In June 2012, six students started with the organisation of the yearly study tour of the VSV ‘Leonardo da Vinci’. First order of business: determining the destination for the tour. It was already determined that the study tour would last for four weeks in September 2013 and would be inter-continental. The wildest plans were drawn up and soon the term ‘Limitless’ was coined. After heated debate, the final cities were set to be: Washington (D.C.), Montreal (QC), Boston (MA), Orlando (FL), Fort Worth (TX), Mojave (CA), Los Angeles (CA) and Seattle (WA). In the following months flights and hotel bookings were made and various companies were contacted. On September 5, the moment was there, ‘Limitless’ was ready to take-off.

WASHINGTON, D.C.
The tour started with the capital of USA, Washington D.C. and the first point of agenda was visiting the Netherlands Embassy in US for welcome drinks. The next day the Smithsonian National Air & Space museum was visited, the museum boasts of the largest collection of aviation and space related artifacts. The entire history of human flight was could be seen in the two locations at the National Mall, the heart of Smithsonian institutions and Udvar-Hazy center near Dulles International airport. The highlights of the visit were the famous SR-71 ‘Blackbird’ airplane, Space Shuttle ‘Discovery’, Wright flyer and the ‘Enola Gay’ aircraft which dropped the nuclear bomb on Hiroshima, Japan in 1945. On the following day, it was time for sightseeing around the city. We got a tour of the US Capitol building. In the vicinity were the various other war memorials along the National Mall and of course one of the most famous residences in the world; the White House. The tour had started with a bang!

MONTREAL, CANADA
After only three days in Washington D.C., it was time to move on to Canada. Montréal is the aerospace capital of Canada. The Greater Montréal region also has the second-largest density of aerospace jobs in the world. One in 189 Québécois work in the aerospace industry, thus a perfect location for “Limitless”. We visited the Canadian Space Agency (CSA), where we could see the facilities for the future Mars Rovers and the Canadarm for international space station and an overview of all the satellites the CSA operates was given. The tour was concluded with a walk over their very own Martian landscape! After a day off, which gave everybody a chance to climb the Mont-Royal, the namesake of the city, it was time for more company visits. In the morning MDA Corporation was visited, with a nice tour of all their facilities, including their ‘noise-free’ test chamber. In the afternoon a visit to the aircraft manufacturer Bombardier and their Challenger assembly line plus a presentation on the C-Series, completed the day. The following day, the last in Montréal, we visited the International Air Transport Association (IATA) to find out the role they play in.

“What was the best part of the tour?” A question often asked, both during and after the Study Tour 2013 ‘Limitless’, which took thirty students and four staff members on an amazing trip through 2 countries, 8 cities and 12 flights. The question proved very difficult to answer, the most common answer was simply “Everything”.

TEXT Jasper van Gorcum, MSc Student Aerospace Engineering, member of the Board of the VSV ‘Leonardo da Vinci’
in the Global aviation industry.

BOSTON, MA
After Montreal, it was time to go back to USA to Boston, MA. In Boston, we visited the famous educational institutes located in Boston; the Massachusetts Institute of Technology (MIT) and the Harvard Business School. With only two days in Boston, the next day was utilized to see the city; with a very passionate tour guide, the group walked the freedom trail and learnt about the culture and history of one of the oldest cities of US. The city was an important location in the American war of independence and events like Boston tea party took place here. In the evening, the group took the opportunity to go out in downtown Boston and got a taste of the buzzing nightlife the city offers with more than 250,000 students enrolled in the Boston area.

ORLANDO, FL
The pace did not slow, next up: Orlando! Located in Florida, the famous Kennedy Space Centre (KSC) in Cape Canaveral was a highlight of the study tour. Invited as ‘NASA Special Guests’ and a very enthusiastic tour guide to accompany us, the trip to KSC was one to remember. The height of the Vehicle Assembly Building towering at 160 meters is still very hard to grasp. The building was used to assemble the Saturn V rocket for the Apollo program. The tour concluded at the Visitor’s Centre where we got to see the Space shuttle ‘Atlantis’ exhibit. After a day at the beach and a morning kayaking between alligators in Floridian swamps, it was time to visit the Brazilian aircraft manufacturer Embraer. In Melbourne, Florida, the final assembly of the Phenom 100 and 300 executive jets is done.

