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Abstract
Pandemic owing to COVID-19 has its unbearable impact on every sector including Micro, Small and Medium Enterprises (MSMEs), particularly the cottage industry, of Odisha state in India. Gajapati district of Odisha is known for its cottage industry in horn-work. In initial phases of lock-down, all the establishments including cottage industries were not allowed to be operational. Thus, both supply side and demand side of horn works were in halt. However, as the economic activities got permission to resume, supply side of horn-works industry has started taking momentum but the demand side has been failing to cope. Thus, the purpose of this paper is to unfold the extent of sufferings of the proprietors and workers of horn-work industry during the pandemic, and brings forth comprehensive suggestions in the form of digital innovation for the revival of the industry on the basis of in-depth interviews and FGDs.

Keywords: Digital Innovation, Covid-19, MSMEs, Horn-work, Gajapati District, Bottleneck, Demand-side Supply-side.

Introduction
To meet the basic necessities of life everybody needs to work legally in the society freely without any restriction. This is the normal process of economic growth and almost all the parts of the world follows this to maintain a decent standard of living. The recent pandemic COVID-19 disrupted this normal process by halting every process of economic growth due to shut-down and lock down. All the productive process, business activity etc. halted with a fear of death infected by the invisible enemy corona virus. Even this fear continues while adopting relaxation in the shutdown and
lock down to adjust the battle of life and livelihood. Further human psychology is not able to leave the fear of death as long as the vaccine and medicine developed to end the invisible enemy corona virus. So most of the people are reluctant to visit the market site after unlock-1 in India. So this affects the producer and seller a lot when demand declined due to the unavailability of consumer. This is the general economic scenario of all over the world and also India. Then how the Gajapati district of Odisha will be left behind from this situation.

Gajapati district is a tribal based district of Odisha state. Nearly 55% of people are tribal in this district. In the year 1992 Gajapati district got its district status and it is named after Maharaja Sri Krushna Chandra Gajapati Narayan Deo. It has 7 Tehsils, 7 Blocks, 1616 villages, 129 Gram Panchayats, and 10 police stations. With an area of 3850 sq. km it has 5,77,817 Population as per census 2011[20]. Out of which 39,175 SC population and 3,13,714 ST population. The economy of this district is agrarian in nature. However there are some cottage industries like Horn work, Ganjappa, Pattachitra mukha, bamboo work, jaikhadi bag, cane work, siali leaf plate etc are available. Among all these MSMEs its horn work is the most unique one in all over the odisha. Basically the selling point of horn product is at Paralakhemundi M C of Gajapati district. Being a border district to Andhra Pradesh , having so many tourist place and center of the district administration in the Paralakhemundi area regularly many people are coming to this place. This leads to the selling of horn product. But recent pandemic COVID-19 disrupted the coming of people to purchase the product at the time of lock down and also after the lock down period. This brings miserable condition of the horn industrialist in Gajapati district.

Gajapati district of Odisha, India is known for its cottage industry in horn-works, besides being a tribal dominated agrarian district. People having horn-works cottage industry use the horn of cattle to make essential daily-use articles like combs, flower vases, pen-stands, etc. and sell their products mostly at Paralakhemundi, one of the tourists’ places of Odisha. However, the cottage industry is no more progressive as usual owing to prolonged lock-down for COVID-19 pandemic. In initial phases of lock-down, all the establishments including cottage industries were not allowed to be operational. Thus, both supply side and demand side of horn works were halted. As lock-down gets slackened, the cottage industries got the permission to resume their operation with social distancing and required level of hygiene. However, as the spread of COVID-19 positive cases is higher in the state as compared to the earlier phases, in spite of unlocking the market, people are not daring to take risk. Although supply side of horn-works industry has started taking momentum, demand side is not matching. In fact, people are not going out for purchasing non-essential commodities for the fear
of COVID-19. Thus, the proprietors are not getting their cost involved. Consequently, workers engaged in such works are not getting their remuneration. Both the proprietors and workers are hardest hit for COVID-19. The objective of this paper are to unfold the extent of sufferings of the proprietors and workers of horn-work industry during COVID-19 pandemic, and brings forth comprehensive suggestions for the revival of the industry. For revealing the sufferings, in-depth interviews are conducted among 20 proprietors and 50 workers of horn-work industry. For suggestions to revive the industry, experts' opinion from 10 experts like veteran proprietors, researchers and NGOs working for welfare of the workers have been considered. Selection of sample units is done on the basis of convenient and judgemental sampling.

Review of Literature

Micro, small and medium enterprises help the economic development of the country in various ways like creating employment opportunity, supplying goods and services at a very reasonable price, etc. So Government of India has taken so many steps for the revival of this industry. The study shows that Micro, Small and Medium Enterprises (MSMEs) contribute near about 40% of the total export, 45% of the total industrial output, 45% industrial unit, 42 million employment and near about 8000 product to the Indian economy [1]. MSMEs are an important component for the economic growth of the country. It is the sector which creates more employment opportunity by utilizing very low capital. It helps in removing regional inequality in the country. It is one of the sector where people can become self-sufficient [2].

MSME helps the economy by growing at a rapid rate from 7.8 to 13 percentages from the year 1998 to 2008. Here analysis shows that there is appositive relationship between investment and employment in this industry. The study finds that the growth become rapid by bringing all the SSIs under one umbrella [3]. MSMEs in India lack export competitiveness as they are not updated with the advanced technology. If emphasis will be given for developing advance technology, human resource development in this sector, more research then this sector can able to increase its competitiveness. The analysis has taken coir industry as a case study basis and found that though export has increased the earning from the export has declined. The study found that very few updated with the advanced technology [4].

