

Islamic Republic of Iran  
Organization for investment economic and technical assistance of Iran

## **"Summary of Technical-economical Prefeasible Study"**

Name:

**Aluminum Rims Production**

Sector: Motor Vehicles\_Accessorie

Sub sector: Manufacturing of Automotive Parts, Accessories, and  
Aluminum Alloy Wheels

isic code: 3430512382

The owner of:

Industry, mining and trade

Counselor plan:

Razi University

The Address:

Kermanshah

Date of P.F.S:

2024/10/22

**Manager of Iran Investment Opportunities  
SHAHRIG Engineering Company**

[www.shahrig.com](http://www.shahrig.com)



1- Abstract .....	2
2- Project's location .....	<b>Error! Bookmark not defined.</b>
2-1- Province.....	<b>Error! Bookmark not defined.</b>
2-2- .....	the County
... <b>Error! Bookmark not defined.</b>	
2-3- .....	the project
... <b>Error! Bookmark not defined.</b>	
2-4- .....	access to the infrastructures
... <b>Error! Bookmark not defined.</b>	
3-Technical Specifications of plan.....	<b>Error! Bookmark not defined.</b>
3-1- .....	product
... <b>Error! Bookmark not defined.</b>	
3-2- .....	project's requirements
... <b>Error! Bookmark not defined.</b>	
3-2-1-Space .....	and infrastructure required
... <b>Error! Bookmark not defined.</b>	
3-2-2-Equipment .....	and machinery
... <b>Error! Bookmark not defined.</b>	
3-2-3- .....	Raw materials and intermediate components
... <b>Error! Bookmark not defined.</b>	
3-2-4-management .....	and human resources
... <b>Error! Bookmark not defined.</b>	
4- Ownership and legal permission.....	<b>Error! Bookmark not defined.</b>
4-1- .....	ownership of land
... <b>Error! Bookmark not defined.</b>	
4-2- Intellectual .....	property and incentives
... <b>Error! Bookmark not defined.</b>	
4-3- .....	legal permission
... <b>Error! Bookmark not defined.</b>	
5- Market study and Competition.....	<b>Error! Bookmark not defined.</b>
5-1- .....	Introduce target market
... <b>Error! Bookmark not defined.</b>	
6- Physical Progress of project .....	<b>Error! Bookmark not defined.</b>
7- Action plan and Implementation schedule .....	<b>Error! Bookmark not defined.</b>
8- Financial projection .....	<b>Error! Bookmark not defined.</b>
8-1- .....	The cost estimate
... <b>Error! Bookmark not defined.</b>	
The .....	cost estimate
... <b>Error! Bookmark not defined.</b>	
8-2- .....	Estimated revenues
... <b>Error! Bookmark not defined.</b>	

8-3-Duration of project operation  
 ...**Error! Bookmark not defined.**  
 8-4-Break-even analysis  
 ...**Error! Bookmark not defined.**  
 8-5- Cost-benefit analysis  
 ...**Error! Bookmark not defined.**  
 8-6- Sensitivity analysis of IRR  
 ...**Error! Bookmark not defined.**  
 8-7- Summarize table  
 ...**Error! Bookmark not defined.**  
 8-8-Estimation of exchange rate changes during the project implementation  
 ...**Error! Bookmark not defined.**  
 9- Capital needs, the supply and guarantees method .....**Error! Bookmark not defined.**  
 9-1- Foreign currency needed  
 ...**Error! Bookmark not defined.**  
 9-2- The Way of participation and finance method  
 ...**Error! Bookmark not defined.**  
 9-3- Payback period  
 ...**Error! Bookmark not defined.**  
 10- Incentives, features and advantages of project .....**Error! Bookmark not defined.**

## 1- Abstract:

### PROJECT PROFILE - SUMMARY SHEET

<b>Project Introduction</b>
<b>1- Project title:</b> Aluminum Rims Production
<b>2- Sector:</b> Motor Vehicles Accessorie <b>Sub sector:</b> Manufacturing of Automotive Parts, Accessories, and Aluminum Alloy Wheels
<b>3- Products / Services:</b> The product in question belongs to the group of Motor Vehicles, Trailers, and Semi-Trailers Accessories Manufacturing (34), specifically under the category of Parts and Accessories for Motor Vehicles and their Engines (3430), classified as Aluminum Car Wheel Rims (3430512382). The products in question fall under subheading (8708) of the Iranian Customs Tariff, titled "Parts and Accessories of Motor Vehicles," and are imported and exported under sub-tariff code (870870).
<b>4- location (address):</b> Industrial Park, Shaneh County, Kermanshah Province

Free Zone ☐Economic Special Zone ☐Industrial Estate ☒Main Land ☐**5- Project description:**

This project is designed with an annual production capacity of 100,000 units. After obtaining the necessary permits, the construction will commence, followed by securing the operating license, and then production activities will begin. The project's revenue, generated from the sale of aluminum car wheel rims, will be sufficient to cover its operating costs and generate annual income. According to existing standards, establishing a production unit for aluminum car wheel rims with an annual capacity of 100,000 units requires a total land area of 10,000 square meters. Of this, 3,500 square meters will be allocated to covered spaces, 6,500 square meters to uncovered spaces, and the remainder to open areas within the industrial complex. The project is planned to utilize the full 10,000 square meters, with any excess land designated for green spaces and open areas. The necessary electrical infrastructure, including transformers with the required capacity, will be sourced from the Sahneh Industrial Park. Additionally, water supply rights have been secured from the same industrial zone. Piping for the site, inside the workshops, and other parts of the production facility will be carried out by qualified contractors.

