CCSU
Austria and Germany
May 11, 2013
Saturday – Vienna, Austria
Schloss Schönbrunn

- Served as summer palace for Habsburg royal family
- Located in Vienna, Austria
- Name means “beautiful spring”
Schloss Schönbrunn

• Land was purchased in 1569 by Maximilian II, Holy Roman Emperor, and a Habsburg
• Originally used as a hunting lodge
• Destroyed in a 1683 Turkish attack
• In 1687 Emperor Leopold I commissioned architect Bernhard Fischer von Erlach to rebuild for his heir to the throne, Joseph I

Photo credit: Wikipedia
Schloss Schönbrunn

- Rebuilt and expanded by Maria Theresia to its present size and design starting in 1743
- Gardens expanded and world’s first zoo created in 1752
- Schloss Schönbrunn became summer residence of Habsburg imperial family until 1918

Credit: www.schoenbrunn.at
Credit: Wikipedia
Schloss Schönbrunn

Empress Maria Theresia

- Only female ruler of the House of Habsburg
- Reigned for 40 years
- Transformed Schönbrunn into the grand palace it is today
- Death marked the end of House of Habsburg. Ruling family would now be Habsburg-Lorraine
Schloss Schönbrunn

- Reigned for 68 years, third-longest reign in European history
- Adored wife Elisabeth (Sisi), who lived unhappily until assassination
- Fought WWI from Schönbrunn until his death in 1916
Lunch at Wienerwald

- German fast food chain with casual dining locations in Vienna
- An excellent place to get Wienerschnitzel or Gulasch
Food in Vienna

- Vienna is known for several foods, many available at Wienerwald

- Wiener Schnitzel
- Sachertorte
- Kaiserschmarrn
- Coffee
After dinner at Halle, students explored Vienna’s nightlife around Schwedenplatz.

Many bars, clubs, and food stands remain open late.

Special thanks to our local guides.
End of an Evening

• By the end of the day, students knew their way around Vienna well enough to travel back to the hotel
Das Ende

Auf Wiedersehen, Wien!
Wiener Riesenrad

- Also known as the Viennese Giant Wheel is one of the world oldest ferris wheels.
- Constructed in 1897 by Lieutenant Walter Bassett.
- Stands 212 feet tall.
- Was the largest ferris wheel in 1920 when larger ferris wheels around the world were decommissioned.
- The Riesenrad held world largest ferris wheel from 1920 – 1985.
The Danube River

• The Danube River is the second longest river that flows through Europe.

• The river begins in Germany and flows through 10 countries before emptying in the Black Sea.
The Danube River

- The Danube river originates in the black forest of Germany near the town of Donaueschingen.

- The river today has many different uses.

- The Danube is used by more than 20 million people as drinking water. But in most countries the river is considered to be too polluted to be used as drinking water.

- The river is used to transport goods and materials up and down the river.

- It is also an important tourist attraction.
Danube Tower

- Built between 1962 – 1964
- Designed by Hannes Lintl for the Viennese Horticultural Show in 1964.
- Is the tallest structure in Austria at 827 feet tall.
- It currently is used as a radio tower as well as an observation deck.
Danube Tower: Views
Exploring Vienna: First stop a café!

- Café Mozart
- A traditional Viennese café
- A café has been in this location since 1794.
Café Mozart

- Coffee and Torts!
St. Stephen's Cathedral

- The Cathedral was built between 1339-1365 on top of the ruins of two other churches.

- The roof is covered in over 230,000 glazed tiles, creating intricate patterns.
St. Stephen's Cathedral

- South side of the cathedral shows a double headed eagle which is the symbol of the Habsburg dynasty.
• The north side has Vienna’s coat of arms.
Soviet War Memorial

- Created for the 17,000 Soviet soldiers that died in the battle of Vienna during WWII.
- The memorial was completed in 1945.
Belvedere Palace

- Upper palace front
Belvedere Palace

- Several sections were built over different periods of time.
- Lower Belvedere was the first to be built starting in 1697.
- Construction on the Upper Belvedere began in 1717.
- Currently the palace and its many buildings are used as a museum.
- Some famous artist have their works housed here such as: Gustav Klimt, Claude Monet, and Egon Schiele
Belvedere Palace

- Upper palace back
Belvedere Palace

- Lower Palace and City View
Dinner
Vienna State Opera

- Built between 1861-1869
- The first show to take place at the theater was Mozart’s, Don Giovanni.
- It sustained damage during World War II.
- Following the war reconstruction continued until 1955.
Hotel Sacher’s Famous Torte

- Known as a “Sachertorte”
- Created by Austrian Franz Sacher in 1832.

- The cake is made of two layers of chocolate sponge cake with a thin layer of apricot jam in-between.

- The cake is finally coated with a layer of dark chocolate.
Bavarian Motor Works began with the production of airplane engines and motorcycles by 1923.

In 1928, BMW started automotive production and six-cylinder engines within two years.