Though MSME plays a greater role in the economic development of the country it is not uniformly distributed all over the India due to unavailability of raw materials, lack of financial assistance, lack of skill etc. It shows that it is the only industry by which regional imbalance can be solved and it can make the people self sufficient [5]. MSME helps the country by providing balance and inclusive growth. It is the
platform where structural change could take place more rapidly according to the necessity of the consumer. However, this industry is faced with so many problems like unavailability of information, lack of advanced technology, etc. [6]. MSMEs establishes base for the development of the Industry in the rural area and reduces inequality. Government of India is taking so many steps for the development of it [7]. For economic growth and development MSMEs plays an important role by creating more employment opportunities. This sector helps in the nation building by reducing regional inequality, improving the backward region etc. It is considered as a hope for the future economy. So different strategy like easy credit facility, subsidy, infrastructure programs are needed [8].

Since independence small industry contributed a lot in terms of output, export and employment. Due to globalization and liberalization the contribution of the small industry declined. It happens because of the lack of credit inflow, reliable infrastructure, technological obsolesce, etc. But the globalization brings new hope in the small industry by opening new opportunity and market [9]. A study evaluates how far the GDP forecast in India made by RBI, NCAER, IMF and ADB is accurate. The study finds that the forecast about GDP made by RBI is favourable as compared to NCAER, IMF and ADB. Further the paper shows that as the forecast of RMSEs are not much different from their naïve techniques, the gains of forecast performance seems to be modest. The error in forecast occurs generally for two reasons- exogenous factors and construction of appropriate confidence interval overtime [10].

The impact of COVID-19 on Indian economy has been assessed on the aspects of it growth, manufacturing, MSME and trade. The study predicts a 0.4 percent growth for the year 2020. The severely affected sectors are MSME, trade and manufacturing, hotel and transport [11]. It is found that in Indonesia the factors which influence SME’s export performance are duration for the export document process is long, unofficial fee, barriers in export administrative procedure, incapable to supply product in time, time limitation in cargo etc. Further, it shows that factors for export barriers arises because of human knowledge, government authorities and agencies. This barrier can be overcome by equipping SME’s management through training and information [12].

It is argued that in emerging markets banks should take initiative for stepping up MSMEs. It is because 60% of the global banking revenue are lying in the emerging markets, banks in this area finding ways how to remove barriers for serving MSMEs and now technological innovations, risk assessment and business models are facilitating this [13]. Folks and crafts are the main things of Odisha. Globalization integrates the east-west by creating global village. But craft industry face so many problem like
mass production, unable to compete, etc. So Government has taken so many steps for reviving the folk industry in Odisha [14]. In India MSMEs are unable to compete with their counterpart after the Globalization. It happens because of lack of updated technology and other reasons. So it needs urgent action. This is studied by taking the case of Coir Industry. The study shows that export did not increase since the last five years. So its competitiveness can be increased by providing new technology, more investment in human resources etc[15].

Type of Industries

To know the different types of micro, small and medium enterprise in Gajapati district we have to divide it into two categories as traditional industry and modern industry

Traditional Industries in Gajapati District [16]

Following are different types of MSMEs are available in the Gajapati district before the development of the modern industry.

(i) Rice preparation: - In Gajapati district Previously rice was prepared from paddy in three ways – (a) Dhenki or Dhinki- made in wood, to support the weight fulcrum is there, it is generally used by the women through their leg to remove the husk from the grain to produce rice. (b) Pohurani- it is made in wood. Used by the women through their hand to remove the husk from the paddy to produce rice. (c) similarly at some place hand stone grinders are used in flour to produce rice from the paddy by removing the husk.[16]

(ii) Pots and jugs: - It is one of the traditional crafts where around sixty workers in various parts of the district are engaged. These are prepared by some potters of the village Bagusala and Badaneelabadi of Gosani Block, Paralakhemundi M C and Rayagada and Narayan village of Rayagada Block. The raw materials are available with in the district and also the products are marketed with in the district. Due to the lack of profit they are diverting their production to modernized terracotta products.[16]

(iii) Oil: - It was prepared from the oil seeds through Oil Ghani by the village telies.[16]

(iv) Bamboo Products: - Most of the artisans of the Bamboo are living in Khanja Medari Street and Seri Street in Paralakhemundi and in different villages like Madhusudanpur of Gosani Block, Jeerango and Hatibadi of Rayagada Block, Naktipada and Badapada of Nuagada Block, Lubursing and Tabarsing village of R Udayagiri Block and Chandragiri and Damadua village of Mohana Block. Their main problem is unavailability of raw bamboo. They are not organized. Different items like changudi, dooli, luduru, kula, jhudies etc were prepared by them using Bamboo. [16]

(v) Cotton cloth: - Cotton cloth was prepared using Tanta (Handloom) by the Dora and Pana People. Small size towel
were prepared by the Kandha people. Similarly windows, doors are prepared. [16]

(vi) Metal Utensils: - Brass and bell metal utensils were prepared by the Khadara people. [16]

(vii) Gold and Silver ornaments: - Ornaments were prepared by using gold and silver by the Bania and Sunaries. [16]

(viii) Cottage industry: - some cottage industries like Horn work, Ganjappa, Pattachitra mukha, bamboo work, jaikhadi bag, cane work, siali leaf plate etc. are available. [16]

Modern Industry [16]
Even though some of the traditional industries continue, the products of it are refined. The industries which are found in Gajapati district in the modern era are horn industry, cane industry, terracotta, silver products, brass and bell metal, embroidery, clay models and pattachitra, dhokra castings, and black smithy,

Efforts by Government to preserve the Industries
Government has been putting concerted efforts at different levels starting from district level to state level and then to nation level.