**Project Status****6- Local / internal raw material access : 100 %****7- Sale:****- Anticipated local market: 50%****- Anticipated export market: 50%****8 – Project total time (from start of activities to start of commercial operation in years):**

The project is scheduled to be completed and operational within 20 months.

**Schedule****Start of activities:****Start of works at site****End of Works:****Start of commercial operation:**

**9- Project status :**

- Feasibility study available? **Yes**
- Required land provided? **Yes**
- Legal permissions (establishment license, foreign currency quota, environment, etc) taken? **No**
- Partnership agreement concluding with local /foreign investor? **No**
- Financing agreement concluding? **No**
- Agreement with local /foreign contractor(s) concluding? **No**
- Infrastructural utilities (electricity water supply, telecommunication, fuel, road, etc) procured? **No**
- List of know- how, machinery, equipment, as well as seller /builder companies defined? **Yes**
- Purchases agreement machinery, equipment and know-how concluded? **No**

**Financial Table****10- Financial structure :**

Descriptions	Local Currency Required			Foreign Currency Required Million Euro	Total Million Euro
	Million Rials	Rate	Equivalent in Million Euro		
<b>Fix Capital</b>	1,066,490	600	<b>1.53</b>	<b>0.25</b>	<b>1.78</b>
<b>Current Capital</b>	213,960	600	<b>0.36</b>	<b>-</b>	<b>0.36</b>
<b>Total Investment</b>	1,280,450	600	<b>1.89</b>	<b>0.25</b>	<b>2.14</b>

- Value of foreign equipment / machinery **0.254** Million Euro
- Value of local equipment / machinery **0.256** Million Euro
- Value of foreign technical know-how..... Million Euro
- Value of local technical know-how..... Million Euro
- Net present value (NPV): **1.16** Million Euro
- Internal Rate of Return (IRR): **46 %**
- Capital Rate of Return: **21 %**
- Payback Period **3 years and 10 months**

**General Information****11 - Project type : Establishment ■****Expansion and completion □****12- Company Profile**

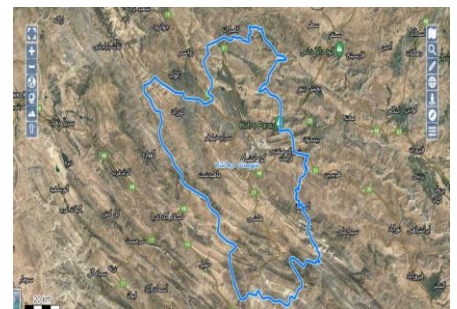
- Name (Legal/Natural persons): 1. Dr. Nader Naderi 2. Dr. Yosef Mohamadifar
- Company's current activities: Razi University
- Address: Razi University, Taq-e Bostan, Kermanshah, Iran.
- Tel: +988334277605-6 **Fax: +988334277605-6**
- E-mail: [info@razi.ac.ir](mailto:info@razi.ac.ir) **Web Site: <https://en.razi.ac.ir>**
- Company's legal structure :
- Government ■      Non-Governmental □      Public non-governmental □**

## 2- Plan Location:

### 2-1. Province:

Kermanshah Province, spanning 25,009 square kilometers and centered around the city of Kermanshah, ranks as Iran's 17th largest province. Situated in western Iran, it lies between latitudes  $33^{\circ}40'$  to  $35^{\circ}18'$  N and longitudes  $45^{\circ}24'$  to  $48^{\circ}7'$  E. It borders Kurdistan Province to the north, Lorestan and Ilam Provinces to the south, Hamadan Province to the east, and shares a 371-kilometer border with Iraq to the west. The average elevation is approximately 1,200 meters above sea level. Kermanshah Province covers 1.5% of Iran's total area. According to current administrative divisions, Kermanshah includes 14 counties, 31 cities, 86 rural districts, and 2,793 inhabited villages. The 2016 Census by Iran's Statistical Center recorded a population of 1,952,434, with a density of 78 people per square kilometer across 25,009 square kilometers. The largest city, Kermanshah, serves as the provincial capital with a population of 946,651. In terms of road infrastructure, Kermanshah ranks 11th nationwide in total road length (excluding rural roads), 17th in highway and freeway length per 1,000 kilometers, and 18th in main roads. The city of Kermanshah holds the highest proportion of roadways due to its

Map Showing the Location of Province in Iran



substantial area within the province. With its extensive network of intercity and rural roads, Kermanshah Province is well-positioned to undertake ambitious road development projects, aiming to upgrade a significant portion of its road network to expressway standards. With six official border crossings (Khosravi, Parviz Khan, Sumar, Shushmi, Sheikh Saleh, and Tileh Koh) and substantial tourism potential, Kermanshah Province is well-positioned to significantly contribute to the country's foreign exchange revenue and national income. A key strategy to realize this potential is to invest in the development of its road infrastructure and transportation fleet. The Kermanshah International Airport is currently one of Iran's leading airports by flight volume, and the planned railway project will link it to the international Khosravi border and Iraq. Kermanshah is predominantly mountainous, with 70.8% of its area classified as mountainous terrain. The remaining 22.1% consists of plains, while 7.1% is categorized as foothills. In terms of altitudinal classification, 76.5% of the province is situated within the 1000-2200 meter elevation range, with the 1400-1800 meter band being the most prevalent. If we divide Kermanshah Province into two primary elevation categories—below and above 1400 meters—approximately 58.2% of the province's area falls within the higher elevation