FORT WORTH, TX
Halfway through the tour it was time to move west, to Texas. Fort Worth is another major hub in aviation, in the United States of America. Immediately after the flight from Orlando it was time to visit the first company in Fort Worth: American Eurocopter. During the extensive tour, we were able to see all the facilities. This included their assembly halls, the full-motion simulators and the maintenance hangars. The next morning was planned for a visit to the Gulfstream Aerospace company. During breakfast a presentation on the past, future and vision of Gulfstream was given; truly inspiring. In Dallas, Gulfstream has the final assembly of the G150 and G280 business jets, as well as maintenance for all their products. Seeing them up close, one really appreciates what kind of engineering goes into these machines; this was once more confirmed by a presentation at the engineering department. After a weekend with the all-American experience, i.e. Rodeo, American Football and some good old western style visit to a shooting range where we had a chance to test our aim with rifles, it was time again to pack the bags and move to a different city. But not before we visited another helicopter company; Bell Helicopters. Here a tour of their renowned training facilities was given. In these training facilities, they train both the technicians and the pilots. It is very interesting to see both these sides to the training and experience their state of the art Simulator.

MOJAVE AND LOS ANGELES, CA
Shortly after landing in Los Angeles, a bus was waiting, ready to take the tour to the Mojave Desert. After a breakfast right on the landing strip of the Mojave Air and Spaceport, it was time to visit XCOR. XCOR is currently building their own sub-orbital, commercial reusable re-entry vehicle, the Lynx. Working from a small hangar with passionate people, this company was very inspiring. To be able to see a live test fire of their RCS rockets from up close was the cherry on the cake. In the afternoon, a tour of the flight line (with the Virgin Galactic White Knight 2 and Space Ship...
2) was made. The afternoon ended with an unexpected lecture by the famous Dick Rutan, who told about his experiences including piloting Voyager aircraft around the world in 9 days and gave us an inspirational, no holes barred talk on the future of new technology in aerospace industry. The next day, before driving to Los Angeles, it was time to visit Edwards Air Force Base and Northrop Grumman, a major defense contractor. At Edwards Air Force Base, the tour visited the USAF Test Pilot School, where Dutch test pilots gave a lecture on the F-35 and test pilot program. This interesting morning was finished at the Air Force Flight Test Museum. In the afternoon, there was a unique visit to Northrop Grumman, where assembly of the center-fuselage of the F-35 and the final assembly of the Global Hawk was done.

With only a week left, the first companies visited in Los Angeles were the Los Angeles World Airports (LAWA) company at the LAX airport and Icon Aircraft. At LAX a special tour was arranged, to drive all across the airport and up close to all the airplanes; something which is not easily forgotten. Icon Aircraft was up next, this small start-up company currently builds only one model; a small leisure amphibious aircraft. Despite the size of the company all the energy there, made it a very nice visit.

The last stop in Los Angeles was no less than Jet Propulsion Laboratory (JPL). There we got to see their innovation center, a test model of the Curiosity rover, their huge clean rooms and engineering center. After a very informative visit, it was time to relax during our last weekend of the study tour. This was a great opportunity to see the home of Hollywood with the Californian sun shining in all its glory. Participants of the tour took time to see famous sights like Hollywood walk of fame, Santa Monica beach, Beverley hills, Rodeo drive and the fantastic view of the whole city from the Griffith Space observatory.

**SEATTLE, WA**

On the last Sunday, it was time to fly to rainy Seattle. As the grand finale of the tour, there were two days devoted to a visit of the Boeing facilities. On Monday, it started with the 737-production facility in Renton, where they produce approximately 38 aircraft per month! Afterwards, there was a visit to the Dreamliner Gallery, where all the different options on the 787 are shown. What better place to lunch than the Boeing Delivery Centre? With a great view on the tarmac, it was a real pleasure to lunch here. Across the street was the biggest building in the world; the Everett factory. Here the final assembly on the 747, 767, 777 and 787 is done. It is very impressive to walk so close and actually in these unfinished aircraft. The next day was reserved for a full day of case study. During the day, we studied the merger between KLM and Air France and the several Boeing products and came up with our advice on the question at hand. The case study had us all very excited and gave insights into the relationship between the aircraft manufacturers and the airline industry, specially with top management of the Boeing company attending the presentations. This day was finished with a fantastic dinner hosted by Boeing on top of the Columbia Tower.

To all the people who helped us during and in preparation of our tour, to all the participants and staff and to my fellow committee members; thank you for this wonderful experience, I wish I could do it again. ☺️

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**Figure 3. Space Shuttle ‘Discovery’ at Smithsonian museum**