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Presentation of Content

In the first article we present, *Estimation of the costs due to the absence of small landowners due to burnout in the region of Delicias, Chihuahua Mexico*, by MOLINA-LARA, Elia Angélica, PALAFOX-BOLIVAR, Marisol Priscila, VALLES-ALARCÓN, Isela Adriana and MONÁRREZ-PACHECO, Víctor Hugo, with ascription in the Universidad Autónoma de Chihuahua and Tecnológico Nacional de México Campus Delicias, as next article we present, *Legal and legal study of the tax incentives of the LIF 2023, to determine whether the taxable base of SMEs is put at risk in its application*, by AGUILAR-PÉREZ, Esmeralda, ROMERO-CRUZ, Rodolfo, AGUILAR-PÉREZ, Bacilisa, AGUILAR-PÉREZ, Silvia Madai and AGUILAR-PÉREZ, Nohemí, with ascription in Tecnológico Nacional de México-Instituto Tecnológico Superior de San Martín Texmelucan, as next article we present, *The new profile of the school principal: post-pandemic*, by CHÁVEZ-MORALES, Ignacio, CHÁVEZ-LÓPEZ, Pedro, LINO-GAMIÑO, Juan Alfredo and CHÁVEZ-LÓPEZ, María Margarita, with ascription in the Centro de Investigaciones Sociales y Educativas Tecomán (CISSET) A. C. and Universidad de Colima, as next article we present, *Inventory optimization/control through an MRP SYSTEM in artisanal bakeries geographically located in Huauchinango Puebla*, by SOTO-LEYVA, Yasmin, GONZAGA-LICONA, Elisa and GONZÁLEZ-MUÑOZ, Lilian, with ascription in the Tecnológico Nacional de México - Instituto Tecnológico Superior de Huauchinango.

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Estimation of the costs due to the absence of small landowners due to burnout in the region of Delicias, Chihuahua Mexico

Estimación de los costos por la ausencia de los pequeños propietarios por padecer burnout en la región de Delicias, Chihuahua México

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Abstract

Burnout syndrome can affect your level of performance in the workplace, due to absences and work presenteeism. For this reason, the presence of burnout syndrome in the management staff of SMEs in the Delicias region of the state of Chihuahua was evaluated and the costs of said absences were estimated. The approach was quantitative. Applied type. The design was non-experimental, correlational transectional. The mode was field with bibliographic support. The research work was carried out in the municipalities of Delicias, Camargo, Meoqui, Saucillo and Rosales, between the months of November 2021 and February 2022, the population of interest was made up of companies with 1 to 50 workers, which represented 12,596 companies. The sample was with volunteer subjects, through the income collection offices. The results obtained were that 158 people had a low level of burnout, 57 with a medium level and 19 with a high level. The monthly and daily costs derived from absences and presenteeism were determined.

Quantitative, Burnout, Evaluated

Resumen

Para algunos propietarios y administradores de pequeñas y medianas empresas, la presencia del síndrome de burnout, puede afectar su nivel de desempeño en el lugar de trabajo, a raíz de las ausencias y por el presentismo laboral. Por ello se evaluó la presencia del síndrome de burnout en el personal gerencial de las PYMES de la región Delicias del estado de Chihuahua y se estimaron los costos de dichas ausencias. El enfoque fue cuantitativo. De tipo aplicada. El diseño fue no experimental, transeccional correlacional. El modo fue de campo con apoyo bibliográfico. El trabajo de investigación se realizó en los municipios de Delicias, Camargo, Meoqui, Saucillo y Rosales, entre los meses de noviembre 2021 y febrero 2022, la población de interés estuvo compuesta por empresas de 1 hasta 50 trabajadores, lo que representaban 12,596 empresas, la muestra fue con sujetos voluntarios, a través de las oficinas de recaudación de rentas. Los resultados obtenidos fueron que 158 personas resultaron con nivel bajo de burnout, 57 con nivel medio y 19 con nivel alto. Se determinaron los costos mensuales y diarios derivados de las ausencias y del presentismo.

Cuantitativa, Burnout, Evaluado

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Introduction

Knowing that stress can affect anyone (Provisionales, 2019), this research has been carried out in order to find out whether the presence of burnout syndrome affects economically the owners and managers of small and medium-sized enterprises in the selected municipalities. In this research, the importance of owners and managers is continuously exposed, given that they direct, plan, vision and carry out multiple activities with the aim of seeing the business objectives concretized, being those who direct the other workers, to ensure the continuity of business activities (Robbins C., 2018). However, they are also exposed to the same risks as their subordinates. Adding a dose of worries, commitments and uncertainties that can slowly deteriorate their physical and mental health.

In a study conducted by the National Programme for Emotional Wellbeing and Human Development at Work (PRONABET) in November 2015, the following statistical data were presented as triggers of reactions in workers derived from the presence of burnout syndrome and stress: absenteeism represented 7.3% of the annual payroll cost of Mexican companies, this absenteeism represented an average loss of 23.80% in productivity. A worker misses up to 25 days of work per year when suffering from depression, 20 if suffering from panic attacks, 14 if suffering from post-traumatic stress disorder and 20 if suffering from anxiety. As a result, losses to the productive apparatus of approximately 16 billion pesos per year are generated in a conservative estimate (Siles, 2015). (PROBANET, 2018). The results of the studies carried out allow us to conclude that psychosocial risks at work and their consequences, including work-related stress, represent a significant economic and social cost, to the point that the dimension of this problem can be considered a public health issue (Gil Monte, 2012).

The World Health Organisation (WHO) considers that employment conditions, as well as occupation and position in the hierarchy of the workplace, also known as job, can also affect health. Those who perform their daily work under pressure or in precarious employment conditions are likely to smoke more, be less physically active and have an unhealthy diet (WHO, 2020).

It also recognised burnout as a disease and included it in its list of chronic diseases after decades of study, but its diagnosis will come into effect from 2022 (FORBES Mexico, 2019).

Burnout and its relationship with absenteeism

When trying to find out whether burnout syndrome represented an influencing factor for absenteeism, several researches have been identified such as Calloapaza (2017) and Torres (2019) (Calloapaza, 2017). (Torres, 2019).

Work absenteeism results in the loss of customers. Moreover, it can compromise the competitiveness of the organisation (ISO tools excellence, 2020). Bautista's (2017) research identified that unplanned absences lead to the loss of higher productivity index compared to planned absences given that co-workers are 40.3% less productive when unplanned absence occurs (Bautista, 2017).