A. Governmental Steps at the District Level

Table-1. Governmental Steps at the District Level

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Scheme</th>
<th>Year</th>
<th>Type of industry supported</th>
<th>About the scheme</th>
<th>Process of receiving Monetary benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>District Industries Center (DIC)</td>
<td>04-01-2020</td>
<td>MSMEs, Handicraft and Cottage industries, Ancillary and Down Stream Industries</td>
<td>The main task of the DIC is to identify the economically feasible technology and potential entrepreneurs for the development of the MSMEs.</td>
<td>After identifying its target is to prepare and also recommend to different institutions for taking necessary steps for promoting this industry.</td>
</tr>
<tr>
<td>02</td>
<td>Prime minister employment generation programme (pmegp)</td>
<td>2008-09</td>
<td>Khadi and Village Industries</td>
<td>for creating employment opportunities by establishing Micro enterprise</td>
<td>Here the application is received from the candidates and they are selected under the chairmanship of the district collector for the sanctioned project. For timely completion of the project every type of assistance is provided.</td>
</tr>
<tr>
<td>No.</td>
<td>Policy/Act/Resolution</td>
<td>Date</td>
<td>Sector</td>
<td>Description</td>
<td>Admissibility</td>
</tr>
<tr>
<td>-----</td>
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</tr>
<tr>
<td>03</td>
<td>Odisha Food Processing Policy’2013</td>
<td>15.03.2013</td>
<td>Mega Food Park</td>
<td>increase the supply chain from farm to market, creating employment opportunity etc.</td>
<td>As admissible</td>
</tr>
<tr>
<td>04</td>
<td>Odisha MSME Development policy’2009</td>
<td>2009</td>
<td>MSME</td>
<td>Addressing the issues like infrastructure, raw material, export promotion, marketing, technology upgradation, credit, rehabilitation and revival of sick units, etc.</td>
<td>As admissible</td>
</tr>
<tr>
<td>05</td>
<td>Industrial policy resolution-2015</td>
<td>24.08.2015</td>
<td>Industry</td>
<td>with objective of industrial promotion by providing institutional support, infrastructure support and production incentives</td>
<td>As admissible</td>
</tr>
<tr>
<td>06</td>
<td>Micro Small Medium Enterprise Act 2006</td>
<td>2006</td>
<td>Micro Small Medium Enterprise</td>
<td>for enhancing the development of these enterprise by increasing their competitiveness</td>
<td>On the basis of the type of industry</td>
</tr>
</tbody>
</table>

Source: https://gajapati.nic.in/district-industries-centre

The Gajapati district industries center, District Industries Center (DIC) rendered its service in the District since 04.01.2020 with the objectives for promoting MSMEs, Handicraft and Cottage industries, Ancillary and Down Stream Industries and also for implementing the Government policies meant for these industries. So the main task of the DIC is to identify the economically feasible technology and potential entrepreneurs for the development of the MSMEs. After identifying its target is to prepare and also recommend to different institutions for taking necessary steps for promoting this industry. PRIME MINISTER EMPLOYMENT GENERATION PROGRAMME (PMEGP) programme is introduced by merging two schemes named Prime Minister Rojgar Yojana and Rural Employment Generation Programme for creating employment opportunies by establishing Micro enterprise. This is implemented by the Khadi and Village Industries Commission at the national level. At the state level, the scheme is being implemented through state KVIC Directors, State Khadi&
Village Industries Board (KVIB) & DIC & Banks. This centrally sponsored scheme implemented in the district since 2008-09 by the DIC, Gajapati. Here the application is received from the candidates and they are selected under the chairmanship of the district collector for the sanctioned project. For timely completion of the project, every type of assistance is provided. Odisha Food Processing Policy’2013 is for increasing the income of the farmer by adding value and reducing waste in the district Odisha Food Processing Policy 2013 implemented in the district on 15.03.2013 in conjunction with Industrial policy resolution 2007 and Micro Small Medium Enterprise Development Policy 2009. Here priority is given for the Mega Food Park, increase the supply chain from farm to market, creating employment opportunity etc.

ODISHA MSME DEVELOPMENT POLICY’2009 focuses on growth of MSME sector addressing the issues like infrastructure, raw material, export promotion, marketing, technology upgradation, credit, rehabilitation and revival of sick units, etc. INDUSTRIAL POLICY RESOLUTION-2015 is implemented in the district on 24.08.2015 with objective of industrial promotion by providing institutional support, infrastructure support and production incentives.

Micro Small Medium Enterprise Act 2006 implemented for enhancing the development of these enterprises by increasing their competitiveness. It clearly defined the Micro, Small and Medium enterprise in both manufacturing and service sector. It facilitate for the establishment of specific funds, development of competitiveness, progressive credit policies, effective mechanism for the solving the problem of delayed payment etc.

Besides the above policies, Different Cooperative Societies and rehabilitation centers are functioning in the district for the development of the MSMEs.-

(i) **Paralakhemundi Biswakarma Cooperative Society Ltd., Paralakhemundi.**

This society is established as Paralakhemundi Biswakarma (Horn) Cooperative Society Ltd., Paralakhemundi, by taking of 53 members, which controls the 20 daily horn workers.

(ii) Tibetan handicrafts Cooperative Society Ltd. Situated at Chandragiri by taking 153 members of Woolen Carpets producer.

(iii) Simhagiri Mahendra Bamboo Workers Indl. Cooperative Society Ltd, situated at Kanja Madari Street Paralakhemundi by taking 56 members those are producing bamboo products like basket, kula, jhudi etc.

(iv) Palm Gur Indl.Cooperative Societies established for the promotion of the Palm Gur Artisans.

