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Strategic Transformation: Implementation of an Integrated System for Efficient Management in the Equipment & Supply Chain Area

TESIS PARA OBTENER EL GRADO ACADÉMICO DE MAESTRA EN ADMINISTRACIÓN DE NEGOCIOS GLOBALES

QUE PRESENTA:

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Surco, noviembre, 2024

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Dedications

To Leonardo and Romina, my dear nephews, who inspire and motivate me to grow both professionally and personally every day.

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Abstract

This thesis addresses the critical challenges faced by a leading Peruvian underground mining company specializing in infrastructure and civil works. The research focuses on the issue of equipment downtime, which generates significant financial losses due to poor asset management and a lack of strategic integration, affecting the company's efficiency, competitiveness, and sustainability. The research concludes that this mining contractor company must implement a strategic transformation to improve decision-making and reduce equipment downtime. It is recommended to develop a change management model to adopt new technologies and processes, implement predictive management systems, foster cultural change, and optimize the integration between key areas to promote collaboration and reduce operational inefficiencies. The research provides a comprehensive action framework based on strategic methodology and industry best practices, enabling the company to address its challenges, improve operational efficiency, and ensure long-term sustainability. Adopting a strategic and proactive approach is essential to strengthen the company's competitive position and maximize the value of its assets.

Resumen Ejecutivo

Esta tesis aborda los desafíos críticos que enfrenta una empresa minera subterránea líder en Perú, especializada en infraestructura y obras civiles. La investigación se centra en el problema del tiempo de inactividad de la maquinaria, que genera pérdidas financieras significativas debido a la mala gestión de activos y la falta de integración estratégica, afectando la eficiencia, competitividad y sostenibilidad de la empresa. La investigación concluye que esta empresa contratista minera debe implementar una transformación estratégica para mejorar la toma de decisiones y reducir el tiempo de inactividad de la maquinaria. Se recomienda desarrollar un modelo de gestión del cambio para adoptar nuevas tecnologías y procesos, implementar sistemas de gestión predictiva, fomentar el cambio cultural y optimizar la integración entre áreas clave para promover la colaboración y reducir las ineficiencias operativas. La investigación proporciona un marco de acción integral basado en metodología estratégica y las mejores prácticas de la industria, lo que permite a la empresa abordar sus desafíos, mejorar la eficiencia operativa y garantizar la sostenibilidad a largo plazo. La adopción de un enfoque estratégico y proactivo es esencial para fortalecer la posición competitiva de la empresa y maximizar el valor de sus activos.

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Chapter I: General Situation of the Organization

1.1 Overview of the Organization

Administración de Empresas SAC (hereinafter, AESA), with Tax ID No. 20100114934, is a Peruvian company that is part of the Breca Group, one of the largest business conglomerates in Peru. With 34 years of experience, AESA has established itself as the leading underground mining contractor in the country, specializing in the development of infrastructure and civil works for underground mining. Throughout its existence, the company has completed more than 1,000 kilometers of tunnels and employs over 2,000 workers, reflecting its sustained growth and importance in the sector, having generated annual sales of US$154,360 million in the 2023 fiscal year.

AESA stands out for its focus on safety, productivity and sustainability, prioritizing high international standards in its operations. The company has also implemented various technological innovation, safety, productivity and social development initiatives, which help minimize operational risks and increase its economic and social impact in its areas of influence.

In terms of social responsibility, AESA has focused on the development of local communities, promoting inclusion and diversity through dual training programs and job creation. These initiatives have been fundamental in creating development opportunities and incorporating local communities into mining activity.

Among the clients that have acquired its services are: Volcan Compañía Minera, Nexa Resources, Glencore, Minsur and Yanacocha; consolidating its reputation as a reliable and strategic partner in the mining industry. The company continues to innovate and expand its

services to control the entire operating cycle, allowing it to offer greater productivity and safety to its clients.

With an outstanding track record in the sector, AESA has identified the need for a strategic transformation to optimize its operational efficiency and ensure its long-term sustainability. This thesis focuses on the development of a strategic consultancy to address critical issues affecting asset management, operational planning and process integration at AESA.

1.1.1 History and Expansion

AESA, known for its long-standing commitment and expertise in mining infrastructure and civil works development, has consolidated its position in the mining industry over more than three decades. Since its inception in 1990, AESA has charted a path of significant growth and expansion, relying on its ability to adapt to market fluctuations and meet the demands of a demanding sector. In its early years, AESA began operations focusing on key projects such as Raura in 1995 and San Rafael. Soon, the company expanded its client portfolio to include companies such as Compañía Minera Los Quenuales and Compañía Minera Ares in 1998, marking a period of sustained growth. This same year, AESA took an important step towards modernizing its operations with the acquisition of its first Jumbo, thus initiating the mechanization of its processes. Throughout the 2000s, the company continued to add renowned clients to its portfolio, such as Compañía Minera Barbastro and Pan American Silver in 2003. Despite facing a significant drop in metal prices, AESA managed to maintain its clients' trust thanks to its specialized work, reaching an annual turnover of US$25 million during this period. The year 2010 marked another important milestone, with the start of operations with new clients such as Glencore, Milpo and Volcan. In 2015, AESA expanded its operations with Newmont in the Chaquicocha Tunnel and added Compañía Minera Colquisiri with the María

Teresa project, reaching an impressive turnover of US$120 million annually. The COVID-19 outbreak in 2020 brought unprecedented challenges, but AESA responded with effective measures to protect its employees and secure most jobs. The company's response not only demonstrated its resilience but also its commitment to safety and health, factors that are essential to its business model. Over the years, AESA has not only proven to be a leader in the execution of mining projects but has also cultivated a deep understanding of the dynamics of the sector, allowing it to move forward with a clear focus on sustainability and innovation for the future of mining (AESA, 2024).

1.1.2 Business Units

AESA has established an organizational structure that encompasses various business units, each specialized in different phases of the underground mining cycle, thus ensuring efficiency and safety in all mining operations.

The Underground Mining Cycle forms the backbone of AESA's operations, spanning from stripping, which involves the removal of loose material post-blasting, to cleaning and loading of broken material. This phase also includes essential services such as general maintenance, ventilation to maintain a safe working environment, preparatory drilling for blasting, and support, which reinforces underground structures to ensure the stability and safety of the tunnels.

Within development and preparation, AESA implements advanced drilling and blasting techniques, along with bolt and mesh support strategies to stabilize excavations. This department is also responsible for the cleanup and efficient removal of fragmented material, as well as performing untying to maintain post-blast stability in the worked areas.

The Transportation and Auxiliary Services unit offers critical services including the transportation of ore and waste rock, track maintenance, and the rental of equipment necessary for operational continuity. In the Production unit, the focus is on techniques such as 'breasting', which allows for frontal extraction of ore, and the development of long drill holes for planned and efficient extraction.

Finally, AESA's Specialized Services provide technical solutions such as shotcrete for shotcrete support, surface blasting techniques, hydraulic backfilling to stabilize mined areas, and cable bolting to reinforce larger sections of rock. These services not only improve the safety and efficiency of mining operations but also reflect AESA's commitment to innovation and continuous improvement in the mining sector.

These integrated units enable AESA to offer a complete approach from site preparation to production and maintenance, ensuring that each project is executed to the highest standards of quality and safety. This structure not only improves operational efficiency but also underlines the company’s commitment to excellence in the mining industry.

1.2 Vision, Mission and Values

1.2.1 Vision

To be the specialized reference in the development of mining infrastructure works and civil works for the mining sector with world-class standards in safety, productivity and sustainability (AESA, 2024).

1.2.2 Mission

Providing solutions to our clients in mining infrastructure and civil works projects, developing the environment where we operate and demonstrating our high level of specialization (AESA, 2024).

1.2.3 Values

Safety is paramount in the company, actively protecting the life and well-being of all employees. ISO 45001 certification has been achieved, reflecting the commitment to international standards of safety and health at work. This prioritization not only ensures a safe environment but also strengthens confidence in operational practices.

Excellence is an essential pillar, manifesting itself in a constant effort to exceed expectations in the quality of construction and infrastructure projects, customer service and internal management. The company strives to exceed industry standards, guaranteeing outstanding results for their quality and efficiency.

Integrity is evident in all actions, with a firm focus on honesty and transparency. This ethical management is crucial to maintaining trust among employees, customers and other collaborators, consolidating a solid foundation for all its operations and relationships.

Respect is central to our corporate culture, where every team member is valued and listened to. This respect extends to customers and communities, fostering constructive and long-lasting relationships that support sustainable development and mutual cooperation.

Commitment to the company's goals and mission is evident in the way challenges are met. By approaching challenges as if they were our own, we demonstrate a dedication not only

to corporate goals, but also to positively impacting the industry and communities we serve, promoting comprehensive and sustainable development.

1.3 Industry or Sector Analysis

> The essence of formulating a competitive strategy is to relate a firm with its environment. Although the relevant environment is very broad and encompasses both social and economic forces, the key aspect of the firm's environment is the industry or industries in which it competes. (Porter, 1980, p. 3)

Becoming aware of Porter's five forces can help AESA understand the structure of the industry in which it competes and allow it to position itself in a more profitable and less vulnerable position to attacks (Porter, 2008). The business sector study analyzes the organization's immediate environment. The results of this analysis provide key information for developing strategies that define AESA's position both locally and globally.

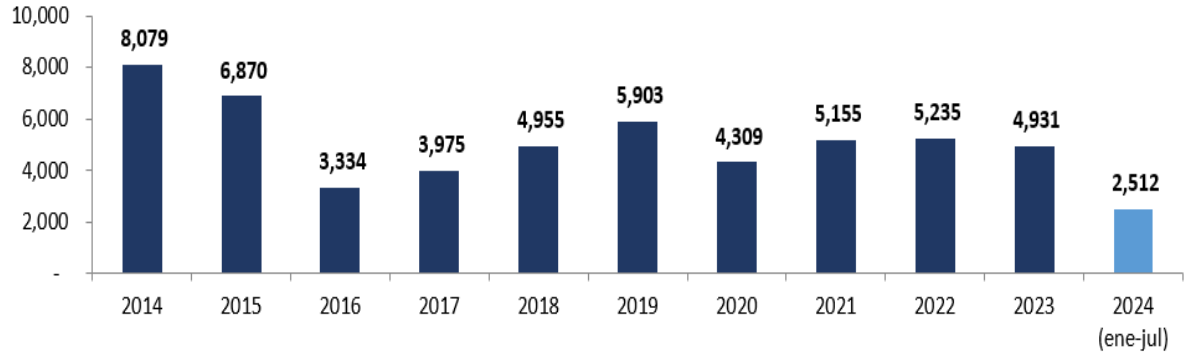
1.3.1 Rivalry between Current Competitors

Currently, in Peru, the mining services market presents a wide variety of large companies with extensive experience, as well as numerous medium and small suppliers. Although AESA is the leading company in terms of revenue in the sector, it is closely followed by other quite important players, such as INCIMMET, JRC, IESA, ZICSA and MCEISA.

According to the Ministry of Energy and Mines of Peru (MINEM), at the end of 2023, Peru managed to make mining investments worth US$4,931 million viable, which is lower than the US$5,235 million invested in 2022 (see Figure 1), which indicates a moderation in the pace of expansion in this economic sector (MINEM, 2024).

Figure 1

Annual Evolution of Mining Investments in Peru (in millions of US dollars)



Note. Information provided by Mining Owners through ESTAMIN.

The figures have been adjusted to what was reported by the Mining Headlines as of August 26, 2024. Adapted from "Mining Statistical Bulletin July 2024," by the Ministry of Energy and Mines of Peru (MINEM), 2024 (https://www.gob.pe/institucion/minem/informes-publicaciones/5971611-boletin-estadistico-minero-julio-2024). Public domain information.

On the other hand, investment in heavy machinery can exceed US$10 million per unit and the costs of specialized personnel are also high (J. González, personal communication, May 27, 2024). In addition, there is a low differentiation of services, since earthmoving or drilling and blasting are currently offered by several companies with characteristics like AESA, such as those indicated in the first paragraph. For the reasons previously stated, the rivalry between existing competitors in the industry in which AESA operates is high.

1.3.2 Bargaining Power of Suppliers

In the industry where AESA operates, there is a wide portfolio of machinery suppliers, the most important being Ferreyros, Komatsu-Mitsui, Sandvik or Volvo. On the other hand, regarding explosives, there are companies such as Orica or Enaex, as well as others that offer inputs and specialized services. It is known that large mining companies are quite demanding in terms of quality and execution time of services; it is for this reason that reliable suppliers

have greater bargaining power. In the case of heavy machinery or specialized software for the mining industry, there are not many suppliers globally, which gives them greater bargaining power. Based on this analysis, the bargaining power of AESA suppliers is considered medium.

1.3.3 Customer Negotiation Power

According to the statistics presented in the latest Mining Statistical Bulletin of the MINEM, corresponding to July 2024, there is a concentration of clients, since six mining companies (Compañía Minera Antamina SA, Anglo American Quellaveco SA, Minera Las Bambas SA, Sociedad Minera Cerro Verde SAA, Southern Perú Copper Corporation Sucursal del Perú and Minera Chinalco Perú SA) generate almost 50% of the mining investment in the country (see Table 1).

Table 1

Mining Investments in Peru by Company (in US dollars)

Company	2024	Participation
Compañía Minera Antamina S.A.	296,382,071	11.8%
Anglo American Quellaveco S.A.	219,937,987	8.8%
Minera Las Bambas S.A.	197,308,980	7.9%
Sociedad Minera Cerro Verde S.A.A.	196,408,026	7.8%
Southern Peru Copper Corporation Sucursal del Peru	171,222,306	6.8%
Minera Chinalco Peru S.A.	140,293,282	5.6%
TOTAL	1,221,552,652	48.6%

Note. Information provided by Mining Owners through ESTAMIN. Figures have been adjusted to what was reported by Mining Owners as of August 26, 2024. Adapted from "Mining Statistical Bulletin July 2024," by the Ministry of Energy and Mines of Peru (MINEM), 2024 (https://www.gob.pe/institucion/minem/informes-publicaciones/5971611-boletin-estadistico-minero-julio-2024). Public domain information.

Given the high competition in the sector, mining companies have strong bargaining power in terms of prices and contractual conditions. Poor service can lead to production delays and million-dollar losses for mining companies. From the analysis of the above, it follows that the bargaining power of customers is high.

1.3.4 Threat of Substitute Services

Most of the services offered by AESA are essential for mining operations and have no direct substitutes. Within the tasks of underground mining, mechanized support is used to reinforce structures. One of the most requested techniques in this field is support with Shotcrete, especially in underground mining projects.

Automation and robotics are gaining ground in mining. According to Iván Pasco, director of technology at Intellinus, "in the future we will see more intelligent equipment models, especially since, in 85% of cases studied, AI has proven capable of surpassing the intelligence of a specialist by 50%. In addition, it anticipated a proliferation of robots" (Energiminas, 2024, para. 6). However, their adoption is gradual, and they still require maintenance and technical support services. In that order of ideas, the threat of substitute AESA services is low.

1.3.5 Threat of New Competitors

The MINEM, through its "Mining Investment Project Portfolio, 2024 edition", presents its portfolio, made up of 51 mining projects, representing an investment of US$54,556 million, of which 17 are underground operation projects with an investment of US$6,993 million and 5 open pit and underground projects with an investment of US$5,596 million (see Figure 2). Therefore, the mining sector presents and will continue to present requirements, which constitute a growing threat of potential new competitors that are born in search of covering these needs.

Figure 2

Mining Investments in Peru by Type of Exploitation

Note. Adapted from "Mining Investment Project Portfolio 2024," by the Ministry of Energy and Mines of Peru (MINEM), 2024 (https://cdn.www.gob.pe/uploads/document/file/6150647/5325671-cpim-2024.pdf?v=1712348649). Public domain information.

It is estimated that the initial investment for a medium-sized mining services company can exceed US$50 million. In addition, the process of obtaining permits and licenses can take several years, which represents a high barrier to entry. The main obstacle in the sector is the lack of specialization and trained personnel, which is considered a limited resource.

AESA is a company with 34 years of experience and a fleet of machinery valued at hundreds of millions of dollars, which gives it a clear cost advantage over new entrants. Mining companies work with trusted suppliers with whom they have long-term relationships, which

makes it difficult for new competitors to enter. On the other hand, expertise in managing complex mining projects and knowledge of Peruvian geology and regulations are important barriers for new entrants. From the analysis carried out, it can be deduced that the threat of new competitors in AESA's industry is medium.

1.4 Chapter Conclusions

Global mining is naturally trending towards underground operations, as open pits increase and higher-grade ore is found dispersed at depth. In fact, in countries such as Canada and South Africa, underground mining is already the norm, and in Peru this trend is gaining momentum. (Global Business Reports, 2022, para. 1)

AESA is a Peruvian company with a strong position in the mining services market in Peru (leader in terms of revenue); this has been achieved thanks to its extensive experience in underground mining operations in the country, such as the projects carried out with the companies Minsur, Raura, Volcan, Nexa and Glencore. It is precisely this specialization and its highly qualified technical team that constitutes its competitive advantage in the industry. The company has the opportunity to take advantage of the growth of the mining sector and the transition that is taking place from open-pit mining operations to underground work, which is precisely its specialty. It is worth mentioning that mining suppliers contribute 4% to the country's GDP.

"A company can achieve a competitive advantage through differentiation if it can offer something unique that is valuable to buyers beyond simply offering a low price" (Porter, 1985, p. 14). Based on this theory, AESA must focus on its differentiation, which can be through innovative solutions in the industry, that provide added value to its customers and distinguish them from their competition. Another relevant factor is to consolidate strategic alliances with its key customers, such as Raura, Volcan and Chunga, offering customization and superior

quality. The technology used by companies in the sector is practically the same; there is no marked differentiation in this aspect, since they have almost the same suppliers, who deliver machinery and tools with very similar characteristics. In this sense, another relevant element that contributes to its differentiation is through investment in new technological solutions that optimize efficiency and productivity in its operations.

On the other hand, AESA must face challenges such as dependence on the mining sector and the high competition that exists in this sector. To do so, it must continue to strengthen its technical and financial capabilities in order to maintain its competitiveness, take advantage of growth opportunities in Peru and explore expansion opportunities towards other mining markets in the region, in order to diversify its client portfolio and mitigate dependence on the Peruvian market.

Chapter II: Context Analysis

2.1 Analysis of the External Context of the Organization

The intensity of competition in an industry is neither a matter of coincidence nor bad luck. Rather, competition in an industry is embedded in its underlying economic structure and goes far beyond the behavior of current competitors. (Porter, 1980, p. 3)

In the above quote, Porter highlights that competition in an industry is determined by structural factors in the external environment, not just by the actions of current competitors.

2.1.1 External Analysis (PESTEL): Opportunities and Threats

"PESTEL analysis is a strategic tool used to identify and analyze macro-environmental factors that can affect an organization's performance. PESTEL is an acronym that stands for Political, Economic, Social, Technological, Environmental and Legal factors" (Kotler & Armstrong, 2018, p. 80).

By examining the factors included in the PESTEL analysis, AESA will have a powerful tool to evaluate its external context, leading to an adequate identification of potential opportunities and threats, allowing them to make more informed strategic decisions and adapt more easily/quickly to their environment.

2.1.1.1 Political Analysis.

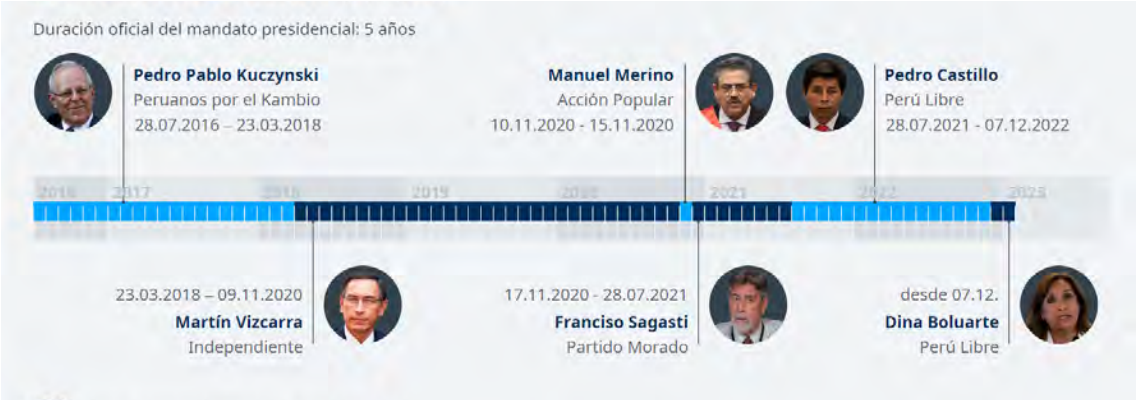
> In just six years, Peru has seen six presidents govern (see Figure 3). The last to complete the intended term of 5 years was Ollanta Humala, from 2011 to 2016. Of the last six presidents, only two came to office through elections; the other four, through constitutional succession. (Escobedo, 2023, para. 1)

The above, combined with the constant tensions between the branches of government, mainly the executive and legislative branches, generate uncertainty in investment processes

and undermine the confidence of mining companies, negatively impacting the demand for AESA services.

