terms of cost effectiveness and decided to focus on building a knowledge-based economy. One of the government's subsequent emphases was on entrepreneurship. Answering the call, the National University of Singapore (NUS) started NUS Enterprise to form a supportive ecosystem for NUS entrepreneurs. One of its initiatives was the NUS Overseas Colleges program, which Yiping took part in.

In addition to Singapore's encouraging environment and support from the government, Yiping and Carlos knew that it was also a stable springboard to enter other Asian market, especially China. On World Indigo's list were China, Russia, Southeast Asia, Europe, and US. Each region posed its own unique set of challenges in terms of government regulations, differing importance of various industry players as well as different business styles in the airlines and wireless industries. By starting in a location that was familiar and supportive, they could use it as their base to tackle the different markets.

However, time was not on their side. As World Indigo waited for its FAA certification, several big players in the aircraft manufacturing industry had announced their own plans to implement systems that allowed mobile phone access for passengers onboard their aircrafts. It wouldn't be long before these competitors began to roll out their systems on a large scale around the world.

Competing in a World of Giants

Yiping and Carlos knew they faced stiff competition from companies many times bigger than World Indigo. They readily named Boeing and Airbus as their main rivals in the race to provide passengers with mobile phone access (see **Exhibit 11** for more information on the competitors).

The good news for them was players like Boeing and Airbus were focusing on long-haul flights at this point in time. Their common strategy was to provide mobile and Internet access as part of the in-flight entertainment system. The high costs of the systems would be recovered through the higher premiums. This arrangement would also encourage passengers to utilize their seat-back entertainment console more often and allowed the companies to sell a greater variety of entertainment content and connection options.

The bad news was Boeing and Airbus were doing very well in their efforts and could soon be looking at the short-haul flights market. Boeing obtained approval for their high-speed Internet service, Connexion, onboard Lufthansa flights between Munich and Los Angeles as early as May 2004[13]. American Airlines teamed up with Qualcomm and conducted a successful CDMA-based proof-of-concept trial in July the same year. This trial was approved by the FAA and FCC and was aimed at easing their

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[12] MPA stands for the Maritime and Port Authority of Singapore.
A*STAR stands for the Agency for Science, Technology and Research. It was set up by the Singapore government to foster world-class scientific research and human capital.
[13] Source: Boeing press release, May 11, 2004 (http://www.boeing.com/news/releases/2004/q2/nr_040511j.html)

concerns over interferences to aircraft avionics and ground networks caused by mobile phones[14]. The Wireless Cabin project by the European Airbus consortium also found success with their GSM-based tests onboard a flight-test aircraft in September 2004[15]. Both Boeing and Airbus expected to obtain their FAA certifications by mid 2006.

To Yiping and Carlos, this meant it was crucial for World Indigo to get established before mid 2006. The unfair advantage they had was CAAS' assistance in getting their certification. If everything worked out, they should have about one year's lead over their competitors. The two knew the importance of having first-movers advantage if they want to survive in this world of giants. Carlos revealed their strategy to establish themselves as the first wireless network operator in Asia before the big players could catch up with them.

> "It is critical that World Indigo establishes itself as first in the airline industry before other competitors arrive. Potential competitors may have substantially more assets so we believe first-to-market will help in obtaining the largest market segment for World Indigo."

Unfortunately, the competition was the confined to the big aircraft manufacturers. There were smaller start-ups like Starling Advanced Communication also trying to get a slice of the pie. The two founders were in a race for time to enter the right markets and establish World Indigo as the market leader.

Leveraging Partners

For World Indigo to establish itself as the leading wireless network operator in the short-haul airlines market, it had to rely on several partners. Yiping and Carlos were already in a product development partnership with Cien Technologies. The partnership was an extension of a five-year collaboration relationship between Carlos' NRoute Communications and Cien Technologies. In addition, A*STAR in Singapore was also offering to help World Indigo with product development and manufacturing.

Apart from the hardware and technology, World Indigo also needed telecommunication companies to provide mobile signals to the passengers using World Indigo's system. These partners would also take care of billings, so that passengers would receive the call charges in their regular mobile phone bills. This was especially important since the billing of in-flight phone calls could potentially become a costly logistics hassle for World Indigo if it had to send additional bills to all the customers.

So far, World Indigo managed to get an agreement with South Korean Telecom. Yiping had found it difficult to secure partnerships with the telecommunication companies because they were less open to the idea of in-flight mobile service, an area that seemed to be out of their core business. To small start-ups like World Indigo, they gave slow responses and presented a lot of red tape.

Compared with traditional telecommunication companies, other companies that facilitated mobile service billing, like data clearinghouses, roaming brokers and billing brokers[16], were a lot easier to work with. Yiping found these companies were more responsive to her business ideas and willing to talk to a small start-up like World Indigo. In this category, World Indigo's partner was Mach Dan Net, one of the world's largest data clearinghouse for mobile and landline traffic.

Finally, the last category of partners crucial in helping World Indigo achieve quick market penetration in the short-haul airlines industry were the communication equipment suppliers. They were the

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[14] Source: Qualcomm press release, July 15, 2004
(http://www.qualcomm.com/press/releases/2004/040715_aa_testflight.html)

[15] Source: Wireless Cabin press release, Sep 13, 2004
(http://www.wirelesscabin.com/pub/download/press_releases/wlescabpr_en.pdf)

[16] Data clearinghouses, roaming brokers and billing brokers are intermediaries between different worldwide mobile carriers. They facilitate roaming services for customers of carriers they partner with, so these customers could use the networks of partnering carriers when traveling to other countries. In addition, they also facilitate the billing process, ensuring that revenue from traveling customers gets shared accordingly and mobile users get their roaming charges with their regular mobile service bill, instead of several bills from different carriers.

best people to recommend World Indigo's products and technology to operators of the aircrafts. Yiping and Carlos had realized their importance early on and formed partnerships with Marconi Selenia Communications, Marconi Marine and A-Sonic.