Despite the above cooperative societies there other societies like Gopabandhu Talaguda ICS, Bardango Talaguda ICS, Manikeswari Talaguda ICS,
Mallikeswar Talaguda ICS, Nuagada Talaguda ICS, Attarsing Talaguda ICS, Ameda Talaguda ICS, Ramagiri Talaguda ICS and Bhaliasahi Talaguda ICS are available in the district.

Rehabilitation of Handicrafts Artisans (RHA):-

(i) DIC, Gajapati district provides maximum amount of Rs 50000/- with subsidy of 20% for to an individual artisan for establishing handicraft.

(ii) DIC, Gajapati imparts training craft artisans by taking a group of 30 artisans.

(iii) Financial assistance of Rs 70,000/- is provided for constructing the house to an artisan who have kacha house.

(iv) Solar Lantern are freely distributed to the artisans in the Gajapati district.

(v) Insurance benefit is given to the artisans under Aam Admi Bima Yojana.

(vi) Financial assistance in between Rs 3.00 lakh to Rs 50.00 lakhs is given to the individual artisans for modernizing and upgrading the technology.

B. Governmental Steps at the State level

Different Acts made by the Government of Odisha for the development of the MSMEs are;

(i) THE STATE FINANCIAL CORPORATIONS ACT, 1951

(ii) The MSME Development Act 2006

(iii) Khadi Village Industries Commission Act, 2008

(iv) The Odisha Industries (Facilitation) Act, 2004

Different Policies made by the Government of Odisha for the development of the MSMEs are;

(i) Amendment to Odisha MSME Development Policy 2016

(ii) Odisha MSME Development Policy 2016

(iii) Amendments to OFPP 2016

(iv) Odisha Food Processing Policy 2016

(v) Odisha Startup Policy 2016

Different Schemes made by the Government of Odisha for the development of the MSMEs are;

(i) NMCP Scheme

(ii) MSE-CDP

(iii) CLCSS for technology upgradation

(iv) Credit Guarantee Scheme

(v) ISO 9000/ISO 14001 Certification Reimbursement Scheme

COVID effect on these Industries.

COVID-19 pandemic has toll on horn-work industry of Gajapati district of Odisha heavily. It has impacted three important stakeholders of the industry, i.e., producers, Sellers and Workers very badly.

A. Effect on Producers

In the Gajapati district, generally producers are registered under the Government of Odisha, who imports raw horns only from Hyderabad. This
work is going on since long time. Government has taken the responsibility to develop horn industry since 1948 in Paralakhemundi. As per the statement of the sample producers, raw horns are imported from the Hyderabad. Then these raw horns are supplied to the craftsmen for preparing the final horn product. There are 12 karigars are working in this industry in Paralakhemundi area. During the lock down period producers are not given any financial support from anybody else. During this period they maintain their family with their saving income. During lock down period it is not possible to continue production due to lack of raw materials even if workers are ready to wok. As per the version of the sample producers, previously the product was imported to outside India besides different parts of India. Now the product is sold only in Paralakhemundi and Cuttack area. The people of Cuttack learnt this from the craftsmen of Paralakhemundi so many years back. Even if this is produced from the horn of the death animal, many social activists are claiming that this is produced by killing the animals. So it is not possible to sell even in other parts of India. Now they were selling it in different parts of Odisha only during different occasions. They replied in a very disappoint manner that there is no marketing strategy for this product. During the lock down period producers neither receives any subsidy nor learnt any innovative way of producing the product. As most of the producers are become old, there is no scope to work in any other sector for him. Most of the sample producer denied for continuing this business by any of their family member. So, financial and technical assistance are necessary for continuing this business. They expect this industry will collapse with in a very short period of time after the death of all the Old mechanics. Most of them are above 50 years old. No young people are taking interest in this business. They expect if Government will take some proactive steps then this industry will be saved. They did not pay wage to the workers during the lock down period as they faced difficulty in managing their family.

B. Effect on Sellers
Of the total selling point 33% run by the Government and 67% run by the private people. Because of the lock down, shops are closed. The earning of the horn work sellers reduced to zero after the outbreak of the COVID-19 which was on an average Rs. 4000/- to Rs. 5000/- per month prior to this. Even after unlock-1, very rarely customers are coming to the market. Generally, people those are coming from other place of Paralakhemundi, they are purchasing this product. In addition to that, these products are sold at different occasions like Gajapati Mahotsaba, Palishri Mela, Ratha Yatra etc. In other parts of odisha on the similar type of occasion these products were sold. Because of Pandemic COVID-19, these occasions are stopped. Similarly very few people are coming to their job place to Paralakhemundi in fear of the pandemic.
disease. Even if people are coming, they fear to visit market. There is no scope to sold outside the country or outside the state on legality point of view. Now there is no market strategy available with us. Similarly, Government is not encouraging to sell it on-line so that it will be available all over the world. During the lock down period Sellers did not get any scope to sell it in a different way. Still the business continues as there is no other occupation available with the existing sellers. As per their statement, they will not encourage their next generation to continue this business. During the lock down period they maintain their family with the existing income. Now it becomes difficult as selling of the product is not possible without customer. Urgently they need some financial assistance from the Government to continue this business. According to them if Government will export it to different parts of the world then they will get benefit.

C. Effect on Workers

There are 12 workers working in the said unit. on an average 4 people are depending on each worker’s income. They were receiving wage on the basis of the product they supplied. The mechanic will make product and some of the family member will engage in polishing the product. During the lock down period they engaged in their work till the availability of the raw materials. Now even after the unlock-1 they are unable to produce anything because of unavailability of raw materials. Generally raw horns are coming from Hyderabad. And it is not possible to import. Because of the pandemic COVID-19 they did not get any wage from their producer. So all of them informed to the ministry of Odisha for any financial assistance. But till now they did not get any type assistance. During this lock down period they did not get any innovative way to produce it differently. They will continue this work as they did not have any option. They are not interested to engage their next generation in this industry. if Government take some step to provide us better wage, technical expertise etc then we will engage our family member. Some family member’s children now opt to work in different occupation. As it does not provide us a better standard of living we wish my family need to engage in other sector of the economy. Right now we are not getting any type of assistance from anybody else.