category, while the remaining 41.8% is at elevations below 1400 meters. Therefore, in addition to being a mountainous region, Kermanshah Province also has significant elevations. Kermanshah Province has a temperate mountainous climate. In the 4th century AD, this province, which was a pleasant village at the time, was chosen as the second royal residence of the Sassanian Empire. Extensive gardens were built in this area during the Sassanian period, providing a serene retreat for Sassanian monarchs for centuries. Throughout the Islamic period, Kermanshah was renowned for its pleasant climate, flowing waters, lush vegetation, and affordable goods. Writing in 290 AH, the geographer Ibn Faqih describes Kermanshah in his work 'Al-Buldan': "From Madain to the Balkh River, Qabad traversed vast lands, yet nowhere did he find a region as enchanting as Kermanshah and the Hamdan-Asadabad pass. The purity of its air, the sweetness of its water, and the delight of its breeze compelled him to construct Qarmasin." Kermanshah experiences a maximum of 2999 hours of sunshine annually, with the highest solar radiation occurring in July and August, and the lowest in December and January. The climatic and ecological conditions of Kermanshah, characterized by moderate annual rainfall and relative humidity, give rise to a landscape



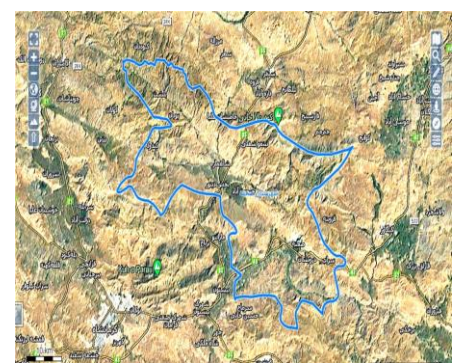
predominantly covered in forests and pastures. The region also features arable lands that are both irrigated and rain-fed. The annual average temperature in Kermanshah Province is approximately 14 degrees Celsius, and the average annual precipitation is 456.8 millimeters. The primary inhabitants of Kermanshah are Kurds. Kermanshah Province is the ancestral homeland of numerous prominent Kurdish tribes, including the Zangeneh, Kalehor, Guran, Jaaf, Sanjabi, Qalakhany, Kelyayi, Bajlan, Zoleh, Jamir, as well as Laki tribes such as Jalalvand, Kakavand, Osmanvand, Payravand, and Balavand. Despite the official classification of Laks as a Kurdish subgroup, Kermanshah exhibits linguistic diversity, with Turkish-speaking communities, particularly the Sonqori Turks, residing alongside the Kilyayi Kurds in the city of Sanqor and Kelyai. The Sanqori dialect is a variety of Azerbaijani Turkish that is often described as a transitional form between Azerbaijani Turkish and Khorasan Turkish. Additionally, a community of Lors resides in Kangavar County, speaking the Luri-e-Salasi dialect. Over the past two centuries, migrants from other provinces, particularly Hamadan, Markazi, Isfahan, and Semnan, have settled in Kermanshah. Some non-Kurdish families, such as the Al-Aqa, Nojumi, Meybodi, Feyz Mahdavi, Shahrastani, Soduqi, Muhammadi

Eraghi, Kazazi, Jaberi, and Dezfuli families, migrated to Kermanshah due to religious motivations to promote Shia Islam. These migrations have contributed to the distinctive Kermanshahi Persian dialect.

## 2-2. County:

Sahneh County is situated in Kermanshah Province, Iran, approximately 55 kilometers east of Kermanshah city on the Kermanshah-Hamadan road. Geographically, the city is located at  $47.6872^{\circ}$  East longitude and  $34.4844^{\circ}$  North latitude. The county is divided into two districts: Central and Dinavar. Sahneh city serves as the administrative center of the county. Located in the eastern part of the province, Sahneh County is bordered by Sangar and Kolyai counties to the north, Harsin County and Lorestan Province to the south, Kangavar County to the east, and Kamiaran and Kermanshah counties to the west. The county enjoys a temperate mountainous and highland climate, categorizing it as semi-cold in the provincial climatic division. Sahneh's notable attractions include the Sahneh Spring, featuring a waterfall, wild trees, fruit orchards, and towering mountains. The historical rock-cut tomb of Sahneh is also located in this area. The county is renowned for its abundant fruit orchards. The primary water

Map Showing the Location of the County in Iran



source for the city is the Sahneh Spring, which feeds numerous rivers and springs, transforming the region into a fertile and verdant land with a moderate climate. Based on the 2016 Iranian census, Sahneh County had a population of 70,757. It is divided into two districts: Central and Dinavar. The Central district, with Sahneh city as its center, comprises the rural districts of Khodabandeh Lu, Hejar, Gamashab, and Sahneh. The Dinavar district, with Mianrahan city as its center, includes the rural districts of Har, Kandoleh, and Dinavar. The etymology and history of Sahneh city are not entirely clear. However, Naser al-Din Shah's travelogues mention "Qarieh Sahneh" as a fertile village. Historical artifacts found in the city, such as the Abbasid caravanserais on Shabasi Street and the Median rock-cut tomb, known as the tomb of Shirin and Farhad, located in the mountains of Darband Sahneh, indicate that the city has been a significant point along important travel routes since ancient times. The people of Sahneh County speak Kurdish (Kalhori dialect) and Laki. The region's orchard products are of high quality, especially apples. Due to the skilled farmers and favorable climate, Sahneh apples have a delightful taste and aroma. In 2021, approximately 670 hectares of land in Sahneh County were dedicated to apple orchards, yielding over 15,000 tons of apples. The