Decision Time

Yiping looked at her note pad, which was filled with scribbling. On it, she had listed what World Indigo would need to do next:

- Secure FAA certification to install and operate CG 101 in airplanes.
- Partner with more telcos and data clearinghouses to increase mobile service roaming coverage.
- Decide and implement global expansion plan – target industries, countries, timing and sequence.
- Enter target markets and establish World Indigo as market leader

She felt the most pressing issue was World Indigo's global expansion strategy. They had considered a few suitable markets: China, Russia, Southeast Asia, Europe and US. In each market, they had the choice of whether to establish themselves in the ferry industry and then move on to the airline industry in the same market or simply focus on the airline industry from the start. In addition, they could also choose to establish themselves in the ferry industry in one market and then move to the ferry industry in another geographical market before they attempted to target the airlines industry.

At this point, Yiping remembered the constraint she and Carlos faced – getting the required certifications to install their system in commercial short-haul planes. She wondered if there were ways to get around this, since the proof-of-concept for the technology was already demonstrated by the various tests that competitors Boeing and Airbus conducted in the past months. She knew Boeing and Airbus expected FAA certification by mid 2006 and that was the time to beat. Fortunately, World Indigo was lucky to have CAAS help them with the certifications. This meant they only had to wait till next year before they could target short-haul airplanes. On her note pad, Yiping had scribbled this as a reality check and listed the ferry industry as the market World Indigo had immediate access in the meantime without aircraft certification.

Yiping also wrote that the company needed to decide the timeline to enter the different markets, bearing in mind their limited resources and the need for them to move before their competitors did. Yiping and Carlos were determined to establish first-movers advantage in the short-haul airlines market, fearing the consequences if their competition managed to get entrenched before they did. She felt the company's first move was a good one – to target the niche short-haul airplanes market, thereby avoiding a direct clash with Boeing and Airbus. However, given the success of the two companies in the recent months, it might not be too long before their presence would be felt in the short-haul airplanes industry.

With these issues to consider, Yiping knew that a wrong move would mean losing valuable time and resources. She and Carlos would have to decide carefully on World Indigo's global expansion plan.

Exhibit 1: Biographies of Key People in World Indigo

World Indigo's Management Team

Carlos Garcia, Co-founder and CEO

Based in Philadelphia, Carlos is in charge of World Indigo's technology development. Prior to this, he already had vast experiences in the telecommunications business. He was founder and CEO of NRoute Communications, a company that provided technology and systems to deliver security, fleet management, entertainment and Internet access to the passenger bus and train industries, in year 2000. NRoute counted Amtrack, Pennsylvania Department of Transportation, ARINC and the US Army as clients. Carlos has a BS degree from the Computer Science Trinity College & University.

Yiping Goh, Co-founder and Executive Director

When she founded World Indigo with Carlos in 2004, Yiping was a third-year student from the National University of Singapore (NUS) on a one-year internship in NRoute. The internship was an initiative of the NUS Overseas Colleges program (See **Exhibit 2**) that Yiping took part in. After her stint in Philadelphia, Yiping returned to Singapore to set up the headquarters of World Indigo. Yiping is expected to graduate in 2005 with a BS degree in Real Estate with a Minor in Technopreneurship.

Francis Tan, Director of Operations

Prior to joining World Indigo, Francis was based in Canada, where he was Manager of Application Development in Alliance Data Systems, a provider of CRM-Based Transaction Services. Before that, Francis had experiences in IT project management with Procase Consulting, an Oracle consulting and training firm. Francis holds an MBA from Schulich School of Business (Toronto, Canada), an MSc degree in Medical Biophysics from University of Toronto (Canada) and a BSc(Hons) in Biochemistry from University of Auckland (New Zealand).

Tommy Lee, Business Development Associate

Tommy is a fresh graduate from NUS' School of Design and Environment and knew Yiping from school. He was roped in the help World Indigo set up base in Singapore. Tommy has a BS in Real Estate from the National University of Singapore.

World Indigo's Advisory Board

1. Michael Podgayets, President of CIEN OAO
2. Douglas Abrams, Adjunct A/P at NUS and MD at Parallax Capital Management
3. Seow Choong Huei, VP, Templeton Asset Management Ltd. (Singapore)

Source: World Indigo

Exhibit 2: Background Information on National University of Singapore Overseas Colleges (NOC)