Nature of accounting information

The characteristic of accounting as an information technique has proven its usefulness in contributing to decision-making and determining projections, it is more than a tool. In order for companies to not only survive, but to remain and grow, they require more education and professionalism in their management, the accounting system can provide information considered as relevant to provide it, even today the 6 criteria for accounting recognition, based on historical information, remain. These criteria are summarised in the Financial Reporting Standards (FRS) Conceptual Framework (CINIF, Financial Reporting Standards, 2022). Within the operations that make up the accounting there is an element that refers specifically to the recognition and valuation of all items that have a direct relationship with the payroll. This characteristic of historical accounting prevents the accounting recognition of situations that did not occur in the entity, i.e. the lack of inclusion in the financial statements, but does not prevent their estimation. An example of this situation is precisely the estimated cost of absences, given that the cost of days worked and staff remuneration actually paid is recognised for accounting purposes. It is understood that companies only incorporate in their accounting records the expenses accrued in a given period.

However, they may recognise, in auxiliary records, the cost incurred for each employee's absences.

Human capital costs

Human capital costs are represented by the minimum benefits required by law and also by the provisions of each entity, which are included in the employment contracts or in the custom of each company.

The LFT (LFT, 2021) establishes that the salary is the remuneration that the employer must pay to the worker for his work and that the elements that must be part of the salary are the payments made in cash for daily quota, bonuses, perceptions, room, bonuses, commissions, benefits in kind and any other amount or benefit that is given to the worker for his work. In this same ordinance, the procedure for determining a worker's daily wage is determined: the wage is fixed per week or per month, divided by seven or by thirty, as the case may be. When a worker works on Sundays, a benefit known as Sunday bonus is generated. The Christmas bonus is a benefit that establishes that workers are entitled to an annual bonus equivalent to fifteen days of salary. Holidays are legislated by this law (LFT, 1970).

In Mexico, workers are entitled to social security benefits, provided by the Mexican Social Security Institute (IMSS), which are partly financed by employer contributions and represent part of the payroll cost. For the purposes of this research, only the employer's contributions are included in the cost.

Thus, the daily cost of a worker is determined by the sum of his or her salary, plus the employer's contributions to IMSS, plus the contributions to INFONAVIT.

Estimated cost of absenteeism

Not all absences from work reduce a worker's salary; there are absences paid to the worker, in which the company may decide to substitute him/her during his/her absence, such as trips to represent the company, trips to attend congresses or training sessions and holidays. However, paid or unpaid leave authorised by the company itself for the employee to attend to personal matters, as well as days missed due to illness or unjustified absence, are considered absences.

This represents a cost for the company, which is sometimes considered sterile. In November 2014, Forbes magazine took up a survey by Kronos, which indicated that the cost of absences from work represented 7.3% for companies (Kronos, 2014). According to estimates by the company Go socket, the loss of productivity caused by absenteeism can vary, for companies that do not replace the absent worker, 14% loss in productivity, those that use their existing staff to cover shifts, 11% loss in productivity (Go socket the companies network, 2022).

Method for estimating the cost of absenteeism

One of the most widely used methods for estimating the cost of lost or decreased productivity due to absenteeism is also known as the human capital method, which is simple and practical to use, and in a way, it is arrived at instinctively, this method consists of determining the daily wage of a worker and multiplying it by the days of absence, thus estimating the loss of productivity. This method was originally proposed to estimate the cost of worker absences with or without apparent reason (Howard, Howard, and Smith, 2012).

The following table shows how to determine the total daily cost of a worker.

Concept	Abbreviation	Formula
Daily cost of a worker	CTOJournal	CTODaily=Sd + CPIMSSdaily + INFdaily + ISNdaily
Daily wage of the worker	Sd	
Daily employer's IMSS contribution, for each worker in the period	CPIMSSdaily	CPIMSSdaily = CPIMSS/No. days
Daily employer's contribution to INFONAVIT	INFdaily	INFdaily= INF/No. days

Table 1. Total daily cost of a worker Source (based on the provisions of the LFT and the IMSS law)

The cost of a worker's absences is determined by multiplying the above cost by the number of days in the period, as shown in Table 2.

Concept	Abbreviation	Formula
Cost of absences	Cto Aus	$Cto \text{ Aus} = CTODiario \times f$
Daily cost of a worker	CTOJournal	

Table 2 Daily cost of a worker's absences

Source: Elaborated based on the results of this research

Methodology to be developed

This research had a quantitative approach. The research design was non-experimental, since only facts that already happened were observed and measured. The field mode was bibliographic support. The valuation instrument was applied personally, in subjects who were owners or managers of SMEs in the municipalities of this region. Similarly, documentary research was carried out in articles related to the subject, reviews of theses on the effects of burnout syndrome and stress in different institutions, professions and countries.

The Spanish version of the MBI burnout syndrome detection questionnaire was applied in order to detect the presence of the syndrome in the owners and managers of the companies investigated and, where appropriate, to determine the level of this condition, in addition a series of questions were added with the intention of identifying the cost caused by the loss of working hours. The research work was carried out in the municipalities of Delicias, Camargo, Meoqui, Saucillo and Rosales belonging to the Delicias Region, between the months of November 2021 and February 2022. The unit of analysis consisted of business owners and managers. The type of sampling was non-probabilistic, 252 responses were received of which 15 were discarded, the sample selection was carried out with voluntary subjects.

Results

Level of burnout

We were able to identify the level of burnout syndrome manifested by the owners and managers of SMEs in Delicias, Camargo, Meoqui, Saucillo and Rosales. Cronbach's alpha for each of the three dimensions used for the detection of the syndrome was .829 for the emotional exhaustion dimension, .679 for the depersonalisation dimension and .867 for the self-fulfilment dimension.

Of the subjects surveyed, 158 people were found to have a low level of the syndrome, representing 68% of the total, 57 medium and 19 high. In all three dimensions, the percentage of low level was significantly higher than the other three levels.

Cost of absences

In estimating whether managerial absences with burnout represent a cost for SMEs, the presentation of the results obtained was carried out in 4 sections.

The first one concerns the determination of the monthly income integrated with the benefits received and the social security and state contributions.

The second part consisted of the determination of the days of absence from work due to illness, as well as absence from work due to illness and absence due to unwillingness to work. The third part was to determine the costs of sickness absence, absence due to unwillingness to work and sickness absence.

The fourth part was to determine the relationship between the three levels of the presence of burnout syndrome and the days of absence from work due to illness, as well as for coming to work feeling sick and for absence because one did not feel like working.

Cronbach's alpha for this variable was 0.605, it consisted of 11 items, 154 surveys were processed and 81 were excluded. 154 cases were valid (65.5%) and 81 cases were excluded (34.5%). We began by determining the income that each respondent reported receiving in the last month. Subsequently, it was determined whether they received additional benefits, as well as the conditions under which these were part of their income. Valid questionnaires for each of the options depended on whether the questions were answered by the respondents.

1. Determination of monthly income

According to the procedure used to determine the monthly income, an individual determination of the approximate income for the last month was made, the results of the most frequent incomes are shown in Table 3. 106 respondents received a monthly income of less than \$17,000.00.

Money	Frequency	Percentage	Money	Frequency	Percentage
			\$17,091.07	9	4.1
\$5,308.39	3	1.4	\$17,644.74	3	1.4
\$5,445.45	8	3.6	\$20,401.73	4	1.8
\$5,513.98	42	19	\$20,509.28	4	1.8
\$7,527.50	3	1.4	\$21,077.27	10	4.5
\$7,596.03	16	7.2	\$22,580.94	3	1.4
\$8,250.19	13	5.9	\$24,945.48	6	2.7
\$10,332.23	15	6.8	\$25,837.93	3	1.4
\$12,406.46	8	3.6	\$33,541.51	6	2.7
\$14,887.75	3	1.4	\$41,354.85	3	1.4
\$16,392.66	5	2.3	\$49,625.82	3	1.4

Table 3 Integrated monthly income with benefits received and contributions

Source (Table based on survey results)

1. Determination of the days of absence from work due to illness, as well as for going to work feeling ill and for absence because they did not feel like working.

The most significant results regarding absences in the last week are shown in Table 4 below. 107 people answered 1 day for the days they went to work feeling sick. The days absent because they did not feel like working, 143 respondents said 1 day. And the days absent due to illness, 125 respondents said 1 day.

Days	Never	1	2	3	4	5	6	7	Total
Came to work feeling sick	33	107	32	12	4	6	10	9	213
Absent because you felt unwilling to work	44	143	15	3	2	1	2	2	212
Absent due to illness	38	125	25	12	4	1	4	4	213

Table 4 Days of absence from work, paid and unpaid, by number of respondents

Source (Table compiled from survey data)

1. Determination of the costs of absences due to illness, absences due to not feeling like working and days absent from work due to feeling ill

In this part we are able to answer the research question related to this variable, what is the daily cost of absences of SME owners and managers when they report burnout?

Cost of days absent from work because they felt unwilling to work.

By correlating the results obtained from the question: How many days did you miss work because you felt unwilling to work, with the daily cost of absences in the last week.

The levels of daily costs were grouped into groups of 20 items to facilitate the understanding of the results obtained, the contents of the complete table can be found in the annexes section, and the following results were obtained: 44 subjects declared that they never missed work for this reason, according to Table 5. In the daily cost level between \$174.62 and \$559.67, 76 people missed 1 day, 11 missed 2 days, 2 missed 3 days, 2 missed 4 days, 2 missed 6 days and 2 missed the whole week. At the daily cost level between \$562.21 and \$1,099.17, 43 missed because they felt unwilling to work 1 day, 2 missed 2 days and 1 missed 3 days. At the daily cost level between \$1,103.34 and \$2,601.99, 24 missed because they felt unwilling to work 1 day and 2 missed 2 days. However, 44 people were never absent, compared to 143 people who missed 1 day.

Estimated daily cost of absences	Regarding absences, in the last week: How many days were you absent because you felt unwilling to work?								
	Never	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Total
Between \$174.62 and \$559.67	24	76	11	2	2	0	2	2	119
Between \$562.21 and \$1099.17	10	43	2	1	0	1	0	0	57
Between \$1103.34 and \$2601.99	10	24	2	0	0	0	0	0	36
Total	44	143	15	3	2	1	2	2	212

Table 5 Correlation between daily cost of absences and days of absenteeism, by number of subjects

Source (Table compiled from survey data)

Cost of days absent from work due to illness

When correlating the results obtained from the question "Regarding absences, in the last week: How many days were you absent due to illness?", with the daily cost, the following results were obtained, 38 subjects declared that they never missed work because they were ill. The daily cost levels were grouped into groups of 20 items to facilitate the understanding of the results obtained. The extract of the most significant results is shown in Table 6. At the daily cost level between \$174.62 and \$559.67, 66 missed 1 day, 14 missed 2 days, 8 missed 3 days, 3 missed 4 days, 1 missed 5 days, 2 missed 6 days and 4 missed the whole week. At the daily cost level between \$562.21 and \$1,099.17, 35 missed 1 day, 7 missed 2 days, 3 missed 3 days, 1 missed 4 days and 1 missed 2 days. At the daily cost level between \$1,103.34 and \$2,601.99, 24 missed 1 day, 4 missed 2 days, 1 missed 3 days, 1 missed 6 days and 1 missed 6 days.

Estimated daily cost of absences	Regarding absences, in the last week: How many days were you absent due to illness?							Total	
	Never	1 day	2 days	3 days	4 days	5 days	6 days		7 days
Between \$174.62 and \$559.67	22	66	14	8	3	1	2	4	120
Between \$562.21 and \$1,099.17	10	35	7	3	1	0	1	0	57
Between \$1,103.34 and \$2,601.99	6	24	4	1	0	0	1	0	36
Total	38	125	25	12	4	1	4	4	213

Table 6 Cost of days absent from work due to illness, by number of subjects
 Source (Table compiled from survey data)

Cost of days absent from work because of illness

When correlating the results obtained from the question Regarding absences, in the last week: How many days did you go to work feeling sick, with the daily cost, shown in Table 7, the following results were obtained, 33 subjects stated that. nunca acudieron a trabajar feeling sick. The levels of daily costs were grouped into groups of 20 items to facilitate the understanding of the results obtained, the contents of the full table can be found in the annexes section. An extract of the results is shown in Table 64

The most significant results were obtained. At the daily cost level between \$174.62 and \$559.67, 59 went to work feeling sick 1 day, 17 went 2 days, 8 went 3 days, 1 went 4 days, 5 went 5 days, 4 went 6 days and 8 went all week. At the daily cost level between \$562.21 and \$1,099.17, 28 came to work feeling sick 1 day, 7 came 2 days, 4 came 3 days, 2 came 4 days, 1 came 5 days and 5 came 6 days. At the daily cost level between \$1,103.34 and \$2,601.99, 20 came to work feeling sick 1 day, 8 came 2 days, 1 came 4 days, 1 came 6 days and 1 came 6 days.

Daily cost	Regarding absences, in the last week: How many days did you go to work feeling sick?							Total	
	Never	1 day	2 days	3 days	4 days	5 days	6 days		7 days
Between \$174.62 and \$559.67	18	59	17	8	1	5	4	8	120
Between \$562.21 and \$1,099.17	10	28	7	4	2	1	5	0	57
Between \$1,103.34 and \$2,601.99	5	20	8	0	1	0	1	1	36
Total	33	107	32	12	4	6	10	9	213

Table 7 Cost of days absent from work feeling sick, by number of subjects
 Source (Table prepared with information obtained from the surveys)

To determine the relationship between the three levels of the presence of burnout syndrome and days absent from work due to illness, as well as going to work feeling sick and missing work because they did not feel like working. Table 8 shows the number of days absent from work due to sickness, with the significant result that 34 people never missed work for this reason and 113 people missed 1 day, most of the absences resulted in people with a low level of burnout.

	Level of burnout of the interviewee				
	Never	Under	Medium	High	Total
Days when he went to work feeling sick	0	23	10	Never	Under
1	83	24	6	113	
2	24	11	1	36	
3	11	0	1	12	
4	1	2	1	4	
5	1	3	1	5	
6	4	4	2	10	
7	6	1	5	12	

Table 8 The worker went to work feeling sick
 Source (Table based on information obtained from the surveys)

Table 9 shows the results obtained for the days missed because they felt unwilling to work, highlighting that 45 people never missed in the last week and 153 missed 1 day, of whom 110 had a low level of the syndrome.

	Level of burnout of the interviewee				Total
	Never	Under	Medium	High	
Days missed because he felt unwilling to work	27	15	3	45	
1	110	34	9	153	
2	9	3	4	16	
3	1	1	1	3	
4	2	0	0	2	
5	2	0	0	2	
6	2	0	1	3	
7	23	13	3	39	

Table 9 Worker absent due to not wanting to work
 Source (Table elaborated with information obtained from the surveys)

In response to the number of days missed due to illness, the results are shown in Table 10, the most common response was 135 missing 1 day, followed by 26 people missing 2 days. The majority of both responses (110) with a low level of the syndrome.

	Level of burnout of the interviewee				Total
	Under	Medium	High	Total	
Days missed due to illness	96	31	8	135	
1	14	8	4	26	
2	9	2	1	12	
3	4	0	0	4	
4	0	1	1	2	
5	3	0	0	3	
6	4	0	1	5	

Table 10 Absence due to illness
 Source (Table elaborated with information obtained from surveys)

So, the significant correlation was between the sentences, coming to work feeling sick and the presence of burnout. Contrary to this, Calloapaza's (2017) research did not find a significant relationship between burnout and presenteeism, nor with absenteeism.

Conclusions

To estimate the cost of absenteeism and presenteeism of owners and managers suffering from burnout in SMEs in the Delicias region of the state of Chihuahua.

1. Determination of the level of burnout syndrome suffering.

For this purpose, it was. It was concluded that the effect of burnout on the management staff of the SMEs in the region was as follows: 97 people missed at least one day due to illness, in addition to the fact that 99 people were present at work, the cost of these days of absence could be determined within the ranges of \$174.62 and \$559.67 per day.

2. Estimated monthly income.

In relation to reported income, the most frequent were 105 subjects with an income of less than \$10,000.00 per month, representing 44.7% of the total, only 4.7% of the respondents reported earning more than \$50,000.00 per month.

Approximately 54% of the subjects did not have social security benefits, probably because the IMSS Law (Diputados, Ley del IMSS, 2021) does not oblige the registration of business owners and employers in the compulsory regime, on the contrary, 35% declared that they had always received such benefits.

3. Determination of days of absence and days absent from work when sick.

When determining the days of absence and the days when they went to work feeling sick, it was found that of the 235 respondents, 202 went to work feeling sick between 1 and 7 days in the last week, only 33 did not, 181 did not go to work between 1 and 7 days because they did not feel like working and 197 went to work between 1 and 7 days.

4. Ratio of the daily cost of absences.

The statistical results obtained regarding the estimated monthly cost of absences are shown in Table 11 and were, valid 220 surveys, the range \$73,792.00, the minimum \$5,308.30, maximum \$79,100.40, the sum \$4,142,077.20, the statistical mean \$18,827.62, the standard deviation of the mean \$1,128.93 and the standard deviation \$16,744.80. The results obtained with respect to the estimated daily cost of absences were, valid 220 surveys, the range \$2,427.37, the minimum \$174.62, the maximum \$2,601.99, the sum \$136,252.70, the statistical mean \$619.33, the standard deviation of the mean \$37.13 and the standard deviation \$550.81. It should be recognised that these costs are estimates and do not necessarily represent a cash outlay for businesses.

	N	Range	Minimum	Maximum	Sum	Media	Desv. Error	Deviation
Estimated monthly cost of absences	220	\$73792.0	\$5308.3	\$7910.4	\$4142077.2	\$18827.62	\$1128.93	\$16744.8
Estimated daily cost of absences	220	\$2427.37	\$174.62	\$2601.99	\$136252.7	\$619.33	\$37.13	\$550.81

Table 11 Statistical analysis of the monthly and daily costs of absences

Source (Table elaborated with information obtained from the surveys)

In relation to the daily cost of these absences, the number of subjects according to it was: 120 people for whom the cost fluctuated between \$174.62 and \$559.67, then 57 people for whom the daily cost was between \$562.21 and \$1,099.17, and finally 36 people for whom the daily cost was between \$1,103.34 and \$2,601.99.

It was possible to estimate the cost of absences due to illness and unwillingness to come to work, as well as the cost of the days of coming to work feeling sick. However, these results do not ensure that this represented an outlay of money, it is an estimate of what did not happen financially. At the daily cost level between \$174.62 and \$559.67, 66 missed 1 day, 14 missed 2 days, 8 missed 3 days, 3 missed 4 days, 1 missed 5 days, 2 missed 6 days and 4 missed the whole week. At the daily cost level between \$562.21 and \$1,099.17, 35 missed 1 day, 7 missed 2 days, 3 missed 3 days, 1 missed 4 days and 1 missed 2 days. At the daily cost level between \$1,103.34 and \$2,601.99, 24 missed 1 day, 4 missed 2 days, 1 missed 3 days, 1 missed 6 days.

5. Correlation between burnout syndrome and coming to work feeling ill

The measures of dispersion concerning the monthly and daily costs of the 148 subjects with a low level of burnout, of the 54 with a medium level and of the 19 with a high level are shown in Table 12. In relation to the costs determined in the subjects suffering from level 1 or low burnout, 148 surveys were valid, the range was \$73,792.08, minimum \$5,308.39, maximum \$79,100.47, totaling \$2,697,392.66. In relation to the costs determined in the subjects suffering from level 2 or medium burnout, 54 surveys were valid, the range \$73,655.02, minimum \$5,445.45, maximum \$79,100.47, total \$ 1,020,346.17. In relation to the costs determined in the subjects suffering from level 3 or high burnout, 19 surveys were valid, the range \$73,586.49, minimum \$5,513.98, maximum \$79,100.47, total \$ 432,588.60.

The results of the daily costs in level 1 or low were: the range \$ 2,427.37 minimum \$174.62 and maximum \$2,601.99. The results of the daily costs at level 2 or medium were: the range \$2,422.86, minimum \$174.62 and maximum \$2,601.99.

The results for daily costs at level 3 or high were: range \$2,420.61, minimum \$181.38 and maximum \$2,601.99.

In the three levels of burnout, the ranges and the minimum and maximum values obtained are similar, so there is no notable difference between the monthly and daily costs in the subjects affected by the syndrome.

	N	Range	Minimum	Maximum	Sum
cost month low level	148	\$73,792.08	\$ 5,308.39	\$79,100.47	\$ 2,697,392.66
cost day low level	148	\$ 2,427.37	\$ 174.62	\$ 2,601.99	\$ 88,730.12
N valid	148				
cost month medium level	54	\$73,655.02	\$ 5,445.45	\$79,100.47	\$ 1,020,346.17
cost per day medium level	54	\$ 2,422.86	\$ 179.13	\$ 2,601.99	\$ 33,564.07
N valid	54				
cost month high level	19	\$73,586.49	\$ 5,513.98	\$79,100.47	\$ 432,588.60
cost per day high level	19	\$ 2,420.61	\$ 181.38	\$ 2,601.99	\$ 14,229.90
N valid	19				

Table 12 Measures of dispersion of the monthly and daily costs by levels of the syndrome part

Source (Table elaborated with information obtained from the surveys)

The statistical results were: Pearson's Chi-square for this correlation between burnout syndrome and going to work feeling sick, with a value of 40.881, $df=14$ and asymptotic significance 0.000, the likelihood ratio 35.027 and asymptotic significance 0.001, demonstrating a significant relationship between the two. Pearson's chi-square for this correlation between burnout syndrome and absence due to feeling unwilling to work, with a value of 17.879, $df=12$ and asymptotic significance 0.119, the likelihood ratio 15.641 and asymptotic significance 0.208, there is no significant relationship between the two. Pearson's Chi-square for this correlation between burnout syndrome and sickness absence, with a value of 18.054, $df=14$ and asymptotic significance 0.204, the likelihood ratio 19.514 and asymptotic significance 0.146, showing that there is no significant relationship between the two.

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References

Bautista, S. (Diciembre de 2017). Ausentismo laboral cuesta a empresas 40% en productividad. *El Sol de México*. Obtenido de <https://www.elsoldemexico.com.mx/finanzas/ausentismo-laboral-cuesta-a-empresas-40-en-productividad-429532.html>

Calloapaza. (2017). *UNSA repositorio institucional*. Obtenido de <http://repositorio.unsa.edu.pe/handle/UNSA/3631>

CINIF. (2022). *Normas de Información Financiera*. México: CINIF.

FORBES México. (28 de Mayo de 2019). Obtenido de <https://www.forbes.com.mx/oms-clasifica-desgaste-y-estres-laboral-como-una-enfermedad/#:~:text=%2D%20La%20Organizaci%C3%B3n%20Mundial%20de%20la,vigor%20a%20partir%20de%202022>.

Gil Monte, P. (2012). Riesgos psicosociales en el trabajo y salud. Obtenido de https://www.scielo.org/scielo.php?pid=S1726-46342012000200012&script=sci_arttext&tlng=es

MOLINA-LARA, Elia Angélica, PALAFOX-BOLIVAR, Marisol Priscila, VALLES-ALARCON, Isela Adriana and MONARREZ-PACHECO, Víctor Hugo. Estimation of the costs due to the absence of small landowners due to burnout in the region of Delicias, Chihuahua Mexico. *Journal of Administration and Finance*. 2023

Go socket the companies network. (2022). Obtenido de <https://iofacturo.mx/economia/ausentismo-laboral-cuesta-7-3-a-empresas#:~:text=De%20acuerdo%20a%20un%20estudio,los%20d%C3%ADas%20laborables%20del%20a%C3%B1o.>

Howard, K., Howard, J., & Smith, A. (2012). Handbook of Occupational Health and Wellness. *The Problem of Absenteeism and Presenteeism in the Workplace.*, 151-180.

ISO tools excellence. (2020). *ISO tools excellence.* Obtenido de <https://hse.software/2021/10/15/ausentismo-laboral-como-impacta-en-la-empresa/>

Kronos. (30 de noviembre de 2014). Ausentismo laboral 'golpea' a empresas mexicanas. *Forbes México.com.*
doi:<https://www.forbes.com.mx/ausentismo-laboral-golpea-empresas-mexicanas/>

Ley del IMSS. (2021). *Nueva Ley publicada en el Diario Oficial de la Federación el 21 de diciembre de 1995.* Obtenido de http://www.diputados.gob.mx/LeyesBiblio/pdf/92_020719.pdf

LFT. (1 de Abril de 1970). Obtenido de http://www.diputados.gob.mx/LeyesBiblio/pdf/125_230421.pdf

LFT. (23 de Abril de 2021). 1-325. Obtenido de http://www.diputados.gob.mx/LeyesBiblio/pdf/125_230421.pdf

OMS. (2020). *World Health Organization.* Obtenido de https://www.who.int/topics/occupational_health/es/#:~:text=Las%20condiciones%20de%20empleo%2C%20la,tener%20una%20dieta%20poco%20saludable.

PROBANET. (2018). Obtenido de <https://www.gob.mx/stps/prensa/pronabet-herramienta-eficaz-de-la-stps-para-prevenir-factores-de-riesgo-psicosocial>

Provisionales, 7. C. (2019). Ginebra, suiza.