apple harvest season in Sahneh County typically extends from late June to December. Some of the apple varieties cultivated in Sahneh include Galb, red and yellow Lebanese, and Gal. The red and yellow apples from the villages of Sartatkht and Sarberzeh are renowned in both domestic and international markets. Sahneh Spring is the main water supply for this city. It is fed by many rivers and springs, making the region a fertile and productive land with a moderate climate. According to the 2016 Iranian census, the population of Sahneh city was 35,508, and the total population of Kermanshah Province was 1,952,434.

### 2-3. Project Location:

Based on the initial phase of feasibility studies, all counties in Kermanshah Province have the potential to implement the plan. However, further analysis considering crucial factors such as raw material supply, infrastructure, access to transportation networks, human resources availability, environmental aspects, government incentives, and the position of competitors, has identified Sahneh Industrial Park as the most suitable location. Given the presence of an Iran Khodro automotive manufacturing site within this industrial park, Sahneh is well-positioned for the

Project Location Map



implementation of the proposed project. Sahneh Industrial Park is located in Sahneh County, Kermanshah Province. The park covers a total area of 150 hectares, with 90 hectares dedicated to industrial activities. Geographically, it is situated 45 kilometers from the provincial capital and 5 kilometers from the nearest city.

#### 2-4. Infrastructure Accessibility:

Row	Required infrastructure	Distance to the Project	Infrastructure Supply Source
1	Water	0	Sahneh Industrial Park
2	Electricity	0	Sahneh Industrial Park
3	Gas	0	Sahneh Industrial Park
4	Telecommunications	0	Sahneh Industrial Park
5	Main Road	3 Km	-
6	Secondary Road	1 Km	-
7	Airport	55 Km	-
8	Port	690 Km	-
9	Railway Station	60 m	-

### 3- Plan Technical Specifications:

#### 3-1. Product:

The product in question belongs to the group of Motor Vehicles, Trailers, and Semi-Trailers Accessories Manufacturing (34), specifically under the category of Parts and Accessories for Motor Vehicles and their Engines (3430), classified as Aluminum Car Wheel Rims (3430512382).

The products in question fall under subheading (8708) of the Iranian Customs Tariff, titled "Parts and Accessories of Motor Vehicles," and are

Product/Sample Image



imported and exported under sub-tariff code (870870).

### 3-2. Plan Requirements:

#### 3-2-1. Required Space and Infrastructure:

This project is designed with an annual production capacity of 100,000 units. After obtaining the necessary permits, the construction will commence, followed by securing the operating license, and then production activities will begin. The plan's revenue, generated from the sale of aluminum car wheel rims, will be sufficient to cover its operating costs and generate annual income. According to existing standards, establishing a production unit for aluminum car wheel rims with an annual capacity of 100,000 units requires a total land area of 10,000 square meters. Of this, 3,500 square meters will be allocated to covered spaces, 6,500 square meters to uncovered spaces, and the remainder to open areas within the industrial complex. The project is planned to utilize the full 10,000 square meters, with any excess land designated for green spaces and open areas. The necessary electrical infrastructure, including transformers with the required capacity, will be sourced from the Sahneh Industrial Park. Additionally, water supply rights have been secured from the same industrial zone. Piping for the site, inside the workshops, and other parts of the production facility will be carried out by qualified contractors.

**Plan Investment in Land, Site Development, and Buildings**

Row	Building Names/Descriptions	Specifications	Plan Required Investment (Million IRR)		
			Total Cost (Million IRR)	Quantity/Area Required	
1	Land	10,000 square meters of Sahneh Industrial Park land	10,000	15,000,000	150,000
2	Site Development	As per detailed	10,000	2,994,000	29,940

	Operations	specifications			
3	Construction	Warehouse	3,000	95,800,000	287,400
		Administrative Building	250	150,000,000	37,500
		Other Buildings	250	150,000,000	37,500
Total			-	-	542,340

### 3-2-2. Equipment and Machinery:

#### Main machinery and equipment required

Row	Description	Quantity	Cost per Unit	Total (Million IRR)
1	Rim Forming Machines	1	56,600	56,600
2	Turning and Drilling Machines	2	33,540	67,080
3	Grinding Machines	2	25,500	51,000
4	Rolling Machines	2	46,000	92,000
5	Bending and Pressing Machines	3	4,000	12,000
6	Bending and Pressing Machines	3	2,500	7,500
7	Quality Control and Rim Testing Equipment	1	6,850	6,850
8	Elevators and Chip Conveyors	1	7,640	7,640
9	Packaging and Labeling Machines	1	5,020	5,020
Total				305,690