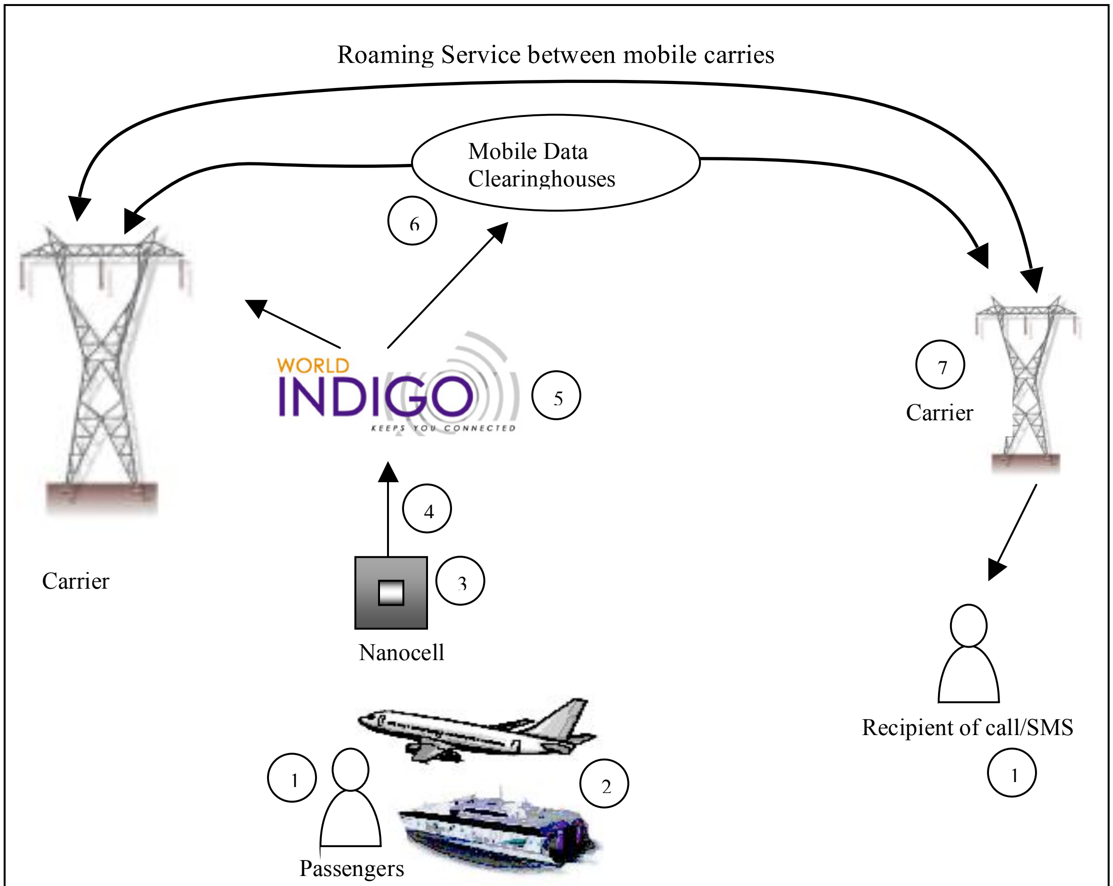
Started in 2001 as part of NUS Enterprise, the NUS Overseas Colleges was a program that targeted NUS undergraduates with the academic ability and aspirations to become entrepreneurs. Selected participants were sent to leading entrepreneurial and academic hubs of the world, where they interned full-time in high-tech start-ups and attended part-time classes in partner universities. The program aimed to develop participants into enterprising, resourceful, independent self-starters who would eventually blossom into successful entrepreneurs. By 2004, there were three colleges and the target was to establish 5 colleges in leading entrepreneurial hubs by 2005 involving 250 students a year. The remaining two Colleges would be located in Sweden and India.

Entrepreneurial hub	Partner university
Silicon Valley, USA	Stanford University
Philadelphia, USA	University of Pennsylvania
Shanghai, China	Fudan University

NUS Overseas Colleges Locations

Source: NOC website (URL: http://www.nus.edu.sg/noc/)

Exhibit 3: World Indigo's Ecosystem



8	**Macro Factors**	FAA and other travel or communication regulations and restriction

1	Passengers	Passengers onboard aircrafts and ferries who pay service fees to use their mobile phones for calls, SMS and Internet access.
2	Airlines and Ferries Operators	Companies that operate short-haul aircrafts and ferries that install the nanocell to facilitate mobile phone usage onboard.
3	Nanocell provider	Hardware companies that supply nanocells directly to airline and ferries operators or to system integrators.
4	Systems Integrator	Service companies with the necessary certification and expertise to install nanocells on planes and ferries.
5	Communication Service provider	Service companies, like World Indigo, that provides passenger onboard the vehicles with mobile service.
6	Data Clearinghouse	Intermediaries between different mobile carriers that enable roaming services for customers of carriers they partner with.
7	Carriers	Telecommunication companies that provide mobile service.

8	Macro Regulations	Worldwide and country-specific rules and regulations that affect all players in

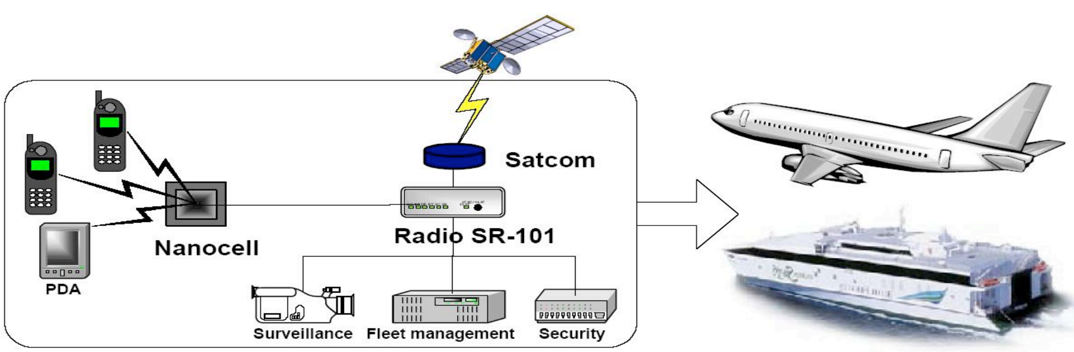
Exhibit 4: World Indigo's CG 101 Communication Gateway

World Indigo's CG-101 Communication Gateway was a proprietary and patentable system that had been under development since October 2003 and was expected to be completed by June 2005. The unit was priced at US$5500 and had three parts: the mobile phone antenna (Nanocell), radio (SR-101) and satellite receiver (Satcom). Apart from the nanocell component, World Indigo also developed additional hardware and software applications to enable the CG 101 to provide an end-to-end solution for mobile access onboard a plane or ferry.

Allows passengers to stay connected

When passengers onboard a plane or ferry made calls, their mobile phones would transmit signals to the nanocell. The nanocell would get its signal from the radio unit that connects to satellites via the satcom. The entire system is situated within the plane. Apart from mobile phones, the nanocell could also connect with other communication devices like surveillance camera and security equipments.

By October 2004, the CG 101 system was able to integrate mobile phones or portable devices of passengers onboard ferries or airplanes with existing ground phone networks (both GSM and CDMA) via satellite. In addition, World Indigo had also developed, but had not incorporated, Wireless Internet capabilities in the CG 101.



