IAR REFERENCE

# Introduction

# The CS Market

## Current situation of the CS market (Research on topics)

### Architecture and zoning

Bakker, J. (2011). *Contesting range anxiety: The role of electric vehicle charging infrastructure in the transportation transition*. 1st ed. [ebook] Eindhoven: University of Technology Eindhoven. Available at: http://alexandria.tue.nl/extra2/afstversl/tm/Bakker\_2011.pdf [Accessed 31 May 2015].

Franke, T. and Krems, J. (2013). *What drives range preferences in electric vehicle users?*. 1st ed. [ebook] Transport Policy. Available at: https://www.tu-chemnitz.de/hsw/psychologie/professuren/allpsy1/pdf/Franke-Krems\_2013\_PrefRange-AAM.pdf [Accessed 31 May 2015].

Haugneland, P. (2014). *Norwegian electric car user experiences 2014*. 1st ed. [ebook] European Electric Vehicle Congress, Brussels, Belgium, December 2014. Available at: http://elbil.no/elbilforeningen/dokumentarkiv/finish/10-dokumenter/382-norwegian-electric-car-user-experiences-2014 [Accessed 31 May 2015].

Knutsen, D. and Willén, O. (2013). *A study of electric vehicle charging patterns and range anxiety*. 1st ed. [ebook] Uppsala Universitet. Available at: http://www.diva-portal.org/smash/get/diva2:626048/FULLTEXT01.pdf [Accessed 2 Jun. 2015].

Mayfield, D. (2012). *Site Design for Electric Vehicle Charging Stations*. 1st ed. [ebook] Sustainable Transportation Strategies. Available at: http://publicservice.vermont.gov/sites/psd/files/Quick\_Links/Transportation\_LandUse/Goal1/NYSERDA%20Site-Design-for-EV-Charging-Stations\_7%2019%2012.pdf [Accessed 31 May 2015].

Pearre, N., Kempton, W., Guensler, R. and Elango, V. (2011). *Electric vehicles: How much range is required for a day's driving?*. 1st ed. [ebook] Transportation Research Part C, p.1174. Available at: http://www.sciencedirect.com/science/article/pii/S0968090X1100012X [Accessed 31 May 2015].

Schroeder, A. and Traber, T. (2012). *The economics of fast charging infrastructure for electric vehicles*. 1st ed. [ebook] Energy Policy. Available at: http://www.sciencedirect.com/science/article/pii/S0301421511010470 [Accessed 31 May 2015].

What drives California's plug-in Electric vehicle owners?. (2013). 1st ed. [ebook] Available at: http://energycenter.org/clean-vehicle-rebate-project/vehicle-owner-survey/feb-2014-survey [Accessed 1 Jun. 2015].

Zhang, N. (2014). *Allocation Strategy for Tesla's Charging Stations in Beijing CBD*. 1st ed. [ebook] Available at: http://www.barrywaite.org/gis/projects/fall-2014/Zhang-Nuobei-PPD%20631%20GIS%20-%20Revised.pdf [Accessed 31 May 2015].

### Laws and Regulations

## Global context (External factors)

## Case studies (Companies & Countries)

### CHAdeMO

Avere-france.org, (2015). *CHAdeMO parmi les standards européens de charge rapide DC*. [online] Available at: http://www.avere-france.org/Site/Article/?article\_id=5974&from\_espace\_adherent=0 [Accessed 13 May 2015].

CHAdeMO brochure. (2015). 1st ed. [ebook] CHAdeMO, pp.2,3,5,6. Available at: http://www.chademo.com/wp/wp-content/uploads/2015/03/20150313FinalEnglishBrochure.pdf [Accessed 13 May 2015].

Chademo.com, (2015). *CHAdeMO Association*. [online] Available at: http://www.chademo.com [Accessed 13 May 2015].