Figure 3

Presidents of Peru since 2016



Note. Adapted from "Instability in Peru: Six Presidents in Six Years," by I. Escobedo, 2024 (https://www.dw.com/es/inestibilidad-pol%C3%ADtica-en-per%C3%BA-seis-presidentes-en-seis-a%C3%B1os/a-64561587). Public domain information.

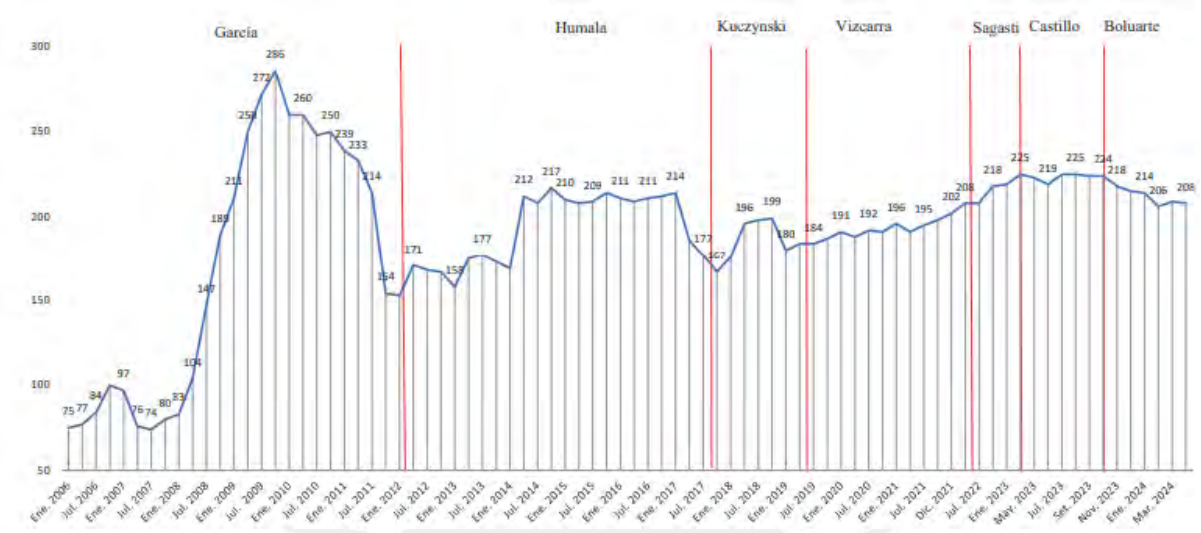
Peru has mining investments ready to be implemented and, to this end, measures will be announced that will contribute to accelerating the deadlines and procedures, as well as coordination between the Environment, Culture, Energy and Mining sectors, said the head of the Ministry of Economy and Finance, Alex Contreras. (El Peruano, 2023, para. 1)

However, there have also been initiatives to increase environmental and social regulation of mining, which could increase the operating costs of mining companies and affect demand for AESA services.

Mining projects in Peru often face social conflicts with local communities, due to concerns about the environmental and social impact of mining (see Figure 4). These conflicts can delay or even paralyze mining projects, which would negatively affect AESA. A recent example is the conflict around the Las Bambas mining project, which has seen roadblocks and protests disrupting its operations.

Figure 4

Social Conflicts due to Government Management (2011-2024)



Note. Information provided by the Ombudsman's Office. Prepared by CooperAcción. Adapted from "First Semester Report 2024," by the Observatory of Mining Conflicts in Peru, 2024 (https://conflictosmineros.org.pe/wp-content/uploads/2024/07/Informe-de-Conflictos-Mineros-34-julio-2024.pdf). Public domain information.

2.1.1.2 Economic Analysis. Peru has experienced sustained economic growth in recent decades, largely driven by the mining sector. The government plans to invest in major mining infrastructure projects, such as the expansion of the Chancay mega port and the construction of new power transmission lines. These projects will generate business opportunities for AESA in the construction, assembly and maintenance of mining facilities.

> In the second quarter of 2024, the Gross Domestic Product (GDP) at constant 2007 prices expanded by 3.6%, as a result of the increase in domestic demand by 5.3%, due to higher spending on gross fixed investment (3.4%) and total consumption (2.8%), in a context of economic recovery and reduction in inflation. (INEI, 2024, para. 1)

Regarding inflation, El Peruano (2024, para. 1) reported that "in April 2024, all economic agents maintained their inflation projections in the target range for this and the next two years," which positively impacts AESA's profitability.

According to Exchange-Rates.Org (2024, para. 3), “the USD/PEN exchange rate has increased by +1.34% over the last six months. This means that the US dollar has increased in value compared to the Peruvian sol.” This is favorable for AESA in terms of import costs for equipment and materials, as well as for its income from dollar contracts, improving its profitability.

2.1.1.3 Social Analysis. Social conflicts are one of the mains reasons that have led to the paralysis of mining operations, significantly affecting both production and the country’s economy. According to the Peruvian Institute of Economics (IPE), during 2021 and 2022, social conflicts in the mining sector cost the country a total of S/ 6,991 million, affecting the growth of the Gross Domestic Product (GDP) by 1.1 percentage points (Saldarriaga, 2023). In this context, important mines such as Las Bambas, Antamina, Antapaccay and Cuajone had to stop operations, causing significant losses, failing to generate more than 60,800 jobs annually from 2021 to 2022 (Saldarriaga, 2023).

Consequently, social conflicts and bureaucracy in the approval procedures for the operation have cost approximately S/ 123 billion in tax revenue. “If these projects had been executed, annual GDP growth could have gone from an annual average of 3.9% to 4.7% between 2008 and 2022, reducing poverty by an additional 1.7 million people” (IPE, 2023).

As can be seen, the lack of a “social permit” granted by local communities, which demand that mining operations contribute to their economic development and well-being, generates a national impact on the economy. To obtain this permit, companies must work on initiatives that benefit the community, such as financing infrastructure projects, education (professionalization of machinery and mining equipment operators), the implementation of sustainable practices that reduce environmental and social impact, and the generation of jobs for residents are essential to maintain a good relationship with communities and reduce the possibility of conflicts.

Over the next decade, global copper demand is expected to increase by approximately 9.5 million additional tons, which will have a significant impact on the production of this metal between 2026 and 2030, estimated Simon Morris, Head of Base Metals at CRU, during his presentation at the Symposium – XV International Mining Meeting. (Energiminas, 2024, para. 1)

Demand for metals such as copper, gold and silver is driven by global economic growth and the transition to renewable energy. In this context and as mentioned in the first paragraph, an increase in demand for metals is expected, which leads to a greater stimulus for mining investment in Peru, resulting in greater opportunities for AESA to expand its portfolio of clients and projects, as well as diversify its services. Continuing with the example of copper:

> Nicolás Muñoz, copper supply analyst in the base metals team at CRU, a leading mining analysis company in the world, noted that 50% of the world's copper projects are located in Latin America, and of those, 25% are located in Peru. (Institute of Mining Engineers of Peru, 2024, para. 1)

AESA is in a prime position to expand its operations on a regional level. Countries such as Chile, with its vast copper industry, Mexico, with its gold and silver potential, and Colombia, with its emerging mining sector, present attractive opportunities for AESA. This expansion would not only allow it to diversify its sources of income, but also reduce its exposure to the risks associated with a single market, thus ensuring sustainable long-term growth. In addition, AESA's presence in multiple countries would strengthen its reputation and allow it to access new projects and technologies, consolidating its position as a leader in the Latin American mining sector.

Environmental awareness is growing in Peru and around the world, leading to increased demand for sustainable mining practices. According to AmericaRetail & Malls (2024, para. 1), “more and more individuals and companies are choosing to change their lifestyle and contribute

to a more sustainable future for the planet. Current generations represent consumers with a greater awareness of the environmental and social impact of their actions." AESA has the opportunity to take advantage of this trend to develop services that help mining companies reduce their environmental impact and improve their reputation.

Mining companies are evolving towards a more sustainable business model, where commitment to the development of local communities is fundamental. For this reason, AESA has the responsibility to go beyond the simple extraction of resources and actively seek to contribute to the well-being of the communities where it operates. This involves not only generating direct employment through its operations, but also investing in training and skills development programs that allow residents to access better job opportunities in the long term. In addition, AESA must identify the specific needs of each community and design projects that improve their quality of life, such as access to drinking water, educational infrastructure and health services. By doing so, AESA will not only strengthen its relationship with communities, but will also ensure the social license to operate, generating a positive impact that lasts over time.

2.1.1.4 Technological Analysis. Digital transformation is revolutionizing the mining industry globally. "The adoption of digital solutions could unlock up to $190 billion in additional value for the mining sector by 2035, through optimized operations, new revenue streams and business models" (Miniotec, 2024, para. 2). Leading companies such as Rio Tinto have implemented autonomous transport systems in their iron ore mines in Australia, achieving a 15% increase in productivity and a 13% reduction in loading and transport costs.

The use of drones in mining is booming. BHP, for example, uses drones to inspect its coal mines in Australia, reducing inspection time by 90% and improving safety by avoiding worker exposure to risk zones. AESA can leverage this technology to offer infrastructure

inspection services, high-precision topographic surveys and environmental monitoring, providing its clients with valuable real-time information and reducing operating costs.

The application of artificial intelligence and data analytics enables mining companies to make more informed decisions and optimize their operations. Goldcorp, for example, uses machine learning algorithms to predict equipment failures and optimize preventive maintenance, achieving a 20% reduction in maintenance costs. AESA can develop AI-based solutions to help its clients improve mine planning, optimize fleet management, and predict equipment failures, maximizing the efficiency and profitability of their operations.

2.1.1.5 Ecological Analysis. The global trend is to strengthen environmental regulations, requiring mining owners to meet higher standards in terms of solid waste management, emissions and water use. Peru is no exception to this; for example, the Environmental Protection and Management Regulation for Mining Exploitation, Beneficiation, General Labor, Transportation and Storage Activities (DS No. 040-2014-EM) establishes the maximum permissible limits for atmospheric emissions, liquid effluents and solid waste, as well as requirements for water management and the rehabilitation of areas affected by mining. On the other hand, Law No. 28271 - Law regulating environmental liabilities of mining activity establishes the responsibility of mining owners for the remediation of areas affected by environmental liabilities generated by their operations, even after the closure of the mine. In this sense, AESA must ensure that its services comply with these regulations and collaborate with its clients (mining companies) to comply with their environmental obligations and avoid sanctions. Consulting and advisory services to clients would be a tool that would help with this goal, while strengthening the bond with them.

Peru is a country prone to natural disasters such as earthquakes, floods and landslides. Extreme weather events, such as the floods that hit the northern region of Peru in 2017, can disrupt mining operations and cause damage to infrastructure. According to the Ministry of

Environment (MINAM), climate change is already affecting water availability in the country, especially in the Andean regions where much of the mining activity is concentrated. One of the main causes of a natural resource crisis is precisely climate change (see Table 2).

Table 2

Causes of a Natural Resources Crisis

Causes	Description
Population Growth	The increase in population increases the demand for basic natural resources such as water, food, and land. This additional pressure can lead to scarcity and overexploitation of resources.
Uncontrolled Urbanization	The unplanned expansion of urban areas reduces the availability of fertile lands, contributes to soil degradation, and increases the demand for resources.
Intensive Agriculture	Agricultural practices such as monocultures, excessive use of fertilizers and pesticides, and overexploitation of water can deplete natural resources and degrade the soil.
Climate Change	The increase in temperatures and extreme climate patterns negatively affect the availability of natural resources, such as water and food, due to droughts and floods.
Exploitation of Resources	The unsustainable exploitation of minerals and fossil fuels depletes resources, causes environmental degradation, and contributes to climate change.
Lack of Regulation	The lack of regulation and illegal exploitation of natural resources allow unsustainable practices that increase pressure on resources.
Dependence on Imported Resources	If a country largely depends on resources that must be imported, it becomes vulnerable to sudden changes in prices and availability in the global market.

Note. Prepared from Trápaga Delfín (2023), Sostenible o Sustentable (2023) and Adler Sosa (2011). Adapted from "Report 2024. Global and National Risks and Opportunities for Peru 2024-2034," by the National Center for Strategic Planning (CEPLAN), 2023 (https://cdn.www.gob.pe/uploads/document/file/5590727/4964922-documento-de-trabajo-reporte-2024-riesgos-y-oportunidades-globales-y-nacionales-para-el-peru- 2024-2034.pdf). Public domain information.

In this regard, AESA has the opportunity to help mining owners to facilitate their adaptation to climate change through climate risk assessment services, resilient infrastructure design and efficient water management. It also focuses on seeking the development of innovative solutions that help mitigate the impacts of climate change in the sector, such as the use of renewable energy and carbon capture and storage.

Regarding biodiversity, the government has Law No. 26834 - Law on Protected Natural Areas, which establishes the protection of areas of high ecological value and restricts activities that may affect biodiversity in these areas. On the other hand, in Peru there is the National Service of Protected Natural Areas by the State (SERNANP), which is the body in charge of managing and conserving protected natural areas in its territory. Therefore, AESA must ensure compliance with environmental regulations and biodiversity conservation standards. It can also design compensation plans for its clients, helping to mitigate the impacts of mining on the environment.

2.1.1.6 Legal Analysis. The General Mining Law (Supreme Decree No. 014-92-EM) establishes the legal framework for mining activity in Peru, including the requirements for obtaining mining concessions, the rights and obligations of mining companies, and the environmental and social standards they must comply with. This law also establishes the obligation of mining companies to conduct prior consultations with Indigenous communities potentially affected by their projects, guaranteeing their informed participation and their right to give or deny their consent. In this regard, AESA, as a mining supplier, must ensure that its operations comply with the requirements of the General Mining Law, including obtaining the necessary permits and authorizations, complying with environmental and social obligations, and respecting the rights of communities.

Regarding labor standards in Peru, we can mention the two main ones: the Peruvian Political Constitution and the Law of Productivity and Labor Competitiveness (Supreme

Decree No. 003-97-TR), which establishes the minimum working conditions, including the working day, minimum wage, vacations and social security. AESA has a union, so it must be very rigorous with the fulfillment of these labor standards, offering its employees formal employment contracts, fair remuneration, social benefits and a safe and healthy work environment. In addition, it must respect its employees' right to freedom of association and collective bargaining.

Finally, regarding laws on occupational health and safety, there is the Occupational Health and Safety Regulation in Mining (Supreme Decree No. 024-2016-EM), which establishes the minimum health and safety requirements in mining operations, including risk management, worker training, the use of personal protective equipment and the implementation of emergency plans. According to the Ministry of Energy and Mines, in 2022, 30 fatal accidents were recorded in Peruvian mining, which shows the importance of complying with safety regulations to protect the lives of workers. AESA has ISO 45001 (Occupational Health and Safety Management). It must ensure that it maintains compliance with regulations and accident prevention; this involves carrying out risk assessments, providing training to workers, providing adequate personal protective equipment and monitoring compliance with safety regulations in all its operations; seeking to maintain its good practices in this field that is so relevant to its services and its clients.

2.2 Analysis of the Internal Context of the Organization

According to Barney (1991), “internal analysis is the process of evaluating a company’s resources and capabilities to determine its competitive strengths and weaknesses.” Likewise, according to a study by McKinsey & Company (2015), companies that conduct regular internal analysis are 60% more likely to outperform their competitors in terms of revenue growth. Another study by Harvard Business Review (2013) found that companies that focus on their

internal strengths are 30% more likely to be profitable than those that do not. Therefore, this analysis of AESA's internal context is essential, as it will give it a deeper understanding of its strengths, weaknesses, resources and capabilities, allowing it to make informed decisions, improve its adaptation to a VUCA environment, optimize resources, manage human talent and foster innovation.

2.2.1 Internal Analysis (AMOFHIT): Strengths and Weaknesses

Table 3

Internal Analysis (AMOFHIT) of AESA

Area	Strengths	Weaknesses	Opportunities	Threats
Management and Administration	Experienced leadership, Organizational culture, Strategic planning	Centralized decision-making, Talent development	Adoption of new management technologies, Strengthening corporate governance	Talent shortage, Changes in labor legislation
Marketing and Sales	Reputation and brand, Customer relationships	Limited marketing strategy, Online presence	Digital marketing, Participation in trade fairs and events	Aggressive competition, Changes in customer needs
Operations and Production	Technical and operational capacity, Quality certifications, Safety	Supplier dependence, High operational costs	Process optimization, Innovation	Volatility in input prices, Operational risks
Finance and Accounting	Financial solvency, Efficient financial management	Dependence on external financing, Exposure to currency fluctuations	Diversification of financing sources, Financial risk management	High interest rates, Economic crisis
Human Resources	Skilled technical team, Positive work culture	High staff turnover, Training and development	Talent attraction and retention, Training programs	Talent shortage, Changes in labor legislation
Infrastructure and Technology	Modern equipment and machinery, Advanced technology	Investment in technology, Equipment maintenance	Adoption of new technologies, Improvement of infrastructure	Technological obsolescence, Cybersecurity risks

Environment and Social Responsibility	Commitment to sustainability, Environmental certifications	Communication of sustainability initiatives, Social and environmental risk management	Development of sustainable projects, Collaboration with local communities	Increased environmental and social demands, Social conflicts

Note. Adapted from AESA SAC (2024).

2.3 Chapter Conclusions

The PESTEL analysis reveals that AESA operates in a complex and dynamic environment, characterized by significant opportunities and challenges. The Peruvian mining sector, despite its volatility, offers considerable growth potential, driven by global demand for metals and investment in new projects. The adoption of technologies such as automation, digitalization and artificial intelligence is transforming the industry, creating opportunities for companies such as AESA that offer specialized services in these areas.

However, AESA also faces significant challenges. Political and social instability in Peru can affect investor confidence and delay the development of mining projects. In addition, increasing environmental and social demands require mining companies to adopt more sustainable and responsible practices, which implies an additional challenge for AESA in terms of adaptation and compliance.

The AMOFHIT analysis complements the PESTEL by assessing AESA's internal strengths and weaknesses. The company has solid experience in the mining sector, a team of highly trained professionals, and an organizational culture oriented towards excellence. These strengths allow it to offer high-quality services and establish solid relationships with its clients. However, AESA also faces internal challenges, such as its dependence on the mining sector, which exposes it to the ups and downs of this market, and the need to invest in new technologies and capabilities to remain competitive.

AESA is in a favorable position to take advantage of the opportunities offered by the Peruvian and regional mining market. However, it must be proactive in managing the external

and internal factors that may affect its performance. To ensure its long-term success, AESA must diversify its services and clients by reducing dependence on the mining sector and exploring opportunities in other sectors, such as construction and energy. Another alternative is to adopt new technologies and develop innovative solutions to improve the efficiency, productivity and sustainability of its services. In addition, it must seek to expand its operations to other Latin American countries with mining potential, such as Chile, Mexico and Colombia. Related to sustainability, AESA must integrate responsible environmental and social practices in all its operations and help its clients meet the most demanding standards. Finally, it must maintain proactive talent management; attract, develop and retain the best professionals in the sector, fostering a culture of learning and continuous improvement.

The AMOFHIT analysis, like the PESTEL, must be updated periodically to reflect changes in the business environment and in the mining sector. This update will allow AESA to identify new opportunities and challenges, adjust its strategy and make informed decisions to ensure its long-term sustainable growth.

Chapter III: Problem Statement

AESA has experienced sustained growth, but this growth has brought significant operational and financial challenges, revealing, among other issues, problems in asset management, the lack of a predictive approach to maintenance and operational planning, resulting in a high incidence of operational emergencies. Specifically, seventy percent (70%) of the services provided by the equipment and supply chain department are allocated to addressing emergencies (A. Villaizán, personal communication, August 9, 2024), leading to inefficiencies and cost overruns that negatively impact AESA's competitiveness and profitability. Additionally, there is a notable disconnection between key areas of the company, such as operations, maintenance, and the supply chain (within sub-areas such as equipment, logistics, and warehouses), as well as human resources (J. González, personal communication, May 27, 2024), making it difficult to implement a coherent and effective strategy.