World Indigo's CG 101 Communication Gateway

Charges

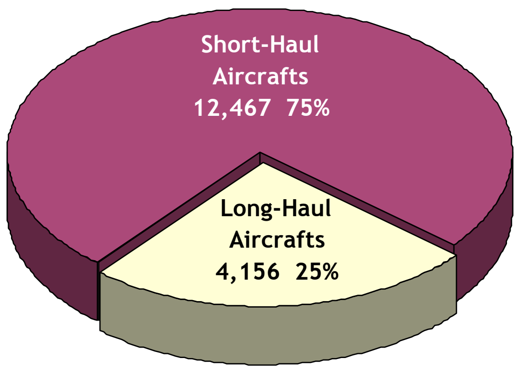
Service	Charges
Short Message Service (SMS)	US$0.35/SMS [Outgoing] Free [Incoming]
Voice	US$1.50/minute

Source: World Indigo executive summary, November 8, 2004

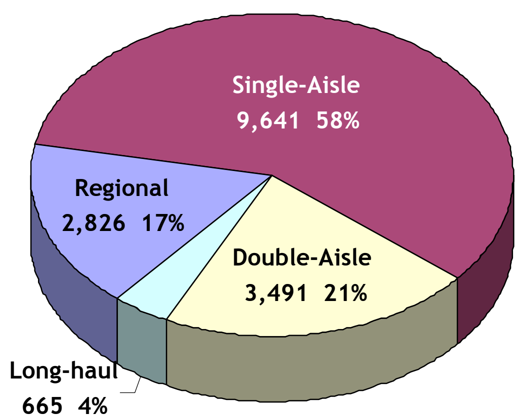
Exhibit 5: Comparisons between long-haul and short-haul airlines

Characteristics	Short-haul Airlines	Long-haul Airlines
Travel hours	Less than 8 hours	Longer than 8 hours
Number of seats	Under 175	More than 175
Frequency of use	High	Lower
Airline type	Mostly budget airlines	Large, established airlines
Aircraft type	Mostly single-aisle	Mostly double-aisle
Worldwide airline jet fleet %	75%	25%
Total departures worldwide %	90%	10%

World Fleet Composition



Segmentation of World Fleet Composition



Source: World Indigo company presentation, October 14, 2004

Exhibit 6: World Indigo's Financial Figures

	2004	2005	2006	2007	2008
Operating Units	10	60	210	610	1,210
Revenue	173	3,104	11,600	34,548	74,328
Gross Profit	(70)	1,663	7,049	21,474	46,962
Earnings Before Interest & Tax (EBIT)	(1,276)	(528)	4,249	16,583	41,420
Cash	484	1,108	5,534	18,086	48,940

Note: All currency in US dollars ('000).

Revenue forecast based on revenue from both hardware and in-vehicle communication service.

Source: World Indigo executive summary, November 8, 2004

Exhibit 7: Market Figures for Selected Airline Markets

China

Passenger Volume by Regions (2003 – 2004)

Regions	Passenger Volume		
	2004	2003	Change %
Total	241934678	174324727	38.8
Huabei Area	39913602	27481671	45.2
Northeast	13847815	10469665	32.3
Huadong Area	75015715	53230988	40.9
Central-South	64172069	48012066	33.7
Southwest	34912006	25598393	36.4
Northwest	8909002	6154040	44.8
Xinjiang	5164469	3379020	52.8
Easter	163847471	118115279	38.7
Western	55236531	39481433	39.9
Central	22850676	16729131	36.6
Tourist Cities	41253897	29666017	39.1

Top 10 Airports by Passenger Volume (2004)

Airport	Passenger Volume		
	Rank	2004	2003
Total		241934678	174324727
Beijing	1	34883190	24283818
Shanghai (Pudong)	2	21021723	15063622
Guangzhou	3	20326138	15012696
Shanghai	4	14889198	9692386
Shenzhen	5	14253046	10842652
Chengdu	6	11685643	8196742
Kunming	7	9797260	7432596
Haikou	8	7478210	6029249
Xi'an	9	6362409	4397991
Hangzhou	10	6338042	4352301

Source: 2004 China Civil Aviation Statistics Report, Financial Planning and Development Department, China Civil Aviation Headquarters

Russia

Passenger Transportation and Turnover by Transport Types (2000 - 2001)

	Passengers transportation, million persons		Passenger turnover, bln. passenger/km	
	2000	2001	2000	2001
Transport, total	43130	42016.5	484.3	472.6
railway transport	1419	1306	167.1	157.9
bus transport	22033	20830	164.4	154.3
taxi transport	16	12	0.2	0.2
tramway transport	6940	7128	23.9	24.2
trolley-bus transport	8486	8490	27.5	27.5
metro (subway)	4186	4198	46.9	47.0
sea transport	1.0	0.5	0.04	0.04
inland water transport	26	26	0.9	0.9
air transport[1)]	**23**	**26**	**53.4**	**60.6**

[1)] 2001 - including irregular aviation companies.

Source: "Russia 2002" Handbook, Russia Federal State Statistics Service

United Kingdom

Domestic Terminal Passenger Traffic (2002 – 2003)