Objective, Hypothesis and Methodology

The objectives of the paper are;

(i) To explore the availability of different types of Micro, small and Medium enterprises in Gajapati district of Odisha with focus on horn industry.

(ii) To examine how COVID-19 affects the horn industry of Gajapati district.

(iii) To make a way out through digital intervention for the revival of horn industry in the Gajapati district.
Hypotheses:
On the basis of the theoretical background, following hypotheses have been set.

(i) Gajapati district of Odisha is the home for different types of Micro, small and Medium enterprises.

(ii) MSMEs, particularly the horn industry, in Gajapati district has been affected badly for COVID-19.

(iii) Digital Intervention has the potential to revive the horn industry in the Gajapati district of Odisha

Methodology:
To address the above objectives following methodologies are adopted.

i. To explore the availability of different types of Micro, small and Medium enterprise in Gajapati district of Odisha with focus on horn industry, both primary and secondary data are collected. The information regarding different types of MSMEs available in Gajapati district are collected from the secondary source. To substantiate this, data are collected from experienced expert through an unstructured questionnaire. Accordingly, we can conclude the availability of different types of MSMEs in Gajapati district. Further, more details like type of industry, origin of it, number of dependent on these industry, any assistance received from the Government etc. are collected from the secondary source and this is added by the primary data collected from different 100 proprietors/industrialists (Questionnaire is given in Appendix) of horn-work industry of Gajapati district, Odisha.

ii. How COVID-19 affects the horn industry of Gajapati district is examined on the basis of case study. A structured questionnaire is prepared according to the objectivity of the study. Primary data is collected on snow ball sampling basis from the three horn industrialists, and thirty workers and sellers of Gajapati district. Snow ball sampling technique is used to trace the sample for the study purpose. Accordingly we can conclude how this affects the horn industry of Gajapati district.

iii. To make a way out in the digital intervention for the revival of horn industry in the Gajapati district suggestions are given on the basis of the primary data collected from the targeted industrialists of Gajapati district. Further, suggestions are collated from the experts for the revival of the horn industry in Gajapati district.

RESULT AND ANALYSIS
Analysis and result have been presented objective-wise.

A. Different types of Micro, small and Medium enterprises in Gajapati district of Odisha.

Following are different types of Micro, small and Medium enterprises in Gajapati district of Odisha.

Horn Industry
It is expected that the horn-work exists in Paralakhemundi since 1914. Previously
some tribal of the Paralakhemundi Zamindaris were preparing the horn products. On the encouragement of the K V APPARAO here people learnt the technique of preparing horn work from the mechanics of Madras and Vijayanagaram. On the basis of the local view because of the patronage of Mr. K Appa Rao Chetti horn work developed in Paralakhemundi in the early part of the 20th century. At the initial stage he financed Rs 1500/- for this. During that period they were purchasing the raw horns at Rs. 4 to Rs 8 per kg from the local Muhammadans. During that period product were exported to Coimbatore, Tanjanore, Trichinopoly, Madura and Madras. In the mean time the horn work of Paralakhemundi got a special status amongst the work of Calcutta, Punjab, Trivandrum, and Kakinada. After 19th century some skilled craftsmens of badhei caste from the village Pitala (Aska, now under Ganjam district) are appointed by the ruler of the Paralakhemundi Maharaja Krushna Chandra Gajapati. Craft mens who are engaged in this work are known as Maharana. It is one of the popular cottage industries in the district. It provides livelihood to near about 100 craftsmen family as per the District Industrial Center, Gajapati. Previously ivory was used as a medium of art. But due to the decline of elephant horn was used in place of ivory for art work. In the Paralakhemundi M C of the Gajapati district palace street is famous for the horn work. These products were exported to USA, European countries at the early times of 1950s.

Raw horns are generally imported from Hyderabad, Velur and Vizag of Andhra Pradesh. Raw horns are generally used to design different images like crocodile, peacock, steamer, prawn, monkey, flower tree, cow, calf, scorpions, lobsters, duck, deer, pen stand, statue, tiger, dancing girl, Walking Stick, snake, horse, fighting bulls etc. The horns of the death animal like cowshed, dear and other forest animal are used. In the meantime due to lack supply of raw horn in some part of the product plastic is used. The instruments used in the production process are- driller to hole the horn, press machine to cut the horn, pull machine, hammer, hand saw, clamps, etc. The production process goes in three stage-(i) in the first stage raw horn is designed according to the necessity of the product (ii) in the second stage polishing of the product (iii) in the third stage further polishing is made for glazing purpose. After collecting the raw horn the mechanic cut the horn according to the need of the preparation. The shape of the horn is changed by using fire flame. Further with the technique of iron machine it is polished. Sand paper and coal are also used for polishing the product and giving a jet-black look. Generally male member of the family engaged in preparing the product and female member engaged in polishing it.

Problems
The mechanics are suffering from different types of disease engaged in this work. Further till now they are using old
technique of production. No separate training and modern technology is given to them. Most of them are losing interest in this business as lack any support from the Government to develop it. Further artisans engaged in this activity are facing respiratory problem due to continuous work in heat and smoke.

**Cane Craft**

Cane crafts are developed traditionally. But in the modern era it is designed in lucrative manner to attract the customer. Different products like phultola, chair, table, tea poy, self, hanger, stool sofa etc. are produced by using the cane. The raw materials are generally imported from the Cuttack, Banapur block of khurda district and also from Assam.