Furthermore, AESA lacks clarity and a consistent methodology for calculating equipment rates, a problem that has arisen from insufficient processing of historical data and the incomplete transition to the SAP system, creating uncertainty in financial decision-making related to equipment use and maintenance (J. González, personal communication, May 27, 2024). AESA, defining itself as an "asset-based company," faces the challenge of improving its comprehensive asset management, encompassing acquisition, operation, and maintenance.

The operation of the equipment has faced significant issues, including high operator turnover, with a dropout rate nearing 60%. Despite training new employees, many leave before their third month on the job. The shortage of skilled operators in the market and the challenging working conditions in underground mining have contributed to this, as employees often leave for better job offers. This situation has increased the frequency of emergencies caused by inadequate operation of equipment by new operators, who are often assigned to operate

machines before receiving proper training, perpetuating a reactive rather than proactive and preventive management approach (J. González, personal communication, May 27, 2024).

AESA also shows deficiencies in the management of immobilized asset inventories, leading to inefficiencies in the supply of spare parts and equipment, which in turn affects equipment availability and increases operating costs. This misalignment in warehouse management has not been aligned with operational needs (A. Villaizán, personal communication, August 9, 2024).

Although the need to implement new tools and processes has been identified, there is significant resistance from employees and unions, limiting the adoption of changes and the transition to more efficient and digital operational models (J. González, personal communication, May 27, 2024).

The lack of an integrated digital system for asset management and strategic decision-making limits AESA's efficiency. Digitalization is critical, as it optimizes processes, reduces errors, and improves data-driven decision-making (McKinsey & Company, 2023). Without effective digitalization, AESA will face difficulties in optimally managing its supply chain and assets.

3.1 Research and Consultancy Questions

We have considered the following questions to guide the research and consultancy process:

- What are the specific challenges in managing AESA's value chain that affect its operational efficiency and competitiveness in the mining contractor market?

- How does the lack of integration and coordination between key areas (operations, equipment and supply chain, warehouses) impact operational efficiency, service continuity and costs at AESA?

- How has the lack of a strategy in asset management affected AESA's current organizational and cultural structure? To what extent can the implementation of predictive maintenance reduce downtime, extend equipment lifespan, and generate financial savings?
- To what extent does a fully integrated asset management strategy contribute to reducing equipment downtime and operational planning?

3.2 Identified Core Problem

The central issue identified at AESA is the economic loss caused by equipment downtime. It has been noted that seventy percent (70%) of the requests made to the equipment and supply chain departments are emergency-related, highlighting the lack of integration between key company areas, inefficient asset management, and the absence of a coherent strategy across support areas.

This situation has prevented the optimization of resources (both equipment and personnel), impacting operational continuity, reducing competitiveness by operating at higher costs, and creating unsustainable response times in the long term. Additionally, every operational failure that results in equipment downtime negatively affects overall profitability and resource allocation concerning the estimated costs of downtime, lost opportunities, and additional costs, as detailed in the problem assessment section.

3.3 Justification of the Problems

The significance of this problem lies in its direct impact on AESA's sustainability and competitiveness in the market as a mining contractor. The lack of integrated and efficient asset management not only affects the company's productivity and profitability but also jeopardizes its ability to meet client contracts and expectations, especially in a competitive market as the context analysis demonstrated. Moreover, the inability to anticipate and mitigate operational emergencies creates a reactive work environment, instead of one that is proactive and strategic.

3.4 Problem Prioritization Matrix

According to Fernandez (2016), the prioritization matrix is a management tool that allows evaluating and classifying problems or projects according to specific criteria, with the aim of determining which ones require immediate attention and which ones can be addressed in the future. This tool facilitates decision-making by providing a clear representation of the relative importance of each problem.

To structure the problem prioritization matrix at AESA, a methodology based on the analysis of the impact and severity of each identified problem has been used, using tools such as the prioritization matrix and considering the company's risk matrix.

These tools allow for categorizing and prioritizing problems based on their impact on the organization and the likelihood of their occurrence, facilitating strategic decision-making and resource allocation (Kerzner, 2017). Widely used in project management and strategic planning, the prioritization matrix helps organizations focus their efforts on the most critical problems that require immediate attention.

The prioritization matrix evaluates the impact, urgency, cost and effort of each of the identified problems, and based on the assigned score, the priority of each problem is determined.

- **Impact:** It refers to the potential consequences of a problem if it is not addressed.
- **Severity:** It is measured by the magnitude of the negative effect on the organization.
- **Benefit:** The satisfaction or usefulness that the solution to the problem provides. (E. Carrasco, 2023). The benefits of the solution are evaluated, for which two sub-elements have been considered, (ii) the ease of implementation, that is, the complexity, cost and time to implement the solution; and (iii) the alignment of the solution to the problem with the long-term strategic objectives.

Table 4

Problem Prioritization Matrix

Problem	Impact (1-3)	Severity (1-5)	Benefit (1-5)	Prioritization Score (Impact x Severity x Benefit)
Lack of alignment of personnel with AESA's objectives and strategy	5	4	4	80
Lack of integration between operations, equipment and supply chain and warehouses in the continuity of operations	4	4	4	64
Economic loss caused by the inoperability of equipment.	5	5	5	125
Inefficient management in asset procurement and acquisition planning	4	5	3	60
Digitalization and Lack of Technological Adoption	4	4	2	32

Note. Adapted from AESA SAC (2024).

3.4.1 Assessment Analysis

The problems have been divided into categories: critical, high and moderate, based on their prioritization scores. This evaluation has been carried out jointly with the company (AESA), who have rated the impact, severity and benefit of the different problems that have been presented to us.

3.4.1.1 Critical Issues. Economic loss caused by equipment inoperability (Score: 125).

- Impact: Maximum (5). The inoperability of the equipment generates a direct and significant loss in AESA's operation, affecting its ability to meet contracts and customer expectations.
- Severity: Maximum (5). This problem impacts on the company's profitability and puts operational continuity at risk.
- Benefit: High (5). Addressing this problem optimizes resources and improves the company's overall efficiency. The cost of this problem has been approximately 1.5 million annually. Although its implementation has some complexity, the design of a strategy is aligned with AESA's long-term strategic objectives.
- Analysis: This is the most urgent and priority problem. It requires immediate intervention through the implementation of a strategy for the Equipment and Supply Chain area, aligned with predictive asset management and predictive operational planning. It has been considered that this problem must be addressed from two fronts, one strategic and one operational.

Predictive asset (equipment) management includes human management, that is, equipment operators. Later, we will discuss in detail the development of the new strategy, which proposes a strategic transformation in AESA, considering that we are dealing with a

company that operates and manages assets as part of its core business, making it essential to propose a strategy focused on reducing equipment downtime.

3.4.1.2 High Problems. Lack of staff alignment with AESA's objectives and strategy (Score: 80).

- Impact: Very High (5). The lack of staff alignment with AESA's objectives and strategy generates a lack of sense of urgency and priority. This has meant that instead of having a predictive action, emergency attention is given that consumes resources and time that could be dedicated to planned and preventive activities. This sense of urgency and/or priority must be implemented in the Equipment and Supply Chain area, whose alignment impacts the operation of the business.
- Severity: High (4). It limits the capacity for effective planning and forces the company to take a reactive approach, raising operating costs.
- Benefit: High (4). Having a sense of urgency and priority will improve operational efficiency and reduce costs. However, the implementation time for change management is approximately five (5) years when it comes to a cultural change.
- Analysis: This problem is closely related to equipment inoperability and must be addressed simultaneously to maximize benefits.

Lack of integration between operations, equipment & supply chain and warehouse areas in the continuity of operations (Score: 64)

- Impact: High (4). Lack of integration leads to lack of coordination, delays and errors in daily management.
- Severity: High (4). Contributes to inefficient management that negatively impacts operational continuity.

- Benefit: High (4). Improving integration between key areas will increase effectiveness and reduce response times. It has an impact on the company's objectives but does not solve the cultural problem of the organization but is part of a single and integrated strategic objective.
- Analysis: Lack of integration is a significant obstacle to smooth operations. Improved coordination across departments is essential to support a comprehensive asset management strategy.

Inefficient management in purchasing and planning of asset acquisition (Score: 60).

- Impact: High (4). Poor asset procurement management impacts equipment availability and the ability to operate at optimal levels.
- Severity: Maximum (5). Assets not acquired appropriately, based on technical specifications, common objectives generate cost overruns and prolonged downtime.
- Benefit: Moderate (3). Improving this management will reduce costs generated by the acquisition of lower-cost equipment but with a higher degree of accidents (lower quality or lack of spare parts), which to date have been generating significant operating expenses.
- Analysis: This problem has been considered important; however, it requires strategic work and is directly related to the third problem.

3.4.1.3 Moderate Problem. Digitalization and lack of technological adoption (Score: 32).

- Impact: High (4). The lack of digitalization limits AESA's ability to effectively manage and optimize its operations.
- Severity: High (4). It hinders the modernization of the company and delays the implementation of technological solutions.

- Benefit: Low (2). Although important, digitalization alone will not solve critical problems without proper integration with operational processes.
- Analysis: This issue is relevant, but its impact is not as immediate as critical and high issues. However, it is a pillar for continuous improvement and should be integrated into a long-term strategy.

3.4.2 Conclusion of the Prioritization Matrix Evaluation

The evaluation of the problem prioritization matrix highlights that the economic loss caused by the inoperability of equipment is the most critical and urgent problem, considering that 70% of the activities of the Equipment and Supply Chain area are emergency operations, followed by the lack of integration between key areas. These problems directly affect the operational efficiency and profitability of AESA and must be addressed as a priority to stabilize operations and improve competitiveness.

3.5 Essence of the Problem

AESA faces significant strategic misalignment, which hinders the effective execution of operations and the achievement of its long-term objectives. This misalignment creates a lack of a clear, shared vision of strategic goals, impeding informed decision-making and proper resource allocation. The disconnect between planning and execution leads to inefficiencies that affect both individual projects and the company's overall strategy, resulting in delays, unmet goals, and missed opportunities for competitive advancement in the market.

The impact of these strategic issues extends into both the operational and financial domains. Inefficient asset management has significantly increased operating costs, as unexpected equipment failures and unplanned downtime necessitate emergency procurement and corrective maintenance measures that could have been avoided with better planning. This

not only inflates direct costs but also reduces productivity and overall efficiency, ultimately decreasing profitability and limiting AESA's ability to compete effectively in a demanding market.

Organizationally, these challenges have profound implications, leading to poor communication and insufficient collaboration across departments. The creation of information silos obstructs effective management and coordinated decision-making, both of which are crucial for a cohesive and integrated operation. Additionally, resistance to change among employees, particularly regarding the adoption of new technologies and processes, calls for more strategic and focused change management. Overcoming organizational inertia and aligning all levels of AESA with a renewed strategic vision is essential for sustaining long-term improvements and ensuring the company's sustainability.

3.6 Problem Location

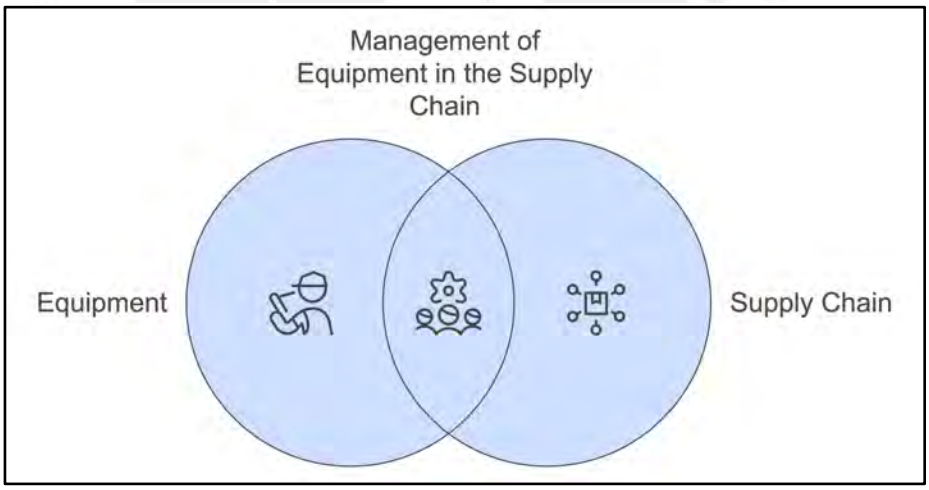
The issue arises within the operation of AESA's equipment, which provides mining infrastructure services to various projects across Peru. As a specialized supplier, AESA collaborates with multiple mining clients, requiring complex coordination across dispersed projects with varying operating conditions. This complexity underscores the challenge of strategically aligning operations between different teams at mining sites, leading to inefficiencies in service execution. The situation highlights the need for better integration and coordination in resource management and operational planning to ensure optimal performance in the projects AESA supports.

3.7 Problem Ownership

Responsibility for this issue falls within the management area of the Equipment and Supply Chain Manager, as well as the respective Deputy Management teams for Equipment and Supply Chain. While the primary responsibility lies with the Equipment Deputy Management, the Supply Chain Deputy Management is also partially accountable, as it supports equipment management. However, the Supply Chain Deputy Management also handles broader responsibilities unrelated to equipment, focusing on the overall supply needs of the operation.

Figure 5

Distribution of Equipment Management and Supply Chain



Note. Adapted from AESA SAC (2024)

The figure above illustrates the distribution of equipment ownership, encompassing both the entire equipment area and its integration with the supply chain. These leadership groups play a crucial role in implementing strategic improvements to address inefficiencies and better align equipment and logistics operations with the company's overall objectives.

3.8 Magnitude of the Problem

AESA's revenues in 2022 and 2023 were US$135 million and US$154 million, respectively. Losses due to equipment downtime in 2023 totaled US$1.5 million, accounting for the cost of repairs and the value of lost production. This represents 1% of revenues in both years. In the mining contractor industry, where every percentage point impacts the bottom line, this issue is costing the company a significant portion of its revenue annually. This cycle of inefficiency not only drives up operating costs through unforeseen expenses but also jeopardizes AESA's ability to maintain its leadership in the underground mining sector. Without effective intervention, AESA risks remaining in a detrimental cycle that could undermine its long-term sustainability and competitiveness (J. González, personal communication, September 3, 2024).

According to J. González (personal communication, September 3, 2024), efforts were made to prevent the growth of these losses, but without a comprehensive solution, they expect the cost to persist. If this problem is not addressed effectively, and this US$1.5 million loss recurs every year indefinitely with a perpetual growth of 2%, and those losses are discounted by AESA's WACC (see Appendix F), we estimate the Net Present Value (NPV) of these recurring operating damage costs to be US$51 million.

3.9 Temporal Perspective of the Problem

The challenges faced by AESA began with the initiation of a strategic transformation process in 2019, following the appointment of new leadership in Equipment and Supply Chain Management. Despite some progress, the company continues to struggle with optimizing its operations. The ongoing need to allocate substantial resources toward managing operational emergencies has underscored areas requiring greater efficiency and more strategic planning.

During this period of change, AESA has worked to improve coordination and operational management, and while there has been progress, further improvements are needed. The goal is not only to address immediate operational demands but also to create a foundation for sustained evolution toward more efficient and strategic operations in the future.

This situation underscores the importance of maintaining a long-term commitment to continuous improvement and implementing significant strategic changes. These include enhancing internal communication and optimizing asset management to ensure that AESA's transformation efforts not only address current challenges but also prepare the company for success in a competitive and rapidly changing environment.

3.10 Social Implications of the Problem

As noted by J. Polar during Expomina 2024, formal mining employment in Peru has exceeded one million jobs, both direct and indirect, since 2019. This highlights the significant role of the mining sector in the Peruvian economy. Between 2014 and 2022, formal mining employment grew by 34%, demonstrating a positive and sustained trend over time.

AESA has made a strong commitment to the social and professional well-being of its employees and the communities where it operates. Through programs like Dual Training and other training initiatives, AESA aims to enhance the employability and technical development of its workforce, fostering inclusion and promoting a more equitable work environment. These programs have a direct impact on local communities by offering residents opportunities to integrate into the mining sector, improve their skills, and enhance their quality of life. Such initiatives are a core part of AESA's corporate social responsibility strategy, contributing to the development of human capital in its regions of influence and bolstering its reputation as a company committed to social progress.

However, one of the primary social challenges AESA faces is high staff turnover, particularly among mining equipment operators. This issue is partly due to the lack of professionalization and competition from other companies that offer more competitive job opportunities to trained operators. Constant turnover not only disrupts job stability for employees but also has broader social implications. It limits the company's ability to provide continuous training, thereby compromising the sustainability of its operations. The shortage of trained personnel increases the risk of mechanical failures and accidents, impacting both worker safety and the safety of nearby communities. Strengthening professional development and employee retention programs is therefore crucial, not only for improving operational efficiency but also for reinforcing AESA's commitment to sustainable development and creating shared value with all stakeholders.

Chapter IV: Theoretical Framework

This chapter outlines key theoretical approaches that support the development of an effective solution to the challenges faced by AESA. Each strategic concept has been selected for its potential to enhance operational management, organizational performance, and long-term sustainability. This theoretical breakdown offers deeper insights into the methods that should be considered when selecting a course of action at AESA, ensuring that decisions are aligned with the company's specific needs and the opportunities within its external environment.

The integration of frameworks such as Playing to Win, change management, and digital transformation provides a clear and adaptable structure for informed strategic decision-making. For AESA, where the primary challenges involve operational inefficiency and a lack of integration between key areas, these methodologies offer guidance to align the organization’s resources, capabilities, and processes with its long-term objectives. This theoretical analysis addresses internal challenges while also enabling AESA to seize improvement opportunities through the adoption of advanced technologies and cultural shifts within the organization.

Additionally, concepts such as ownership culture and Corporate Social Responsibility (CSR) offer a holistic approach to improving asset management and employee engagement, while also strengthening relationships with communities and stakeholders. These approaches foster an environment where employees not only feel accountable for their roles but also actively contribute to operational efficiency and sustainability. Together, these frameworks provide AESA with a comprehensive foundation for strategic decision-making and the implementation of solutions that enhance both internal efficiency and the company’s social and environmental impact.

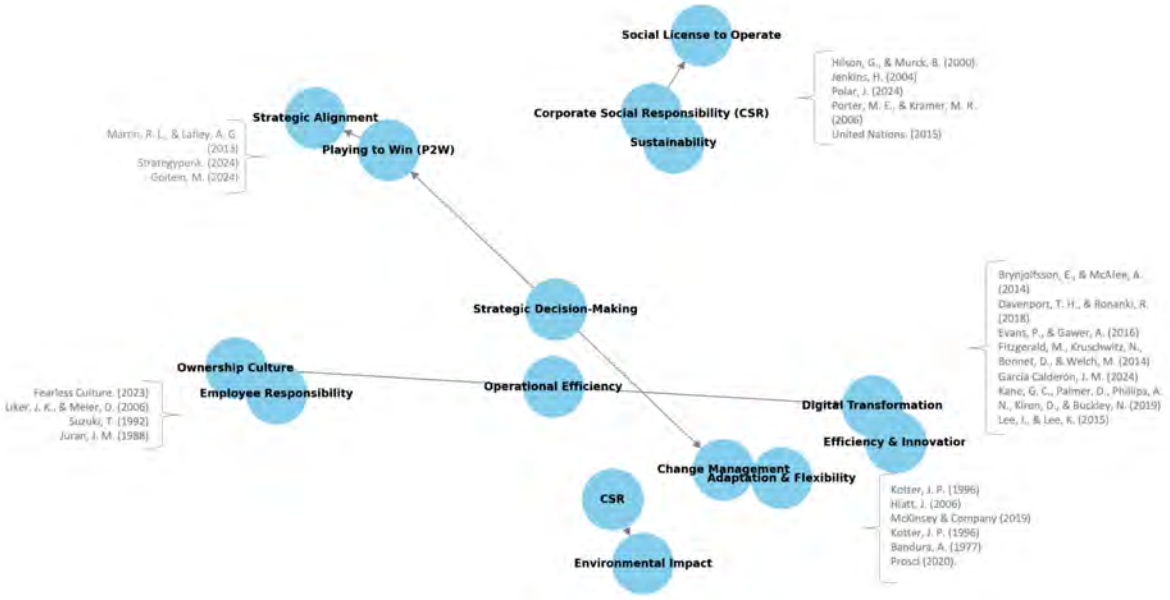
4.1 Literature Map

The following provides a structured overview of the key theoretical approaches that underpin the analysis and proposed solutions to the challenges identified at AESA. Figure 6 categorizes the selected methodologies into critical areas: strategy, change management, technology, organizational culture, and social responsibility. These areas are visually represented to demonstrate how they interrelate and contribute to improving operational efficiency, sustainability, and social commitment.