	Scheduled 2003	Charter 2003	Total 2003	Total 2002	Percentage Change
London Area Airports					
GATWICK	3 898 160	6 482	3 904 642	3 427 074	14
HEATHROW	6 650 320	3 450	6 653 770	6 674 328	0
LONDON CITY	425 506	282	425 788	416 989	2
LUTON	1 698 080	4 545	1 702 625	1 744 932	-2
SOUTHEND	117	2 461	2 578	4 149	-38
STANSTED	2 695 863	6 474	2 702 337	2 460 417	10
Total London Area Airports	15 368 046	23 694	15 391 740	14 727 889	5
Other UK Airports					
ABERDEEN	1 403 162	129 077	1 532 239	1 613 140	-5
BARRA	8 318	-	8 318	8 285	0
BELFAST CITY	1 958 877	1 475	1 960 352	1 885 622	4
BELFAST INTERNATIONAL	2 997 702	5 996	3 003 698	2 682 555	12
BENBECULA	31 892	22	31 914	31 534	1
BIGGIN HILL	111	70	181	494	-63
BIRMINGHAM	1 405 695	10 698	1 416 393	1 221 737	16
BLACKPOOL	91 937	2 406	94 343	15 895	494
BOURNEMOUTH	100 999	5 017	106 016	18 399	476
BRISTOL	1 072 230	610	1 072 840	924 826	16
CAMPBELTOWN	8 268	-	8 268	8 152	1
CARDIFF WALES	336 110	13 895	350 005	107 686	225
CARLISLE	-	-	-	62	..
CITY OF DERRY (EGLINTON)	161 574	451	162 025	166 383	-3
COVENTRY	-	152	152	764	-80
DUNDEE	49 920	1 619	51 539	45 323	14
EAST MIDLANDS	820 199	4 132	824 331	547 993	50
EDINBURGH	5 481 487	15 264	5 496 751	5 078 802	8
EXETER	81 261	327	81 588	82 857	-2
GLASGOW	4 564 328	10 013	4 574 341	4 297 099	6
HAWARDEN	-	6 666	6 666	1 889	253
HUMBERSIDE	27 821	4 215	32 036	36 339	-12
INVERNESS	427 779	355	428 134	355 475	20
ISLAY	21 415	1	21 416	20 660	4
ISLE OF MAN	695 728	1 194	696 922	679 466	3
ISLES OF SCILLY (ST.MARYS)	138 334	132	138 466	146 305	-5
ISLES OF SCILLY (TRESCO)	43 612	-	43 612	41 983	4
KENT INTERNATIONAL	126	-	126	-	..
KIRKWALL	102 257	132	102 389	98 252	4
LANDS END (ST JUST)	24 751	-	24 751	-	..
LEEDS BRADFORD	496 967	3 401	500 368	477 255	5
LERWICK (TINGWALL)	2 056	-	2 056	2 068	-1
LIVERPOOL	742 058	6 401	748 459	736 340	2
MANCHESTER	3 048 265	24 294	3 072 559	2 742 939	12
NEWCASTLE	1 448 020	2 267	1 450 287	1 164 510	25
NORWICH	96 290	4 446	100 736	95 739	5
PENZANCE HELIPORT	130 643	-	130 643	133 133	-2
PLYMOUTH	50 181	-	50 181	60 293	-17
PRESTWICK	855 717	1 088	856 805	696 990	23
SCATSTA	-	124 166	124 166	131 300	-5
SHEFFIELD CITY	-	-	-	13 104	..
SHOREHAM	13	119	132	211	-37
SOUTHAMPTON	698 100	2 281	700 381	556 626	26
STORNOWAY	105 979	160	106 139	92 773	14
SUMBURGH	105 252	2 376	107 628	120 753	-11
TEESSIDE	174 335	1 450	175 785	187 795	-6
TIREE	5 293	-	5 293	5 293	-
WICK	15 881	774	16 655	17 837	-7
Total Other UK Airports	30 030 943	387 142	30 418 085	27 352 936	11
Total All Reporting UK Airports	45 398 989	410 836	45 809 825	42 080 825	9
Channel Islands Airports					
ALDERNEY	72 075	-	72 075	72 855	-1
GUERNSEY	834 104	904	835 008	793 296	5
JERSEY	1 337 437	57 810	1 395 247	1 377 735	1
Total Channel Islands Airports	2 243 616	58 714	2 302 330	2 243 886	3

(a) Domestic traffic is counted both at the airport of arrival and at the airport of departure.
The total of domestic traffic is, therefore, only a measure of airport activity.

Source: UK Civil Aviation Authority

United States of America

Domestic Airline Travel (January – October 2004)

	Jan-Oct 2003	Jan-Oct 2004	Change
Passengers	489,902,499	527,479,187	7.7%
Flights	7,988,549	8,312,918	4.1%

Source: T-100 Domestic Market and Segment

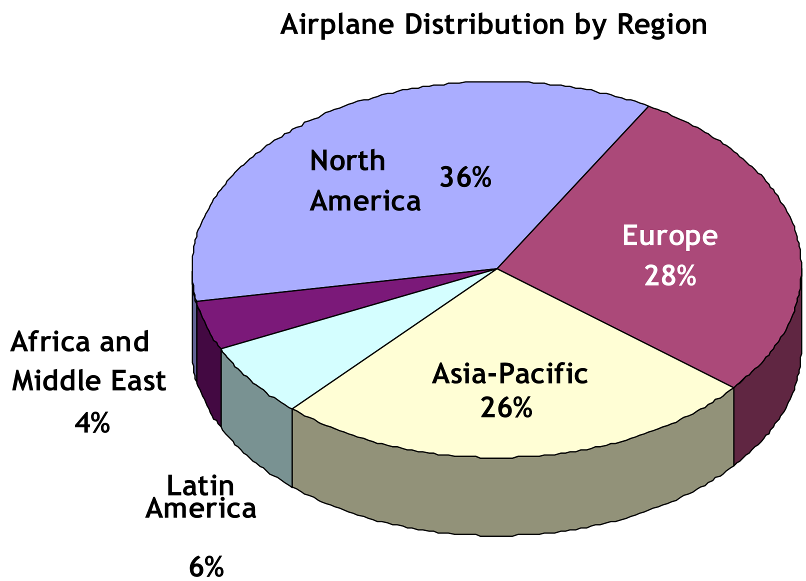
Top 10 Airlines, ranked by Domestic Enplanements (January – October 2004)