#### Ancillary Machinery and Equipment

Row	Items	Description	Total Cost (Million IRR)
1	Power Supply	1 MW power branch and the cost of purchasing panels and other related equipment, and cabling	32,000
2	Heating System	Heating system for ancillary and production	3,000

		buildings	
4	Cooling System	Cooling system for ancillary and production buildings	2,000
5	Air Ventilation Exhaust Fan	Air ventilation for the production building	3,000
6	Ventilation Fan and Installation and Setup	Air ventilation for the ancillary building	500
7	F.B Implementation	Ancillary and production buildings	100
8	Compressed Air Distribution Network	Compressed air distribution for the production building	2,000
9	Telephone Line Purchase and Installation	-	100
10	Water Branch Right and Piping	-	5,500
11	Water Treatment and Softening Equipment Purchase and Installation	-	1,500
12	Fire Extinguishing System	Including central system, fire extinguishers, fireproof clothing, etc.	2,000
13	Forklift	Two 3-ton forklifts	44,000
14	Light Truck	Two light trucks	48,000
15	Spare Parts Cost (Equivalent to 5% of Machinery Cost)	-	15,260
Total			158,960

### 3-2-3. Raw Materials and Intermediate Components:

#### Raw Material Consumption Costs

Row	Description	Unit	Purchase Cost (IRR)	Annual Consumption Quantity	Annual Cost (Million IRR)
1	Aluminum Block (97% Purity)	Kilogram (kg)	2,100,000	900,000	1,890.000
2	Magnesium	Kilogram	11,500,000	10,000	115.000



		(kg)			
3	Flux	Kilogram (kg)	24,000,000	10,000	240.000
Total Cost					2,245.000

### 3-2-4. Management and Human Resources:

Row	Skill Level	Quantity	Base Salary (Thousand IRR)
1	Specialist	15	220,000
2	Skilled	28	175,000
3	Unskilled	41	125,000

- Required number of direct skilled workers: 15
- Required number of direct semi-skilled workers: 28
- Required number of direct specialists: 41

### 1- Ownership and Legal Licenses:

#### 4-1. Land Ownership:

In the Sahneh Industrial Park, a title deed is issued to the investor, and the usufruct rights of the property are realized by the title deed in this industrial park. According to the Law on the Transfer of Ownership and Administration of Industrial Parks, an industrial park is a designated area with defined boundaries and size that has been, or will be, established in accordance with the Law on the Establishment of the Iran Industrial Parks Company and its subsequent amendments. Industrial zones subject to the provisions of this law consist of organized clusters of industrial, research, technological, and support service units, to which the necessary infrastructure and essential services are allocated. Ownership within industrial parks and zones is divided into exclusive ownership and common ownership. Common areas, as defined by this law, refer to parts of the industrial estate that are accessible to all owners of units within

the park and are not limited to one or more specific units. Generally, any area that has not been assigned for exclusive use or that is not recognized as the exclusive property of one or more owners in the title deeds is considered a common area. The rights of each owner in their exclusive property and their share in the common areas are inseparable. Upon any transfer of the exclusive property, the transfer of related rights and obligations in the common areas is inherently mandatory.

#### **4-2. Intellectual Property and Incentives:**

In order to produce aluminum rims, there is no need to use high technical knowledge, and there is sufficient technical knowledge in the country. Car rims are one of the important components of a car that plays a significant role in car safety. In order to reduce weight, reduce car fuel consumption, as well as better handling and visual appeal, the use of light alloy rims has become common in recent years. Among light alloys, aluminum alloys are more widely used due to their ease of casting, low melting point, excellent machinability, and weight reduction. Aluminum rims are mainly produced by casting. In some cases, a combination of several processes is used to improve the mechanical properties of the rim; so that the rim wall is made by casting and flow forming and its disk is made by forging and then welded together. Using a forged preform and flow forming is another method of producing car rims.

#### **4-3. Legal Licenses:**

In accordance with Note 5, Section A, Article 3 of the Law on the Implementation of General Policies of Principle 44 of the Constitution, the issuance of permits for industrial estates or zones falls under the authority of the subsidiaries of the Small Industries Organization. Furthermore, under Clause H, Article 1 of the Executive Regulations related to the amended Note 5, Section

A, Article 3 of the said law, the qualification of applicants seeking a license to establish private industrial estates/zones is verified by the Iranian Small Industries and Industrial Parks Organization (ISIPO). In this context, applicants must submit their request through the National Licensing Portal by uploading all necessary documents and evidence. Following this, the applicant's financial and economic qualifications, identity verification, and technical qualifications are assessed by the Provincial Industrial Parks Company. If approved, the relevant documents are forwarded to the Non-Governmental Industrial Parks and Services Companies Supervision Department for consideration by the organization's Board of Directors. Upon review and approval by the Board, the Provincial Industrial Parks Company will initiate the 31-point inquiry process. After receiving positive responses to these inquiries, the license for the establishment of the private industrial estate/zone will be issued by the Provincial Industrial Parks Company. The holder of the establishment license for a private industrial estate/zone, upon completion of the necessary infrastructure, may apply for an operational license. Once the operational license is obtained, they may proceed with the allocation of land usage rights within the private industrial estate/zone to applicants wishing to set up industrial units, provided these applicants hold valid establishment permits from the relevant authorities, in accordance with the standard contract template issued by the organization.

- Conditions for obtaining a license to establish an aluminum wheel production facility are as follows: The designated property must have a minimum area of 1,000 square meters.
- At least 12 square meters of this area must be allocated for a sales office.
- A minimum of 300 square meters must be covered space.
- Compliance with all health, safety, and technical regulations is mandatory.

Additionally, the production of this product requires legal permits (such as the establishment license and operational license) from the Provincial Organization of Industry, Mining, and Trade of Kermanshah, as well as an environmental permit.