The figure highlights the central integration of the *Playing to Win* and *Change Management* methodologies, which serve as the primary axes for guiding strategic decision-making and organizational adaptation. From these core methodologies, other important approaches emerge, such as digital transformation and ownership culture, which drive technological modernization and employee engagement, respectively. Finally, Corporate Social Responsibility (CSR) completes the framework, illustrating its overarching role in ensuring the sustainability and social acceptance of mining operations. The diagram helps clarify how each approach complements the others, contributing to a comprehensive solution for the company.

Figure 6

Literature Map



Note. The figure contemplates the integration of key concepts and bibliography for each case.

4.2 Literature Review

4.2.1 Play to WIN Methodology

The *Playing to Win* (P2W) methodology, developed by Roger Martin and A.G. Lafley, is a strategic framework that emphasizes making clear, consistent decisions to guide organizations toward competitiveness and success in their respective markets. Unlike other approaches that often lean towards complexity, P2W simplifies strategy through a series of fundamental choices that must align to maximize impact. At the heart of this methodology is the "strategic choice cascade," a dynamic process based on answering five critical questions: What is the winning aspiration? Where will we play? How will we win? What capabilities do we need? And what management systems are required? (Martin & Lafley, 2013).

The winning aspiration defines the goal an organization seeks to achieve, establishing a clear vision and providing direction for all future decisions. The choice of where to play is equally crucial, as companies must select specific market segments, territories, or products in which they will compete. This decision delineates the strategic focus and ensures resources are concentrated on the most promising opportunities. Next, companies must determine how they will win by defining their unique value proposition that sets them apart from the competition. According to Goitein (2024), organizations at this stage must decide whether to compete through cost advantage or product/service differentiation.

After deciding on markets and a competitive strategy, companies must identify the necessary capabilities to execute the plan. This includes the essential skills, processes, and resources required to implement the strategy successfully. Finally, the methodology calls for developing management systems that enable continuous monitoring, adjustment, and maintenance of strategic capabilities. These systems ensure that companies can remain competitive and that resources are consistently aligned with strategic objectives (Strategypunk, 2024).

One of the distinguishing features of P2W is its flexibility across various contexts. According to Goitein (2024), the methodology is not only applicable to business environments but can also be used in fields such as sports or gastronomy, where clear strategic choices are crucial for success. For example, in sports, a team defines its winning aspiration (e.g., winning a championship), selects where to play (the style of play), and decides how to win (through defensive or offensive strategies). This adaptability demonstrates that P2W is more than just a business strategy, it is a versatile framework suited to any environment that requires structured strategic decision-making.

The P2W model is also notable for its ability to mitigate strategic risks. By focusing on well-aligned decisions about where to play and how to win, organizations can avoid common pitfalls in strategy implementation. The methodology ensures that decisions are not only coherent but also mutually reinforcing, thereby increasing the likelihood of success. As Martin & Lafley (2013) argue, many organizations fail not due to a lack of strategy but because they fail to properly align key decisions over time, a challenge that P2W is specifically designed to address.

4.2.2 Change Management

Change management is a crucial element in any organizational transformation process, especially when implementing new or revised strategies. This approach is designed to ensure that organizations can effectively adapt to evolving dynamics and environmental demands, minimizing internal resistance while maximizing success in adopting new practices. According to Hiatt (2006), the goal of change management is to help companies address the challenges that arise from transformation by implementing processes and tools that facilitate a smooth transition.

One of the most widely adopted models in change management is the "Influence Model" developed by McKinsey & Company. This model is built on four fundamental pillars for successful organizational change: 1) creating a clear understanding of why change is necessary, 2) fostering key behaviors that support the change, 3) developing the capabilities required to implement the change, and 4) reinforcing organizational commitment through active process management (McKinsey & Company, 2019). The combination of these factors ensures that change is not only implemented but also effectively ingrained in the organizational culture.

The first step, creating a clear understanding, is essential for overcoming resistance to change. Employees must not only be informed about what is changing but also understand why it is necessary. Kotter (1996) emphasizes that most transformations fail because leaders do not effectively communicate the urgency of change. This highlights the critical role of clear communication in aligning all organizational members with the new objectives.

The second step, fostering key behaviors, involves identifying and promoting behaviors that directly support the new processes. This includes not only rewarding desired behaviors but also establishing feedback systems to help employees enhance their skills in areas crucial to the change. In this context, Bandura's (1977) social learning theory suggests that employee behavior can be shaped by observing and modeling successful actions, which is critical for successful organizational change.

The third pillar, developing necessary capabilities, focuses on preparing the workforce by equipping them with the skills and tools essential for the transformation. Hiatt (2006) asserts that capability development is a core aspect of any change management program, as it ensures that employees have the knowledge and expertise to effectively implement new strategies.

Finally, the model stresses the importance of reinforcing organizational commitment, ensuring that leaders and managers remain actively engaged throughout the change process. Lewin (1951) argues that organizational change is most effective when managed with a proactive and dynamic approach, ensuring that the structures and processes needed to support change are maintained over time. This approach is critical to ensuring that change is not just a temporary initiative, but rather a lasting transformation.

In recent decades, change management approaches have evolved to incorporate more sophisticated tools that help organizations better manage and measure transitions. For instance, the use of KPIs (key performance indicators) in change management allows for progress

tracking and adjustments when necessary. According to Prosci (2020), using objective metrics in change management not only enhances the transparency of the process but also provides valuable insights into areas requiring additional support.

4.2.3 Digital Transformation

Digital transformation in the mining industry is being driven by advancements in technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Big Data, and immersive technologies. These tools optimize operations, reduce costs, enhance safety, and minimize environmental impact. According to Fitzgerald et al. (2014), digital transformation has become a strategic priority for many companies seeking to restructure their business models and gain a competitive edge. These technologies not only improve internal efficiency but also enable mining companies to anticipate operational issues, resulting in less downtime and greater worker safety.

A key example of digitalization's impact on mining is Artificial Intelligence (AI). Davenport and Ronanki (2018) argue that AI is revolutionizing asset management and process optimization in mines. AI enables the automation of routine tasks, real-time monitoring of equipment, and predictive analysis to prevent mechanical failures. Additionally, AI enhances workplace safety by alerting operators to potential risks, which is crucial in an industry with constant hazards.

Similarly, the Internet of Things (IoT) allows devices and sensors to connect in real time to collect critical data that can be instantly analyzed. According to Lee and Lee (2015), IoT enables more efficient monitoring of operations through remote supervision, allowing mine managers to make faster, more informed decisions. This connectivity is particularly valuable

in remote mines, where continuous monitoring of machinery and personnel can be challenging without the right tools.

Immersive technologies like augmented reality (AR) and virtual reality (VR) are also revolutionizing training in the mining sector. According to J. Garcia (personal communication, September 13, 2024), AI and immersive technologies enable unprecedented customization in training programs for machine operators, adapting to their competency levels and allowing them to train in simulated environments that replicate real-world working conditions. This accelerates learning, improves knowledge retention, and enhances safety by reducing the risks associated with on-site training.

Predictive maintenance, powered by AI and IoT, is another critical component of mining's digital transformation. This technology uses sensors and data analytics to predict equipment failures before they occur, allowing for preventive repairs and reducing costly downtime. As J. García highlights, predictive maintenance optimizes resource allocation by enabling more efficient scheduling of repairs, extending the lifespan of mining equipment, and improving overall profitability.

In logistics, digitalization improves inventory and supply chain management, reducing response times during operational emergencies. Predictive analysis, driven by Big Data and AI, helps identify demand patterns and potential equipment failures, enabling mining companies to plan their operations more accurately. This not only boosts operational efficiency but also lowers costs associated with unplanned maintenance and production disruptions.

Digital transformation in mining also has positive environmental implications. According to Evans and Gawer (2016), digitalization promotes more efficient use of natural resources, reducing environmental impact through optimized energy consumption and improved waste management. Digital technologies allow mining companies to monitor and

reduce their carbon footprint, contributing to long-term sustainability and enhancing their reputation with stakeholders.

4.2.4 Culture of Ownership

Ownership culture within an organization refers to the mindset and attitude of employees toward their responsibilities and the overall success of the company. When employees embrace an ownership culture, they take accountability for their tasks, outcomes, and decisions, feeling a strong sense of responsibility for the impact of their work. This approach is key to increasing engagement, enhancing productivity, and reducing the need for constant supervision, ultimately improving operational efficiency and enabling the organization to adapt more swiftly to change.

A fundamental aspect of ownership culture is that it encourages individual responsibility and creates an environment where employees feel empowered to control their work and contribute meaningfully to the organization's success. According to Fearless Culture (2023), ownership culture is built by providing employees with the autonomy to make decisions and take responsibility for their outcomes. This type of culture is grounded in trust, allowing employees to take calculated risks and learn from their mistakes. An environment where mistakes are viewed as learning opportunities rather than failures is essential to fostering a strong ownership culture.

To effectively implement a culture of ownership, organizations must equip employees with the necessary resources and tools. This includes ongoing training programs, open communication channels, and the integration of technologies that facilitate collaboration. Utilizing tools such as performance management systems can also support an ownership

culture by providing employees with real-time feedback and tracking their progress toward clear goals (Fearless Culture, 2023).

Ownership culture is closely linked to improved operational efficiency. Employees who feel empowered to control their work are often more proactive in identifying and resolving issues before they escalate into major problems. Liker and Meier (2006) note that the principles of Total Productive Maintenance (TPM) align with an ownership culture by encouraging employees to take responsibility for equipment maintenance and continuous improvement. TPM fosters a sense of ownership by involving employees at all levels in identifying process and equipment problems and implementing solutions. This not only enhances asset reliability but also creates an environment where employees feel valued and accountable for operational success.

In the context of TPM, ownership of equipment and processes is critical to maintaining operational efficiency. According to Suzuki (1992), a founder of TPM, this approach requires equipment operators to take responsibility not only for operating the machines but also for their daily maintenance. This fosters a culture of ownership that reinforces active participation in preventive maintenance, minimizing downtime and maximizing asset life.

Additionally, Juran (1988) emphasizes that quality culture is complemented by ownership culture, where employees take responsibility for their work while actively participating in continuous improvement efforts. By integrating these principles across all levels of the organization, companies can ensure that employees are fully committed to process improvement and waste reduction, reinforcing the lean manufacturing approach.

4.2.5 Corporate Social Responsibility in Mining

Corporate Social Responsibility (CSR) in the mining sector is a key strategic component for ensuring that operations are not only economically viable but also socially and environmentally responsible. In mining, CSR involves balancing profitability, sustainability, and a commitment to local communities. The approach has evolved to mitigate the negative impacts of mining operations while generating shared value, aligning with increasing regulatory and societal demands.

According to Porter and Kramer (2006), CSR should not be viewed as an additional cost for companies but rather as a strategy for creating shared value that benefits both the company and the communities in which it operates. This is particularly relevant in the mining industry, where extractive activities can lead to social and environmental conflicts if not properly managed. Mining companies must address stakeholder concerns and maintain a consistent commitment to sustainability.

As J. Polar (personal communication, September 13, 2024) emphasizes, mining sustainability is built on four pillars: operational excellence, financial discipline, future development, and sustainability. These pillars ensure that mining operations are not only efficient and profitable but also responsive to social and environmental expectations. Operational excellence involves optimizing processes and continuously improving to reduce costs and environmental impact. Financial discipline ensures that operations can meet their social and environmental obligations. Future development refers to investment in innovation, cleaner technologies, and human capital. Finally, sustainability focuses on the company's commitment to communities and the environment, ensuring regulatory compliance and fostering positive relationships with all stakeholders.

The concept of a social license to operate is central to mining CSR. Franks et al. (2014) argue that mining companies that fail to engage with communities and mitigate social and environmental impacts risk conflicts that can increase costs and threaten operational continuity. A social license goes beyond mere legal compliance, implying acceptance and support from local communities—something that can only be achieved through a genuine commitment to social and environmental well-being.

Regarding environmental impact, mining companies are increasingly adopting practices such as land reclamation, responsible water management, and emissions reduction. Hilson and Murck (2000) note that companies integrating sustainability into their strategy not only enhance their reputation but also ensure greater long-term viability by reducing operational risks linked to environmental degradation. The incorporation of cleaner and more efficient technologies enables companies to minimize the negative impact of their activities on the natural environment.

In terms of workplace safety, mining faces unique challenges due to the hazardous nature of its operations. According to the International Council on Mining and Metals (ICMM), mining companies must implement rigorous safety standards to protect employees and minimize the risk of accidents. The adoption of advanced technologies, combined with a strong safety culture, is crucial for safeguarding worker well-being and improving operational productivity.

Profitability remains a fundamental pillar of mining sustainability. A profitable mining company can reinvest in cleaner technologies, train its workforce, and contribute to the development of local communities. This ability to generate shared value is essential for maintaining competitiveness and securing social acceptance of operations. As Porter and

Kramer (2006) indicate, companies that integrate CSR into their business strategy not only reduce risks but also gain sustainable competitive advantages.

4.3 Chapter Conclusions

Integrating strategic approaches such as Playing to Win (P2W), change management, digital transformation, ownership culture, and Corporate Social Responsibility (CSR) is critical for organizations, particularly in challenging sectors such as mining, to achieve sustainable and competitive performance. P2W sets a clear strategic direction, allowing companies to accurately identify where they can compete and how to maximize their advantages. By adopting this approach, companies ensure that their resources and capabilities are aligned with their aspirations, facilitating consistent and effective decision-making.

Digital transformation complements this structure, providing the technological tools necessary to optimize operations, from the use of Big Data to Artificial Intelligence (AI), helping organizations to be more efficient, reducing costs and improving their environmental impact. These advances require effective change management to ensure that employees and processes adapt appropriately to the new demands of the digital environment. Likewise, fostering a culture of ownership among employees, where they assume responsibility for their tasks and results, reinforces operational efficiency and contributes to the development of a more committed and proactive workforce.

On the other hand, CSR is presented as an indispensable component to ensure that companies' operations not only comply with regulatory requirements but also generate a positive impact on local communities and the environment. This integration between sustainability and profitability allows organizations to maintain their social license to operate, creating a cycle of shared value that drives their long-term viability. The combination of these

strategic approaches reinforces the competitiveness, sustainability and success of companies in an increasingly demanding environment.

Chapter V: Qualitative and Quantitative Analysis

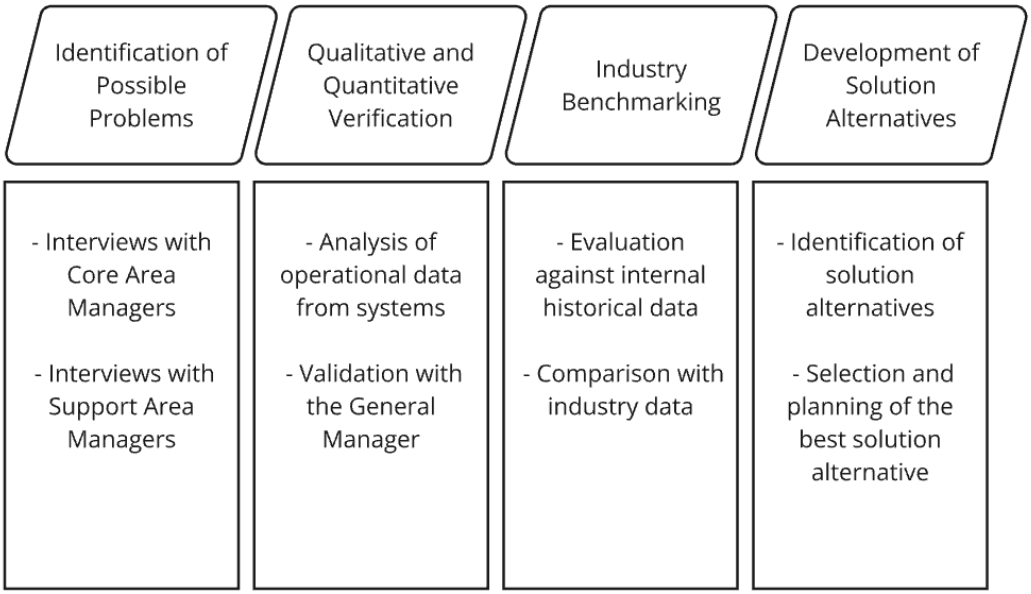
5.1 Analysis Strategy

Kubr (2022) argues that facts constitute the fundamental pillars of consulting, highlighting that it is crucial to accumulate a substantial amount of factual data to obtain a clear and accurate understanding of any situation in analysis. Therefore, it is necessary to draw up an appropriate strategy to obtain the necessary data that represents the supported facts that all steps of the research process require.

The proposed strategy consists in collecting the necessary information to analyze and verify the problem, to propose solution alternatives. The process is as follows:

Figure 7

Information Gathering and Analysis Strategy



Note. Adapted from Kubr (2022).

The defined strategy is based on a research process structured in four main phases, each one with a specific objective and a series of activities that will allow us to identify problems, evaluate alternatives and make data-base decisions.

Each phase is detailed below:

5.1.1 Phase 1: Identifying Potential Problems

- Objective: To detect areas of the organization that present difficulties or inefficiencies.
- Steps:
    - Interviews with core area managers: Conduct semi-structured or open interviews to gain a qualitative perspective on the challenges faced by key departments within the organization.
    - Interviews with support area managers: Like the above but focused on the departments that provide services to the core areas.
    - Methods: Individual or group interviews, participant observation.

5.1.2 Phase 2: Qualitative and Quantitative Verification

- Objective: Confirm the existence of the problems identified in the previous phase and quantify their impact.
- Steps:
    - Operational data analysis: Collect and analyze quantitative data from the organization's information systems to identify trends, patterns, and anomalies.
    - Validation with the general manager: Present the preliminary findings to the general manager to obtain his/her opinion and validate the results.
    - Methods: Statistical analysis, data visualization, surveys.

5.1.3 Phase 3: Industry Benchmarking

- Objective: To compare the organization's performance with its competitors or with industry best practices.
- Steps:
    - Evaluation against internal historical data: Compare current data with historical data to identify performance variability.
    - Comparison to industry data: Collect industry benchmarking data to determine whether the identified issues are specific to the organization or common across the industry.
    - Methods: Comparative analysis, case studies, competitor information if possible.

5.1.4 Phase 4: Proposal for Solution Alternatives

- Objective: Generate and evaluate possible solutions for the identified problems.
- Steps:
    - Identifying alternative solutions: Use creative techniques such as brainstorming to generate multiple options.
    - Selecting and planning the best alternative: Evaluate each alternative based on criteria such as cost, benefit, feasibility and risk.
    - Methods: Cost-benefit analysis, decision matrix, simulation.

In short, this research process offers a structured framework for identifying and solving organizational problems. By combining different methods and approaches, a deep understanding of the situation can be obtained and informed decisions can be made.

5.2 Identifying Potential Problems

To identify the main problems of AESA and which organizational areas we should focus on a series of meetings were planned to follow the next strategic order:

Table 5

List of Interviews to obtain Information about Possible Problems

Order	Organizational Unit/Person interviewed	Goal of the interview
1	Equipment and Supply Manager, Juan José González Nuñez.	Obtain the main problematic events or symptoms that are perceived by Core Management
2	Equipment Deputy Manager, Carlos Luque	Verify problematic events or symptoms with data at a more operational level, as well as the degree of awareness of said events.
3	Supply Chain Deputy Manager, Andre Villaizán Jaen.	Verify problematic events or symptoms with data at a more operational level, as well as the degree of awareness of said events.
4	Continuous Improvement Supervisor, Yack Morales	Know the current process for implementing improvements and evaluate ongoing strategies.

Note. Adapted from AESA SAC (2024).

The following information was obtained from these meetings:

- Interview with the Equipment & Supply Chain Manager: Juan Jose González Núñez, who oversees the main core area of AESA and is responsible to assure the availability of equipment and machinery necessary for operation and projects. The following are the most important points identified:
    - There is not much historical data nor a defined method for calculating projected rates for equipment and spare parts.
    - There is no information system that allows financial decisions regarding investments in equipment and repairs.