Jan-Oct 2004 Rank	Airline Name	Jan-Oct 2004 Passengers	Jan-Oct 2003 Passengers	Jan-Oct 2003 Rank
1	Southwest Airlines	67,854,148	62,636,005	2
2	Delta Air Lines	66,232,032	65,048,547	1
3	American Airlines	60,704,637	60,855,868	3
4	United Airlines	50,692,556	47,173,833	4
5	Northwest Airlines	38,343,765	36,193,384	5
6	U. S. Airways	31,555,223	31,085,588	6
7	Continental Airlines	26,202,750	25,687,464	7
8	America West Airlines	16,819,838	16,117,723	8
9	Alaska Airlines	11,939,251	10,906,109	9
10	American Eagle Airlines	11,893,071	9,610,192	10

Source: T-100 Domestic Market and Segment

Source: Press Release "October Airline Traffic: Ten-Month Domestic Traffic Up 7.7 Percent From 2003", US Department of Transport Bureau of Transport Statistics

Exhibit 8: Airplane distribution by Region



Source: World Indigo company presentation, October 14, 2004

Exhibit 9: Market Figures for Selected Ferry Markets

Hong Kong

Hong Kong Port Activities (1998, 2002, 2003)

港口活動 (8) Port Activities (8)	1998	2002	2003
抵港船次 (9) Vessel Arrivals (9)	231 300 (-0.9%)	218 490 (+1.7%)	218 050 (-0.2%)
遠洋貨船 Ocean Cargo Vessels	38 540 (-7.0%)	32 830 (-5.2%)	32 780 (-0.2%)
遠洋客船 Ocean Passenger Vessels	3 150 (+4.2%)	2 790 (+3.1%)	3 010 (+7.8%)
內河貨船 River Cargo Vessels	124 610 (+1.5%)	119 520 (+2.9%)	119 480 (§
內河客船 River Passenger Vessels	65 000 (-1.8%)	63 340 (+3.5%)	62 790 (-0.9%)
旅客吞吐量 (千旅客人次) (10) Passenger Throughput (in '000 passengers) (10)	17 967 (-4.7%)	20 963 (+4.7%)	18 644 (-11.1%)
港口管制 Harbour Control	1 051 (+27.0%)	676 (+1.2%)	573 (-15.2%)
中國客運碼頭 China Ferry Terminal	6 204 (-10.3%)	10 183 (+5.7%)	8 534 (-16.2%)
港澳客運碼頭 Macau Ferry Terminal	10 712 (-3.5%)	10 104 (+4.0%)	9 538 (-5.6%)
客輪 Ferry	10 661 (-3.6%)	10 004 (+4.1%)	9 441 (-5.6%)
直升機 Helicopter	51 (+8.0%)	100 (-6.8%)	97 (-3.2%)

( ) 與前一年比較的變動百分率。
Percentage changes over the preceding year.

§在 ±0.05%之內
Within ±0.05%

註釋：
Notes:

(8) 個別數字之和可能不等於其總數。
Individual figures may not add up exactly to the total due to rounding.

(9) 遠洋輪船是指越過內河航限行駛的船隻，而內河船隻則指僅在內河航限內行駛的船隻。
Ocean vessels refer to vessels operating beyond the river trade limits while river vessels refer to vessels plying exclusively within the river trade limits.

(10) 包括經由港口管制和中國客運碼頭所錄得以公海為目的地的抵港／離港郵船旅客人次。這些數字源自入境事務處，可能與海事處的統計數字並不符合，原因在於：
- 有些人乘船毋須付船費（例如不足一歲者），海事處並沒有把這類旅客納入統計之內，
- 入境事務處有關中國客運碼頭旅客吞吐量數字已包括在海運碼頭所錄得以公海為目的地的旅客吞吐量。

Including passenger arrivals/departures by cruises to high seas recorded by the Harbour Control and the China Ferry Terminal. The figures originate from the Immigration Department and may not tally with the Marine Department' s statistics because :
- some persons travelling on board may not be required to pay fares (e.g. those less than 1 year of age) and these are not covered by the Marine Department's statistics,
- Immigration Department's statistics for China Ferry Terminal has included Ocean Terminal's passenger throughput for cruises to high seas.

Source: "Port of Hong Kong in Figures, 2004 Edition", Marine Department, Hong Kong Special Administrative Region, People's Republic of China

Singapore

Singapore Port Activities (2001 – 2004)

	2001	2002	2003	2004
Total Sea Cargo Handled (Mil F.T[1])	313.5	335.2	347.7	393.4
General & Bulk Cargo	199.7	214.5	224.3	264.1
Oil-in-Bulk	113.8	120.7	123.4	129.3
Total Container Throughput ('000 TEUs)	15,571.1	16,940.9	18,410.5	21,328.6
Sea Passenger Handled (Thousand)	7,023.6	6,654.9	6,419.0	7,357.2
Vessel Arrivals[2] (Mil GRT[3])	960.1	971.7	986.4	1,042.4
Total Air Cargo Handled ('000 Tonnes)	1,510.3	1,640.8	1,615.5	1,780.3
Discharged	782.5	835.9	804.7	873.0
Loaded	727.8	804.9	810.8	907.3

Source: Port of Singapore Authority Corporation Ltd

United States of America

Operating Statistics of the North American Cruise Industry in the U.S.[1]

	2000	2001	2002	2003	Annual Percent Change 2001	2002	2003
Capacity Measures							
Number of Ships	163	167	176	184	2.5%	5.4%	4.5%
Lower Berths	165,381	173,846	196,694	215,405	5.1%	13.1%	9.5%
Carryings (Millions)							
Global Passengers	8.00	8.40	9.22	9.83	5.0%	9.8%	6.6%
Passengers Residing in the U.S.	6.09	6.20	6.99	7.48	1.8%	12.7%	7.0%
U.S. Embarkations	5.31	5.90	6.50	7.11	11.1%	10.2%	9.4%
Industry Spending in U.S. ($ Billions)	**$ 9.41**	**$ 9.99**	**$ 10.90**	**$ 11.85**	6.2%	9.1%	8.7%
Cruise Lines	$ 8.07	$ 8.14	$ 8.84	$ 9.49	0.9%	8.6%	7.4%
Goods and Services	$ 7.14	$ 7.34	$ 7.93	$ 8.46	2.8%	8.0%	6.7%
Capital Equipment (incl. net interest)	$ 0.93	$ 0.80	$ 0.91	$ 1.03	-14.0%	13.8%	13.2%
Passengers and Crew	$ 1.34	$ 1.85	$ 2.06	$ 2.36	38.1%	11.4%	14.6%
Wages & Taxes Paid by Cruise Lines	$ 0.89	$ 0.99	$ 1.05	$ 1.07	11.2%	6.1%	1.9%
Total U.S.-based Spending	$ 10.30	$ 10.98	$ 11.95	$ 12.92	6.6%	8.8%	8.1%