Charger installation, legislation and CHAdeMO activities in Europe. (2014). 1st ed. [ebook] CHAdeMO, p.7. Available at: http://www.chademo.com/wp/wp-content/uploads/2014/05/CHAdeMOEuropeActivities\_EN.pdf [Accessed 13 May 2015].

DC Quick charging - FEA Comparison Study (25kW vs 50kW). (2012). 1st ed. [ebook] Fuji Electric Corp., p.5. Available at: http://www.americas.fujielectric.com/sites/default/files/DC%20Quick%20Charging%20-%20FEA%20Comparison%20Study%20%20(25kW%20vs%20%2050kW)%207-3-12.pdf [Accessed 13 May 2015].

Member list. (2015). 1st ed. [ebook] CHAdeMO. Available at: http://www.chademo.com/pdf/memberlist.pdf [Accessed 13 May 2015].

Self.gutenberg.org, (n.d.). *CHAdeMO*. [online] Available at: http://self.gutenberg.org/articles/CHAdeMO#References [Accessed 13 May 2015].

Weiller, C. and Neely, A. (2014). Business Models for Electric Vehicles: Lessons from the Japanese EV Ecosystem. *Lecture Notes in Mobility, Electric Vehicle Business Models*, pp.199,200.

## Case Studies (Countries)

### California Case

andromedapower, (2015). *Andromeda Power LLC*. [online] Available at: http://www.andromedapower.com/ [Accessed 5 Jun. 2015].

Evtronic.com, (2015). *La charge rapide*. [online] Available at: http://www.evtronic.com/page7/page9/index.html [Accessed 5 Jun. 2015].

Eaton.com, (2015). *Electric Vehicle Solutions*. [online] Available at: http://www.eaton.com/Eaton/ProductsServices/Electrical/Markets/AlternativeEnergy/ElectricVehicle/index.htm?wtredirect=www.eaton.com/plugin#tabs-2 [Accessed 5 Jun. 2015].

Piccirilli Dorsey, I. (2013). *16th Annual Congressional Renewable Energy and Energy Efficiency EXPO + Forum | Briefing | EESI*. [online] Eesi.org. Available at: http://www.eesi.org/briefings/view/16th-annual-congressional-renewable-energy-and-energy-efficiency-expo-forum?/expo2013 [Accessed 5 Jun. 2015].

Kurczewski, N. and Schwerdt, B. (2015). *Tesla Motors Introduces Mobile App for Model S Sedan*. [online] PluginCars.com. Available at: http://www.plugincars.com/tesla-motors-introduces-free-app-model-s-sedan-126356.html [Accessed 5 Jun. 2015].

Electricvehicle.ieee.org, (2015). *Overview about Wireless Charging of Electrified Vehicles – basic principles and challenges - IEEE Transportation Electrification Initiative Web Portal*. [online] Available at: http://electricvehicle.ieee.org/2014/06/26/overview-wireless-charging-electrified-vehicles-basic-principles-challenges/ [Accessed 5 Jun. 2015].

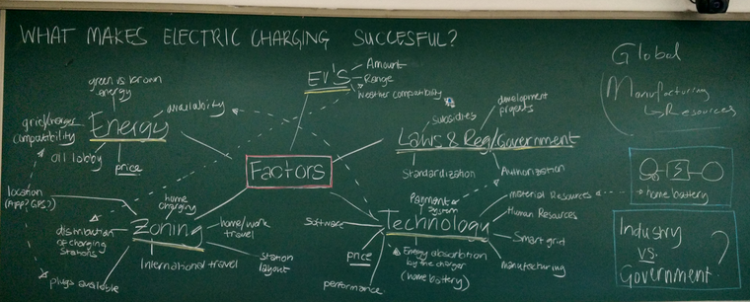
Plugless Power, (2015). *Wireless Electric Vehicle Charging - Plugless Power by Evatran*. [online] Available at: https://pluglesspower.com/ [Accessed 5 Jun. 2015].

