

Business management (SL) Internal Assessment

Commentary on: “How has the Tesla Shanghai Giga factory resulted in lower unit costs?”

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Introduction:

In May 2018, Tesla utilized a world record-breaking ability to construct a super factory in Shanghai, China for the creation of "super products." Elon Musk stated: "On the off chance that you need to utilize a product to deliver a product, a similar item can be duplicated." This Super factory is named Giga Shanghai, its primary function is to manufacture Tesla Model 3 and Tesla Model Y. Giga Shanghai is worth investigating its business potential effects on Tesla due to its uniqueness as the first oversea factory of Tesla, and its plan made by Elon Musk of producing vehicles only for China buyers. Those ambitious plans make people think about the actual effect the Shanghai Giga factory will exert and cause fluctuations over the unit costs of individual vehicles. This essay will investigate the ways of Giga Shanghai decreasing unit costs using theories and tools such as SWOT, location theory, motivation theory, and production method.

Analysis:

SWOT:

Strengths	Weaknesses
<ul style="list-style-type: none">● Low overhead costs (depreciation, rent, employment costs for supervisors, etc.)● Low labor costs of those actively manufacturing the product	<ul style="list-style-type: none">● Limited Market presence in China
Opportunities	Threats
<ul style="list-style-type: none">● Local production, local sales	<ul style="list-style-type: none">● Specific automobile regulations in China (No auto-driving is allowed, Truck size regulations, Foreign capital investment regulations, possible lost control while competing with the government)● Fluctuations in material prices due to Economy strain from other countries● Aggressive competition with the native automobile brand

Using SWOT analysis of the Shanghai Giga factory, Giga's advantages lay in the general environment of China, which includes low labor costs. By and large, the main cost caused by an assembling firm is in the pay rates paid to assembly line laborers. This implies that decreasing work costs is a fundamental expense cutting measure. There are two possible approaches to do this: pay your laborers less or make them more productive at what they do. In California, a senior software engineer receives a monthly salary of 14000\$ (*Tesla*), in Giga Shanghai, the same position only has a monthly salary of 50000RMB (*Tesla "Senior Software Engineer Salaries in Shanghai"*). Thus, Giga can save a huge amount of money in acquiring quality labor. In China, the costs for utilities include but are not limited to office supply and insurance coverage are generally lower than in the USA or any European countries. The total overhead costs of Shanghai Giga are about 1.2 times smaller than the total overhead costs of the Tesla factory in California (*Lambert*). Shanghai Giga has established a limit on administrative costs to the ones that increase revenue in the long run. Musk used to use the word "super dumb" to describe the situation described during the 2018 fourth-quarter financial meeting. The situation is the parts manufactured in China, sent to the warehouse in New Jersey, USA, and then sent back to the China Service Center. This whole unnecessary

process is used to increase the variable costs of Shanghai Giga. Since the beginning of 2019, the delivery of 150000 models 3 Tesla. (*Tesla "Investor Relations Q2 2020"*). was sold locally. Now, Giga Shanghai not only has absolute control of the production line but also retains low unit costs of 24990RMB. (*Tesla "Investor Relations Q3 2020"*)

Location:

The selection of the location of Giga Shanghai also contributes to the decrease in unit costs. The construction cost of the Shanghai Giga is 65% lower than that of the California Factory. The Shanghai Giga costs about \$2 billion. (*Kolodny*) That's less than half the estimated \$5 billion it cost to get its first facility in the United States up and running. External economies of scale also lead to a lower unit cost of production. Tesla has also chosen many domestic suppliers: For example, Joyson Electronics is selected for human-vehicle interaction, Sanhua Intelligent Control is selected for air-conditioning parts, and suppliers of lithium battery packs include Tianqi Lithium, Ganfeng Lithium, Yiwei Lithium Energy, etc. According to Bloomberg News, citing sources familiar with the matter, Tesla has even begun planning to replace imported Panasonic with domestically produced Ningde batteries, and battery costs will also be further compressed (*zhao shirley*). These accesses to suppliers resulted in less purchase of equipment for some components, and less hiring of the workforce. Meanwhile, domestic suppliers provide good semi-products waiting for assembly in Giga. All the accesses will decrease the unit costs by about 10-15%. Accessible infrastructure also gives Giga the capacity of producing 500000 model 3 and 500000 model Y (*Tesla "Investor relations Q4 2020 Update"*). This large capacity of manufacture creates a positive economy of scale of decreasing unit costs.