Source: Cruise Line International Assn. and Business Research & Economic Advisors

Source: "The Contribution of the North American Cruise Industry to the U.S Economy in 2003", Business Research & Economic Advisors

United Kingdom

UK international sea passenger movements, by port and port area (1995 – 2003)

Thousands

	1995	1996	1997	1998	1999	2000	2001	2002	2003 [1]
Ro-Ro ferry passengers on short sea routes									
Thames & Kent									
London	-	-	-	12	16	15	14	13	11
Medway	78	81	-	-	-	-	-	-	-
Ramsgate	2,807	2,655	1,836	161	50	76	88	117	137
Dover	17,850	18,760	21,236	19,330	18,324	16,078	15,857	16,329	14,631
Folkestone	725	856	776	905	653	440	5	-	-
All Thames & Kent	21,460	22,352	23,848	20,408	19,043	16,609	15,964	16,459	14,780
South Coast									
Newhaven	979	841	750	621	337	313	337	379	397
Portsmouth	3,331	3,005	3,391	3,509	3,487	3,176	3,344	3,406	3,116
Southampton	533	461	1	-	-	-	-	-	-
Poole	373	376	418	414	472	455	586	620	623
Weymouth	-	-	-	53	56	60	-	8	15
Plymouth	582	562	649	642	627	583	583	631	603
Other ports	46	-	-	-	-	-	-	-	-
All South Coast	5,844	5,245	5,209	5,240	4,980	4,587	4,851	5,044	4,754
West Coast									
Swansea	163	172	150	158	133	124	122	121	118
Milford Haven	341	345	546	512	495	463	388	387	384
Fishguard	945	817	815	810	830	832	687	662	645
Holyhead	2,125	2,489	2,457	2,775	2,541	2,518	2,380	2,371	2,333
Mostyn	-	-	-	-	-	-	5	44	48
Liverpool	24	29	97	343	337	293	298	291	269
Fleetwood	-	7	1	-	-	-	-	-	-
Other ports	-	-	-	9	7	4	3	4	5
All West Coast	3,598	3,859	4,066	4,606	4,343	4,234	3,882	3,880	3,802
East Coast									
Lerwick	3	2	3	7	6	6	6	7	13
Forth	-	-	-	-	-	-	-	105	195
Tyne	406	337	365	466	626	667	745	816	829
Hull	961	1,013	1,006	1,027	1,022	972	1,006	1,041	994
Grimsby and Immingham	9	11	12	10	9	12	13	38	43
Ipswich	1	-	-	-	-	5	6	6	6
Felixstowe	447	62	77	77	78	86	80	58	19
Harwich	1,582	1,650	1,672	1,384	1,272	1,335	1,196	1,268	1,085
Other ports	11	12	-	2	2	3	4	3	3
All East Coast	3,420	3,087	3,134	2,973	3,016	3,086	3,056	3,342	3,188
All ports of the United Kingdom	34,321	34,543	36,258	33,226	31,381	28,517	27,753	28,726	26,523
Passengers on long sea journeys									
All ports of the United Kingdom	33	24	29	23	26	26	27	32	25
Passengers on cruises beginning and/or ending at UK ports [2]									
All ports of the United Kingdom	207	226	..	..	445	461	469	540	698
of which									
Dover	..	..	..	..	136	119	100	120	139
Southampton	..	..	..	..	211	281	295	331	434
Harwich	..	..	..	..	70	43	68	69	97
All international passengers [3]	34,562	34,792	36,288	33,249	31,852	29,003	28,249	29,298	27,246

[1] Provisional figures for long sea and cruise passengers

[2] Cruise passengers, like other passengers, are included at both departure and arrival if their journeys begin and end at a UK seaport

[3] Excluding cruise passengers in 1997 and 1998.

UK international sea passenger movements, by overseas country (1995 – 2003)

Thousands

	1995	1996	1997	1998	1999	2000	2001	2002	2003[1]
Ro-Ro ferry passengers on short sea routes									
Belgium	2,480	2,053	2,075	1,749	1,592	1,507	1,379	1,129	740
Denmark	254	208	190	195	188	164	156	132	88
France	25,164	25,470	26,975	23,912	22,454	19,755	19,485	20,555	19,077
Germany	276	245	240	246	222	188	164	161	92
Irish Republic	3,598	3,859	4,066	4,606	4,343	4,234	3,882	3,880	3,802
Netherlands	1,847	1,956	1,961	1,769	1,939	2,031	2,026	2,209	2,094
Norway	166	179	172	188	208	225	230	241	235
Spain	353	367	388	373	346	320	355	341	308
Sweden	169	192	190	186	87	89	73	73	81
Other Europe	15	12	-	4	3	3	4	3	7
Total	34,321	34,543	36,258	33,226	31,381	28,517	27,753	28,726	26,523
Passengers on long sea journeys									
United States of America & Canada	29.9	20.4	26.9	23.1	24.7	24.8	26.3	29.5	24.3
Australia & New Zealand	1.4	1.4	0.7	-	-	0.1	0.1	-	-
Africa	0.7	0.5	0.7	0.1	0.7	0.6	0.4	2.0	0.4
Caribbean	-	0.3	0.7	-	-	-	-	-	-
Other countries	0.6	1.3	0.4	0.1	0.2	0.2	0.1	0.1	-
Total	32.6	23.9	29.4	23.4	25.6	25.7	26.9	31.5	24.7
Passengers on cruises beginning and/or ending at UK ports[2]									
Total	207	226	..	..	445	461	469	540	698
All international passengers[3]	34,562	34,792	36,288	33,249	31,852	29,003	28,249	29,298	27,246

[1] Provisional figures for long sea and cruise passengers
[2] Cruise passengers, like other passengers, are included at both departure and arrival if their journeys begin and end at a UK seaport.
[3] Excluding cruise passengers in 1997 and 1998.