- There is a lack of training and a weak change management process so that the entire organization can focus on maximizing the lifespan of the equipment.
- Compared to 2023, revenues reached $154 million, and in 2022, revenues reached $135 million.
- There is no integrated information system that unifies the information that comes from operational execution and that feeds management systems and decision-making.

- Interviews with the Equipment Deputy Manager: Carlos Luque, responsible for maximizing the lifespan of equipment and machinery through awareness of use, monitoring of operation and management of repairs and maintenance.
  - With the arrival in 2024 of the new General Manager of AESA, Guillermo San Miguel Zapata, a transformation of the organization has been underway in which the goal is that all teams must be ensured to understand their role and responsibility in the process. In addition, the management model includes innovation as a crucial component for continuous improvement and operational efficiency.
  - Operational management is the most challenging. For the organization to operate more efficiently, we must create a sense of urgency and priority. Operations is the area that will drive the company's growth.
  - The presence of different profiles and levels of experience in the team represents both a challenge and an opportunity to implement more effective maintenance strategies. Diversity can enrich solutions but can also generate differences in execution, especially if there is no homogeneous understanding of the purpose, objectives and functions.

- The strategy that includes operator management, logistics as a service, following a path of digitalization and connectivity, as well as centralized planning has not been shared with the entire organization.
- AESA's vision must be to get the best possible value from the equipment. Operations management must prioritize maximizing the equipment's lifespan, not just a short-term financial objective, which can lead to low-priced equipment or spare parts, but also generates high maintenance costs and low liquidation prices.
- There has been no consideration of complementing the operating model with a solid human resources process that keeps staff capabilities up to date for the efficient use of equipment. Currently there are no mechanisms for sharing technical information and furthermore this information is not shared with all teams so that it can be implemented.

- Interviews with the Supply Chain Deputy Manager: Andre Villaizán Jaen, responsible for procuring equipment and machines for operations in the timeliest manner, as well as the spare parts and accessories necessary for its maintenance.
  - In materials management, there are repeated events where the wrong materials are ordered, the use of spare parts stock is prioritized for emergency care and plans are set aside, as well as information records in SAP being incorrectly updated.
  - Technical staff cause damage to equipment due to poor operation, which in turn is due to low technical knowledge or lack of experience, or even a lack of commitment to maintaining the equipment.

- There is no precise information that allows forecasting the need for equipment and spare parts purchases, so equipment is approved without properly reviewing the stock and above the actual need.
- Maintenance plans are not precise and usually respond to emergencies, which generates unforeseen additional costs. There is a low level of equipment reliability because these maintenance plans do not consider the variables and conditions necessary to define timely actions.
- In 60% of cases, equipment is delivered to projects in different geographic locations on time; the goal is to reach 80%, but there are external factors that cannot be controlled.
- Currently, there is a percentage of downtime, where the equipment is not used, of 24%. The medium-term objective is to reach a maximum of 2% to 3% downtime per project, which is an acceptable average for the industry.

- Interviews with the Continuous Improvement Supervisor: Yack Morales, responsible for the implementation of improvement processes as well as incident analysis, and for the monitoring of processes performance.
  - This year, the AESA Way (AESA, “Continuous Improvement Strategy”, 2024) has been implemented, which aims to establish a methodological framework for the implementation of operational excellence processes and the transformation of the different areas of the company to optimize, eliminate waste, capture value and generate high-performance teams.
  - The company's profitability is reduced by the extra costs of those processes that are not executed correctly, mainly due to the lack of commitment of the operating staff to the efficient use of the machines.

- An initial measurement has been developed to establish a baseline on which to align improvement approaches on the operational management side. Among the variables with a lower level of maturity, supply planning, standardization of maintenance routines and mechanisms for planning and monitoring activities have been identified.
- On the people management side, weak points have been identified related to a lack of a lean mindset at all levels, the non-use of tools such as Gemba Walks by supervisors, a lack of institutionalized practices to achieve high-performance teams, and the absence of performance-based recognition tools.
- A cascade of KPIs aligned with the organization's strategy that allows performance information to be collected systematically and in near-real-time has not yet been implemented.
- A higher level of leadership is required to be able to implement the necessary improvements in the organization. This requires training key leaders in an influence model, teaching them how to use lean techniques such as the Gemba Walk and giving them motivational tools such as a framework of objectives and recognition for operational staff.

5.3 Qualitative Analysis

According to the information collected, it was possible to see that the problems identified, although they generated negative results in the operational areas, showed a common connection in the lack of awareness of each person, who did not understand the impact that their performance can have on each activity they perform. In addition, it was possible to understand the relevance of change management to achieve this level of alignment at all levels,

especially due to the type of industry, where there are profiles of highly operational people who are responsible for the company's major assets.

To carry out a qualitative verification of these identified problems, additional meetings were held with the Managers and Assistant Managers of each area, having the following objectives:

Table 6

Checklist for Information Verification Interviews

No	Area/Interviewee	Meeting Objective
1	Equipment Deputy Manager, Carlos Luque. Supply Chain Deputy Manager, Andre Villaizán Jaen.	Verify with data the events or problematic symptoms at a more operational level, as well as the level of awareness of these facts.
2	Equipment and Supply Chain Manager, Juan José González Núñez	Evaluate the events that have been corroborated at the operational level and determine possible root causes, as well as establish a priority for addressing them.

Note. Adapted from AESA SAC (2024).

These meetings helped to identify the underlying problems that caused the symptoms expressed by the AESA Leaders:

- Lack of a shared vision of the strategy, as well as an adequate deployment at all levels of the organization, which allows a sense of contribution to the objectives to be installed in the daily life of each person.
- Lack of an integrated management system that allows connecting strategy with operations, especially in the areas of equipment maintenance and supply planning.
- The institutionalization of a continuous improvement framework is in progress, which will allow for the identification of improvement opportunities and the standardization of execution to obtain measurable results.

With this information, it was possible to confirm that the main business problems were related to the strategic planning process, but also to an inefficient deployment in the organization at all levels, which generates a low alignment of people and therefore the impact on the business results.

5.4 Quantitative Analysis

Having identified the problem, and according to the qualitative analysis previously carried out, we can focus the quantitative analysis on the data necessary to verify the low alignment achieved in the staff concerning the current strategy.

To perform the quantitative analysis, the first step is to verify the level of impact that the lack of strategic alignment has on the results of the operation, for which it is important to collect the relevant data that demonstrate this root-cause relationship.

The information obtained from the different areas of the organization has the following sources:

- Company Presentation, AESA 2024. This document contains the history of the organization, important milestones, income levels, the productive process of economic activity as well as its main stakeholders.
- Analysis of the results of the Bolting Pilot in Raura. This document presents the analysis of the main operating metrics and their evolution during the current management, from 2021 to 2023. Here you can see the family of equipment that has the greatest impact on emergency repair costs and its main causes.

Table 7

Annual Evolution of the Impact of Damage to Equipment

Value	2021	2022	2023
Impact (Thousands of USD)	386	801	1,570

Note. Adapted from AESA SAC (2024).

In Table 7, we can identify that the main problem is the frequent occurrence of damages to bolting equipment, dump trucks and scoop trams; and these damages represent 1% of the company's revenue income.

Table 8

List of Major Families of Equipment affected by Damage

Main Equipment Affected	Amount (Thousands of USD)	% of Total
Bolter	794	30%
Dump Truck	518	20%
Scoop tram	470	18%
Jumbo Front Loader	323	12%
Scaler	286	11%
Others	180	9%

Note. Adapted from AESA SAC (2024).

From the information obtained, we can identify that the main problem is the frequent occurrence of damage to bolting equipment.

Through a causality analysis, it was possible to identify that these damages are generated because the operators do not have the necessary skills to handle the equipment optimally in difficult working conditions.

It was also evident that the objective of the operational staff was more focused on meeting their operational productivity goals, such as the amount of work performed, rather than the care of the machinery used.

In both cases, a deeper analysis reveals a root cause that shows the disconnection between strategy and operational priorities, where the activities of each responsible person seek to achieve their individual objective over contributing to the objectives of the area and the organization.

In the case of the lack of skills necessary for proper handling of equipment, this has its origin in the lack of effective recruitment and constant training by a joint effort between Human Resources Management and Operations and Project Management, who must identify the most qualified operators and close the knowledge gaps in the use of available machinery.

In the case of the priority that productivity has for operators, it is evident that the objectives and control metrics with which their performance is measured are not aligned with the organization's strategy that not only seeks productivity but also seeks to maximize the useful life and availability of the equipment.

5.5 Industry Benchmarking

Ulrich (2012) argues that organizations are immersed in a network of relationships with various interest groups (stakeholders), such as customers, shareholders, employees and the community, with which they establish agreements, whether explicit or tacit, on which mutual expectations are defined that are materialized with a specific value proposition for each of

them. These groups have particular expectations that the company must satisfy through a value proposition adapted to their needs and demands.

According to internal studies by AESA (2024), in relation to the average time of unavailability of equipment in operation in the mining construction industry, this value is around 3% on average per project. Considering that the strategies of the main companies in the industrial sector already consider metrics related to the operational availability time of the equipment. A strong alignment of objectives, initiatives and capabilities with this strategy is required to achieve these levels of performance.

Likewise, the industry average metric for on-time delivery of equipment and spare parts to project locations is over 80% of total orders (AESA, 2024), which is also already considered a medium-term strategic goal for the organization. This level of performance in the supply process is a standard in the spare parts and machinery logistics industry, which is part of the hierarchy of strategic objectives.

5.6 Conclusions of the analysis

According to the information obtained from meetings with the different AESA managements, it can be concluded that a reformulation of AESA's strategy is required, mainly in the core area Equipment and Supplies, as well as a method and a tool that allows its collaborative deployment and the assurance that the operational objectives and initiatives remain aligned and in the mindset of all the organization's staff.

The strategy to be proposed must consider the various lessons learned that the organization has identified but with a systematized support for its implementation:

- Communication and monitoring of the strategy is not enough, it needs to be systematized. This indicates that communication and monitoring of the strategy deployment were not sufficiently structured and consistent. A more formal system

needs to be established to ensure that all relevant information is shared and that operational execution is adequately monitored in line with the strategy.

- Having adequate management of the activities of all the people involved (internal and external) to prevent deviations in execution. This conclusion points to the importance of having clear and coordinated management of all activities, both internal and external, involved in projects and operations. This will help prevent deviations from the strategy and ensure alignment at all levels.
- It is necessary to automate the relationship between operational impact and equipment performance. This suggests implementing a system to automate the monitoring and collection of information that allows for faster and more accurate identification of any problems or areas for improvement.
- It is necessary to formalize alliances with suppliers to obtain access to training that allows for strengthening the technical skills of the staff. The importance of establishing a formal relationship with equipment suppliers should be highlighted in the strategy to ensure that adequate training is received for the use and maintenance of the equipment.
- The need to improve the strategy, its communication, the operation with alignment, the automation of processes and the sustainability of the results in a systematic way must be emphasized. By implementing these improvements, processes can be optimized and project efficiency increased.

Chapter VI: Root Cause Analysis of the Problem

6.1 Identified Causes

6.1.1 Inadequate Profitability Assessment in Equipment Repairs

An inadequate cost-benefit assessment of equipment repairs represents a significant shortcoming at AESA, undermining both resource management and strategic decision-making. This issue primarily arises from the absence of advanced analytical tools that can accurately evaluate the costs and benefits associated with equipment maintenance and repair. Consequently, the company may make suboptimal decisions—either over-investing in equipment that yields lower-than-expected returns or delaying essential maintenance, which could lead to costly breakdowns.

Kaplan and Atkinson (2021) highlight in their study on advanced costing systems the importance of incorporating financial and operational analysis technologies into maintenance practices. These systems allow companies to continuously monitor operational costs and compare them against the anticipated benefits of each maintenance action, thereby enabling more informed, strategically sound decisions.

Moreover, Deloitte's (2019) research on digital transformation in manufacturing suggests that adopting digital tools like the Internet of Things (IoT) and big data analytics can greatly enhance a company’s ability to evaluate the profitability of repairs. These technologies enable real-time data collection and analysis, providing precise insights into equipment performance and wear, which ultimately leads to more efficient and cost-effective maintenance planning.

6.1.2 Pending Optimization in Change Management

AESA is at a critical juncture where resistance to change and the slow adoption of technological innovations and operational processes are limiting its ability to achieve continuous improvement and sustain competitive growth. This resistance, evident at both the operational and cultural levels, indicates a need for optimization in the company's change management approach. The absence of a structured and systematic strategy has prevented AESA from effectively integrating new technologies and best practices that could transform its operations, increase efficiency, and enhance its capacity to anticipate the demands of today's market.

According to McKinsey's change management model, overcoming these barriers requires generating a sense of urgency across all levels of the organization and aligning leadership with a clear, compelling vision of the future. This process involves influencing behaviors and fostering emotional commitment to change. So far, AESA has not implemented this type of comprehensive approach, which has impeded its transition to a more modern and agile operation. Without a well-defined strategy, the company continues to experience organizational inertia, where traditional processes outweigh the necessary innovations.

The study by Oreg et al. (2011) on organizational resistance to change suggests that companies that fail to effectively manage internal resistance tend to experience slower adoption of new technologies and processes. In AESA's case, this resistance is evident in the ineffective adoption of digital technologies and the slow pace of operational improvements. This disconnection between the company's strategic needs and its operational reality negatively impacts both profitability and the ability to respond to market challenges.

Lewin and Kotter's (2001) research emphasizes that establishing a proactive and adaptive change management framework not only facilitates the adoption of new technologies

but also improves organizational culture, fostering an environment where employees feel empowered to actively engage in the change process. Such an approach would be especially beneficial for AESA, where a well-structured change management system would accelerate the implementation of new solutions and enhance efficiency across all operational areas.

It is important to note that organizations adopting a dual approach to change management—balancing economic changes with human organizational adjustments—tend to be more successful in implementing new practices and technologies. This dual approach would enable AESA to better manage internal resistance and align technological and operational advancements with human needs and capabilities, leading to broader and more effective adoption (Beer & Nohria, 2000).

6.1.3 Need for Progress in Strategic and Technological Planning

The reactive planning currently dominant at AESA has been a key contributor to operational inefficiency, directly leading to equipment downtime and, consequently, economic losses. This reactive approach means decisions are made based on emergencies or issues that have already occurred, rather than anticipating and preventing them. The lack of foresight in asset and resource management hinders the company's ability to optimize operations and adequately prepare for market challenges, resulting in higher operating costs and prolonged periods of downtime.

The issue of reactive planning at AESA is particularly critical when it comes to managing key assets, such as mining equipment, which require constant maintenance and monitoring to maximize uptime. Without a robust system to predict equipment failures or anticipate wear and tear, the company is forced to adopt a "firefighting" approach, leading to significant losses in both productivity and financial resources. As Cua et al. (2013) emphasize,

proactive and predictive planning is crucial in industries where equipment downtime can have a direct and substantial financial impact.

AESA's shift towards more strategic, technologically enabled planning is imperative. By integrating advanced technological solutions such as enterprise resource planning (ERP) systems or predictive analytics platforms, the company could transform its operations, providing a comprehensive, real-time view of its assets and processes. These technologies would not only enhance the ability to foresee issues but also allow for improved resource allocation, optimizing both equipment and personnel utilization, thereby reducing the costs associated with unplanned downtime. This aligns with Bowersox et al. (2013), who note that companies adopting data-driven planning systems significantly improve operational visibility and coordination.

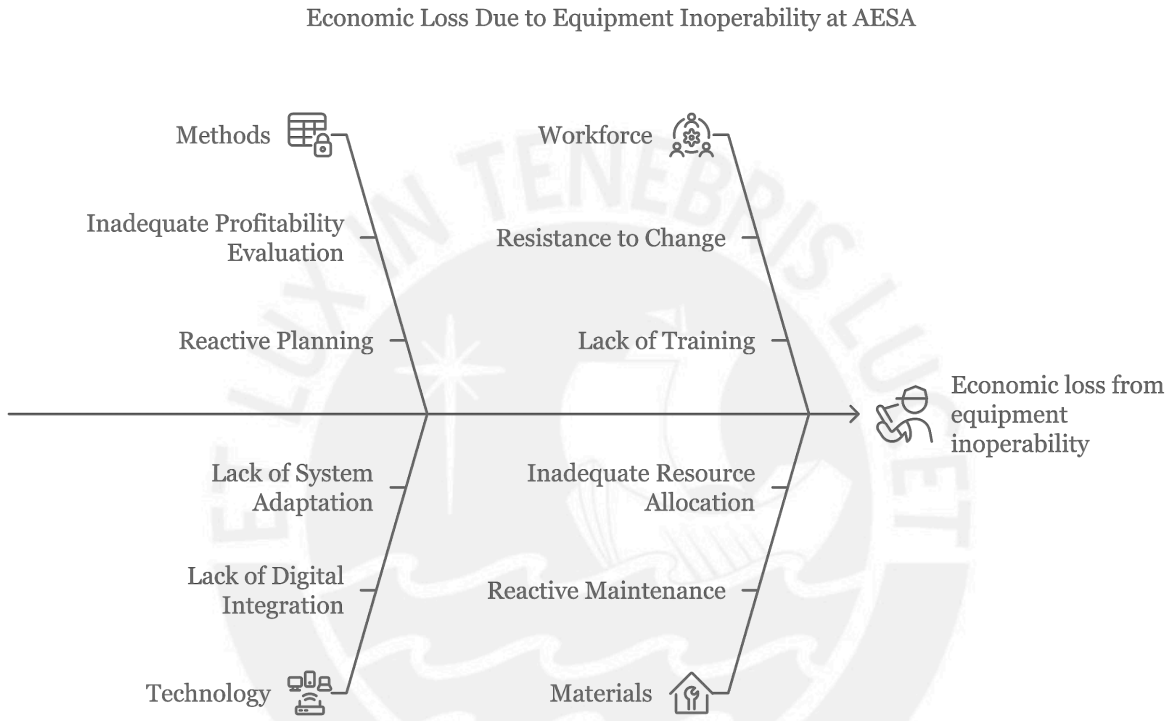
Moreover, predictive approaches are not limited to equipment management but can also be applied to broader strategic planning, including supply chain, inventory, and production. Implementing planning systems that anticipate market fluctuations and adjust operations accordingly would enable AESA to be more efficient and competitive in an increasingly complex and volatile industrial environment. Evans (2016) highlights that companies utilizing predictive analytics and advanced planning can make faster, more informed decisions, providing a key competitive edge over their rivals.

For AESA, adopting these practices could mark the difference between continued high operating costs and downtime, or becoming a highly efficient and proactive organization. By moving toward more strategic, technology-driven planning, AESA would not only enhance its ability to manage operational emergencies but also ensure more effective resource utilization, directly impacting its long-term competitiveness and sustainability. In sum, this shift in

approach is crucial for addressing the core issue of equipment inoperability, which is currently undermining the company's profitability.

Figure 8

Root Cause Analysis - Ishikawa Diagram: Economic Loss due to Equipment Inoperability at AESA



Note. Adapted from AESA SAC (2024).

6.2 Main Causes of the Problem

Enterprise resource planning (ERP) systems, such as SAP, are widely used across industries to enhance operational efficiency and decision-making. However, at AESA, these systems are not fully tailored to the specific needs of service management and equipment operation. This misalignment creates a gap between the information provided by the systems and the daily operational realities. According to Alshaher (2013), one of the key factors for ERP success is its ability to effectively integrate with an organization’s specific processes. At

AESA, the lack of system adaptation hampers the ability to continuously and accurately track assets, which negatively impacts the planning and management of the equipment lifecycle.

Asset lifecycle management is crucial for ensuring both operational efficiency and long-term financial sustainability. At AESA, there is a clear opportunity to improve integration and planning within asset management, covering everything from life cycle assessments to necessary repairs and replacements. As Hastings (2010) notes, comprehensive asset lifecycle management allows organizations to maximize the value of their investments in equipment and resources, ensuring their operational longevity while minimizing maintenance and replacement costs. By enhancing this integration, AESA could significantly improve resource planning and usage.

Effective planning is vital to ensuring both operational and financial sustainability. In AESA's case, there is potential to reduce the reliance on emergency procurement, which currently accounts for approximately 60% of purchases, and to optimize forecasting and inventory control. This shift would lower operational costs and improve response times, ensuring greater operational continuity. Cua, McKone and Schroeder (2013) emphasize that strengthening inventory planning and control over critical assets reduces the need for unplanned purchases, leading to substantial operational improvements.