YouTube, (2015). *Wireless Power Transfer*. [online] Available at: https://www.youtube.com/watch?v=Gw6XtzEOlyI [Accessed 5 Jun. 2015].

YouTube, (2015). *Dynamic wireless charging*. [online] Available at: https://www.youtube.com/watch?v=h6jKvZgkSFE [Accessed 5 Jun. 2015].

Eenews.net, (2013). *TRANSPORTATION: Charger standards fight confuses electric vehicle buyers, puts car company investments at risk*. [online] Available at: http://www.eenews.net/stories/1059984950 [Accessed 5 Jun. 2015].

Conclusion of part I:



# Analysis

## Relevant Factors

### Architecture and zoning

Aoki, H. (2014). *Best practices from Japan*. 1st ed. [ebook] Munich: CHAdeMO association. Available at: http://www.chademo.com/wp/wp-content/uploads/2014/10/Japan.pdf [Accessed 3 Jun. 2015].

Chademo.com, (2015). *Role of fast charging — CHAdeMO Association*. [online] Available at: http://www.chademo.com/wp/role/charging/ [Accessed 3 Jun. 2015].

Characteristics of CHAdeMO quick charging system. (n.d.). 1st ed. [ebook] Available at: http://chademo.com/pdf/characteristics.pdf [Accessed 3 Jun. 2015].

Global EV outlook. (2013). 1st ed. [ebook] Paris: International Energy Agency. Available at: http://www.iea.org/publications/globalevoutlook\_2013.pdf [Accessed 3 Jun. 2015].

### Battery

Bethel, E., Panama, J. and Luo, S. (2010). *SINOLATIN | NOTAS TÉCNICAS | THE PREMIER INVESTMENT PLATFORM BETWEEN CHINA AND LATIN AMERICA|CHINA|LATIN|ARGENTINA|BOLIVIA|BRAZIL|CHILE|COLOMBIA|ECUADOR|FREACH GUIANA|GUYANA|PARAGURY|PERU|SURINAME|URUGUARY|VENEZUELA*. [online] Sinolatincapital.cn. Available at: http://www.sinolatincapital.cn/sp/show\_white.asp?id=264 [Accessed 3 Jun. 2015].

Electric vehicles in Europe. (2014). 1st ed. [ebook] McKinsey. Available at: http://www.mckinsey.com/search.aspx?q=electric+vehicles+in+europe [Accessed 3 Jun. 2015].

Goonan, T. (2012). *Lithium use in batteries*. 1st ed. [ebook] Reston Virginia: US Geological Survey, pp.9,11. Available at: http://pubs.usgs.gov/circ/1371/pdf/circ1371\_508.pdf [Accessed 3 Jun. 2015].

Lamire, F. (2015). *themavision.fr - La baisse rapide du prix des batteries Lithium Ion et la structuration de la filière*. [online] Themavision.fr. Available at: http://www.themavision.fr/jcms/rw\_438628/la-baisse-rapide-du-prix-des-batteries-lithium-ion-et-la-structuration-de-la-filiere [Accessed 3 Jun. 2015].

The importance of both battery electric and hydrogen fuel cell electric vehicles. (2014). 1st ed. [ebook] Available at: http://www.ucsusa.org/sites/default/files/attach/2014/11/importance-bev-hfcev-fact-sheet.pdf [Accessed 3 Jun. 2015].

The trouble with Lithium. (2008). 2nd ed. [ebook] Martainville: Meridian International Research. Available at: http://www.meridian-int-res.com/Projects/Lithium\_Microscope.pdf [Accessed 3 Jun. 2015].

Zsw-bw.de, (2015). *ZSW: Startseite*. [online] Available at: http://www.zsw-bw.de/ [Accessed 3 Jun. 2015].

### Authorization

Bornerecharge.fr, (n.d.). *Borne Recharge Service*. [online] Available at: http://www.bornerecharge.fr/ [Accessed 3 Jun. 2015].

Chargepoint.com, (n.d.). *Electric Vehicle Charging By ChargePoint*. [online] Available at: http://www.chargepoint.com/ [Accessed 3 Jun. 2015].

Chargepoint.com, (n.d.). *Residents - ChargePoint*. [online] Available at: http://www.chargepoint.com/multifamily-residents [Accessed 3 Jun. 2015].

Electric vehicle charging station guidebook. (2014). 1st ed. [ebook] Winooski: Vermont Energy Investment Corporation. Available at: http://www.driveelectricvt.com/docs/default-source/default-document-library/electric-vehicle-charging-station-guidebook-.pdf?sfvrsn=0 [Accessed 3 Jun. 2015].

My.teslamotors.com, (2013). *Charging at Apartments | Forums | Tesla Motors*. [online] Available at: http://my.teslamotors.com/fr\_CA/forum/forums/charging-apartments [Accessed 3 Jun. 2015].

San Roman, T., Momber, I., Rivier Abbad, M. and Miralles, A. (2011). *Regulatory framework and business models for charging plug-in electric vehicles*. 1st ed. [ebook] Madrid: Energy Policy. Available at: http://www.sciencedirect.com/science/article/pii/S0301421511005696 [Accessed 3 Jun. 2015].

Zhang, N. (2014). *Allocation strategy for Tesla's charging stations in Beijing CBD*. 1st ed. [ebook] Available at: http://www.barrywaite.org/gis/projects/fall-2014/Zhang-Nuobei-PPD%20631%20GIS%20-%20Revised.pdf [Accessed 3 Jun. 2015].

### Payment

Chargepoint.com, (n.d.). *Electric Vehicle Charging By ChargePoint*. [online] Available at: http://www.chargepoint.com/ [Accessed 3 Jun. 2015].

Doom, J. (2013). *Electric Car Owners Face Confusion at the Charging Station*. [online] Businessweek.com. Available at: http://www.bloomberg.com/bw/articles/2013-05-30/electric-car-owners-face-confusion-at-the-charging-station [Accessed 3 Jun. 2015].

Evtronic.com, (2015). *La charge rapide*. [online] Available at: http://www.evtronic.com/page7/page9/index.html [Accessed 5 Jun. 2015].

Greentechmedia.com, (2013). *One Payment System for All EV Charging? : Greentech Media*. [online] Available at: http://www.greentechmedia.com/articles/read/one-pay-system-for-all-ev-charging [Accessed 3 Jun. 2015].

Haugneland, P. (2014). *Norwegian Electric Car User Experiences 2014*. 1st ed. [ebook] Oslo. Available at: http://elbil.no/elbilforeningen/dokumentarkiv/finish/10-dokumenter/382-norwegian-electric-car-user-experiences-2014 [Accessed 3 Jun. 2015].

Haugneland, P. and Havard Kvisle, H. (2013). *Norwegian Electric Car User Experience*. 1st ed. [ebook] Barcelona. Available at: https://www.tekes.fi/contentassets/c2e729551a964321958a0c6c6c33b45f/norwegian\_electric\_car\_user\_experiences\_-\_evs27\_paper.pdf [Accessed 3 Jun. 2015].

Nakamoto, S. (n.d.). *Bitcoin: a peer to peer electronic cash system*. 1st ed. [ebook] Available at: https://bitcoin.org/bitcoin.pdf [Accessed 3 Jun. 2015].

Plug-in electric vehicle handbook. (2012). 1st ed. [ebook] US department of energy. Available at: http://www.afdc.energy.gov/pdfs/51227.pdf [Accessed 3 Jun. 2015].

PlugSurfing, (n.d.). *Just Charge - PlugSurfing*. [online] Available at: https://www.plugsurfing.com/ [Accessed 3 Jun. 2015].

Swan, M. (n.d.). *Blockchain Thinking: The Brain as a DAC*. 1st ed. [ebook] London. Available at: http://www.melanieswan.com/documents/BlockchainThinking\_SWAN.pdf [Accessed 3 Jun. 2015].

### Technology

Blog.rmi.org, (2015). *Pulling Back the Veil on EV Charging Station Costs*. [online] Available at: http://blog.rmi.org/blog\_2014\_04\_29\_pulling\_back\_the\_veil\_on\_ev\_charging\_station\_costs [Accessed 5 Jun. 2015].

Brown, N. and Brown, N. (2012). *EV Maintenance Much Cheaper Than That Of ICE Vehicles*. [online] CleanTechnica. Available at: http://cleantechnica.com/2012/12/18/ev-maintenance-much-cheaper-than-that-of-ice-vehicles/ [Accessed 5 Jun. 2015].

Wikipedia, (2015). *Electric vehicle battery*. [online] Available at: http://en.wikipedia.org/wiki/Electric\_vehicle\_battery#Battery\_cost [Accessed 5 Jun. 2015].

Ingeniøren, (2010). *Et batteri til en elbil koster 60.000 kroner - Ingeniøren*. [online] Available at: http://ing.dk/artikel/et-batteri-til-en-elbil-koster-60000-kroner-109887 [Accessed 5 Jun. 2015].

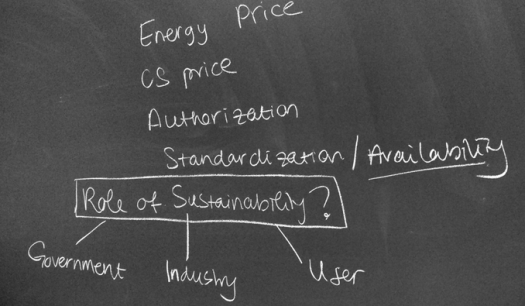
Parkinson, G. and Parkinson, G. (2014). *How Battery Costs May Drop Below $100/kWh*. [online] CleanTechnica. Available at: http://cleantechnica.com/2014/10/13/battery-costs-may-drop-100kwh/ [Accessed 5 Jun. 2015].

TreeHugger, (2015). *Electric Car Battery Prices on Track to Drop 70% by 2015, Says Energy Secretary*. [online] Available at: http://www.treehugger.com/cars/electric-car-batteries-track-drop-price-70-2015-says-energy-secretary.html [Accessed 5 Jun. 2015].

Brown, N. and Brown, N. (2012). *EV Maintenance Much Cheaper Than That Of ICE Vehicles*. [online] CleanTechnica. Available at: http://cleantechnica.com/2012/12/18/ev-maintenance-much-cheaper-than-that-of-ice-vehicles/ [Accessed 5 Jun. 2015].

## 5 Forces Analysis

Conclusion of Part II:



# Outcome

## Conclusion

## Strategy

### Technology

Evelectricity.com, (2015). Evelectricity :: Electric Vehicle Charging Costs. [online] Available at: http://www.evelectricity.com/ev-charging/electric-vehicle-charging-costs [Accessed 5 Jun. 2015].

Teslamotors.com, (2015). Powerwall | Tesla Home Battery. [online] Available at: http://www.teslamotors.com/powerwall [Accessed 5 Jun. 2015].

Electricvehicle.ieee.org, (2015). Wirelessly Charge Electric Vehicles by Induction While Driving - IEEE Transportation Electrification Initiative Web Portal. [online] Available at: http://electricvehicle.ieee.org/2014/02/04/wirelessly-charge-electric-vehicles-by-induction-while-driving/ [Accessed 5 Jun. 2015].

Szondy, D. (2015). BMW developing wireless inductive charging system for electric vehicles. [online] Gizmag.com. Available at: http://www.gizmag.com/bmw-induction-charging/32863/ [Accessed 5 Jun. 2015].

Plugless Power, (2015). Wireless Electric Vehicle Charging - Plugless Power by Evatran. [online] Available at: https://pluglesspower.com/ [Accessed 5 Jun. 2015].