The people of Gajapati district collecting Cane from the deep forest and after that tied and bent it to prepare different product like chair, baskets, racks etc. These products are durable and tensile. The product can be used for the indoor and outdoor decoration. Here the skilled artisans engaged themselves as one of the main occupation as cane work. Following are the different steps used while preparing cane furniture.

(i) Collection of the cane from the forest

(ii) Bent it in the hand according to the necessity of the product

(iii) Polishing the cane

(iv) For creating frame canes are attached with a screw.

(v) After polishing coat of lacquer is applied to it.

(vi) Then rounding it for making the furniture.

**Terracotta**

It is one of the ancestral industrial activities of the district. Now it has been improved to sophisticate the product by providing skillful training to its producer. Generally these products are produced seasonally particularly for the religious purpose. Here the clays are used for preparing new pottery, idols etc. Further these products are also used for the decoration purpose. The artisans engage themselves some time on this terracotta activity and some other time in the agricultural activity.

**Silver product**

Though it is one of the traditional industries in the district, now it has been designed in a attractive manner to improve the industry. Raw materials are imported from the neighboring district like Ganjam and from Andhra Pradesh. As per the District Industrial Center there are 30 sunari (Bania Workers) are preparing Silver ligree in the district. These products are generally sold with in Gajapati district.

**Brass and Bell Metal**

It is one the traditional industry of the Gajapati district. Bell metal is otherwise known as Kansa which is one form of bronze having lower content of copper. It is used for making bowels, platws etc. Brass is otherwise known as Pitala
having substitutional alloy of copper and zink. It is used for making plates for worshiping purpose, idols, singhasana etc. As per the District Industrial Center, Gajapati there are only 10 traditional brass metal workers are working in this field. Different caste people like Kamar, Kansari, Khadara, sunari and Bania are engaged in this work. These artisans are available in the Mohana Block, Kashinagar and Paralakhemundi. Generally they are producing different products like jugs, pots, plates, buckets, glasses, kadai, dekchi etc.

Embroidery

It is one of the new industry practiced by around 30 persons in the district as per the District Industrial Center, Gajapati. There are collecting raw materials from the neighboring district of Ganjam. Further the products are sold by themselves.

It is one of the oldest forms for the beautification of the surface widely popular in India. This sector even if organized in India it lacks in marketing. It is one of the unorganized manufacturing sectors in India. As per the 2011 market research report people of India are spending Rs 8.00 per annum for the embroidery consumption. Different types of embroidery are plain embroidery, sequin operation and cording or coiling. In the plain embroidery work is done only with threads, in the sequin operation sequin is small and flat which is stitched in embroidery and in the cording threads of large thickness is used for the embroidery work.

Clay Models and Pattachitra

Though it is a traditional industry but as per District Industrial Center, Gajapati now 30 people are engaged in this work by refining it in a innovative way. The raw materials used here are locally available and they are marketing their product.

Dhokra Castings

This traditional industry continues till now but with some new way. As per DIC, Gajapati now 20 people are engaged in this activity. This is available in the Badapur village of R Udayagiri Block and Saradhapur village of Gumma Block. The raw materials are locally available and also the products are sold with in the local area.

Dhokra is one of the traditional industry goes back to 4000 years back and also found in the Harrapan civilization. The word Dhokra is coined after the tribe of Dhokra Damar. Following are the different processes-

(i) Modeling in beeswax.
(ii) Moulding in clay
(iii) Keep it for dried purpose.
(iv) After drying it is dewaxed.
(v) Then molten metal poured into the mould.
(vi) Keep it for solidification.
(vii) Once solidification the clay mould is broken and metal product is giving a finishing touch.
**Black Smithy**

The People of the Kamar and Bindhani are engaged in this work. They are available in different areas of the district like Khajuripada, Nuagada, and R. Udayagiri etc.

These are the different types of industries are available in Gajapati districts of Odisha. Most of the industries available in the modern era have the traditional origin. Further people lack skill to develop this industry. They need proper training to compete with the outside world. It is because of this the profit oriented activity of the economy is not able to prosper in this low level of literacy and tribal based district. So it needs the direct intervention of the Government to encourage the people to develop this industry. If this could be possible then Gajapati district would prosper. In this Pandemic COVID-19 situation the repatriated migrants can be engaged in this MSME sector.

Here there is prospective to develop some other industries like Idli suji, processed spices, modern rice mill, Leaf cups and Plates, proper marketing of local agricultural product like honey etc.

**B. Effect of COVID-19 on the horn industry of Gajapati district**

MSMEs in India, particularly in Odisha have been serving a huge population in the form of providing employment and finished goods to consume. However, COVID-19 has put heavy toll on these enterprises and hence data related to percentage of workforce reduced, per cent of new employees hired and number of employees needed to be reduced during April, May and June 2020 (as shown in figure-1) have been discouraging.

![Figure-1: Data on percentage of workforce reduced, per cent of new employees hired and number of employees needed to be reduced during April, May and June 2020](image-url)
35% of respondents in June 2020 felt that there was no need to reduce employees in the said period, but the MSMEs were reducing.

**Problems the horn-work industry faces due to COVID-19 are:**

(i) **Unavailability of raw materials:**

Most of the raw horns are coming from Hyderabad. Because of lock down and partial unlock importing of raw materials is not possible due to transport problem.

(ii) **Labour are sitting idle:**

Labours are preparing the product in their own home. They need not go anywhere for production purpose. Once raw material is available they can produce the product. As raw material is not available it is not possible to start production rather to sit idle. Further they do not have any other option to work somewhere else.