Motivation theory:

Using the idea from Maslow's 'Hierarchy of Needs, Giga has fulfilled the psychological and physical needs and self-fulfilling needs of employees. These fulfillments of needs lead to a strong, innovative, and productive workforce. This skilled and loyal workforce not only increase business volume, improve work completion rate and efficiency, but also promote employees to bear more production capacity and increase the first pass yield of production lines. Increasing the capacity of production and first-pass yield rate of an individual employee increases productivity and facilitate a positive economy of scale. The psychological needs Giga has fulfilled include providing a friendly working environment and group activities within the production groups. According to the behavior of conduct provided by Giga, each employee must avoid and terminate unfriendly uses of words, actions towards others. Meanwhile, providing extra care and assistance for new employees is highly recommended. Giga also gives the employees the ability to email the CEO of Tesla with appeals or complaints. Giga also gives awards, bonuses, and promotions at the end of each year to the employees with the highest attendance rate and highest numbers of productions. Giga promotes the creativity of employees by letting any employees present their novel ideas regarding any aspects of the factory during the monthly meeting. General workers at Tesla's Shanghai Gigafactory are well paid, and their wages usually start at 4000 RMB monthly. Every employee of Shanghai Giga will Get all the benefits stipulated in the Chinese labor law. In addition, Tesla's Shanghai Gigafactory will pay employees five social insurances and one housing fund. Due to the high degree of automation in the factory, the work is relatively less tiring and less dangerous, usually, each production line only requires few workers for supervision purpose of machines. The annual salary

of ordinary quality control staff of Giga is about 10000 RMB, which is higher for about 50% compare with the same position in other car companies; while same position in Shanghai Volkswagen Automotive Co., Ltd. has a monthly salary of merely 5000RMB. (*salary of the Shanghai Tesla*) The monthly salary of mechanical engineer in Giga is 30000RMB, which is higher for over 350% compare with the other companies. (*salary of the Shanghai Tesla*) Tesla also provides dormitories for the employees, specially, there are Tesla shuttle buses, dorm room has broadband, water and electricity, water heater, washing machine (available at any time), independent bathroom, independent bathroom, kitchen, and a balcony. On the other hand, the same BYD vehicle factory only provides public dormitories with public bathroom and inconsistent hot water. (*salary of Tesla (Shanghai)*)

Production method:

Giga applies cell production during the manufacturing process. The Giga factory has one operational manufacturing facility for model 3 so far. The manufacturing facility contains assembly sections, painting, body, plastics, and stamping. Each section responsible for hiring a specialized workforce and conducting specific production. For instance, the "painting group" is answerable for distributing explicit jobs, covering for unlucky deficiencies and occasions, naming their bosses, sorting out preparing, and masterminding their breaks. "painting group" is answerable for the nature of the painted vehicle body they pass to the get together unit, who is viewed as inner clients. This technique gives representatives some say in their work; thus, improving inspiration and assurance; they are more outlandish, subsequently, to get exhausted by redundant work. Those that need to can assume liability. This type of group working has gotten progressively mainstream as it joins the benefits of large-scale manufacturing with a human framework, which is more propelling than the customary sequential construction system. On the other hand, the XaioPeng electric vehicles is still facing collaboration difficulties between different sections in the process of cell production. With motivated employees, the employees remain loyal, productive, and innovative in Giga. Hence, improving the positive economy of scale of the company and leads to low unit costs.

Conclusion:

Giga effectively uses local car components providers, local labors, low land costs, and motivated atmosphere and work pay, cell production method to achieve low unit costs. These methods are successful, and will decrease 65% of unit costs in Giga by the end of 2021 (*Esposito, Phil and O'kane*), just as said by the CEO of Tesla, Elon Musk.

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Appendix:

Installed Annual Capacity		Current	Status
Fremont	Model S / Model X	100,000	Production
	Model 3 / Model Y	500,000	Production
Shanghai	Model 3 / Model Y	450,000	Production
Berlin	Model Y	-	Construction
Texas	Model Y	-	Construction
	Cybertruck	-	In development
TBD	Tesla Semi	-	In development
	Roadster	-	In development
	Future Product	-	In development

Tesla Production details reported on Q4 2020 Tesla video conference

Installed Annual Capacity		Current	Status
Fremont	Model S / Model X	90,000	Production
	Model 3 / Model Y	500,000	Production
Shanghai	Model 3	250,000	Production
	Model Y	-	Construction
Berlin	Model 3	-	In development
	Model Y	-	Construction
Texas	Model Y	-	Construction
	Cybertruck	-	In development
United States	Tesla Semi	-	In development
	Roadster	-	In development

Tesla Production details reported on Q3 2020 Tesla video conference

Shanghai

Model 3 production capacity has increased to 250,000 units a year. We reduced the price of Model 3 to 249,900 RMB after incentives, making it the lowest-price premium mid-sized sedan¹ in China. This was enabled both by lower-cost batteries and an increased level of local procurement. As a result of this shift in cost and starting price, we recently added a third production shift to our Model 3 factory.

Tesla Production and financial details reported on Q3 2020 Tesla video conference