Robbins, C. (2018). *Administración.* Pearson.

Siles, J. G. (2015). *Presentación del PRONABET ante la CONCAMIN Cd. de México.* Cd. de México.

Torres Flores, D. (Julio de 2019). *te queremos escuchar.* Obtenido de <https://www.tequeremosescuchar.com/psilinea/info/post/ausentismo>

Legal and legal study of the tax incentives of the LIF 2023, to determine whether the taxable base of SMEs is put at risk in its application

Estudio jurídico y legal de los estímulos fiscales de la LIF 2023, para determinar si se pone en riesgo la base gravable de las PyMes en su aplicación

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Abstract

This article presents the results of the research carried out in the first quarter of 2023 using SMEs in the San Martin Texmelucan region as a study factor. The general objective of the research was to carry out a study of the fiscal stimuli of the LIF 2023, to determine whether the tax base is put at risk in its application. The methodology that was carried out was developing a mixed research, the data collection technique was a questionnaire of 30 closed questions with a Likert scale was applied, 376 surveys were applied to different companies in the region of San Martin Texmelucan. The most important contribution made was the design of a protection plan where SMEs can take advantage of fiscal stimuli to reduce their tax base and contribute to public spending through the payment of contributions.

Fiscal stimulus, SMEs, Tax base

Resumen

En el presente artículo se presentan los resultados de la investigación realizada en el primer trimestre de 2023 tomando como factor de estudio a las PyMes de la región de San Martin Texmelucan. El objetivo general de la investigación fue realizar un estudio de los estímulos fiscales de la LIF 2023, para determinar si se pone en riesgo la base gravable en su aplicación. La metodología que se llevó a cabo fue desarrollando una investigación mixta, la técnica de recolección de datos fue un cuestionario de 46 preguntas cerradas con escala de Likert, se aplicaron 376 encuestas a diferentes empresas de la región de San Martin Texmelucan. La contribución más importante que se realizó fue el diseño de un plan de protección donde las PyMes pueden aprovechar los estímulos fiscales para disminuir su base gravable y aportar al gasto público vía pago de las contribuciones.

Estímulo fiscal, PyMes, Base gravable

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Introduction

Tax incentives are intended to provide taxpayers with different ways to facilitate timely compliance and reduce their tax burdens (De la Cruz et al., 2021). However, many taxpayers are not aware of this information, which causes them not to apply the tax incentives and not to benefit from them. Martínez and Mapén (2020) mention that the Federal Revenue Law contains the concepts of financial resources that cover financial expenses during a fiscal year.

The SHCP (2023) indicates that fiscal incentives are those that are authorised through a collegiate group of agencies and/or institutions, which allow individuals (individuals and companies) to contribute resources to an investment project and reduce the amount of their contribution to the payment of their income tax.

The research problem lies in the lack of knowledge on the part of taxpayers and the lack of dissemination by the authority. The specific objectives developed were: to identify the fiscal incentives of the federal laws of VAT, IEPS, ISR by carrying out a comparative analysis of them to detect their areas of application, as well as to design a strategy to inform taxpayers about the application of fiscal incentives through their procedure and legal requirements. This article is made up of 5 sections, initially presenting the methodology that was developed, followed by the results, conclusions, bibliographical references and acknowledgements.

Methodology

The research carried out was mixed, the information was collected through a questionnaire that was applied to 376 SMEs, to determine how they approach the issue of legal provisions in the face of fiscal incentives.

The first step was to identify the fiscal incentives of the federal laws of VAT, IEPS, ISR, IMSS and INFONAVIT, carrying out a comparative analysis of them in order to detect their areas of application. Subsequently, a strategy was designed to inform taxpayers about the application of tax incentives through their procedures and legal requirements.

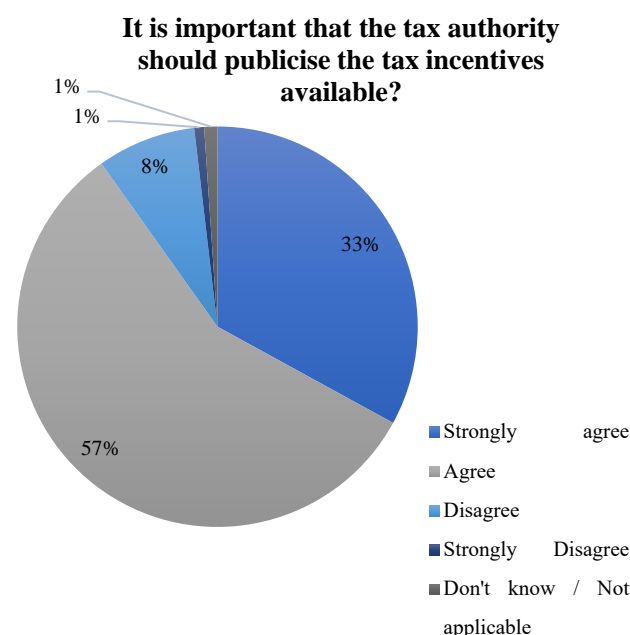


Figure 1 Tax incentives
Source: Own elaboration with survey data

57% of the surveyed SMEs answered in agreement, which implies that they should not only remain in the legislation, but should also be tangible for taxpayers.

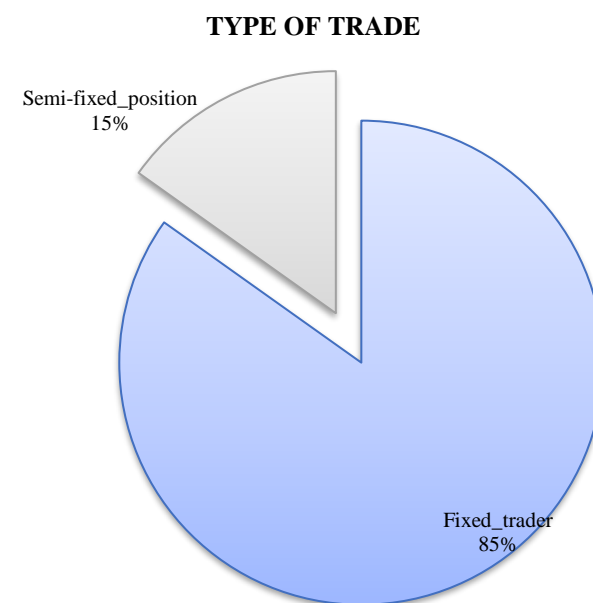


Figure 2 Type of trade
Source: Own elaboration with survey data

Of the 376 SMEs surveyed, 85% indicate that their type of trade is with a fixed establishment and that they have an RFC, while only 15% carry out their activities in semi-fixed stalls. This is important to determine the degree of formalisation of the companies surveyed and to analyse how they can apply the fiscal incentives.