(iii) **Producers are not getting any profit as production could not take place.**

From the producer or employer point of view he has to import the raw horn and distribute it to the labour. As it is not possible to import raw horn he is unable to engage its labour. Accordingly, he is unable to earn any profit.

(iv) **Sellers are not getting opportunity to sell the existing product.**

From the sellers point of view there is no opportunity to sell the product. Paralakhemundi is one of the interior areas of the Odisha state. People from other parts of Odisha are generally coming to this place as posted by the Government in the collectorate Office, different Colleges, Tehsils, Panchayats etc. Their number is very few. Similarly, some people are coming to visit the different sites of Gajapati district like, B N Palace, Jeeranga, Ganda hati etc. Now in the ongoing pandemic COVID-19 situation the tourist activity is stopped. Another important festival of the Gajapati district is Car Festival. Here so many people from different parts of the Odisha are coming to celebrate car festival in Gajapati District. Now this stopped. So there is no chance of consumers to come here. There is no way to sell the product in on line mode. So the sellers are unable to sell the existing product available with them. As a result they are not able to pay the EMI of the bank loan used for purchasing the product. So they are maintaining a very miserable life.

(v) **Lacks of demand as consumer are not coming to Paralakhemundi.**

It is a clear indication that as consumers are not available the demand is declined sharply.

(vi) **Most of the workers engaged in this business are reluctant to continue this business with their upcoming generation as there is no opportunity for them.**

As now days the demand for this product is declining and there is no initiative taken by the Government to uplift this industry, they are not interested to engage their next generation in this industry.
MSMEs across the globe have been badly impacted due to COVID-19 pandemic; so also the MSMEs of Gajapati district in Odisha (India). Horn-works industry of Gajapati district is noexception to the trend. It has been very badly devastated owing to prolonged lock-down in the state. All the important stakeholders of the industry are leading miserable lives as they don’t have income for last few months. As such, they don’t have savings to use in this trying period for their livings. It has made them undone to continue with the same job as the normalcy is restored post pandemic. However, the industry has high level of potential to cater employment with profitability. The need of the hour is intervention of the government to safeguard the interest of all the stakeholders. Government intervention in the form of assistance in financing the producers is necessary who can expand production both from quantity and quality perspectives. It will make the producers capable to produce exportable products. Besides, government intervention in the marketing of the products is a must for avoiding legal issues and establishing reasonable price that will make the industry profitable. Making the social media platform accessible by the local artisans and owners of horn-work establishments is a must as through the social media, the products can have wider visibility and will be easily marketable. Thus, digital intervention is the need of the hour for fighting out the effect of COVID-19 on horn-works industry of the Gajapati district of Odisha.

The unique horn industry of Gajapati district is running with so many difficulties. The pandemic COVID-19 added more difficulty to this. Unless and until some big push package with a technical committee is formed for the revival of the industry then it will lose its existence. That will be a great humiliation not only the patronage king who built modern Odisha to the king of the Gajapati but also to the technician who invented to produce in a so much profitable manner by utilizing the waste material like raw horn of the animal. So it is high time to think of his for the revival of the tradition old horn industry.

C. Digital intervention for the revival of horn industry in the Gajapati district

Horn-work industry of Gajapati district in Odisha could be revived well and made a good source of employment generation in the district. For the purpose, things that need attention, as per the experts’ opinion, are bifurcated as follows.

Steps (Including Digital Intervention) to Revise the Horn-work Industry

- As most of the workers, businessmen, producers are engaged in the horn work in an informal way, the Government need to identify them and prepare a complete data structure. It will be a win-win situation in both ways; to the people engaged in this work and also to the Government. The people engaged in this work will get every type of assistance like
loan, subsidy, technical guidance, exportability of the product, etc. as per the Government rule. Similarly, by preparing a data base Government can earn revenue from this business.

- As all the mechanics are preparing this product at their home, a central room is required where they can work.
- Similarly modern technology needs to be applied in this industry.
- Jandhan, Aadhar and Mobile (JAM) can be utilized for the benefit of the horn industry in the Gajapati district of Odisha.
- Government and social groups need to organize camps to provide technical skill to the people engaged in this sector so that they can produce quality product which can be demanded outside India.
- Government in proper framework will collect the raw horn only from the dead animal. Accordingly Government will legalize this industry all over the world. As a result these people will not face any difficulty while selling the product throughout the world.
- Government needs to connect it to the different festivals/exhibition/Melas/Mahotsavas for selling this product.
- Government should emphasize to stretch the market base of this product outside India. Priority needs to sell the product through e-commerce.
- During this pandemic COVID-19 situation most of the people engaged in this business have sufficient time to take part in any training. So Government needs to impart training during this period by strictly following COVID-19 rule.
- Now vocational educations are opened in higher education of Odisha. So Government, in order to support this industry, needs to add this vocational course in the educational institutes of the Gajapati District Thus, more educated people will prefer to join in this industry. And we know that different studies show that productivity increases with increase in education. This way, it will increase the employment opportunity.
- As most of the people in Gajapati District are tribal and poor, Government needs to streamline credit facility for opening this business.
- People are facing difficulty in getting raw horns. And we know every day raw horn are wasted in different parts of the world. So Government needs to import those raw horn from different parts of the world. When raw horns will increase it will attract the industrialist to produce more. So it will invite many skilled expert industrialist to invest in this business. This will create more employment opportunity. Government needs to prioritize for exporting this products
to different parts of the world. So that it will be a profit oriented industry. once it turns into a profit oriented industry many experts from different parts of the world will be attracted to this type of industry. so Government needs to provide Patent or GI status to this activity of the Gajapati district.