Accurately measuring asset performance is essential for efficient management and informed decision-making. While AESA has implemented a performance measurement system, further adjustments are needed to prioritize key metrics that directly impact operational efficiency and profitability. Kaplan and Norton (1996) stress the importance of aligning performance metrics with strategic objectives to improve data-driven decision-making. By reorganizing the measurement system to focus more strategically, AESA can optimize

operational management and enhance the profitability of its operations, and further improve outcomes through comprehensive workforce training.

Chapter VII: Evaluated Solution Alternatives

7.1 Identified Solution Alternatives

Jim Collins (2021) in his book Good to Great highlights the importance of a shared vision as a fundamental element for a company to go from being good to great. However, it is crucial to understand that the shared vision that Collins describes is not just an idea or a long-term dream, but a set of deeply held beliefs and values that guide the actions of all members of the organization.

This shared vision has even greater relevance in organizations such as AESA, where the most operational levels are responsible for the company's most important and expensive assets, such as equipment and machinery. For Laloux (Reinventing Organizations, 2014), empowerment is not just a management tool, but an essential element for creating more humane, sustainable and successful organizations. But empowerment is possible to the extent that there is a clear and shared purpose, achieving in turn in people a deeper sense of belonging, responsibility and commitment.

In this same sense, understanding that the operational results are a consequence of an adequate definition and deployment of what AESA wants as a company, and considering both strategic and operational aspects, the following possible alternative solutions to the identified problem are proposed.

7.1.1 Implement Predictive and Preventive Maintenance Practices that reduce Failure Frequency and increase Operational Safety

This alternative, which has an operational focus, seeks to reduce emergencies and ensure that equipment is available when needed. To do so, it proposes creating standardized

processes and an integrated information system that facilitates communication and decision-making, reducing operational inefficiencies and improving emergency response.

Further elaborating on the above, Kevin C. Desouza in his book “Intrapreneurship” (2011) mentions that idea management is an essential tool for organizations that want to harness the creative potential of their employees and transform those ideas into concrete actions that generate value. By implementing an idea management system, companies can identify new business opportunities, improve process efficiency, solve problems more creatively, and increase employee satisfaction.

7.1.2 Develop a Change Management Model geared towards the Adoption of New Technologies and Processes

Implement a change management plan that includes staff training, effective communication of the benefits of change, and creating a sense of urgency at all levels of the organization to overcome resistance and accelerate the adoption of new operating practices.

By defining and applying specific metrics that allow real-time monitoring of equipment efficiency, compliance with maintenance plans, and the impact of new strategies on reducing operating costs and improving productivity, that is, through a system of control indicators aligned with AESA's strategic objectives.

Staff training will be a necessary and essential element for the implementation of this alternative solution, ensuring that staff are trained and prepared to use new technologies and adapt to new processes.

As pointed out by JM, García Calderón (personal communication, 2024 in his presentation “Artificial Intelligence and Immersive Technologies: Transforming Mining Training”), the development of technical skills in predictive maintenance, failure analysis, and

use of digital platforms, reducing learning time and improving knowledge retention, impacts the company's operational results.

Effective change management starts by identifying the individual needs of employees, ensuring their commitment and active participation (McKinsey & Company, 2019).

The customization of training courses and update programs according to the profile of each collaborator, using platforms that provide immediate feedback on performance and progress, in a way to align the individual needs of collaborators with AESA's strategic objectives and therefore with the winning aspiration, generating greater commitment to alignment and the effective closing of knowledge and skills gaps.

Change management also requires effective communication with employees throughout the value chain, facilitating the transition to new processes and technologies, explaining the benefits of the transformation, and establishing feedback channels where employees can express their concerns and suggestions.

Effective change management reduces resistance and fear of loss, controls uncertainty, generating continuous improvement of the processes and technologies adopted.

7.1.3 Develop and Implement the Strategy for the Equipment and Supply Chain Area

Design a strategy that aligns maintenance, operations and logistics activities, allowing a constant flow of information towards a common objective, that is, the winning aspiration, which optimizes decision-making.

In this sense, the winning aspiration must put at the center the maximization of the equipment's operating time, which represents the main value for AESA in terms of return on investment.

This solution requires an automated tool to support the collaborative definition and deployment of the strategy, which will achieve alignment at all levels and optimize decision-making processes. This tool will allow the company to analyze information more quickly and accurately, make better-informed decisions, improve collaboration between teams, and increase empowerment and agility in the face of operational and business challenges.

7.1.4 Digital Transformation for Asset Management Optimization

Propose the integration of advanced technologies such as artificial intelligence, the Internet of Things (IoT) and predictive maintenance to anticipate failures and reduce equipment downtime.

According to J. Garcia (personal communication, September 13, 2024), the use of artificial intelligence for machinery maintenance allows for improved efficiency of equipment. 24/7 access to technical information will allow technicians and equipment operators to get answers anytime, anywhere, streamlining troubleshooting and remote diagnosis. For example, using a chatbot for remote diagnosis based on manuals can help identify the cause of a fault, and provide quick access to user manuals, wiring diagrams, and other relevant technical information, reducing machinery downtime.

Based on historical machine information and the latest updates, the chatbot can offer personalized recommendations for preventative maintenance, with constant machine learning throughout each interaction, improving its responsiveness and diagnostics over time.

The implementation of a chatbot for machinery maintenance can bring numerous benefits to a company (Expomina, 2024), including cost reduction, by speeding up problem resolution, machinery downtime is reduced, greater production and mineral extraction time is obtained, stress is reduced, and the well-being of employees is increased.

7.2 Evaluation of Solution Alternatives

From a cost perspective, the investment required in technological developments, implementation of predictive and prescriptive maintenance practices, or implementation of a change management model can vary significantly between US$50,000 and US$2’000,000. While strategy development and implementation do not require an investment, it does require the allocation of several hours to diagnose, formulate and implement the strategy elements with personnel in the area, and result in an impact on the same fronts as the alternatives. Additionally, this is the front where the Centrum team can best contribute to the company, therefore, the strategic development and implementation alternative is the preferred alternative for its development.

7.3. Chapter Conclusions

Aligning operational and management solutions with organizational strategy is critical to ensure long-term success. By implementing solutions that address both operational aspects (such as process improvement and resource optimization) and management aspects (such as effective communication and decision-making), organizations can close the gap between strategic planning and execution. This translates into greater efficiency, innovation, and adaptation to change.

In this sense, the problem can be addressed from a more operational but also more strategic approach, and the solution alternatives can be aimed at resolving it in a more specific and short-term manner, but also through a more substantial, profound and permanent change that starts with the reformulation of the strategy itself and the way in which we deploy it so that it is assimilated and generates the necessary commitment in the rest of the organization down to the most operational levels.

Finally, the proposed solutions contribute to achieve a stronger organizational culture, increase employee commitment and improve operational efficiency, by proposing to align the efforts of all levels of the organization towards a common goal, creating a sense of belonging and fostering a continuous improvement mindset. In the case of AESA, the proposed solutions demonstrate how a combination of technology, processes and change management can transform the organization and ensure its success in an increasingly competitive environment.

Chapter VIII: Objectives, Scope and Limitations of Strategic Consulting

The main objective of the thesis is to develop a strategic consultancy for AESA that addresses the central problem, that is, the economic loss caused by the inoperability of the equipment, its main causes and consequences.

8.1 General Objective

To design a strategy that aligns the company's key areas with a winning aspiration that directly addresses the key elements of the problem. For this purpose, the use of the “Play to Win” methodology has been considered, linking the aspiration and the identified central problem.

The core problem negatively affects the company's competitiveness and profitability. This situation stems from the lack of a predictive approach to maintenance, the lack of coordination between key areas (operations, maintenance, logistics, legal), and the high incidence of operational emergencies that consume 70% of the resources in the Equipment and Supply Chain area.

How Does Winning Aspiration Address the Problem?

As will be seen in detail in Chapter XI, the winning aspiration “Ensure safe, efficient and operational equipment at an adequate cost” attacks the central problem in several ways:

1. Safe Equipment. Connection with the problem: Lack of equipment security can lead to unexpected failures and operational emergencies, generating unplanned downtime and costs (C. Luque, personal communication, August 12, 2024).

2. Efficient Teams. Connection with the problem: Equipment inefficiency, due to poor management and maintenance, contributes to lost productivity and increased operating costs. (J. González, personal communication, September 3, 2024)

The strategy addresses how to improve equipment efficiency by integrating advanced technology and training equipment operators to maximize asset performance, thereby reducing the negative financial impact.

3. Operating Teams. Connection with the problem: The inoperability of the equipment is at the core of the central problem, affecting AESA's ability to fulfill its contracts and maintain operational continuity. This inoperability is due to two main factors: not having equipment available to operate (due to its condition or maintenance); and not having an operator available for the equipment (J. González, personal communication, August 5, 2024).

An integrated asset management system that captures improvement opportunities and alerts from operational staff in real time regarding the status of the equipment will allow for anticipating failures, knowing the status of the equipment by key areas (operations, maintenance, warehouse, equipment and supply chain), scheduling maintenance efficiently to keep the equipment operational, and the predictive management of its areas.

4. Adequate Cost. Connection with the problem: The extra costs associated with emergency response and the inefficient use of resources increase AESA's operating expenses (A. Villaizán, personal communication, August 9, 2024). Notwithstanding this, the cost of having the equipment operating must be competitive for the company and the strategy must be implemented by balancing the desirable elements within the winning aspiration, which will be developed in Chapter XI.

The winning aspiration must be integrated into all strategic and operational areas of the company to ensure that every action taken is geared toward solving the core problem.

8.2 Specific Objectives

- Collaborative development and deployment of a strategy that focuses on the importance of asset management and operational availability, and that ensures alignment with operational areas, with their objectives and metrics, and integrates execution data to monitor compliance.
- Develop tools that support this collaborative work for the definition and deployment of the strategy and that allow its execution and control to be carried out without losing alignment. Likewise, enable a channel for continuous improvement and innovation oriented towards the defined strategic objectives.
- Establish guidelines and tools that promote change management through empowerment, facilitating the adoption of new technologies and processes, minimizing internal resistance and ensuring an effective transition to a more efficient operating model.

8.3 Scope and Limitations of Strategic Consulting

The consultancy will focus on the review and improvement of AESA's current processes related to asset management and coordination between its key areas. Existing systems and tools will be assessed, and solutions will be proposed based on international best practices in the definition and deployment of strategies with a real impact on the company's results.

McClelland, in his book “Strategic Alignment: A Competency-Based Approach,” emphasizes that strategic alignment is not just a theoretical exercise, but an imperative for the

success of any organization. To achieve superior and sustainable performance, individual and organizational competencies must be closely linked to the company's strategy.

It is also important that the skills, knowledge and abilities of employees, as well as the processes and systems of the organization, are oriented towards strategic objectives. Only in this way can it be guaranteed that all efforts are focused on creating value and achieving the desired results.

Limitations of this work include the availability and quality of current company data, resistance to change by key personnel, and budgetary constraints that could influence the implementation of the proposed recommendations. In addition, the evolution of the macroeconomic environment and the volatility of commodity markets may affect the applicability of the suggested strategies in the long term.

Chapter IX: Proposed Solution

9.1 Solution

"Developing and implementing the strategy for the Equipment and Supply Chain area" has been determined to be the best solution to address the central problem raised related to losses generated by operational availability problems.

9.1.1 Strategic Diagnosis

In cultural terms, the team area is oriented to provide a service, which is executed anonymously in the sense that there is no recognition when positive results are achieved; however, it is perceived as a great penalty when bad results occur.

This area has experienced a significant increase in complexity, because of the incorporation of new services that require different equipment. This represents new learning curves to master the handling and management of new equipment.

The area dedicates a good portion of its time to dealing with emergencies. This reactive operation is constantly observing the present and making decisions about the short-term cost, without observing whether there are deviations in the area from its long-term objectives.

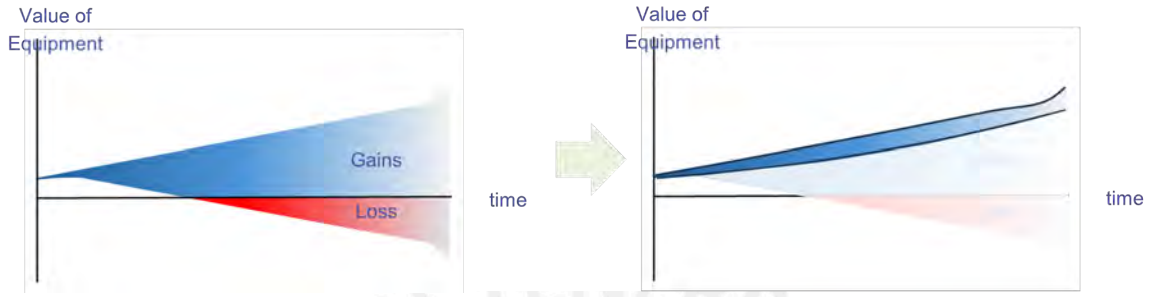
A certain horizontality is observed in the heads of the equipment area, hence, there is good communication that transfers information to the higher ranks of the organization; however, it is observed that in capillarity, there is a certain verticality in the people who are in the site or close to the operation, which has the advantage of being able to transfer instructions more easily but makes it difficult to transfer information from those who are in contact with the operation to the heads of the organization; this information can be valuable for the establishment of a strategy and efficient planning.

In this context, the value offered by equipment management, which consists of the value over time of the production obtained less the costs incurred, has a great variability, due to the

lack of observation of management towards the future, the distractions represented by emergencies and decisions prioritizing the short term (see Figure 9).

Figure 9

Analysis of the Value of Equipment Over Time

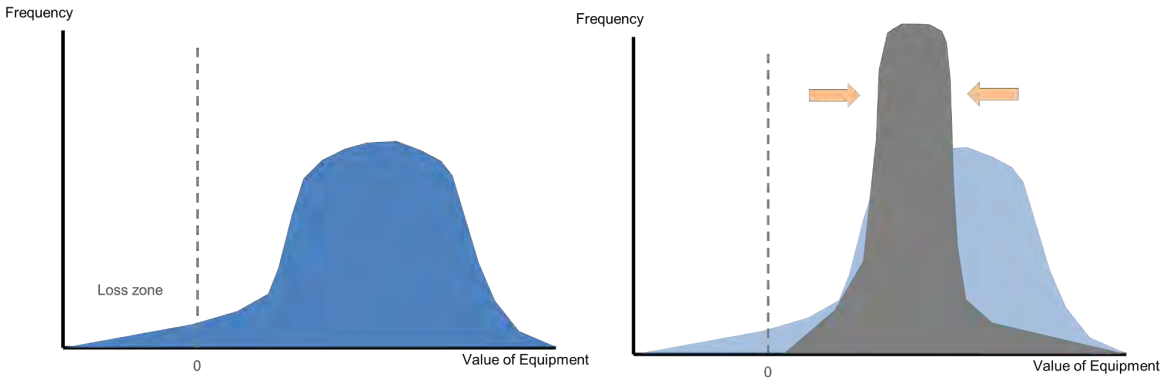


Note. Adapted from AESA SAC (2024)

The goal is to limit and reduce the variability of the value of the equipment and make it as high as possible, which translates into control and predictability of the value of the equipment. To limit the possible values resulting from the value of the equipment management, it is necessary to identify the sources of variability in the value. To achieve a reduction in variability, the strategy must develop the cultural landscape, guide management with a vision towards the future and include aspects that guide the maximization of the value of the equipment, as shown in the following figure.

Figure 10

Frequency Analysis on the Value of the Equipment



Note. Adapted from AESA SAC (2024).

Additionally, the strategic alignment of the organization will allow the teams to be focused in a limited area, allowing them to maximize the probability of achieving its highest possible value.

In conclusion, the strategy should aim to maximize the value of equipment and to reduce variability in the value of equipment. Reducing variability lies in reorienting the area towards predictable management and including elements that aim to reduce costs in a sustained manner.

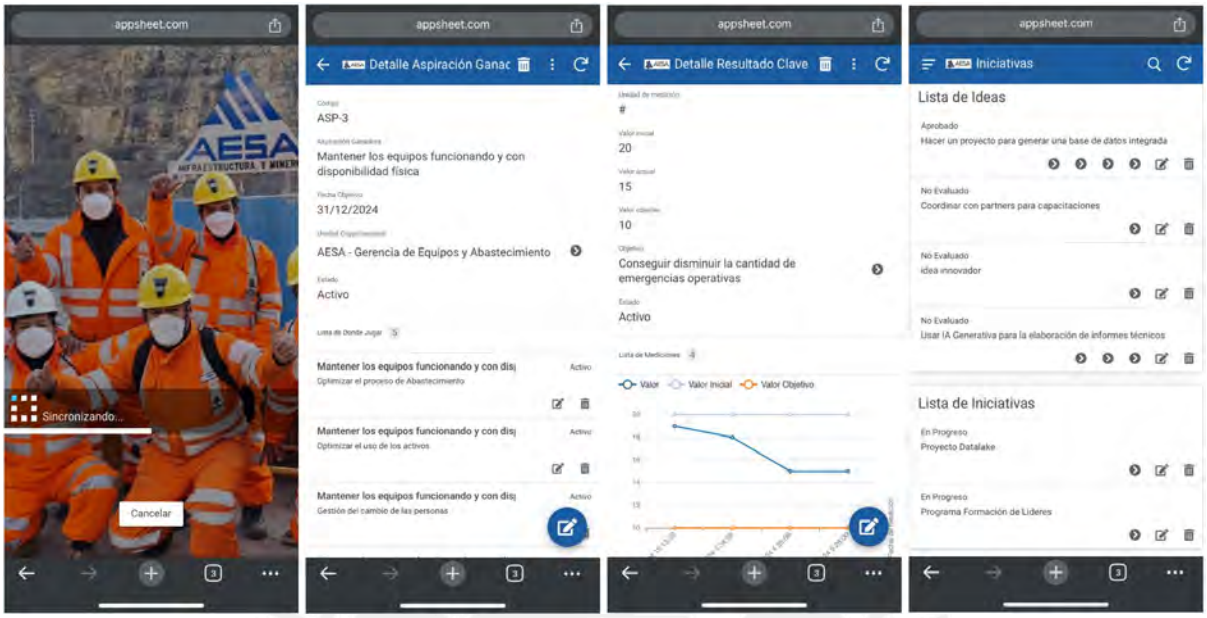
9.1.2 Implementation of the Collaborative Strategic Alignment and Deployment System: Winning

As mentioned in the development of the proposed solution alternative in Chapter VII related to “Develop and implement the strategy for the Equipment and Supply Chain area”, it is necessary to use a collaborative support tool for the redefinition of the strategy, and that also allows applying rules and validations that ensure and maintain the alignment of the operational teams and their activities with the defined strategy.

To achieve this goal, the winning software application was designed and implemented, an application that allows the strategy to be defined and deployed collaboratively, achieving the visibility and alignment necessary for its successful execution. As shown in Figure 11, the application supports the management of information for organizational units and people, the definition of the strategy using the “Playing to Win” model, the establishment of objectives and metrics using the OKR (Objectives and Key Results) model, the provision of an innovation channel based on the “Idea Management” model, and a control mechanism for the execution of initiatives (projects and operations), maintaining alignment at all levels.

Figure 11

Winning Modules: Organization, Strategy, Objectives and Metrics, Ideas and Initiatives



Note. Images of the application developed as part of the proposed solution. Adapted from AESA SAC (2024).