Do you believe that the application of fiscal stimuli will decrease your company's tax base?

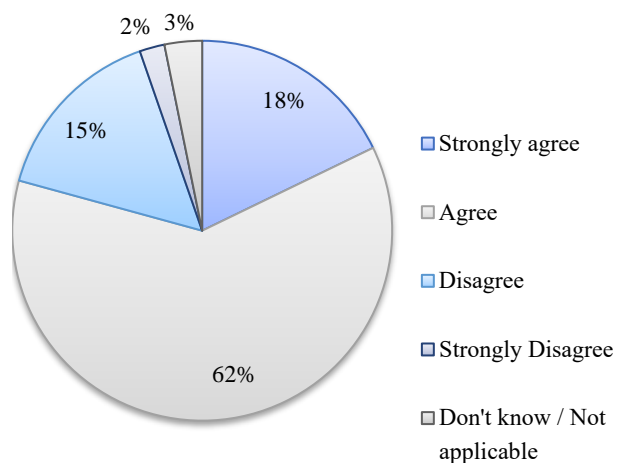


Figure 3 Application of fiscal stimuli
Source: Own elaboration with data from the survey

Figure 3 shows that 62% of the SMEs surveyed indicate that the taxable base for determining their contributions will decrease by applying tax incentives.

Results

The results obtained in the research conducted in the first quarter of 2023 are as follows.

Results of specific objective 1

Identify the tax incentives of the federal VAT, IEPS and ISR laws by carrying out a comparative analysis of them in order to detect their areas of application.

Consists	It is a tax offense of 50% of the value added tax, which will be applied directly over the 16% rate, so that the resulting disguised rate will be 8%.
Must have:	You must have a tax domicile, agency or establishment within the northern and southern border region.
Apply to:	Applies to individuals and legal entities that perform acts or activities consisting of the sale of goods, the provision of independent services or the granting of the temporary use or enjoyment of goods, in branches, premises or establishments.
Do not apply to:	<ul style="list-style-type: none"> - The alienation of real estate or in the alienation and granting of the temporary use or enjoyment of intangible assets. - In the supply of digital content, such as audio or video or a combination of both, through downloading or reception. - Provision of transportation services of goods or persons, by land, sea or air, except when the presentation of such services begins and ends in such region, without making stopovers outside of it.

Figure 4 VAT tax incentives
Source: LIVA

Type of stimulus	What it consists of	Against which it is applied
Research and technological development projects.	Tax credit equivalent to 100% of the IEPS.	Against the income tax incurred in the year in which such credit is determined.
Requirements:	Total income less than 60 million.	Used only for machinery.

Figure 5 Tax incentives IEPS Law
Source: LIEPS

Type of stimulus	What it consists of	Against which it is applied
Research and technological development projects.	Tax credit equivalent to 30% of the expenses and investments made in the fiscal year in research or development of technology.	Against the income tax incurred in the fiscal year in which such credit is determined.
Tax incentives for the southern and northern border region.	1/3 of the ISR in the proportion that the income obtained in the southern border region represents of your total income.	The income tax incurred in the fiscal year or in the provisional payments.

Figure 6 LISR tax incentives
Source: LISR

Results of Specific Objective 2

Identify the tax incentives of Social Security and INFONAVIT, carrying out a comparative analysis of them to detect their areas of application.

What it consists of	Amount	Against which it is applied
Equivalent to the difference resulting from the difference between the employer-employee contributions of the risk insurances.	2.70 times the daily value of the Unit of Measurement and Actualization in force. Provided that the base salary of contribution is higher.	Contributions calculated according to the respective contribution base salary.

Figure 7 IMSS and INFONAVIT tax incentives
Source: LIMSS and LINFONAVIT

Results of Specific Objective 3

Design a strategy to inform taxpayers about the application of tax incentives through its procedure and legal requirements.

In this point, a triptych was made as a strategy to make known the importance of fiscal stimuli and their benefits.



Figure 8 Leaflet for surveyed taxpayers
Source: Own elaboration



Figure 9 Leaflet for surveyed taxpayers
Source: Own elaboration

Indicadores estadísticos de las variables					
Nº	Variable	N	Mínimo	Máximo	Desviación estándar
1	Estímulos fiscales	376	1	5	2.18
2	Competitividad y crecimiento económico del país	376	1	5	2.18

Determinación de la media y desviación estándar				
Medida variable	Estímulos fiscales	Aplicación de la base gravable	Competitividad y crecimiento	Total
Media	2.55	2.18	2.18	2.31
Desviación estándar	0.97	1.40	1.40	1.26

Medida variable	n	Media	Desviación estándar
Muestra	376	2.31	1.26
Promedio de la media	376	2.31	1.26
Promedio de la desviación estándar	376	2.31	1.26
Hipótesis	376	2.31	1.26

$$z = \frac{\bar{X} - \mu}{\sigma / \sqrt{n}}$$

$Z = \frac{2.31 - 2}{1.26 / \sqrt{376}} = 0.31$

Figure 10 Statistical analysis
Source: Own elaboration with survey dat

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Conclusions

Economic incentives are measures to stimulate short-term growth.

It is essential to inform taxpayers of the benefits that fiscal stimuli have for them, such as: reducing costs, administrative procedures and obtaining fiscal simplification.

This implies not only supporting companies registered with the SAT, but also encouraging the generation of schemes that reward a history of compliance, considering which regimes can and cannot be included in the application of tax incentives.

Therefore, the development of this project in the research department of the ITSSMT allows for the promotion of timely compliance and the use of these incentives by taxpayers.

References

De la Cruz, I. C. H., Prats, G. M., Hernández, F. S., y Rodríguez, W. B. L. (2021). Estímulos Fiscales Para Personas Físicas Y Morales En México. Publicaciones e Investigación, 15(1).

INEGI (2023). Encuesta de empresas mexicanas 2020.

Martínez, F.J.G. y Mapén F.D.J. (2020). Análisis de estímulos fiscales para empresas mexicanas que fomenten la inclusión laboral de personas discapacitadas. Revista Científica de la UCSA, 7(2), 26-40.

SHCP (2023). Concepto de estímulos fiscales <https://www.estimulosfiscales.hacienda.gob.mx>.