Given that the type and extent of industrial pollutants vary based on the type of raw materials and products, as well as the processing stages, meaning that different processes are susceptible to pollution in three stages: raw material collection, intermediate material production and conversion, and collection and storage of produced materials, environmental activities such as obtaining certifications like ISO 14000 from reputable institutions approved by the Environmental Protection Organization and the Institute of Standards are recommended through the following activities:

#### 1- Industrial and Sanitary Wastewater Treatment:

Accurate identification of wastewater and quantitative and qualitative measurement of pollutants in all units, and installation of wastewater treatment systems.

#### 2- Efforts to Prevent Air Pollution:

Conducting quantitative and qualitative pollutant assessment studies and implementing necessary measures to control air pollution resulting from industrial activities, including the installation of advanced atmospheric pollutant measurement devices and closed-circuit cameras that perform daily and online (real-time) pollutant measurement.

#### 3- Solid Waste Management

4- Conducting Environmental Research: These activities focus on process optimization, waste reduction, water and wastewater treatment, air pollution control, and waste recycling.

5- Green Space Development: Integrating industry with green spaces as a primary objective for both upstream and downstream industries. According to environmental standards, ten percent of the industrial area should be dedicated to green spaces. In this complex, a significantly higher percentage has been allocated to green spaces. (Irrigation of these green spaces is carried out using treated industrial effluents, which substantially reduces fresh water consumption.)

6- Utilization of Modern Technology and Avoidance of Inefficient Technology: When a new environmental standard is established, due to environmental pressures, significant costs and human resources are required to eliminate existing pollution and reduce pollution levels. Calculations have shown that if new technology implemented in the relevant industry complies with the required standards, in addition to reducing pollution, it will also increase production due to its high efficiency. In this regard, the company, considering the up-to-date nature of its technology and possessing all global environmental and quality standards, can prove this point. Environmental protection can also facilitate technology advancement. This method has been implemented in European countries, and technologies that have reached the end of their life cycle and do not comply with the mentioned standards are collected. However, sometimes these technologies are sent to developing countries, and Iran has not been exempt from this. Environmental experts believe that if our industry does not have the capability to produce products while maintaining environmental standards and, at the same time, does not see the ability to access appropriate technology, it should not pursue the production of those products. Because in some units, due to the use of obsolete and outdated technologies, so much raw material and energy are wasted that the argument of economic efficiency taking precedence over environmental protection

becomes meaningless. If the costs that must be paid to obtain more expensive but up-to-date technology are compared with the costs that are wasted due to the use of inappropriate technology in raw material and energy consumption and environmental restoration, it can be concluded that these cases are much more cost-effective and also more beneficial in terms of technology development and industrial growth.

## **2- Market Analysis and Competition:**

Aluminum is one of the most widely used lightweight alloys, known for its excellent thermal conductivity and high resistance to corrosion due to the presence of a porous protective layer. Today, this versatile alloy is utilized in various industries, with one of its most significant applications being the manufacturing of automotive wheels. Sport wheels made from aluminum alloy, adhering to standard principles, offer substantial advantages. The diversity in wheel production has increased with the use of aluminum, as it is a highly malleable alloy that requires much less energy to shape compared to steel. In addition, aluminum wheels possess notable aesthetic appeal, which has attracted a wide range of consumers.

Historically, wheel production in the country for both cars and motorcycles has been predominantly steel-based, with the claim of 100% domestic supply for both industries. However, recent shifts in the automotive and motorcycle industries toward customer satisfaction and variety have driven the move towards aluminum wheel production. The automotive industry has taken the lead in this shift, while the motorcycle industry remains in a different phase of development.

With the growing demand for various types of vehicles, the automotive sector today occupies a significant share of industrial activities. The automotive industry operates as a complex chain of interconnected units involved in the

manufacturing and assembly of vehicle parts and components, with a focus on design and quality enhancement. There is intense competition among manufacturers to capture a larger share of the market. In this context, the role of component suppliers is crucial to achieving the goals of automakers, making it essential to conduct a thorough market analysis of automotive parts in line with automakers' strategies and plans.

Each product has specific characteristics that must be accurately identified and assessed before conducting technical and financial feasibility studies. A proper understanding of the product's specifications and variations is undoubtedly a valuable guide for making informed decisions regarding production methods, operations, and subsequent calculations. One of the most effective approaches is the use of established national and international standards for each product. Additionally, to analyze the market, it is necessary to determine the product's customs tariff code to gain precise insight into its import and export trends. To assess domestic production levels and consider the conditions of current manufacturers and new facilities under construction, the market competition for the product should be identified using its ISIC code. The product under review in this feasibility study is automotive aluminum wheels. Studies indicate that there are no significant restrictions on importing the products covered in this project, and imported products are currently available in the market. It is worth noting that automotive aluminum wheels are consumable parts, and their importation is relatively low. Although there are no official import restrictions, in practice, the import of aluminum wheels is minimal. The balance of supply and demand suggests that the domestic market is likely to face a shortage in the future. Therefore, it is concluded that establishing new production units for aluminum wheels is currently a viable investment. An important consideration in this project is that, due to a lack of precise data, imports have been assumed to be zero, and the actual market shortage may be less than estimated.

Additionally, the timeline for fully utilizing the capacities of new production facilities remains difficult to predict accurately.

### 5-1. Target Market Introduction:

The products manufactured under this plan are intended for use in the automotive industry. Consequently, all countries that are leaders in the automotive sector serve as the primary producers and consumers of these components, including the United States, Japan, China, Western Europe, Central and Eastern Europe, as well as Asia and Oceania.

In the domestic market, the main consumers of these components are Iran's major automotive manufacturers, Iran Khodro and Saipa, along with several affiliated companies. One of the production sites of Iran Khodro's automotive factories is located in Sahneh County, Kermanshah Province. Therefore, the target market for this manufacturing plan is to meet the demand of automakers Iran Khodro and Saipa, with a particular focus on supplying the production site of Iran Khodro in Sahneh County, Kermanshah Province.

### 3- Physical Progress of the Plan to Date: Yes ☐ No ☒

The purpose of this plan is to fulfill domestic requirements and to create export opportunities. There has been no progress in the implementation of this plan so far.

### 4- Operational Program and Plan Implementation Schedule:

The project is scheduled to be completed and operational within 20 months.

Table: Plan Implementation Schedule

		Mt h. 1	Mt h. 2	Mt h. 3	Mt h. 4	Mt h. 5	Mt h. 6	Mt h. 7	Mt h. 8	Mt h. 9	Mt h. 10	Mt h. 11	Mt h. 12	Mt h. 13	Mt h. 14	Mt h. 15	Mt h. 16	Mt h. 17	Mt h. 18	Mt h. 19	Mt h. 20
Aut	Feasibil ity																				



Study																				
License s																				
Constru ction																				
Equipm ent																				
Trainin g																				
Operati on																				

## 5- Project Financial Plan:

### 8-1. Cost Estimates:

Table: Costs Estimates

Row	Item	Cost (Million IRR)
1	Fixed Capital Investment	1066490
2	Operating Costs (Working Capital)	213960
3	Financing Costs	1280450

Table: Fixed Capital Investment Breakdown

Row	Item	Cost (IRR)
1	Land Purchase	150000
2	Landscaping and Site Improvement	29940
3	Construction and Civil Works	362400
4	Production Machinery & Equipment	305690
5	Support and Auxiliary Equipment	158960
6	Environmental & Safety Equipment	0
7	Overhead Costs	0
8	Pre-Production Expenses	Feasibility Study
		2010
		Project Management and Organization
		7140
		Technology Acquisition
		0
9	Contingencies	50350
	<b>Total</b>	1066490

Table: Working Capital Estimates (Production Costs)

Row	Item	Cost (Million IRR)
	<b>Ongoing Operating Costs</b>	2680850
1	Raw Materials	2245000

2	Human Resources		183570
3	Marketing (excluding Human Resources)		51570
4	Other Operating Expenses	Fuel and Energy	20120
		Repair and Maintenance	52930
		Unforeseen Expenses	127660
Fixed Costs			158200
5	Raw Materials		0
6	Human Resources		45890
7	Marketing (excluding Human Resources)		0
8	Depreciation		82700
9	Other Fixed Expenses	Fuel and Energy	6820
		Maintenance	13230
		Unforeseen Expenses	7430
		Insurance	2130
Total			2839050

## 8-2. Revenue Estimates:

### Revenue Estimates for the First 5 Years

Row	Item	Q1	Q2	Q3	Q4	Year 1	Year 2	Year 3	Year 4	Year 5
1	14-inch Aluminum Wheel Rims	214,500	214,500	214,500	214,500	858,000	911,625	965,250	1,018,875	1,072,500
2	15-inch Aluminum Wheel Rims	227,700	227,700	227,700	227,700	910,800	967,725	1,024,650	1,081,575	1,138,500
3	16-inch Aluminum Wheel Rims	240,900	240,900	240,900	240,900	963,600	1,023,825	1,084,050	1,144,275	1,204,500
Total		683,100	683,100	683,100	683,100	2,732,400	2,903,175	3,073,950	3,244,725	3,415,500

## 8-3. Project Operation Period:

Generally, production plans have three main lifecycle phases:

- Project Lifecycle (Construction Phase);

- Operational Lifecycle (Production Phase);
- Product Lifecycle.

The project life cycle is often equated with the construction phase, in which a lot of costs are usually paid. A successful project is one that can deliver this phase within a compressed timeline and at a reduced cost. This section requires the implementation of project management techniques with robust and timely controls to ensure that any issues identified can be rectified during the planning phase. The operation lifecycle, which is the same as the production lifecycle, encompasses the entire production phase and often designed to be 10 years. Throughout the operational phase, revenue and costs will be generated as a result of product sales. However, revenues typically exceed costs, otherwise the project would not be economically viable. During the operational lifespan, traditional project management techniques are not applied. Instead, production planning and operational process management are vital for the long-term success of magnesium extraction from dolomite, focusing on efficient maintenance and repairs throughout the utilization period.

#### **8-4. Break-Even Analysis:**

Annual Break-Even Percentage:

Annual Break-Even Percentage=  $\frac{\text{Total Sales (P)} - \text{Variable Costs (V)}}{\text{Total Fixed Costs}}$

Annual Break-Even Percentage= 21%

The value of (P-V) holds particular significance and is referred to as the unit contribution margin. This figure represents the profit per unit or, in other words, the portion of each sale that contributes to covering fixed costs. As a result, the breakeven point is reached when the total contribution margin of all units equals the total fixed costs. In this context, the sales volume covers more than 28% of the fixed costs.