Their 1500 and 1800 models proved popular, so much in fact customer demand exceeded production. After World War II, BMW returned to automotive manufacturing after being temporarily dismantled.
BMW overview

• Origin of BMW logo
  - Airplane Propeller + Flag of Bayern state

• Volume & Financial Results

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<th>Volume 2012</th>
<th>Global Car Sales</th>
<th>1.85 million</th>
<th>10.6% sales increase compared to 2011</th>
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<td>EU Car Sales</td>
<td>796,424</td>
<td>-1.26% sales decrease compared to 2011</td>
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<td>Financial Results 2011</td>
<td>Sales Revenue (€)</td>
<td>68,821 mln</td>
<td>13.8% revenue increase compared to 2010</td>
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<td></td>
<td>Operating Profit (€)</td>
<td>8,018 mln</td>
<td>56.9% profit increase compared to 2010</td>
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<tr>
<td></td>
<td>Operating Profit (%)</td>
<td>11.7%</td>
<td>8.5% operating profit in 2010</td>
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</table>
BMW WELT

• BMW Welt is an impressive, multi-floor attraction, exhibiting both old and modern vehicles.

• The complex is also built for new owners to come and drive their new BMW vehicle off the lot.
BMW Welt Cont’d
BMW Manufacturing

• BMW’s manufacturing process is 98% automated.
• BMW Munich utilizes more than 650 robots.
• On average, 400 tons of steel is used per day.
• The company estimates that its material usage is between 70% - 75%.
• Each station is required to have in-line quality checks to check its functionality and to prevent waste produced.
• In-line quality checks reduce instances stops in the assembly line.
• BMW Welt provides technologies, engine construction, the design process and the current BMW models to visitors.

• Through Motorcycle show, BMW shows their motorcycle performance and gives fun to visitors.
BMW Plant Munich

- Representative of all of the BMW Group’s international production facilities (Origin of BMW factory)
- Produced product
  - Vehicle: BMW 3 Series saloon and touring
  - Engine: 4-cylinder engines, V8 engines for BMW M3, 5 V12-cylinder engines for BMW 760 and so on
- Employees: 8,000
- Volume of production
  - Vehicle: 200,000/year (900/day)
  - Engine: 300,000/year (1,250/day)
- Vehicle production process

Guided tour area
BMW Plant Munich

- **Press shop**
  - Change steel into body parts
    (One of suppliers: Voest steel company in Austria)
  - Production
    : 130,000 parts per day
  - Automation: 100%
  - Very clean and
    well organized

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BMW Plant Munich

- **Body shop**
  - The metal parts that have been shaped in the press shop are joined to the body
  - # of Robots: about 600
  - Automation: 98%
  - Production: 900 units/day
  - During our tour, body shop stopped due to defeat of welding rod in a robot.
  - BMW needs more 6S such as shining & standardization.
• **Paint shop**
  - Clean the body that has been delivered by the body shop and paint by using paint tank and painting robot (2 pair lines)
  - Production: 900 units/day
  - Recycling of paint: 80%
  To do this, robots sprayed on the flowing water by using rotation sprayers.

BMW Plant Munich

- **Engine assembly**
  - To meet customer demand, they use JIT, JIS, and JIF. (JIS : Just In Sequence, JIF : Just In Feeding)
  - Quality check : Every phase after the engine parts are fitted
  - Automation : 45% (Flexible production for 4cylinder, V8, V12)
  - Production
    : 300,000/year (1,250/day)
  - One thing should be improved was standardization of hand tools to reduce variance depending on individual workers.

The most impressive thing
- Their efforts to be harmonized with community
- Try to reduce noises and pollutions from factory
Group dinner at Hofbrauhaus

- Historical restaurant is related with beer
- Festival hall
  - Group dinner place
  - It was destroyed in 1944 due to two bombs (World War II)
  - It was restored in 1958
- Famous for traditional folk music and dances
- Gathering guests from all over the world
- We could enjoy German beer and food
Six Sigma Evaluation

Sort- The facility did not keep unneeded equipment sitting on shop floors. No FOD observed on shop floors.

Straighten- The plant was organized and everything had a designated place, even workers’ beverages.

Shine- The facility appeared clean without dust or dirt collected on the floors or equipment. Employees regularly clean the floors.

Standardize- Standards and reminders are posted outside work stations. Audits or corrective action plans were not made aware.

Sustain- Audits or corrective action plans were not made aware.

Safety- Employees on the shop floor wear lab coats, protective headgear and eyewear. Designated walking lanes and machine guarding present.
Waste Observation

Based on my observations, the following are examples of waste found at the BMW plant in Munich:

- Automated robot stopped for inspection. Production of parts stops until the robot is repaired, creating wasted time while the next station waits for parts.
- Workers waiting for parts to arrive.

Solutions:

- Increase frequency of in-line inspections to ensure robots are functioning properly and parts arrive on time so workers are not waiting without work.