Source: Transport Statistics Report "Maritime Statistics 2003", UK Department for Transport

Exhibit 10: World Indigo's Competitors in the Ferry Industry

1. Geolink International

Geolink, a French satellite communication company, offers a range of satellite telecommunications services. It partners with three satellite networks (Inmarsat, Iridium and Eutelsat) and selected Land Earth Stations to deliver its services worldwide. Although based in France, more than half of Geolink's customers are in Africa as well as Northern and Southern Europe. The Geolink Group has three subsidiary companies in Europe for satellite communication services:

Universat Italia - Located in Rome, Universat deals with satellite communication (Inmarsat, Iridium and Emsat) and the sale of satellite terminal equipment. Its maritime business focuses on the Navy as well as fishing, merchant and leisure ships.

Geolink Hellas - Located in Athens, Geolink Hellas, is an official Iridium service provider and offers hardware, air-time and after-sales service to Greek merchant fleets, such as Minoan Lines, Superfast ferries, Costamare and Chartworld.

THALOS - THALOS offers an easy-to-use, onboard oceanographic data service known as the CatSat concept. It also deals with satellite communication engineering and consulting.

Source: Geolink International website (URL: http://www.geolink.com)

2. Maritime Communications Partner (MCP)

Norwegian-based MCP offers mobile phone connectivity onboard cruise ships and ferries through its partnerships with suppliers of maritime satellite services. It provides both remote shore-based as well as ship-based mobile network operation and acts as an operator connecting the calls to land-based public network and international roaming. By October 2004, it had 75 GSM operators worldwide as partners to facilitate mobile service roaming.

MCP provides the following services:

- Onboard cellular network planning and engineering
- Network implementation and total project management
- Network operation and call billing
- Remote 24-hour monitoring, support and maintenance

Source: MCP website (URL: http://www.mcpinc.biz)

3. Maritime Telecommunications Network (MTN)

MTN, based in Englewood, CO (USA), is a provider of C-Band voice, fax and data communications to the cruise industry, US Navy, and offshore oil and gas platforms around the world. It also provides ship-to-shore live video and radio broadcast capabilities in C or Ku Band. Using its Earth Station in Holmdel, NJ (USA), it also offers international satellite voice and data services. MTN is a division of ICG Communications

Source: ICG website (URL: http://www.icgcomm.com/company/media/press_releases.asp)

Exhibit 11: World Indigo's Competitors in the Airlines Industry

1. Connexion by Boeing

Connexion by Boeing provides high-speed wireless Internet access on airplanes through satellite telecommunications networks. With the broadband connection, Connexion allows passengers who want to make voice calls to do so over the Internet using VoIP technology. However, the firm had reported that passengers preferred to use instant messages and emails to stay in touch onboard their airplanes.

By October 2004, Connexion had definitive agreements with Lufthansa, Scandinavian Airlines System, Japan Airlines, ANA and Kingdom Holding to equip their long-haul aircrafts with the service. Singapore Airlines, China Airlines and Korean Air have also announced their intent to install the Connexion system on their long-range aircrafts. In addition, Connexion is extending its technology to target the maritime market and have reported capabilities of enabling a ship of any size, from a 100-foot yacht to a 1,000-foot supertanker, with broadband speeds in excess of 1Mbps.

Connexion by Boeing's in-flight service has two pricing models – unlimited access categorized by flight period and usage-based access.

a) Unlimited Access

US$14.95 for service on short-haul flights under 3 hours

US$19.95 for service on medium-haul flights between 3 to 6 hours

US$29.95 for service on long-haul flights over 6 hours

b) Usage-based Access – Flat fee for first contiguous 30 minutes + US$0.25/minute thereafter

US$7.95 initial fee for service on short haul flights under 3 hours

US$9.95 initial fee for service on medium and long haul flights over 3 hours.

Source: Connexion by Boeing website (URL: http://www.connexionbyboeing.com)

2. Wireless Cabin

The European consortium is made up of nine members:

1. Airbus Deutschland GmbH
2. Deutsches Zentrum für Luft- und Raumfahrt e.V.
3. Ericsson Telecomunicazioni S.p.A.
4. ESYS plc
5. Inmarsat Ltd.
6. KID-Systeme GmbH
7. Siemens AG Austria
8. TriaGnoSys GmbH
9. University of Bradford

In September 2004, the group conducted an in-flight trial of GSM mobile telephony aboard an Airbus A320 flight-test aircraft flying to and fro Toulouse, France. A picocell and a computer server were used to route signals from mobile phones to the Globalstar satellite communications network and finally to ground-based telephone networks. They used technologies based upon emerging standards - GSM/UMTS for mobile telephony, WiFi and Bluetooth for mobile computing services. GSM service, web browsing, email, and virtual private network were all tested. Airbus announced that it planned to provide in-flight mobile phone access by 2006.

Source: WirelessCabin website (URL: http://www.wirelesscabin.com)

3. Starling Advanced Communications

Israel-based Starling develops technology that enables airborne broadband connectivity at a competitive price with their patented antenna and SATCOM system. Their technology originated from military programs in the last two decades and is now further developed for commercial uses. Starling's MIJET system is a Ku band SATCOM antenna that can be installed on aircrafts ranging from small business jet to large wide-bodied commercial aircraft. It allows in-flight connectivity to the Internet across all major commercial routes.

Source: Starling Advanced Communications website (URL: http://www.starling-com.com/)