Chapter X: Implementation Plan and Key Success Factors

10.1 Activities

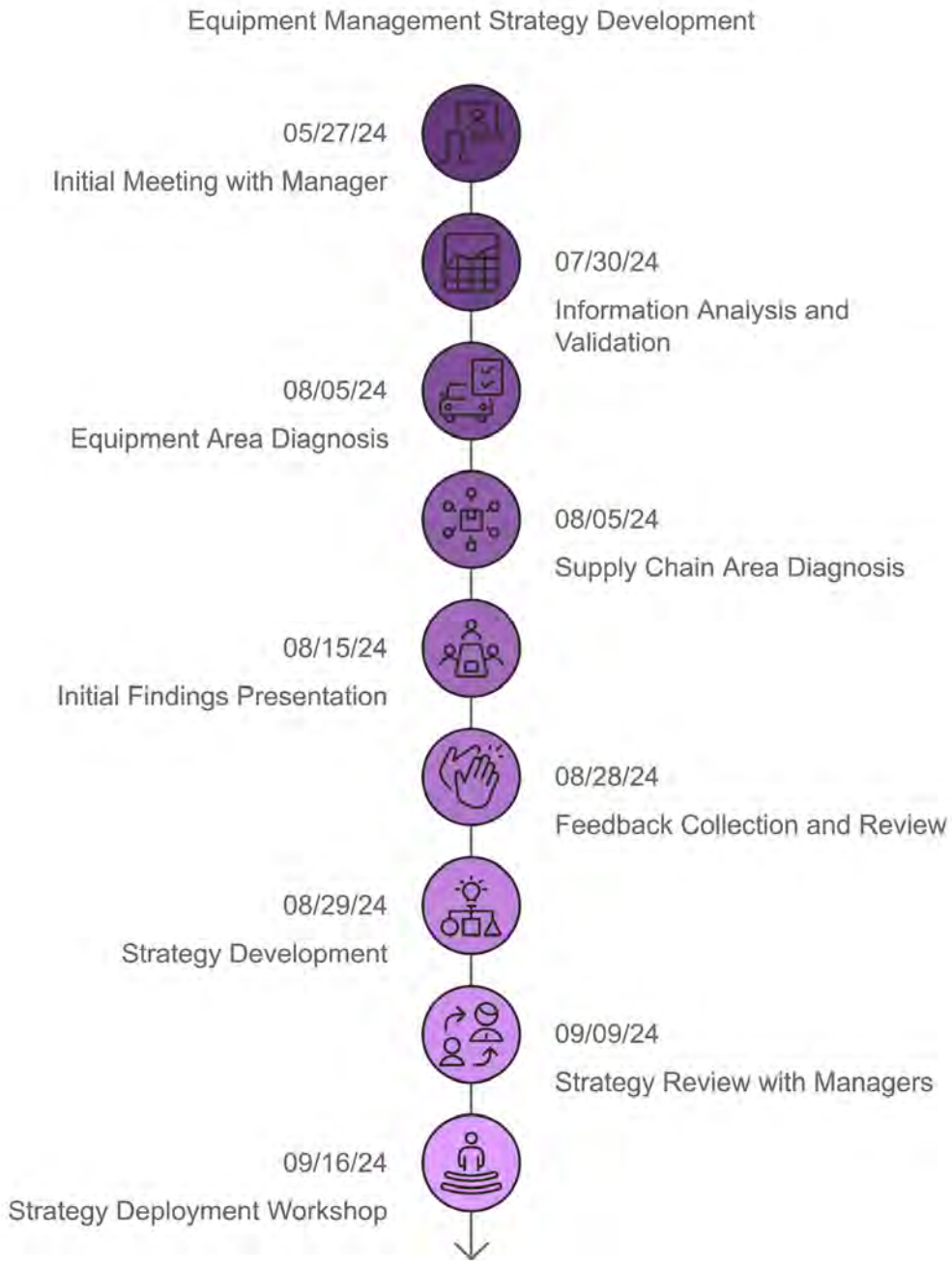
The following activities were proposed to develop the strategy:

1. First meeting with the Equipment and Supply Chain Manager and his team: This activity is aimed at understanding how the team works and identifying activities related to Equipment management.
2. Second meeting with the Equipment and Supply Chain Manager: Analysis of information and validation of the problem prioritization matrix.
3. Meetings with the Deputies of Teams: These meetings are to understand the perspective of the Teams area and diagnose how it operates to create better strategic alignment.
4. Meetings with the Supply Chain Deputies: These meetings are to understand the perspective of the Supply Chain area, its influence on team management, and diagnose it to create better strategic alignment.
5. Presentation of initial findings: The objective is to show the Team and Supply Chain Manager an initial diagnosis of Team management and initial considerations of the strategy to obtain feedback and begin developing the strategy.
6. Strategy development: Once feedback has been obtained from the Supply Chain and Equipment Manager, the strategy is developed using the established methodology. To do this, checkpoints are carried out with the Supply Chain and Equipment Manager and his deputies to discuss the semantics of the strategy, the definition of the various elements and to discuss how to deploy them.
7. Strategy deployment: Through a workshop, the findings, the strategy and its elements are communicated to the Equipment and Supply Chain area in a forum with the

participation of the team. The purpose of this workshop is strategic alignment and training on the P2W methodology.

Figure 12

Timeline for the Development and Deployment of the Equipment and Supply Chain Management Strategy at AESA



Note: Adapted from AESA SAC (2024).

10.2 Budget

To develop and implement the strategy, an investment that requires a monetary expense is not necessary, but the use of hours of personnel from the Equipment and Supply Chain area is necessary, approximately 40 hours of key personnel from the area for information gathering, discussion and adjustments; and 3 hours for the strategy workshop with the entire Equipment and Supply Chain area.

10.3 Key Success Factors

The key metric of success is achieving the winning aspiration set by the methodology, along with the strategic alignment of team members both internally and with the company's strategy and objectives. The outcomes of this achievement include a reduction in equipment operational damage and operating costs, as well as fostering a sense of ownership behavior that ensures this change is sustainable over time.

The indicators that would demonstrate the achievement of the objectives are a reduction in operational damages by US$1.5 million within a year, and a decrease in the inventory level of spare parts and accessories for the equipment within the same one-year period. It is required to have a representative sample of months to observe this reduction.

Chapter XI: Consulting Results

11.1 Results generated in the Strategic Objectives

The greatest result is the development of a strategy under the P2W methodology that fits the nature of the company and that reflects the objectives, recipe for success and capabilities to be developed with a review by the Team and Supply Chain Manager:

Figure 13

Supply Chain and Equipment Management Strategy at AESA

Note. Adapted from AESA SAC (2024).

1. Winning aspiration: “Ensure safe, efficient and operational equipment at an appropriate cost.” This aspiration highlights the desirable elements of the area, the first being that the equipment or assets meet expected results to maximize the value obtained from them.

The first of these elements is security, highlighting that the company operates in a high-risk industry and that these risks come from different fronts. The aspiration of the equipment area is that no risk should come from the equipment and assets management.

The second element refers to asset performance. Being more efficient means doing more with less. The consequence of this will be less use of equipment and all the variables associated with its operation to produce a unit of the company's product. In addition, less exposure to the equipment and the people who operate it will reduce the probability of accidents, damage to the equipment and a smaller environmental footprint.

The third element concerns the task of always keeping assets available. Considering that the operation works 24 hours a day, every day of the year, it is crucial that the operation always has the equipment and never needs to stop the activity.

The fourth element, the appropriate cost, is a highly relevant variable. Since the mining services provider is an industry where cost is a highly valued element, reducing these costs translates into a higher margin for the contractor, greater competitiveness for the company and greater value for the client. However, this cost contains several elements with positive and negative correlations, some of which are easily understood, such as greater productivity, which does translate into a lower cost; but elements such as greater availability could translate into a higher cost by requiring a greater number of maintenances; greater security, presumably, could translate into a higher cost. In other words, the appropriate cost requires a balance of desirable elements within the winning aspiration.

2. Where to play? The action zones of the team area were discussed in order to obtain the expected results.

The first zone in the life cycle of the equipment, since each piece of equipment results in a medium-term relationship that begins with the acquisition of the equipment; then maintenance and operation, which is the longest phase of this relationship and can extend up to 3 or 5 years. When the equipment operation is finished, it moves on to the last phase, which is liquidation.

Regarding the acquisition of equipment, this variable is of utmost importance since it provides an initial Quick-Win for the area by reducing the cost of the equipment, resulting in a lower cost to be recovered when the equipment begins to operate.

Regarding equipment maintenance and operation, this is the most extensive and complex phase of the equipment life cycle, and it is where the efforts of the equipment area are focused, it is where more people from different areas are involved. The company's winning aspiration has a greater orientation to act in this phase since it is where the greatest risks that may threaten the desired results and the elements within the winning aspiration are manifested.

The third phase of the equipment cycle is liquidation and consists of the sale of the equipment at the end of its useful life. The end of the life of an equipment can occur for various reasons such as the end of the equipment's lifespan caused by a change in technology, termination of the contract or change in its scope. The highest sale value of the equipment depends on the condition of the equipment, the local or international demand for such equipment or its parts. It is important to mention that this is a very specialized and limited market, which is why it becomes an important management front to maximize the acquired value.

The other definition area of this section of the strategy is the identification of key clients for the equipment area, which are the operations area and the used equipment market. The first is the internal client of the equipment area, the operations area, who is the user of the equipment to carry out the company's economic activity. The interaction of the equipment and operations areas is of utmost importance, the first acts as a supplier for the second. The first ensures the availability of the equipment which translates into greater production and the second is the one that exposes the equipment to the operation and the use that is given to it determines the profitability acquired from the equipment, the wear and tear and the operational damages of the same.

3. How to win? The team discussed the elements that will allow it to achieve its winning aspiration and that can differentiate it from other areas. These are: Ownership Culture, Predictive Management, Data-Based Management, Operational Efficiency and Change Management. The articulation of these formulas applied in the space where they are defined to be executed will allow the organization to achieve the strategic objective reflected in the winning aspiration.

a. Ownership culture: The desirable company culture is one that fosters a "sense of ownership," since ownership behavior will promote a feeling of personal responsibility and a commitment to the proper management, operation, and maintenance of assets, as if they were one's own. This sense of responsibility is expected to go beyond simply fulfilling tasks or roles; it is about fostering an environment of active concern about the performance, efficiency, and optimization of the resources and assets under the supervision of the area.
b. Predictive management: Refers to the focus on the direction of management of the equipment area. The area is convinced that the optimization of the asset value comes from decisions to anticipate problems and plan interventions efficiently, reducing costs, maximizing the availability of the equipment and guaranteeing optimal performance of the resources in the long term.
c. Data-Driven management: This involves making strategic decisions using relevant data. Relying on objective analysis, it reduces the space for decisions based on assumptions or intuitive experience. Experience-based decision-making is a common practice in industries with less access to education or lower educational levels. Personal experiences are unique, this results in different ways of operating, inconsistent results, misalignment with the forms and mechanisms of the organization, and an operation dependent on the expertise of those experienced people, and a change in form once

these people leave the organization. Data-driven management allows for predictable results, not depending on the unique experience of employees.

d. Operational efficiency: Refers to the ability to maximize the performance of equipment and resources, ensuring that equipment is used consistently and efficiently, minimizing downtime. This will result in the operations area having more resources at its disposal for longer and lower operating costs on the equipment side.

e. Change management: This is highly relevant since developing and implementing a strategy implicitly involves a change in the way operations are carried out; in this context, appropriate change management will facilitate the implementation of new ways of operating. It was considered that this element plays a fundamental role in strategic deployment, since in the underground mining industry there is resistance and even fear of it.

4. Capabilities: Capabilities are those faculties that must be developed and in which the organization must invest to successfully execute its strategy and make the value proposition a reality and achieve differentiation:

The first is a meritocracy and incentive system that encourages the expected behavior of equipment personnel, both employees and operators. This will help ensure that decisions and rewards in the organization are based on performance, skills and results achieved. This will promote an environment where employees strive to continually improve, knowing that their efforts will be recognized. A well-implemented meritocracy aligns employee talent and performance with the company's strategic objectives, which reinforces the execution of an ownership culture.

Continuing to build the foundations of the ownership culture, staff empowerment serves as another key capability because it gives employees the authority, responsibility and

confidence to make decisions and act autonomously when executing tasks. This reinforces adaptability in the context of change and a need for strategic alignment.

Another capability to develop is predictive analysis and information-driven planning, which involves the use of models and processes aimed at generating and providing information for decisions and actions in the future. Informed planning involves a robust assessment of the implications and considerations of decisions made in the future, looking at how this affects the equipment until the completion of its life cycle. The development of this capability will make predictive management possible as a recipe for success for the area.

Mastering cost control is the ability to rigorously and proactively manage costs in all areas of equipment operation, optimizing resource use and minimizing waste without compromising quality. Mastering the variables that determine costs goes hand in hand with operational efficiency and predictive management by reducing costs and their variability over the life of the equipment and making it more predictive.

Another capability that the company must develop is the so-called AESA Way, which is the definition of how the organization carries out its procedures. This definition translated into a process limits the influence of the variability of human behavior, which limits the possible results, making them more predictable and manageable.

Supplier relationships and negotiations are key capabilities that involve low resource usage, ensuring rapid value acquisition by acquiring assets and their supplies at a lower price. This reduces the acquisition cost and contributes to making the equipment profitable by having a lower cost to recover. This capability is most critical at the time of asset acquisition and is important throughout the life of the equipment until its liquidation because it reduces the total cost of ownership of the asset.

Digital tools that enable data collection and processing consist of the use of digitalization to obtain information for robust planning, prediction of results and informed

decision making. This element is linked to predictive management, data-based management and obtaining operational efficiency.

The last capability of this strategy is the ability to measure and analyze the footprint of equipment in terms of cost per meter and other relevant KPIs and it has to do with being aware of the impact of equipment management in all lines of the organization. This is important because the impact of equipment management can affect lines outside its scope such as financing; an inefficient use of resources can result in a greater need for assets than necessary, which will result in a greater need for financing, or a greater inventory of spare parts and accessories than necessary to maintain equipment availability implies a greater investment in working capital, which implies a higher financial cost and a longer financial cycle. It also involves identifying the positive impacts of equipment management in front of other areas in order to obtain recognition and reinforce the culture of ownership on the ownership side of the results.

5. Management Systems: Management systems provide support for the strategy and serve to build and maintain distinctive capabilities, helping to execute the strategy more efficiently and in line with strategic objectives.

a. Transparent KPIs and regular meetings: Focuses on establishing clear and measurable key performance indicators (KPIs) to monitor asset performance. Transparency means that all relevant stakeholders can access and understand the KPIs, which fosters an environment of accountability. Implement platforms that allow real-time or periodic monitoring of these KPIs, allowing for quick adjustments in execution to ensure that goals are met.
b. Specialized training: Ensures that employees are continuously updated in the operation and maintenance of equipment, as well as in the application of new technologies; ensures that operators, technicians and supervisors receive training adapted to their

functions, optimizing their impact on the operation. This is crucial to improve efficiency, reduce errors and maximize equipment performance.

c. Rewarding for meeting goals and team availability: This involves encouraging members of the organization to achieve strategic and operational objectives by rewarding the achievement of key goals related to team availability and performance. This encourages high-performance and responsible behavior, related to the ownership culture that the company wants to develop.
d. Real-time monitoring: This consists of real-time monitoring systems that allow tracking the performance, status and performance of equipment in real time. This reduces the time required for decision making, allows for faster adaptation to changes, maximizing efficiency and minimizing failures.
e. Agile, rapid-response processes: This ensures that decision-making and problem-solving processes are agile and efficient, allowing a rapid response to unforeseen operational situations or changes in project conditions. Operational agility is key to maintaining competitiveness and meeting deadlines and budgets.

11.2 Results generated in Organizational Management

The strategy workshop was held with the assistance of 18 people from the Equipment and Supply Chain area with the assistance of the Equipment and Supply Chain Manager, the deputies, chiefs and analysts that make up this area in Lima.

The results of strategy development and workshop implementation are as follows:

1. Greater knowledge of the area: Both those involved in developing the strategy and attendees were able to obtain a diagnosis of the way their area works from a strategic point of view and the relationship it has with the fulfillment of the area's objectives.

2. Knowledge of strategy methodology: The area was able to learn about the P2W methodology as a strategy structure. Knowing this methodology allows them to adjust and modify it, guaranteeing its agility in the face of changes.
3. Strategic alignment: Deploying the strategy to the area allows for the identification of objectives, a recipe for success, and capabilities to be developed, and guides the organization toward a common goal by establishing a common basis for all.
4. Common structure for strategic discussion: Allows the establishment of a common structure that sets out the strategic relevance of the topics and issues discussed in regular work meetings, guiding the discussion towards the fulfillment of strategic objectives.
5. It allows the organization to identify areas for improvement: the methodology allows the identification of areas for improvement or those that require development and investment to achieve strategic objectives.

11.3 Results generated in the Social Sphere linked to the Organization

The implementation of the strategy has a significant social impact since it involves empowerment of equipment operating personnel, cultural development and training of the same. This results in a greater value of the work of the personnel and an increase in their inclusion in economic activity.

Furthermore, the efficient use of equipment, because of achieving the strategy's objectives, promotes a lower use of resources and therefore a smaller environmental footprint as a result, reducing the company's impact on the environmental front.

11.4 Results generated in the Economic and Financial Field

The financial economic impact of strategic development and implementation has various economic impacts, some more identifiable than others. The most notable are the reduction in damages, whose expected impact is US$1.5 million annually, which represents an

improvement of 1 percentage point in the company's margin; the improvement in days of inventory of equipment spare parts by streamlining and reducing its stock, which would give the company approximately US$200,000 (reduction of 1 day in the days of inventory which averages 60 days of an inventory of US$10 million in the last 6 months) of cash in one go, which would improve the company's liquidity and reduce the need for financing by that amount, saving interest by US$16,000 annually (assuming a financing rate of 8%).

Other impacts that are more difficult to identify are lower costs resulting from better cost control, greater use of information and quicker decision-making. Lower staff turnover due to the promotion of a culture of ownership and staff empowerment. These impacts are more difficult to determine but are existing and relevant because of the implementation of the strategy.

Chapter XII: Conclusions and Recommendations

12.1 Conclusions

1. Need to act in Equipment and Supply Chain area:

It has been determined that intervening in the Equipment and Supply Chain area is crucial in the creation of value for the company, presenting important opportunities for improvement that were identified during the diagnosis, in relation to the management of the equipment, that is, from the acquisition, operation and maintenance of the equipment; which has been developing subareas, to a common strategy that is to "guarantee safe, efficient and operational equipment at an adequate cost":

With the prioritization matrix, it was identified that equipment inoperability is the critical problem that most affects AESA's profitability and operational efficiency.

2. Strategic alignment opportunity:

The lack of integration and strategic alignment, the absence of a clear strategy in the area limit its efficiency and capacity for innovation. The solution proposed to develop and implement a strategy is essential to optimize operations, improve decision-making and allow the company to implement changes. The methodology used, the deployment and dissemination to the members of the area are key components of this transformation.

3. Multidimensional impact:

The development and deployment of the strategy allowed for the acquisition of identifiable and measurable results such as improved margins and liquidity of the company. However, there are other effects such as reduced operating costs, lower turnover and lower environmental impact that are a consequence of this process but are difficult to estimate.

12.2 Recommendations

1. Committed leadership:

This recommendation is critical, as without active support from senior management, any strategic implementation initiative, involving a change in the way a team works, will struggle to thrive. Committed leadership will set the tone and vision for the entire organization, inspiring employees to embrace the change.

2. Developing a culture of ownership:

The cultural front is one of the biggest challenges within strategic implementation, as revealed by the Supply Chain and Teams Manager, there is a resistance to change or fear of change that must be addressed, given that a good part of the strategic value comes from promoting ownership behavior.

3. Change management:

It is recommended to develop a change management model focused on the adoption of new technologies and the integration of processes, to reduce staff resistance and fear of uncertainty.

4. Measuring results:

Establish clear metrics and KPIs to assess the progress and impact of strategic deployment. This allows for adjustments to be made in the process and informed decisions to be made, as well as more accurately measuring impacts. Without clear metrics, it is difficult to assess the success of strategic implementation and adjust when necessary.

5. Creating a talent retention program:

AESA should develop a specific program for the training and retention of equipment operators, with a focus on the continuous development of technical and supervisory skills, with an impact on the quality of operation and offering uninterrupted services at an efficient cost for its customers.

6. Evolution of the Winning App:

AESA must continue the evolution of the Winning application, with the aim of integrating it into the operating platforms and the SAP resource management system, so that it can obtain real-time data from the operation, directly from the machines, and can generate financial transactions and calculations in the ERP.

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Appendix

Appendix A: Photograph of Visit to the AESA Office

Appendix B: Secondary Data Collection at Expomina 2024

Appendix C: Strategy Workshop Content

AESA

Análisis estratégico

Área de Equipos y Cadena de Abastecimiento

Pablo Aguilar
Juan José Gómez
Dante Morales
Karen Campos
Lady Cerna

Septiembre 2024

Juan José Gonzáles Núñez
Aceptante

AESA

Sobre la empresa

Empresa especializada en el desarrollo de infraestructura y obras civiles minera subterránea más grande del Perú.

- Avance de tunelería
- Servicios adyacentes a la tunelería: Shotcrete, sostenimiento, transporte
- Otros servicios y mantenimiento de infraestructura

AESA

Área de Equipos y Cadena de Abastecimiento

¿Cómo estamos operando hoy?

- Orientada a brindar servicio de forma anónima
- Experimentó un incremento de complejidad alto y rápido
- Cuenta con perfiles de distintas industrias
- Dispone del 70% del trabajo es atender emergencias y actividades no programadas
- Se encuentran ejecutando proyectos importantes
- Organización con horizontalidad en cabeza y vertical en la operación
- Organización resistente a cambios y pérdidas

AESA

Área de Equipos y Cadena de Abastecimiento

¿Qué retos tiene a futuro?

- Mayor complejidad sujeto al apetito de riesgo de la organización
- Nuevas tecnologías digitales
- Desglobalización
- Resistencia de personal local a ser desplazados por nuevas tecnologías
- Atracción de talento

AESA

¿Por qué una estrategia?

- Gestión eficiente de recursos
- Adaptación a la Complejidad y Cambio
- Mejora de la Coordinación y Comunicación
- Alineación con los Objetivos de la Empresa

AESA

Área de Equipos y Cadena de Abastecimiento

Modelo operativo

AESA

Perfiles observados

	Thinkers	Doers
Enfoque	Reflexión y planificación	Acción y ejecución
Proceso de toma de decisiones	Analizan todas las opciones antes de actuar	Toman decisiones rápidamente basadas en la información disponible
Estilo de trabajo	Prefieren trabajar en ideas y estrategias	Prefieren realizar tareas y proyectos concretos
Tiempo de respuesta	Pueden tardar más en responder o actuar	Responden y actúan rápidamente
Motivación	Motivados por el pensamiento profundo y la resolución de problemas	Motivados por los resultados tangibles y la eficiencia
Riesgo	Tienden a ser más cautelosos y aversos al riesgo	Están más dispuestos a asumir riesgos calculados
Habilidades clave	Análisis crítico, creatividad, planificación a largo plazo	Ejecución, adaptabilidad, resolución rápida de problemas
Comunicación	Prefieren la comunicación detallada y reflexiva	Prefieren la comunicación directa y al grano
Fortalezas	Excelentes en la creación de estrategias y visión a largo plazo	Excelentes en implementar y lograr objetivos rápidamente
Debilidades	Pueden quedar atrapados en la parálisis por análisis	Pueden actuar sin suficiente planificación o reflexión

AESA

Equipos

Cadena de Abastecimiento

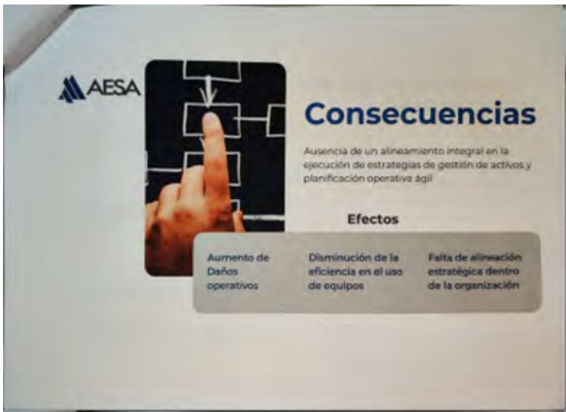
Un correcto despliegue e estrategia depende de que los equipos desarrollen su rol estratégico, ser la columna que une el cerebro al músculo

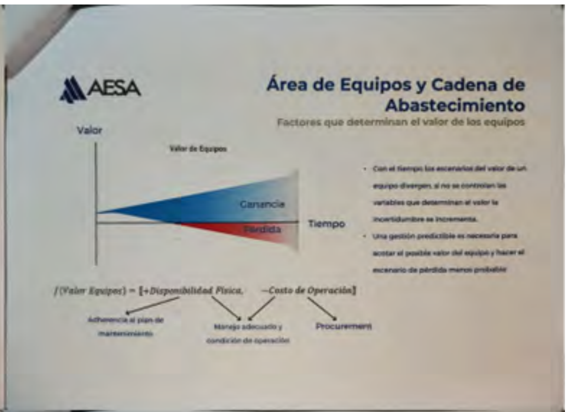
Mix correcto

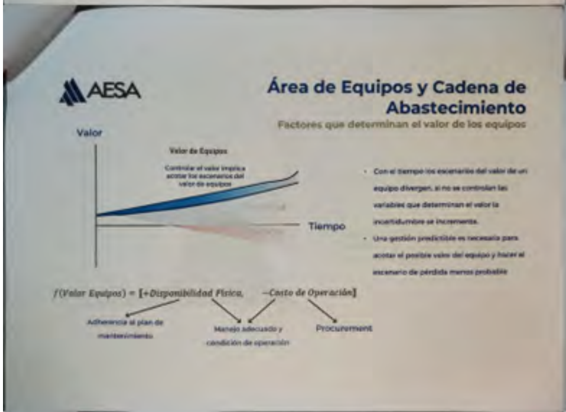
- THINKERS — Gerentes, subgerentes y Jefes
- DOERS — Personal en Operación y operarios
- Watchers — Líderes y sistemas

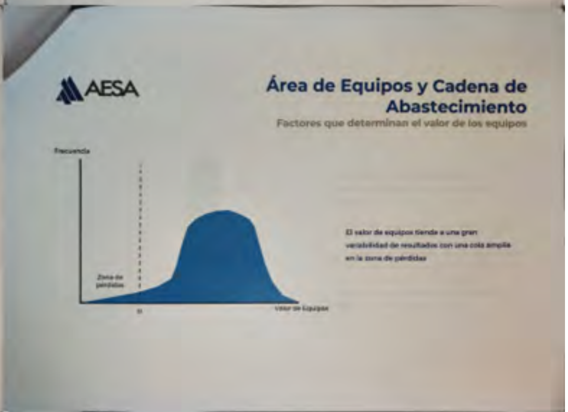
Es importante crear las condiciones para que los perfiles realicen mejor sus tareas.

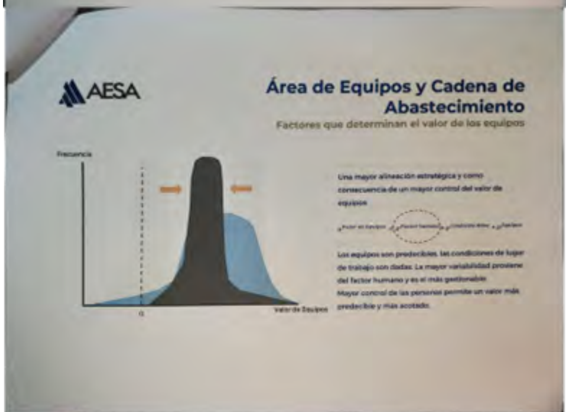
- Las emergencias pueden distraer a los Thinkers de desarrollar soluciones de mayor plazo y planificar.
- Se puede aprovechar más la información brindada por los Doers
- Es necesario que un alguien o un sistema garantice que se está operando como se espera (Watchers)
- Debe ser ágil para incorporar cambios y enfrentar los retos futuros

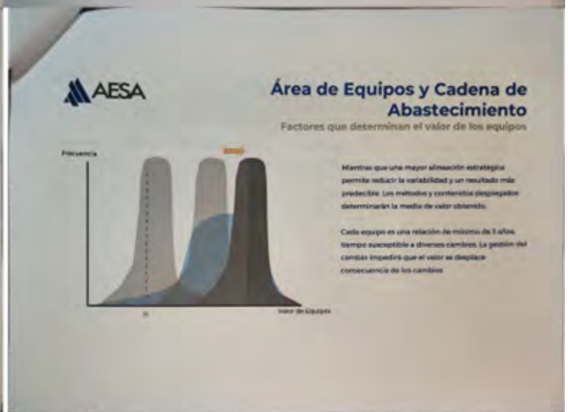

AESA
Consecuencias
Ausencia de un alineamiento integral en la ejecución de estrategias de gestión de activos y planificación operativa ágil
Efectos
Aumento de Daños operativos
Disminución de la eficiencia en el uso de equipos
Falta de alineación estratégica dentro de la organización

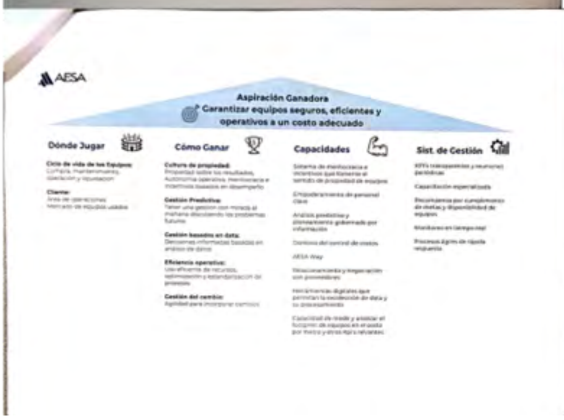

AESA
Área de Equipos y Cadena de Abastecimiento
Factores que determinan el valor de los equipos
Valor
Ganancia
Pérdida
Tiempo
Procurement


AESA
Área de Equipos y Cadena de Abastecimiento
Factores que determinan el valor de los equipos
Valor
Tiempo
Procurement


AESA
Área de Equipos y Cadena de Abastecimiento
Factores que determinan el valor de los equipos


AESA
Área de Equipos y Cadena de Abastecimiento
Factores que determinan el valor de los equipos


AESA
Área de Equipos y Cadena de Abastecimiento
Factores que determinan el valor de los equipos


AESA
Aspiración Ganadora
Garantizar equipos seguros, eficientes y operativos a un costo adecuado
Dónde Jugar
Cómo Ganar
Capacidades
Sist. de Gestión


AESA
How to Win
Cultura de Propiedad
Gestión Predictiva
Gestión basada en Data
Eficiencia Operativa
Gestión del Cambio

AESA

Capacidades

Meritocracia y Empoderamiento	• Premiar y reconocer los logros • Darle motivación y poder a las personas
Análisis predictivo	• Recolección de información • Elaboración de modelos predictivos • Monitoreo constante de ejecución de planes
Dominio del control de costos	• Mecanismos de control de costos
Capacidad de medir y analizar el footprint de equipos	• Identificación de valor y costo de equipos en los economics de la compañía
AESA Way	• Acompañar muy de cerca el desarrollo de AESA Way

AESA

Cultura de Propiedad

¿Qué es Cultura de Propiedad?

AESA

Cultura de Propiedad

1. **Dar autonomía a los empleados:** Permitir que exploren, experimenten y piensen por sí mismos, fomentando su participación y compromiso.
2. **Mostrar el "por qué" de su trabajo:** Conectar a los empleados con un propósito mayor para que vean cómo su contribución beneficia a la empresa y a otros.
3. **Conectar directamente al empleado con el proyecto:** Asegurarse de que cada empleado entienda su papel y la importancia de su contribución en los proyectos.
4. **Hablar de temas más allá del trabajo:** Fomentar las relaciones entre los empleados para que se sientan conectados y responsables entre sí.
5. **Fomentar opiniones opuestas:** Animar a los empleados a expresar sus ideas, incluso si son contrarias a las de los líderes, promoviendo la innovación y el cambio.

AESA

Cultura de Propiedad

6. **Escuchar a los empleados:** Hacer que los líderes escuchen activamente a los empleados, lo que les motiva y les permite sentirse dueños de las soluciones.
7. **Enseñarles a pensar como propietarios:** Compartir conocimientos y capacitar a los empleados para que comprendan la empresa como si fuera suya.
8. **Reconocer el esfuerzo y la calidad.** Celebrar los logros y reconocer el trabajo bien hecho, lo que refuerza el sentido de propiedad.
9. **Compartir retroalimentación y ser transparentes:** Fomentar una cultura de retroalimentación honesta y constructiva para que los empleados se sientan seguros al innovar y asumir responsabilidades.
10. **Medir el progreso:** Establecer métricas para que los empleados se autoevalúen y mantengan el rumbo, lo que les ayuda a sentirse responsables de sus resultados.

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Gestión del Cambio

¿Qué es Gestión del Cambio?

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Gestión del Cambio

Los Cuatro Pilares para el Éxito:

1. **Fomentar Comprensión y Convicción:**
   Comunicar el "por qué" del cambio.
   Involucrar a las personas a nivel emocional y racional.
2. **Reforzar con Mecanismos Formales:**
   Ajustar sistemas, procesos y estructuras para apoyar el cambio.
3. **Desarrollar Talento y Habilidades:**
   Capacitar al equipo con las habilidades necesarias para enfrentar el nuevo escenario.
4. **Liderar con el Ejemplo:**
   Los líderes deben ser los primeros en adoptar los cambios, actuando como modelos a seguir.

Aplicativo Winning

Winning

Winning es la aplicación que te permite definir y desplegar tu estrategia de manera colaborativa, consiguiendo la visibilidad y el alineamiento necesario para su exitosa ejecución.

Features Winning

Con Winning, puedes gestionar las unidades organizativas y personas, definir estrategias usando "Playing To Win", establecer objetivos y métricas de control, así como obtener ideas innovadoras y llevarlas a ejecución mediante iniciativas.

Todo sin perder Alineamiento!

On Boarding Para Ganar

Con el On Boarding en la misma aplicación, puedes gestionar la información que quieres compartir con los usuarios para que siempre estén enterados del proceso estratégico.

Organización y Personas

Puedes mapear la jerarquía de unidades de la Organización y asociar a las personas al equipo que correspondan. Ellas serán las protagonistas de tu estrategia!

Estrategia con Playing To Win

Winning fue concebido para un proceso estratégico basado en "Playing To Win", la forma real de hacer estrategia.

Objetivos Tangibles con OKRs

El sistema OKR, te permite mapear Objetivos retadores y medir los avances con Resultados Clave cuantitativos y tangibles.

Reta a tus equipos asignándoles OKRs! Las mediciones constantes y visibles en la aplicación te permitirán asegurar el éxito!

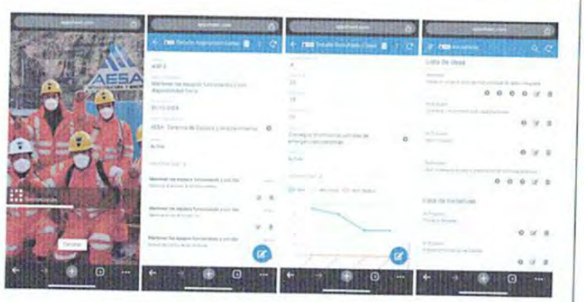
OKRs at Google

Innovación e Iniciativas

Impulsa radicalmente la innovación, recogiendo ideas innovadoras de muchos equipos y personas.

Materializa el valor con la ejecución de iniciativas basadas en el análisis de las ideas propuestas.

Lleva el control de las tareas para asegurar el cumplimiento de los objetivos.



Appendix D: List of Strategy Workshop Attendees

Taller – Estrategia de Equipos y Cadena de Abastecimiento – AESA

Fecha: 16 / 09 / 2024

Lista de Asistentes

Nombre	DNI	Firma
1 Anguie Daisy Zorrilla Granados	74128867	
2 Gonzalo Mendiola Pozo	43981387	
3 André Vivanco Jaén	43641849	
4 David Renato Becerra Azpur	71249452	
5 Gabriel Flores Muñoz	73483776	
6 Hyazzmin Romani Gutierrez	72424349	
7 Victor Huaroc Coruelo	46366447	
8 Gerardo Goyo Urpano	46370392	
9 Melisa Quispe Rodriguez	73655865	
10 Diego Egoávil Méndez	46739963	
11 Juan Carlos León Prado	43542859	
12 Eddy Cristopher Loayza Ambrosio	72178920	
13 Victor Monteblanco	10681068	
14 Carlos Luque Vivero	40363880	
15 Arturo Guillermo Andrade Garro	45774640	
16 Claudio Vizcardo Rodriguez	72191044	
17 Eduardo Andrés Urdaneta Zurbarán	001991885	
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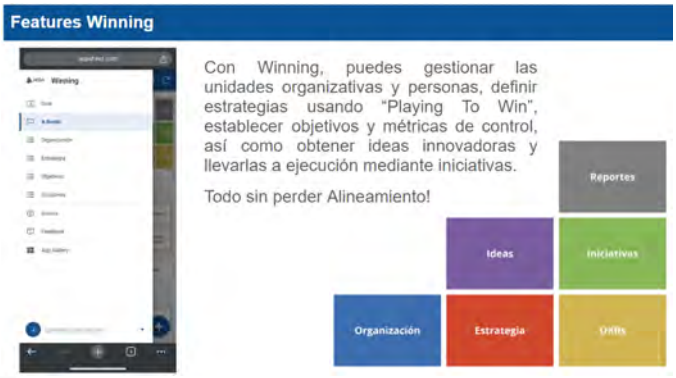
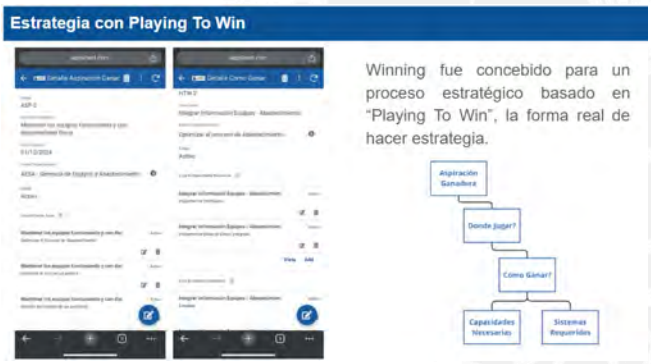
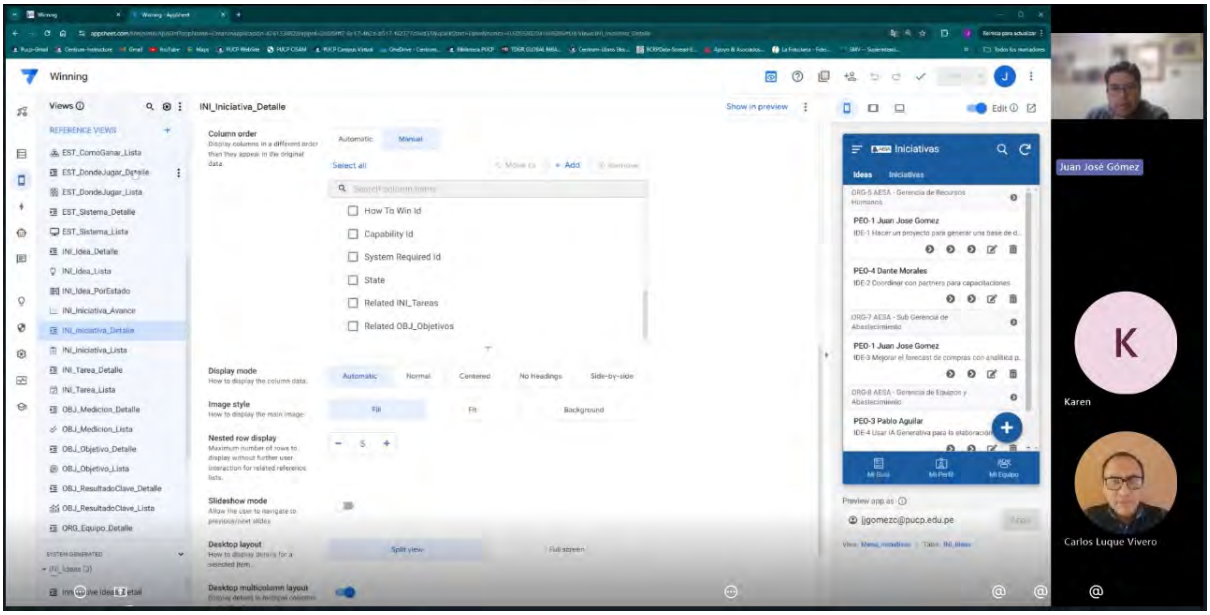
Appendix E: Winning Application. Features and Presentation to AESA

Link: https://www.appsheet.com/start/3b084ff7-6c17-4b2a-b517-f42727c04d33







Appendix F: Calculation of AESA's WACC

Concept	Source	Value
Unlevered Beta	Damodaran	0.86
(D/E)	Damodaran	15.82%
Tax Rate	SUNAT	32.6%
Levered Beta	Estimation	0.95
Risk free rate	Damodaran	1.46%
Country risk Premium	BCRP, embig aug30	1.57%
Costo de deuda (Kd)	Internal data	8%
Prima de rendimiento del mercado (ERP)	Damodaran	6.80%
Perpetual Growth	Estimation	2%
Ke	Estimation	9.50%
We		0.86
Wd		0.14
Wacc	**Estimation**	**8.94%**