The relationship between total sales revenue and total costs indicates that this plan operates at 21% above the annual breakeven point and generates profit for the company over three production cycles, thereby providing a margin of safety for production activities. In breakeven analysis, the margin of safety reflects the extent to which actual or estimated sales exceed the sales level required to break even by more than 28%.

Payback Period (Years)

$$\text{Payback Period} = \frac{1}{\text{IRR}} + \text{The duration of the construction period}$$

Payback Period= 3 years and 10 months

Table: Project Efficiency Indicators

Fixed Capital (Million IRR)	1,066,490
Cost of Production per Unit (IRR)	27,853,500
Gross Value Added (Million IRR)	1,077,400
Net Value Added (Million IRR)	992,870
Gross Profit (Million IRR)	630,150
Net Profit (Million IRR)	576,450
Fixed Capital per Capita (Million IRR)	12,696
Total Investment per Capita (Million IRR)	15,243
Rate of Return on Investment (%)	45%
Payback Period (Years)	3 years and 10 months

## 8-5. Cost-Benefit Analysis:

### Project Profitability Indicators

Present Value of Total Costs (Execution & Operation)	2,839,050
Present Value of Total Revenue (Execution & Operation)	3,415,500
Net Present Value (NPV)	696,272
Benefit-Cost Ratio (B/C)	2.1
Internal Rate of Return (IRR)	46%

## 8-6. Project Sensitivity Analysis:

### Sensitivity Analysis:

Discount Rate (%)	Net Present Value (NPV)
10	1830940
20	878150
30	382796
40	107077
50	54429-
60	152516-
70	213444-
80	251626-
90	275380-
100	289717-

## 8-7. Summary:

### Project Economic Analysis Summary

Type of Activity	Detailed Activity Description with Code (ISIC)	Manufactured Product	Nominal Capacity (Unit)
Aluminum Car Wheel Rims Production Plan	3430512382	Aluminum Car Wheel Rims	100,000 units
Implementation Period	Total Fixed Investment (Million IRR)	Annual Working Capital (Million IRR)	Required Workforce
10 years	1,066,490	213,960	84 employees
Internal Rate of Return (IRR)	Net Present Value (NPV) (Million IRR)	Applicant's Contribution (Million IRR)	Benefit-Cost Ratio (B/C)
46%	696,272	256,090	2.1

## 8-8. Exchange Rate Fluctuations Estimates during Project Implementation

Regarding the procurement of machinery and equipment for the project, since a portion of the necessary equipment will be sourced from abroad, an increase in the exchange rate will lead to higher initial investment costs for plan implementation. Conversely, a decrease in the exchange rate will reduce the initial investment costs.

Regarding the procurement of raw materials, given that all the required raw materials for the plan will be extracted from domestic mines located in Kermanshah Province, fluctuations in the exchange rate will not impact the production cost of the final product.

Regarding product sales, since a portion of the project's revenue is expected to come from exports to other countries, an increase in the exchange rate will boost the revenue from sales. Conversely, if the exchange rate decreases, the products can be marketed domestically.

## **9- Capital Requirements, Funding Methods, and Collateral:**

### **9-1. Required Foreign Currency Investment:**

The amount of foreign currency required to procure the necessary machinery and equipment for project implementation is as detailed in the table below.

<b>Row</b>	<b>Year</b>	<b>Foreign Currency Requirement</b>
1	First	169840
2	Second	84900
3	Third	0
4	Fourth	0
5	Fifth	0

### **9-2. Participation and Funding Methods:**

Participation in the present project and its financing are envisaged in the form of establishing a company within the country. The total financial resources required are envisaged through investor contributions. Domestic bank facilities have not been taken into account for the implementation of the project.

### **9-3. Payback Period:**

Based on the fixed and variable capital invested, and annual sales, the payback period for aluminum rims production is typically realized within approximately 3 years and 10 months years.

#### **6- Plan Incentives, Features, and Benefits:**

- 1- Contractual parties who pay the usage rights and the price of workshop, industrial, etc., units in cash and in full at the time of contract conclusion will be eligible for discounts and exemptions based on the total contract amount. (The exemption percentage is determined by the Board of Directors of the Industrial Parks Company).
- 2- Cash and installment payment of land and facility usage rights costs (only 20 to 40 percent of the land usage rights are paid in cash, and the rest is amortized without interest or fees).
- 3- Possibility of transferring ownership documents and issuing separate deeds after obtaining the operation permit, completion certificate, and fulfilling the specified conditions.
- 4- Possibility of pledging land and facility usage right contract booklets with banks and financial institutions, based on the approval of the esteemed Council of Ministers and current laws. Exemption from municipal laws.
- 5- Issuance of construction and completion permits in the shortest possible time and free of charge.
- 6- Granting special incentives of up to 10 percent in land usage rights for veterans, elites, knowledge-based companies, inventors, foreign investors, and export consortia.
- 7- Allocation of special incentives for early operation (within one year or less for lands with an area of two thousand square meters or less), up to a maximum of ten percent (10%).

Note 1: For every 500 square meters of additional land, one month is added to the one-year operation deadline (maximum deadline up to 30 months from the contract date for areas of eleven thousand square meters and more).

Note 2: The early operation incentive applies to industrial land allocation contracts that have not used less developed area incentives, have not subdivided or consolidated the allocated lands, and have paid installments on time.

8- In the case of having a technical and economic feasibility report for large areas, an incentive equivalent to five percent (5%) and for problematic (uneven and low-quality) areas, up to ten percent (10%) incentive will be granted.