Tesla shares soar after crushing third-quarter earnings

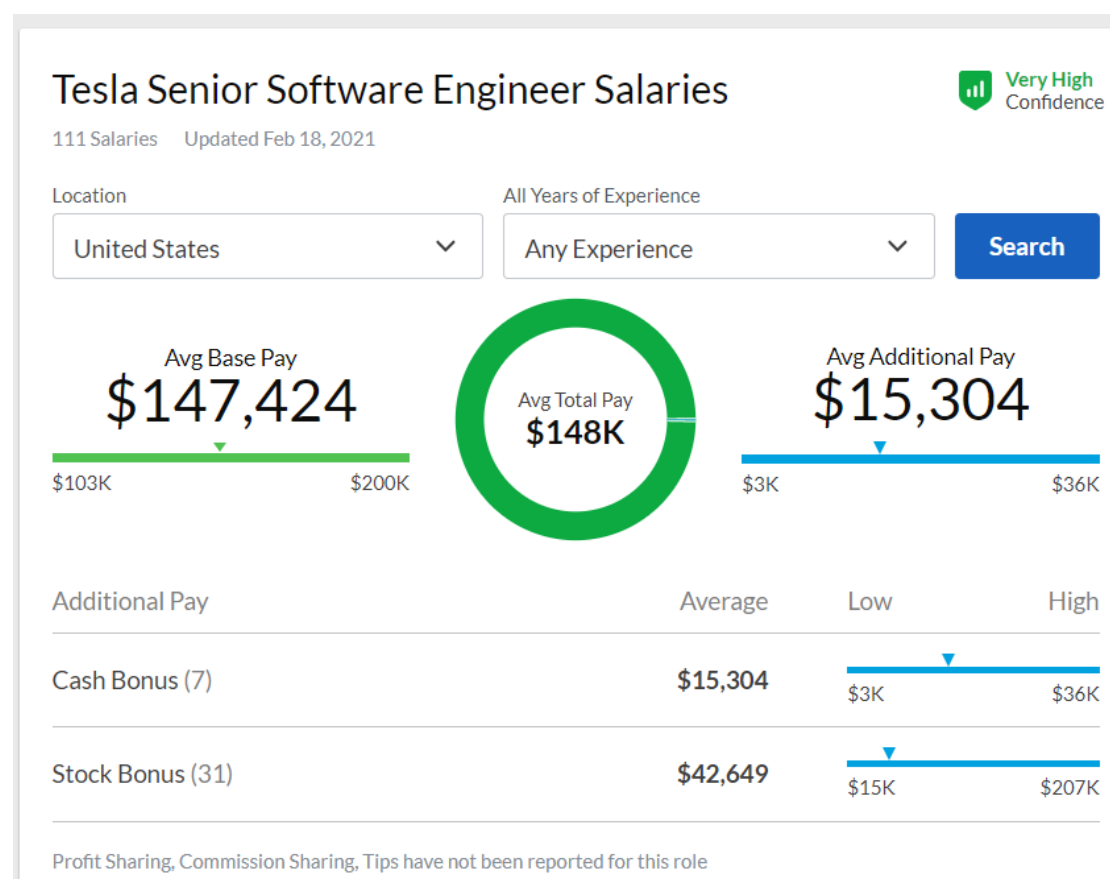


A photograph of the new Tesla paint shop in the Shanghai Gigafactory provided by the company in its Q3 2019 earnings release.
Tesla

In its Q3 2019 Update, Tesla said:

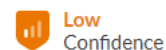
“Gigafactory Shanghai was built in 10 months and is ready for production, while it was ~65% less expensive (capex per unit of capacity) to build than our Model 3 production system in the US.”

Kolodny, Lora: Tesla Shares Soar after Crushing Third-Quarter Earnings. Published on CNBC



Tesla: The salary information shared publicly on grass door.

Tesla Senior Software Engineer Salaries in Shanghai, China Area



1 Salary Updated Sep 28, 2020

Location

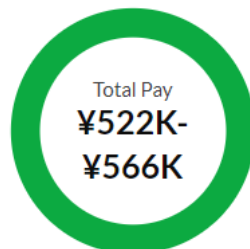
- Shanghai, China Area

All Years of Experience

Any Experience

Search

Base Pay
¥527K - ¥567K



Additional Pay
No Reports

Additional Pay

Range

Stock Bonus (1)

About ¥132K - ¥143K

Tesla: The salary information shared publicly on grass door.



Salary information shared by Chinese employees who work at Giga

全部 (549) 应届生 (47)

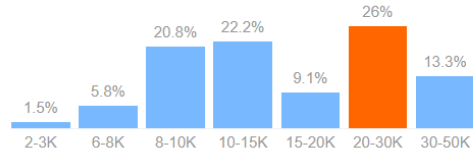
¥ 15.6k

单位 ¥, 月薪

选择地区

说明: 特斯拉工资统计来自于近一年549条工资数据, 其中“计算机/网络/技术类”职位最多, 占100%

特斯拉薪酬区间: 2K - 50K, 最多人拿: 20K-30K



说明: 该数据统计于该企业近一年在各网站发布的公开薪酬, 仅供参考。

↑21%

与地区比

↑17%

与同行比

说明: 北京地区公司平均工资 ¥ 12910, 北京汽车公司平均工资 ¥ 13339

特斯拉历年工资变化



说明: 2020年特斯拉平均工资 ¥ 20973, 比2019年低2%。数据统计依赖于其当年在线招聘职位公布的数据, 并不能完全代表企业内部真实情况。

特斯拉员工福利待遇

添加福利

五险一金

弹性工作

扁平管理

技能培训

期权股权

绩效奖金

股票期权

节日福利

补充医疗保险

年终奖

带薪年假

优秀团队

免费班车

包吃

午餐补助

奖金提成

定期体检

Detailed conditions offered by Giga Shanghai for every employee.