- Now many of the repatriated migrants are coming to Gajapati district. They are searching for job. So Government needs to collect about their expertise. Many of them can be engaged in this sector by getting proper training. So it will create an employment opportunity in the district.

- The competitiveness of any industry depends on the technological upgradation and its efficient utilization. So Priority needs to be given for the how MSMEs are equipped with such technological advancement.

- Among the different bottlenecks that the Micro, Small and Medium Enterprises are facing, lack of infrastructural facility is a serious one which disrupts the value chain process of the production, consumption and distribution. So priority needs to the given at the Government level or at the industrialist level for improving the infrastructure.

- Finance is highly required for the MSMEs. So priority needs to be taken for the easy availability of the credit.

- The effect of COVID-19 is immense on the demand side of the horn work industry. Although the production process and quantum of output have come back to the track slowly, there is difficulty in marketing the output.

- Social media has a great role to play in the marketing of the items of the horn-work industry. Catalogue of different horn-works needs to be posted on different social media. In fact, besides selling the items through the e-commerce sites, the MSMEs and local NGOs need to market directly through social media.

- Government and NGOs need to train the MSMEs dealing with horn-works how to make use of the social media for marketing their output.

Acceptance of Digital Intervention by the Stakeholders of Horn-work Industry

Digital intervention has immense potential to make Indian agriculture sustainable and turn the Indian rural economy around. However, designing a good product and making that accessible won’t suffice to get the best out of the product. Extraction of the most form the best product is possible only when we use it aptly. Thus, the success digital intervention depends upon it acceptability by the stakeholders of the horn-work industry. In order to assess the degree of acceptability of the digital intervention, in-depth interviews have been conducted among 100 horn-work industry proprietors from Gajapati district of Odisha. On the basis of experts’ opinion, variables identified
for assessing the accessibility of digital intervention are;

*Digital Intervention facilitates augmenting efficiency (v1).*

*It is cost effective (v2).*

*It reduces wastage (v3).*

*Facilitates reducing anxiety of the horn-work proprietors by increasing the productivity (v4).*

*Facilitates reducing anxiety of the households of the proprietors (v5).*

*Improve the image of horn-work industry (v6).*

*Attract the youth to do this industry (v7).*

*Improve the image of local economy (v8).*

*It is time-saving from the perspectives of time required to apply and time required to get the result (v9).*

*It is interesting and motivating (v10).*

*It is handy to incorporate (v11).*

*In cases of any difficulty to use, ready-made tips are available on demand (v12).*

*On adequately informed, use will be wholehearted (v13).*

*As the proprietors get benefited, the societal trauma in the form of psychological disorder get reduced (v14).*

*It makes the consumers get the product at a lesser price as multiple channels get abolished (v15).*

Digital intervention has the potential to revive the horn-work industry of Gajapati district of Odisha sustainable and hence it is acceptable by its stakeholders (v16) is the dependent variable. The variables mentioned above are independent variables. Data has been collected from 100 stakeholders of horn-work industry in Gajapati district of Odisha through direct personal interview. A five-point rating scale has been used. The variables identified and data collected on them have passed the reliability test as the value of the Cronbach's Alpha is 0.926 (Table-2 & 3).

<table>
<thead>
<tr>
<th>Table-2: Case Processing Summary</th>
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<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Cases</td>
</tr>
<tr>
<td>Valid</td>
</tr>
<tr>
<td>Excluded</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

*a. Listwise deletion based on all variables in the procedure.*

Source: SPSS output

<table>
<thead>
<tr>
<th>Table-3: Reliability Statistics</th>
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<tbody>
<tr>
<td>Cronbach's Alpha</td>
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<td>.926</td>
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</tbody>
</table>

Source: SPSS output

**ANOVA for Hypothesis Testing**

In order to find out whether digital intervention has the potential to revive the horn-work industry in Gajapati district of Odisha and hence acceptable by its stakeholders, ANOVA and Regression Analysis is done.

Null Hypothesis: Digital intervention has the potential to revive the horn-work industry in Gajapati district of Odisha and hence it is not acceptable by its stakeholders.

For testing the null hypothesis, ANOVA was computed and presented in Table-4.
Table-4: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
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<td>15</td>
<td>1.016</td>
<td>1.875</td>
<td>.037</td>
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<tr>
<td>Residual</td>
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<td>84</td>
<td>.542</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60.750</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: v16

Source: SPSS output

The p-value is 0.037 and it is less than the level of significance (i.e., \( \alpha \)) of 0.05. Thus, the null hypothesis is not accepted. Thus, it is inferred that the digital intervention has the potential to revive the horn-work industry in Gajapati district of Odisha and hence it is acceptable by its stakeholders.

Conclusion:

MSMEs across the globe have been badly impacted due to COVID-19 pandemic; so also the MSMEs of Gajapati district in Odisha (India). Horn-works industry of Gajapati district is no exception to the trend. It has been very badly devastated owing to prolonged lock-down in the state. All the important stakeholders of the industry are leading miserable lives as they don’t have income for last few months. As such, they don’t have savings to use in this trying period for their livings. It has made them undone to continue with the same job as the normalcy is restored post pandemic. However, the industry has high level of potential to cater employment with profitability. The need of the hour is intervention of the government to safeguard the interest of all the stakeholders. Government intervention in the form of assistance in financing the producers is necessary who can expand production both from quantity and quality perspectives. It will make the producers capable to produce exportable products. Besides, government intervention in the marketing of the products is a must for avoiding legal issues and establishing reasonable price that will make the industry profitable. Making the social media platform accessible by the local artisans and owners of horn-work establishments is a must as through the social media, the products can have wider visibility and will be easily marketable. Thus, digital intervention is the need of the hour for fighting out the effect of COVID-19 on horn-works industry of the Gajapati district of Odisha.

References:


