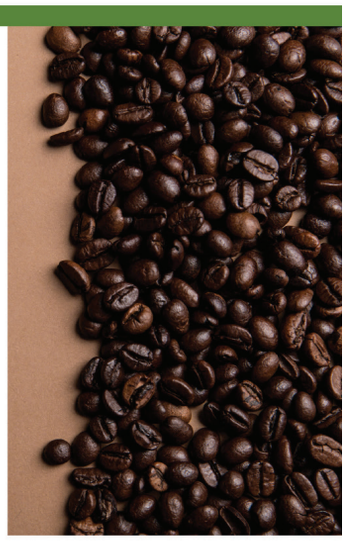
Active Businesses in the Region: Market Opportunities for the Metalworking Industries

A 2021 Study

ISBN 978-621-95807-7-9









Department of Science and Technology
Metals Industry Research and Development Center

Active Business in the Region:
Market Opportunities for the
Metalworking Industries
A 2021 Study

ISBN 978-621-95807-7-9
Published by the
Metals Industry Research and Development Center
Department of Science and Technology
Bicutan, Taguig City 1631
Republic of the Philippines



Active Business in the Region: Market Opportunities for the Metalworking Industries

A 2021 Study


Contents

Preface i

Contents ii

Acknowledgment 1

A. Business Opportunities for the Metalworking Industry 4
- 1. Frontline businesses require the localization of some machines 4
- 2. Local businesses purchase machine spare parts and accessories from foreign suppliers 6
- 3. Frontline industries are in constant need of technical assistance 7

B. Economic Environment 8
- 1. Frontline industries' perspective 8
- 2. Metalworking industry's perspective 9

C. Business Solutions for Both Frontline and Metalworking Industries 10
- 1. For the Frontline Industries 10
- 2. For the Metalworking industry 11

References 13

List of Respondents 14

Acknowledgement

Conducting a survey is a big challenge made more challenging by the current pandemic. The team encountered major difficulties in this initiative, especially data gathering, because the pandemic prevented us from conducting face-to-face surveys. Some of the potential respondents did not know how to use online surveys, some of them were doubtful and unwilling to participate.

Despite these, the survey team was firmly committed to making this study happen. The Department of Science and Technology - Metals Industry Research and Development Center (DOST- MIRDC) would like to thank:

- The DOST Regional Offices headed by Dir. Jose B. Patalinjug, III (DOST-NCR), Engr. Rowen R. Gelonga (DOST VI), and Dr. Anthony C. Sales (DOST XI), Provincial Science and Technology Center (PSTC) officers and staff, for their assistance in the conduct of surveys and focus group discussions;
- Ms. Ma. Kathleen Pearl F. Grande (DOST VI), Engr. Felipe G. Pachoco (MIRDC Extension Officer for Region VI), and Engr. Benjamin Estrellado, Jr. (DOST XI) for the assistance in retrieving the survey responses; and
- The Department of Trade and Industry (DTI) Regional Directors and staff for providing the requested information.

It was not an easy journey, but we are fortunate to be supported by colleagues, friends, industry partners, and men and women who generously gave us their time and efforts because they share the belief that we can truly make a difference through this industry study.

To all of you, our sincerest gratitude.

The Industry Study Team

The DOST-MIRDC remains proactive in fulfilling its commitment to serve the country's metals, engineering, and allied industries. One of the Center's major activities is information exchange. A proven strategy to carry out this task is the conduct of industry studies.

For its annual industry study, the Center typically focuses on a particular field in the metalworking industry – machining, welding, die and mold, heat treatment, electroplating, forging, stamping, and metal casting. It has been a practice that helped the Center develop ties with the industry players. The Center gathered information regarding the industry's status, capabilities, and how it utilizes technology to be at its finest.

In 2021, the pandemic's effects are still felt by almost all industries and sectors. The Center continues to implement the industry study.

This time, the study took on a new perspective. Considering value chains and business models, it came to the Center's realization that going directly to frontline businesses will open up new windows of opportunity for the metalworking industry, simply because the frontline businesses are the metalworking companies' clients – the market that players of the metalworking industry reported as 'dwindling.' [1]

The 2021 industry study was focused on three regions to represent the major islands of the country: the National Capital Region in Luzon, Region VI in the Visayas, and Region XI in Mindanao. In this study, the MIRDC directly interacted with the following frontline industries: (1) footwear, (2) construction, (3) food: fruits and nuts, (4) bamboo, (5) coffee, cacao, and coconut. These were identified as the most active industries despite the ongoing pandemic.

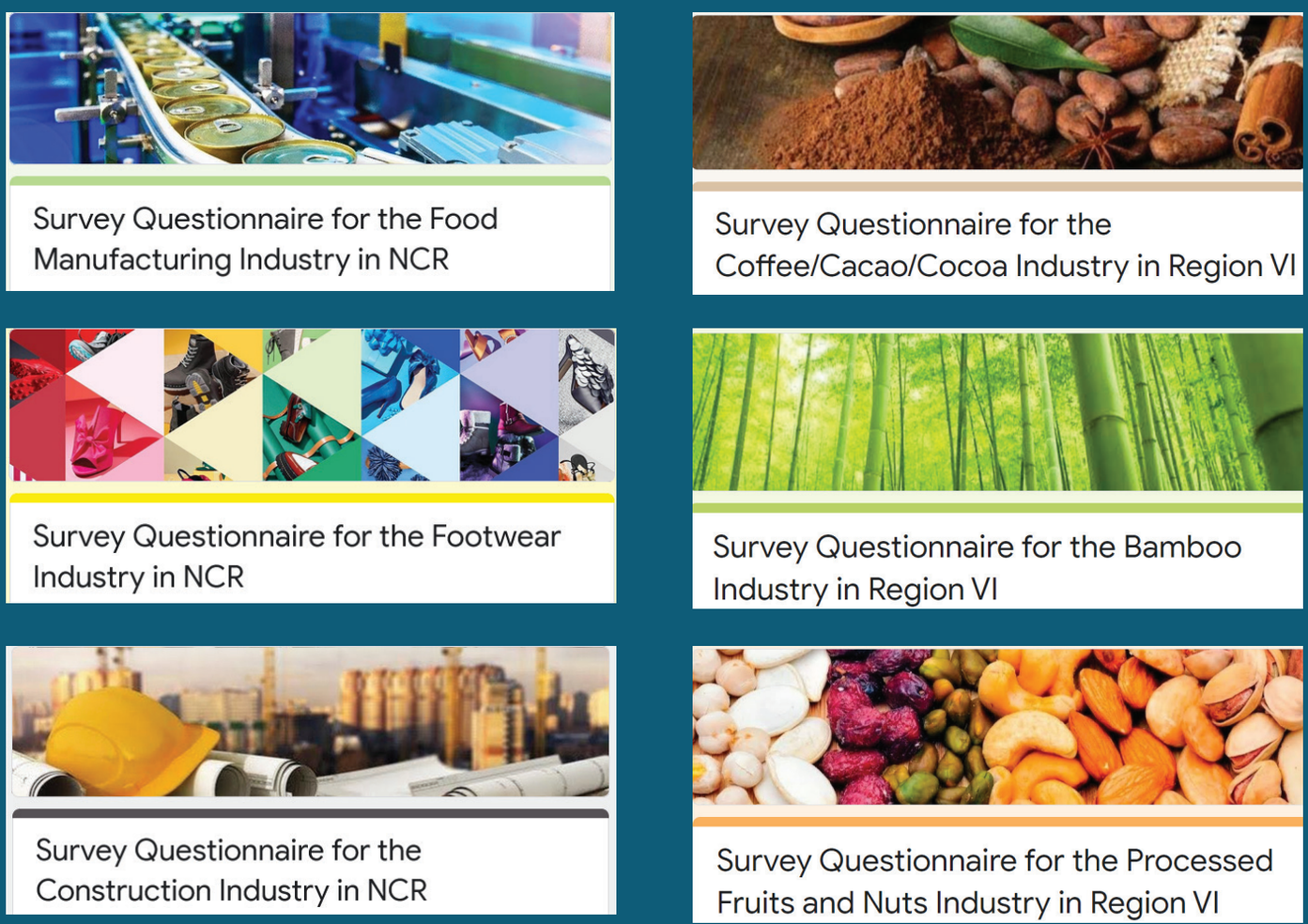
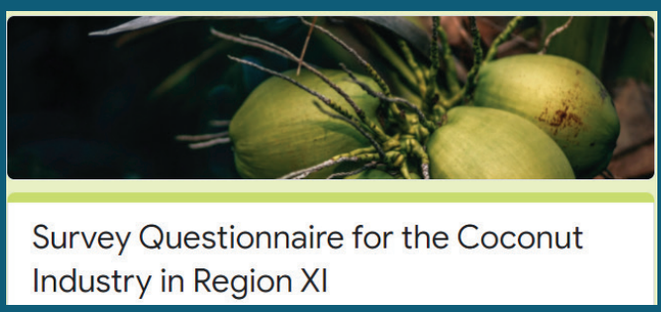


Figure 1. Survey questionnaires in Google Forms format used for the 2021 Industry Study

Shown in **Figure 1** are the pictures of the survey questionnaires in the google form.

Listening to the current status of these frontline industries enabled the Center to take note of peculiar requirements that the metalworking industry can appropriately address. **Figure 2** shows the publication materials posted on social media to invite target industries to participate in the survey.

Results of the survey conducted from May to October 2021, the industry dialogue last March 2021, and the FGD last November 2021 revealed the following requirements of the frontline industries: (1) The need for localization machines, spare parts, and accessories; (2) preventive and corrective maintenance of machines for metalworking services; and (3) technical assistance.



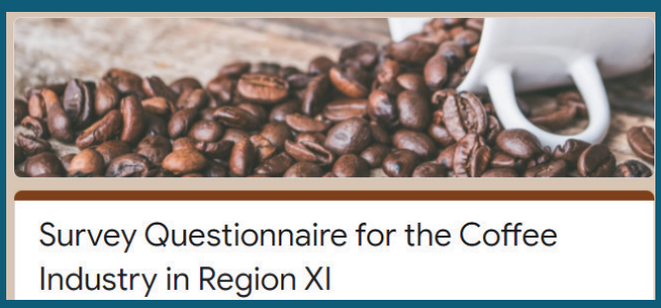


Figure 2. Call for survey respondents to participate in the 2021 industry study posted on social media.

A. Business opportunities for the metalworking industry based on the DOST-MIRDC's 2021 Industry Study

The metals industry is the crucial upstream industry that supports all frontline businesses. Playing the role of a supplier of products and services, there are requirements of frontline industries that can be appropriately addressed by the metals industry.

A.1. Frontline businesses require the localization of some machines

A.1.1. Shoe industry

Companies need automation-ready and die-and-mold CNC machines to produce quality shoes and footwear. Essential resources such as machines are unique assets that businesses need to compete.

The series of interactions with frontline industry and metalworking industry players, i.e., industry dialogue, FGD, and business-to-business meetings, brought forward the following areas for business: (1) localization of imported machines; (2) availability of spare parts and accessories; and (3) technical consultancy.

The requirement regarding localization of machines varies on the scale of businesses. In the footwear industry, the artisans or shoemakers that customize shoes highlighted the shoe stitching machine or sewing machines as the primary machines that need to be localized. While large-scale businesses that mass-produce shoes need a Back Part Hot and Cold Pressing Machine, CNC, sole pressing machine, and coconut fiber pressing machine, respectively (see **Figure 3 & 4**).

A.1.2. Coffee and cacao industry

The coffee and cacao industry in the Davao region identified the need to fabricate portable roasting machines and pulping machines (see **Figure 5**). Making these machines locally available will address the problem of the farmers in the mountains where they have issues with machine transport.

One survey respondent in the Davao Region is processing coffee using both an imported machine from Taiwan and a locally-fabricated roasting machine. The respondent shared that importing the spare parts of the machine entails major costs. In contrast, the respondent enjoys

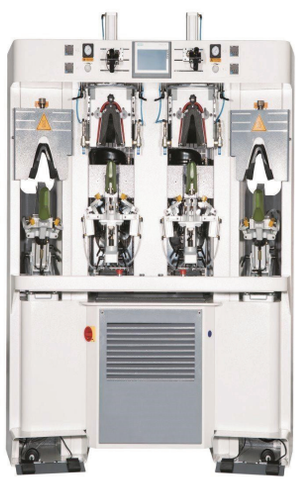


Figure 3. The back part hot and cold pressing machine used in sole pressing.

Source: m.made-in-china.com

Figure 4. Shoe stitching machine that the local artisans wish to be localized.

Source: foxsew.en.made-in-china.com

Figure 5. Sample pictures of the portable roasting and pulping machine being used in Region XI.

Source: researchgate.net

significant advantages in using the locally-fabricated machine: it can be readily supplied by a local fabricator, it requires lesser maintenance costs, and because maintenance service is easily accessible, machine downtime is greatly reduced.

The coffee and cacao industries in Western Visayas, on the other hand, require different equipment to be localized. See Figures 6 and 7. Since most businesses are on the mainland, they need large equipment to mass produce and keep up with the demand for the products.

Figure 6. Imported coffee polishing machine (L) and coffee bean sorting machine (R) that the coffee farmers in Region VI wish to be localized.

Source: seedcleaner.en.made-in-china.com & www.indiamart.com

Figure 7. Coffee solar drying bed (L) and winnower (R) are other equipment that the farmers wish to be localized.

Source: E-Journal Undip & www.alibaba.com

Figure 8. Imported garlic slicer (L) and peanut grinder (R) that the local businesses currently use in Region VI.

Source: vegetable-machine.com & www.ubuy.co.id

A.1.3. Fruits and nuts

Local producers of fruits and nuts in the Western Visayas also requested the localization of a garlic slicer and peanut grinder (see **Figure 8**).

Some of these machines are already fabricated locally by fabricators like the peanut grinder (see **Figure 9**).

A.1.4. Coconut industry

On the other hand, the coconut industry in Davao Region emphasized the need for local coconut harvesters and coconut charcoal briquette machines (see **Figure 10**).

Figure 9. Sample picture of a locally fabricated peanut grinder.

Source: Domi Online Shop

Figure 10. Sample of an imported briquetting machine that coconut industry players in Davao wish to be localized.

Source: www.energy-xprt.com

A.1.5. Bamboo industry

The bamboo industry in the Western Visayas also identified machines they wish to be localized: compressor, welding machine, shaver, and desk sander, to name a few.

Same as the peanut grinder shown in **Figure 9**, other machines stated by the bamboo industry are already fabricated locally. Local fabricators of such machines need to boost their promotion efforts to reach more frontline industries.

A.2. Local businesses purchase machine spare parts and accessories from foreign suppliers.

A.2.1. Machine spare parts

The unavailability of machine spare parts is one of the biggest problems that frontline businesses face. Imported machines have limited available spare parts locally. This pushes business owners to import spare parts. Importation entails an additional expense cost for shipping and fees for experts.

Figure 11 shows that machine owners frequently source spare parts abroad. Although these may be bought locally, they are imported by spare parts suppliers. Majority of the machines and their spare parts are imported from China.

A.2.2. Accessories for shoe manufacturing

The manufacture of shoe accessories is also a venture that the metalworking industry may consider. In 2019 alone, the registered shoe manufacturers generated gross sales worth 2.16 billion Philippine pesos.[2] Available shoe accessories in the local market are very different from the imported ones in terms of materials, designs, and quality. Common feedback about the local shoe accessories includes cheap-looking materials used, old designs, and sharp edges. Shoemakers require various shoe accessories with intricate designs. The metalworking industry may produce quality accessories using processes such as stamping, machining, die and mold, heat treatment, electroplating, welding, and metal casting. Below are the few standard accessories needed to be localized. See **Figure 12**.

Figure 12. Commonly used buckles, snaps, and hooks in shoe manufacturing.

Source: Redeyes Footwear Solutions & m.made-in-china.com/

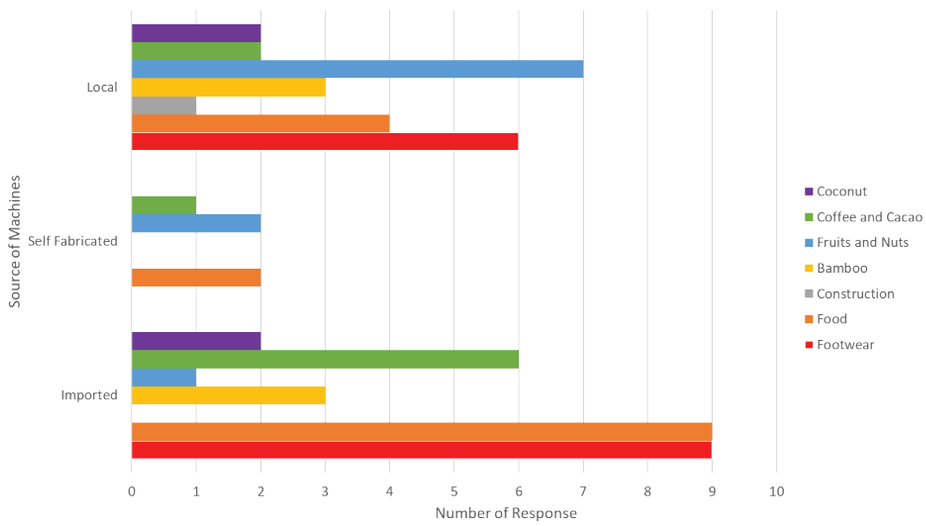


Figure 11. Comparison of the numbers of frontline industry players that buy machines locally, import, or self-fabricated.

As an offshoot of the industry study and the FGD that followed after, the Center organized a business-to-business (B2B) meeting. The Metalworking Industries Associations of the Philippines (MIAP) met some of the respondents from the footwear industry in NCR. The footwear respondents cited footwear parts that they requested to be fabricated locally. These parts are the shoe shanks, steel toe caps for safety shoes, and metal heel plates. See **Figure 13**.

Figure 13: (L to R) Pictures of shoe shank, steel toe cap, and metal heel plate that the shoe makers wish to be localized.

Source: indiamart.com, alibaba.com, & Redeyes Footwear Solutions

A.3. Frontline businesses are in constant need of technical assistance.

The requirements that the respondents revealed signify viable market opportunities for metalworking companies. When the survey team asked the respondents about the help they needed from the metalworking industry, one of their top answers was machine operation and maintenance training. **Figure 14** presents the kinds of technical assistance required by the frontline industries from the metals industries.

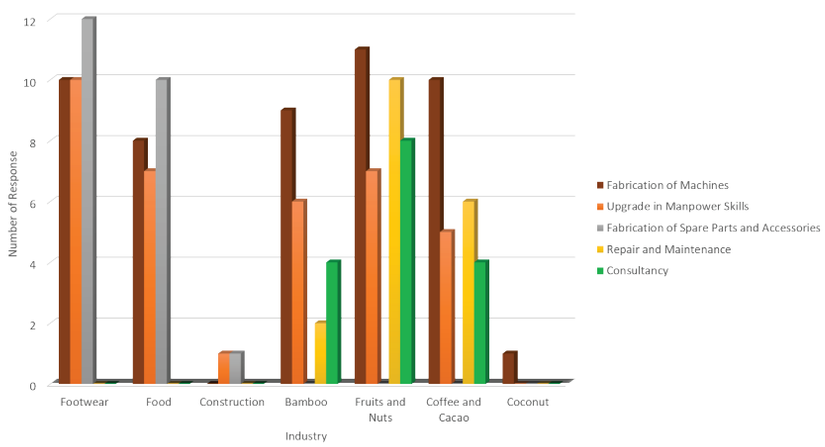


Figure 14. Graph of technical assistance needed from the metalworking companies by the frontline industries.

The survey team's interview with a player in the coffee industry in Davao led to the discussion about the need for preventive and corrective maintenance of a coffee huller (see **Figure 15**), which the Department of Agriculture provided.

Figure 15. The coffee huller, located at the cooperative's warehouse in Davao, needs repair services.

Source: aliexpress.com

The previous cooperative officers failed to maintain this machine. Another machine, the grinding machine, is also for repair however the photo is not available. As a result of the unavailability of the machines, the farmers had to outsource the processing of the coffee. With local metalworking companies as key partners, they can provide the necessary preventive and corrective maintenance services. Coffee farmers and processors will no longer need to spend on outsourced services.

The frontline businesses need regular preventive and corrective maintenance of machines to avoid frequent breakdowns. Optimized utilization of such machines will assure the coffee industry of uninterrupted business operations.

Technical assistance in research and development is also a need of frontline businesses. One respondent is requesting the assistance of a metalworking company in the design of a coffee and cacao gravity separator. To

increase productivity and quality, the innovation of a separator machine is a requirement.

B. Economic Environment

B.1. Frontline industries' perspective

B.1.1. Footwear industry

From its birth in 1887, the shoe industry was a 132-year-old industry that contributed to around 70% of the local economy. The footwear industry during the '60s to '70s was thriving. Local shoemakers have already exported shoes to Japan, Southeast Asian nations, Europe, the USA, and Canada. The Philippine-made shoes are comparable to their Italian counterparts [2].

In the 1990s, trade liberalization was implemented and resulted in the fall of the footwear industry. The arrival of cheap-priced shoes from China started flooding in; as per official government data, the number of registered shoe manufacturers in 1994 was around 513, and in 2001 it declined to 237, and fell to 153 in 2018 [2]. Many factors contributed to the continued decline in the numbers of shoe manufacturers aside from the arrival of the lower-priced shoes from China; among these are: failure to professionalize the shoemaking industry; and lack of interest of the young generation to take over the family business.

At the height of the pandemic, many businesses closed due to health protocols and limited movement of non-essential goods. Although the public's activities were limited, it became apparent that the footwear industry thrived during the pandemic. Comfortable footwear like slippers and sandals were among the top-selling consumer products since most people stayed home.

In the industry dialogue conducted last March 2021, it was discussed that artisanal or personalized footwear companies continued to produce shoes for their clients. Though large gatherings are prohibited, intimate weddings or events were still held by small groups. It became the primary income-generating activity of the artisans.

B.1.2. Coffee/Cacao/Coconut Industry

a. Coffee

Coffee is one of the most traded products today. It is one of the excellent dollar income earners. The Philippines is one country that gained in exporting coffee with a previous record of 200,000 bags annually, but there was a tremendous decrease in production. Brazil was the top coffee global producer in 2014, followed by Vietnam, Colombia, Indonesia, and Ethiopia. However, the Philippines ranked 25th with a volume of 37,727 MT of green coffee beans (GCB), according to Food and Agriculture Organization (FAO) statistics [3].

Davao coffee rose in 2019, contributing 17.8 percent of the 60k metric tons produced nationwide. Davao is the second-largest producer of coffee in the Philippines [3].

b. Cacao and cocoa

Cacao is another important crop. **Table 1** shows the trade performance of Philippine cacao. It was recorded that a total of 102.3 million USD worth of imports, while export value was at 24.3 million USD only in 2014 [8]. In 2017, it was forecasted that the chocolate market in the Philippines would grow at 13% [8]. The Philippines is among the countries in Asia seen to have a competitive advantage on cacao production given its strategic location and climatic condition. The two (2) million hectares of coconut farms ideal for cacao intercropping supplement the industry's competitive advantage [8].

Table 1. Philippine Cacao Trade Performance, CY 2014

Cocoa Products	Import (USD)	Export (USD)
Chocolate	54.6 M	13.3 M
Cocoa Powder	44.8 M	2.2 M
Cocoa Beans	1.7 M	4.5 M
Cocoa Butter	0.53 M	4.3 M
Total	102.3 M	24.3 M

In processing cacao, the metalworking industry is one of the most important business key partners to increase productivity. Preventive and corrective maintenance and technical services for the machines can be provided by the metal companies. These opportunities are supposed to be regular programs, and very important for the farmers to increase cacao, cocoa, and chocolate quality and production. One of the respondents of cacao/cocoa processors believe that through the use of new and well-maintained machines, the production targets will be attained.

c. Coconut

The coconut industry in the Philippines plays a crucial role in shaping national development. Coconut is a significant export product, contributing 3.6% of the gross value added (GVA) in agriculture, next to banana, corn, and rice [5]. The Philippines continues to export a large number of coconut products. The top coconut products export destinations are the USA [8], Canada, British Columbia [6], and China [7]. "Coconut is one of the two agricultural commodities that earn the country more than a billion dollars in export revenues every year," Dr. William Dar, former agriculture secretary, wrote in his Manila Times column [8].

B.1.3. Agri-food industry

Agri-food are the agricultural food products that include coffee, cacao, fruits and nuts, and bamboo products.

In 2019, the agri-food sector supported over 40% of jobs in Vietnam, Indonesia, Thailand, and the Philippines and 28% of total tax revenues across the four countries. In the Southeast Asian region, the agri-food sector has always played a critical role in supporting people's livelihoods: from putting food on the tables to helping local governments via tax revenues. The industry demonstrated its resilience in 2020, despite the effects of COVID-19 on travel, trade, and business operations [1]. **Figure 16** shows the contribution of the agri-food sector to the gross domestic product (GDP) [4] of the Philippines alongside those of other ASEAN countries.

B.2. Metalworking industry's perspective

The metalworking industries are hoping that they will be able to help improve the productivity of the frontline industries as discussed in B2B meeting held in November 2021. The business key partners need each other's products and services.

The struggles of the local metalworking industry players as a result of the Covid-19 pandemic were revealed in the industry study conducted by the Center in 2020. Informants, who were representatives of industry associations, shared that they have difficulties complying with the government's financial policies. As such, most of the metalworking companies are on 'survival mode.'

While it is true that there were opportunities lost due to the Covid-19 pandemic, local metalworking companies are trying to show resilience. The MIAP, under its National President, Mr. Virgilio F. Lanzuela finds this study a helpful effort of the DOST-MIRDC. Since the objective is to find business opportunities with the frontline industries, the metalworking companies are interested and grateful for this initiative.

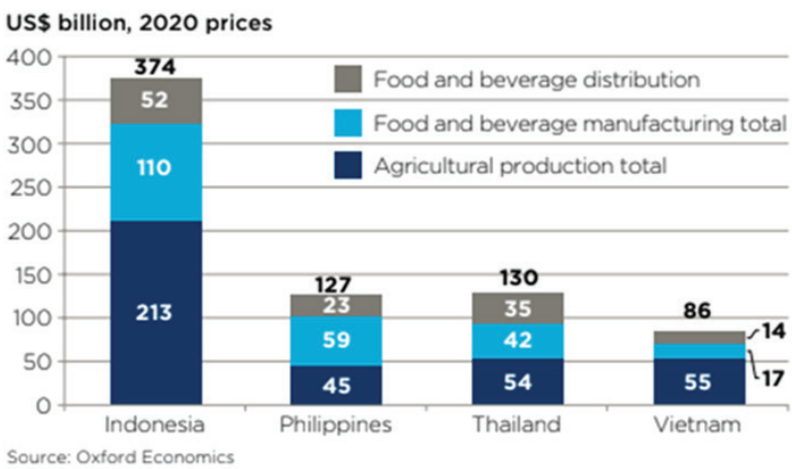


Figure 16. Contribution of the Agri-food Sector to GDP of selected ASEAN countries.

C. Business Solutions for Both Frontline and Metalworking Industries

C.1. For frontline industries

C.1.1 Localized machines will provide frontline industries with an enabling business environment.

The iron and steel industry is often called the backbone of modern industry. Nearly everything the public uses are made of iron or steel or made with tools and machinery of metals [7]. To process these materials, machines are needed. One apparent reality is: machines are not cheap, and the ones used by various industries are mostly imported.

Survey respondents ranked their different criteria in buying machines. However, the one thing they have in common is that they are not cost-conscious.

The footwear, food manufacturing, and construction businesses ranked these factors as the top three considerations in buying machines: (1) availability of spare parts locally; (2) ease of maintenance; and (3) durability. Imported machinery entails huge expenses. A company has to spend on importation of spare parts and maintenance service. Improper maintenance or frequent downtime all translate to business losses.

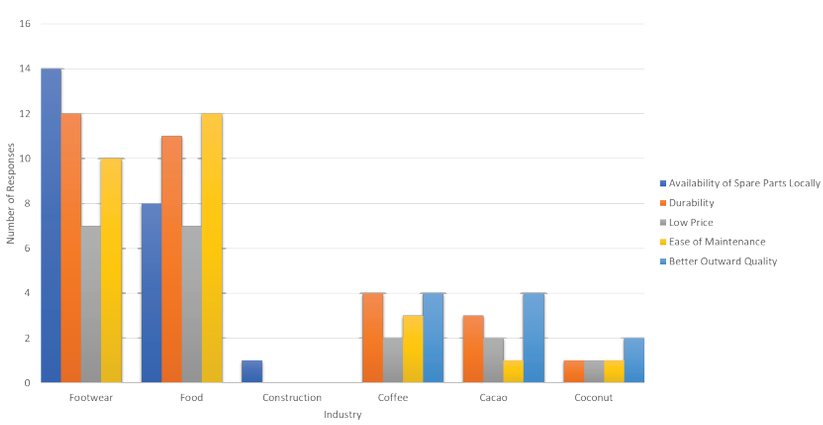


Figure 17. Factors considered by frontline industries in buying machines.

Further, durability and better physical appearance are among the top two (2) choices for the coffee/cacao/cocoa industry. At the same time, user-friendliness and lower prices were subsequently ranked by the respondents third and fourth.

Figure 17 shows the ranking of different criteria in buying machines of the emerging industries.

Presently, all machines used by the respondents in footwear, food manufacturing, and construction come from countries like China, Taiwan, Malaysia, and Germany.

Almost all the respondents in the survey acquire their machines mainly from China. In 2020, China ranked as the top machine tool-producing giant among countries worldwide. With machine tool production to the value of about 16.9 billion euros, China's market share increased to 29 percent. [9] The competitive pricing and ability to produce and deliver machines quickly is one of the few reasons many survey respondents opted to buy machines in China.

C.1.2. Technology upgrading is inevitable for frontline industries.

Technology impacts the everyday life of people around the globe. One of the areas where technology has become prevalent is in the manufacturing industry. [10] **Figure 18** shows the top answer of NCR respondents when asked about the technologies they use in production. Some of the technologies used in the manufacturing process are automation, die and mold, and robotics. These technologies are used in processing, assembly, and inspection to increase production, productivity, and shorten work hours and factory lead times.

Despite the considerable cost of new technologies, many frontline businesses still wish to incorporate them in their business operations. Other businesses opt to improve their current methods and processes

through research and development to lessen the cost of shifting to new technologies. **Figure 19** shows that a number of MSMEs are considering employing automation and engaging in R&D despite the investment required. This business decision may be one of the results of the challenges brought by the pandemic.

C.2. For the metalworking industry

C.2.1. Like all other industries, the metalworking industry is hit by the pandemic.

The graph (see **Figure 20**) shows the GDP of selected ASEAN Countries. These countries felt a significant drop in GDP in 2020; the Philippines, in particular, suffered a -9.6% GDP growth during 2020, the weakest among the selected countries.

Being an important upstream industry, the metals industry felt significant impacts on the onset of the Covid-19 pandemic. Most businesses closed or closed temporarily due to losses. To contain the spread of the virus, the national government imposed different restrictions and focused only on essential goods. Community quarantines disrupted all industries' processes, resulting in the non-production of non-essential goods and a significant drop in the 2020 GDP.

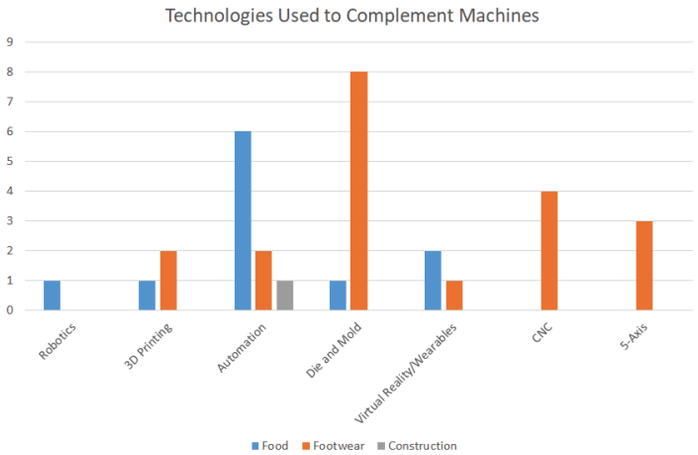


Figure 18. Technologies used in production to complement the machines.

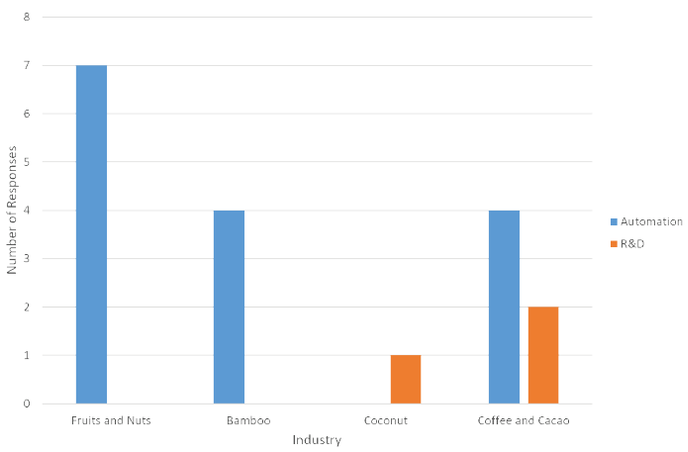


Figure 19. Graph of allied industries needing automation and research and development.

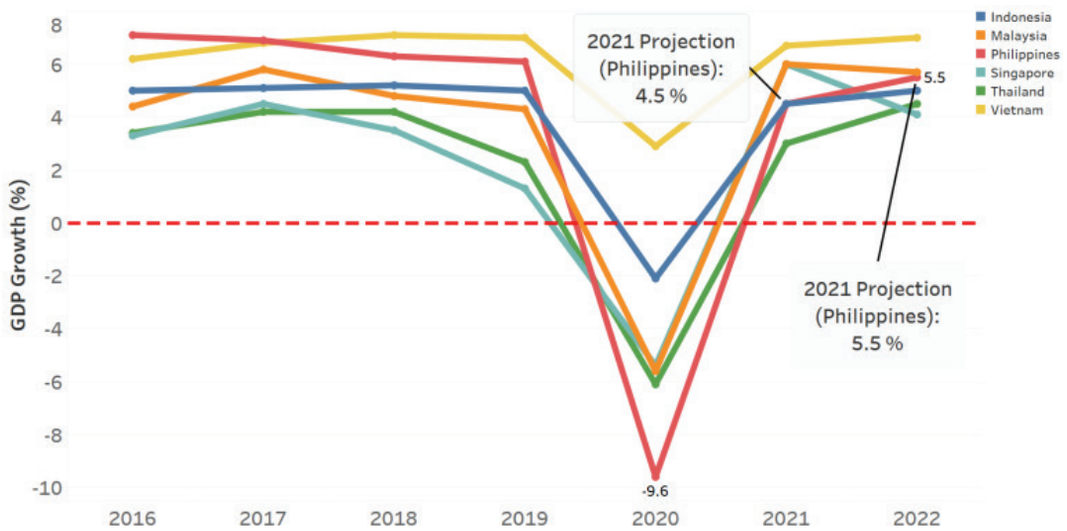


Figure 20. GDP Growth of Selected ASEAN Countries [13]

Table 2. Top three sectors served by the metalworking industries

Study	1st Most Served	2nd Most Served	3rd Most Served
Machining 2019 [12]	Automotive	Construction	Metalworking
Metal Stamping 2019 [13]	Automotive	Metalworking	Semicon/ Electronics
Forging 2018 [14]	Power Generation	Automotive	Construction
Die & Mold 2018 [15]	Industrial Machinery	Automotive	Semicon/ Electronics
Heat Treatment 2018 [16]	Industrial Machinery	Automotive	Metalworking
Metalcasting 2017 [17]	Industrial Machinery	Automotive	Construction
Welding 2016 [18]	Automotive	Metalworking	Industrial Machinery
Electroplating 2015 [19]	Jewelry	Automotive	Industrial Machinery

C.2.2. Metalworking is a crucial part of the supply chain.

The metals, engineering, and allied industries contribute to economy-building by catering to the business requirements of frontline companies across all sectors and industries.

The past eight studies of the MIRDC revealed that the automotive industry is one of the top three sectors served by the metalworking industry (see **Table 2**).

It is also noticeable that the industrial machinery and semicon/electronics are the most served sectors by the metalworking industry.

All the industries listed in **Table 2** are the typical clients of the metalworking industry. But it has been said over and over again that the metals, engineering, and allied industries are crucial to the economy - they are the backbone that supports all other industries. A close look at any business' supply chain will reveal parts where key partners from the metalworking industry make significant contributions.

During this time when the world is recovering and still learning the lessons taught by the pandemic, businesses have to take advantage of opportunities for growth, improvement, and continued collaboration. The metalworking industry, most importantly, has to reach out to frontline industries because its products and services are indispensable. Such is the importance of the local metals, engineering, and allied industries - their business activities serve as the solid foundation upon which all other enterprises depend.

This pandemic has taught all industries to adapt. Part of the learning process that all industries are going through is the realization that business models need to be more creative and more innovative. Finding ways to be more competitive means finding ways to be of more relevant service to customers. Frontline industries aspire to be relevant to the market they serve, the same way that the metalworking industry aspires to be a more relevant partner to its clients - including the frontline industries.

There are business opportunities waiting for the metalworking industries. These opportunities have been there all along, in industries that find the products and services they need beyond the Philippine borders. Frontline industries look beyond the borders, when all they need are here, and can be readily provided by the metals industry. All it takes is commitment, proper network, and the will to change the situation and make it advantageous to local businesses.

References

[1] A. Gonzales "2020 impact of covid19 pandemic on the philippine metals industry: a phenomenological approach" Philmetals 2021 vol.8 page no.53.

[2] R. Calunsod. Kyodo News.(2019, Jun. 6) Feature: Philippine shoe capital for professional shoemaking industry [Online]. Available: https://english.kyodonews.net/news/2019/06/90273e915e21

[3] E. Piñol, R. Lopez,"Philippine-Coffee-Industry-Roadmap-2017-2022".[Online]. Available: [Online]. https://www.da.gov.ph/wp-content/uploads/2019/06/

[4] J. Lambert. "the economic impact of the agri-food sector in southeast asia". [Online]. Sept.9,2021. Available: https://www.oxfordeconomics.com/recent-releases/The-Economic- Impact-of-the-Agri- Food-Sector-in-Southeast-Asia

[5] M. Castillo, P. Ani "the Philippine coconut industry: status, policies and strategic directions for development". 2019, PCARRD.[Online]. Accessed On:Nov.10,2021

[6] Asian Development Outlook. https://www.brookings.edu/blog/order-from-chaos/2021/08/02/the-philippine-economy-under-the-pandemic-from-asian-tiger-to-sick-man-again/

[7] PCA News. "Philippines among top 3 largest coconut exporters to China"[Online]. Available: https://pca.gov.ph/index.php/resources/coconut-statistics/392

[8] E. Piñol, R. Lopez,"Philippine cacao industry roadmap 2017-2022".[Online]. Available: https://www.da.gov.ph/wp-content/uploads/2018/01/

[9] E. Mazareanu.Leading countries in machine tool production by market share 2020, Jun. 22, 2021. Available:https://www.statista.com/statistics/264213/leading-countries -in-machine-tool-production-based-on-market-share/

[10] ABS-CBN.com News. (2021, Sept. 27). Philippines pushed to be key player in 17 b-International bamboo industry [Online]. Available: https://news.abs-cbn.com/business/

[11] MIRDC Publication, "The Philippine Machining Industry: Strategic Initiatives Rising Amidst Global Strains: A 2019 Study,"MIRDC., Taguig City, Philippines, 2019.

[12] MIRDC Publication, "The Philippine Metal Stamping Industry at the Crossroad of Tradition and Modernization: A 2019 Study,"MIRDC., Taguig City, Philippines, 2019.

[13] MIRDC Publication, "The Philippine Forging Industry Amid Triumphs and Challenges: A 2018 Study,"MIRDC., Taguig City, Philippines, 2018.

[14] MIRDC Publication, "The Philippine Die and Mold Industry Building Niches Amidst Global Challenges: A 2018 Study,"MIRDC., Taguig City, Philippines, 2018.

[15] MIRDC Publication, "The Philippine Heat Treatment Industry: A 2018 Study,"MIRDC., Taguig City, Philippines, 2018.

[16] MIRDC Publication, "The Philippine Metalcasting Industry: A 2017 Study,"MIRDC., Taguig City, Philippines, 2017.

[17] MIRDC Publication, "The Philippine Welding Fabrication Industry: A 2016 Study,"MIRDC., Taguig City, Philippines, 2016.

[18] MIRDC Publication, "The Philippine Electroplating Industry: A 2015 Study,"MIRDC., Taguig City, Philippines, 2015.

List of Respondents

Region VI Respondents

- Arlene's Banana & Camote Chips
- Artisana Island Crafts
- Bobette's Delicacies
- Bululacao-Calo-oy-Tulatula Sikap Organization (BCTSO)
- Dahara Handicrafts & Souvenirs
- Daisy's Pasalubong Center
- Danielle's Homemade Foods
- G & G Foods
- Golden Arts & Furnishing
- Iloilo Kawayan Marketing
- Joahna's Food Products
- Jocyl's Food Products
- JVM Bamboo Furniture Manufacturing
- Kitzsteinhorn Food Production
- Marfori's Homemade Food Products
- Margies Cakes and Pastries
- Navallasca Farmers Rise Against Hunger and Malnutrition, Inc.
- Nick's and Pink's Food Products
- Numancia Vegetable and Fruits Farmer Multi-Purpose Cooperative
- Orchard Valley, Inc.
- Pan-ayanon Handicrafts
- Plaza Jaro Delicacies
- Ramon Magsaysay Bamboo Crafters Association
- Ruby Shell Crafts and Arts
- Sibalom Bamboo Crafts Makers Association
- Sugar Valley Coffee Processing and Learning Site
- Sunbursts BALAY TABLEA
- UPV Community-based Bamboo Enterprise
- Waffletime, Inc.
- Zea Food Products

National Capital Region Respondents

- Wellbuilt Specialty Contractors Inc
- Bucroe Shoes
- SapaTorres Marikina
- Fashion Purveyor Enterprise
- Charles Shoe Collection
- Philippine Footwear Federation Inc
- BIJIVI Santos Incorporated
- SJR Shoe Enterprise
- Birksdale Shoes Manufacturing
- Valentino Shoes Inc.
- Abby Shoes Mfg.
- Zaeloren Shoes Trading
- Azulis bag
- REDEYES Footwear Solutions
- Centennial Food Corporation
- Patagonia Foods PH
- Luckyrich Trading Company
- Kirby's Breadhouse
- Sonia's Cakes and Bakes Inc
- Theo and Philo Chocolate Factory Inc.
- Germano's Chilli
- Samurai Foods Inc
- Nc Bakeshop
- DEG Hydro Farm Corporation
- Euroeast Marketing
- Xyzco Foods Corp
- Marisa's Foods
- KB Processed Foods Production

Region XI Respondents

- Lao Integrated Farms, Inc.
- Fairtrade Farmers Coconut Cooperative
- Coffee for Peace, Inc.
- ADDAM's HAVEN Integrated Farm
- MAGROW MPC
- MaFarmCoco Mahayahay
- Native Pinoy's Cacao and Coffee Enterprises (NPCCE)
- Mt. Apo Civet Coffee, Inc.
- MS3 Agri-Ventures Corp.
- BIAO Agrarian Reform Beneficiaries Cooperative
- Native Pinoy's Cacao and Coffee Enterprises (NPCCE)

Active Business in the Region: Market Opportunities for the Metalworking Industries

TOP MANAGEMENT

Engr. Robert O. Dizon
Executive Director

Engr. Jonathan Q. Puerto
Deputy Executive Director for Technical Services

Agustin M. Fudolig, Dr. Eng.
Deputy Executive Director for Research and Development

Lina B. Afable
Chief, Technology Diffusion Division

Zalda R. Gayahan
Chief, Technology Information and Promotion Section

Eldina B. Pinca
Head, Industry Research and Study Unit

Members:

Jim Patrick S. Erispe
Genevieve M. Barsales
Faith P. Macatangay
Marlyn U. Ramones
Tracy Ann U. Tolentino
Ronald L. Agustin
Reynaldo M. Loreto, Jr.

PRODUCTS AND SERVICES

METALS INDUSTRY RESEARCH and DEVELOPMENT CENTER

MIRDC Compound, Gen. Santos Avenue
Bicutan, Taguig City, 1631 Metro Manila
P.O. Box 2449 Makati, 1229 Metro Manila, Philippines
Telephone Nos.: (632) 8837-0431 to 38 (connecting all departments)
Fax Nos.: (632) 8837-0613 and 8837-0430
Website: http://www.mirdc.dost.gov.ph
E-mail: mirdc@mirdc.dost.gov.ph

1. Scientific Research and Development

1.1 Design and Engineering
1.2 Metalworking
- Machining
- Welding and Fabrication
- Gear Making

1.3 Heat Treatment
- Conventional
- Vacuum Heat Treatment

1.4 Surface Coating
- Electroplating
- Anodizing
- Pulse Plating

1.5 Metalcasting
- Conventional Casting
- Investment Casting

2. Technical Advisory Services

2.1 Analysis and Testing
- Chemical Analysis*
- Nondestructive Testing*
- Mechanical Testing*
- Calibration and Metrology*
- Corrosion Testing*
- Metallurgical Analysis
- Auto-Parts Testing

2.2 Technology Transfer
A. Technical Consultancy Services
- Preparation of feasibility studies
- Liaison work between private sector and government agencies
- Periodic analysis of industry status
- Extension of S&T services to the regions

B. Industrial Training
C. Industry Linkage

3. Others

Technical Information Dissemination
- Industry and sectoral studies
- Technical information brochures
- Technology demonstrations
- Exhibits/Fairs
- Plant tours

ISO 9001:2015 Certified
***ISO /IEC 17025 PAB Accredited**

"Molding the Future of Metal Industries"

www.mirdc.dost.gov.ph

DEPARTMENT OF SCIENCE AND TECHNOLOGY
METALS INDUSTRY RESEARCH AND DEVELOPMENT CENTER

MIRDC Compound, Gen. Santos Avenue, Bicutan, Taguig City, 1631 Metro Manila
P.O. Box 2449 Makati, 1229 Metro Manila, Philippines
Telephone Nos.: (632) 8837-0431 to 38 (connecting all departments)
Fax Nos.: (632) 8837-0613 and 8837-0479
Website: http://www.mirdc.dost.gov.ph
E-mail: mirdc@mirdc.dost.gov.ph