The new profile of the school principal: post-pandemic

El nuevo perfil del director escolar: pos-pandemia

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Abstract

This document is a research made when the effects of the pandemic were observed, the schools were closed and the classes were no longer in person. This situation caused the school principal trouble, especially in elementary school education. It was not easy to lead with a new teaching experience or method because it was impossible to contact each teacher and student in person and it wasn't easy to assume leadership to answer the principal's expectations. An interview was conducted with the Sector IV (78) school principals from Tecoman-Armeria to identify their opinions about the new role of the school principal's profile, with this work, is defined the new role of the director .

Leadership, Role, Tecoman-Armeria

Resumen

Este documento es una investigación realizada cuando se observaron los efectos de la pandemia, las escuelas estaban cerradas y las clases ya no eran presenciales. Esta situación causó problemas al director de la escuela, especialmente en la educación primaria. No fue fácil liderar con una nueva experiencia o método de enseñanza porque era imposible contactar a cada maestro y estudiante en persona y no era fácil asumir un liderazgo para responder a las expectativas del director. Se realizó una entrevista a los directores de escuelas del Sector IV de Tecomán-Armería (78) para identificar sus opiniones sobre el nuevo rol del perfil del director de escuela, con este trabajo se define la nueva figura de un director escolar.

Liderazgo, Rol, Tecomán-Armería

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Introduction

The present research work has to do with the role and profile of school principals; for the present study, we only worked with primary school principals. At the beginning of the pandemic in March 2019, and in the country (Mexico) the educational authorities defined that to protect the population it was necessary to suspend educational work and with it, the protection of children, adolescents and teachers who attend schools, as the pandemic began and was raging in Europe, with a large death toll of human beings. This alerted the authorities in our country to seek strategies to protect the population from the pandemic so that it would not be so deadly in our nation.

Schools in the country at all levels and systems had to be suspended and work had to be done remotely. This caused a great upheaval, as there was no preparation for teachers and even less for public schools to carry out this activity to the best of their ability, however, they worked remotely using the different electronic media available to teachers and parents. It was a great crusade to adopt different ways to continue with the preparation of the students.

The principals of educational institutions at all levels from kindergarten to postgraduate level did a great job, where the figure of the school principal had to do the unexpected in order to achieve an organisation, a follow-up of the educational processes, not without going through a series of problems that they had to overcome in order to be able to follow up the educational process. This was the reason for carrying out this research in the Tecomán - Armería region of the state of Colima, Mexico. Its objective was to know the vision that principals have about their profile in the post-pandemic region, and if there is a need for a new profile of the school principal, which led to the following question:

Is there a need for a new profile for the primary schools principal in Tecomán - Armería in Postpandemia?

Objective

- To define the characteristics of the school principal in post-pandemic situations.

- This reflection led to the following theoretical assumption.
- The profile of primary school principals in the Tecomán - Armería region warrants a change.

Rationale

Before defining the function and profile of the principal, what is the school? It is defined as the institutional space where learning and teaching take place, it is the place where people come together to learn and teach, in this sense the word, as such, comes from the Latin schola, and this in turn from the Greek σχολή (scholḗ), which translates as 'leisure', 'free time', in words that can be updated, it is the place where time is used to learn and teach, as it has a whole organisation for its operation.

These spaces are managed and organised by a person in charge, the School Director. This school agent is responsible for ensuring that the objectives for which it was created are fulfilled and in our country it is based on Article 3 of the Constitution, which states that it is the right of all individuals to receive education () making the school the place where teaching and learning take place.

For the organisation and operation of the school, a person in charge is needed, and this function falls to the person called the School Director, who is appointed by the Education Authority, in this case, in our state, by the Sub-Directorate of Primary Education, which grants the official appointment to carry out the function. In this sense, currently, in order to cover this function, whoever aspires to develop it must cover a series of knowledge recovered by exams that they have to pass, as it is assumed that the demonstration of this knowledge will allow them to lead the school institution in the best possible way.

Among the knowledge and skills that a school principal must have, we can mention, among others:

- Leadership.
- Management.
- Administration.

- Organization.
- Control.

For the above we can mention the function defined by the agreement 96 (Diario Oficial de la Federación December 1982) regarding the primary school, its functioning and dependence on the Secretary of Public Education and the Article 2° that says:

Primary schools are institutions destined to provide basic general education, whose primary objective is to provide the student with the training, knowledge and skills that underpin any subsequent learning, and the acquisition of positive habits for social coexistence. (José Jesús Vázquez Sánchez, 1982 p.296).

Taking up this agreement, it is possible to appreciate the responsibility of the school leader and his or her vision of forming environments that allow for the achievement of student learning. In this sense, having the aforementioned knowledge and skills can help to fulfil this agreement.

This is why leadership is fundamental for the school to have direction, the leader is the one who convinces, is an example among other characteristics that can be counted on, for this reason it is important to recognise some elements and types of leadership that are fundamental and necessary elements for the development of the function.

A school headmaster in any case or context where the school institution he/she leads faces a series of micro-pressures, as Charles Handy (1989) points out, which are constantly changing according to the progress of society.

There are pressures on schools which he calls micro-pressures such as the following:

- Rapid changes in science and technology.
- Ecological changes.
- Social changes.

Political changes major developments in technology and media (Day, Hall and Whitaker 2002).

- These pressures impact on schools in two main ways:

Compliance with a curriculum that has to adapt, to become flexible in the face of changing situations.

- They require schools to have their own process of creativity where leaders have new ideas and approaches to emerging situations.

Although these elements emerge and are faced in developed countries, in Latin America, specifically in Mexico and in Colima, they are manifested in some way and are reflected in the different activities that take place in schools, hindering the smooth running of the same, causing a series of conflicts for the school principal to really fulfil the function of harmonising and achieving the objectives of education. These challenges were intensified with the COVID-19 pandemic, leading schools throughout Latin America to present the great number of needs in which they find themselves, which we have experienced in Mexico and in Colima.

The leadership of school principals became more acute in terms of the function, as there was no preparation for this time, which meant that the authorities in our country had to schedule emerging courses on the management of ICT, and the management of the different platforms that are currently being put into practice.

School headmasters in our country's primary schools have had to reflect on the situation they have been living through and rediscover their training and updating needs for the function, leading to an analysis of their actions in the school and when working at a distance in times of pandemic.

While there are different types of leadership that have been implemented in face-to-face practices such as:

Leadership

Sergiovani (2007) points out that leadership strengths are very important for a school to learn well, among which the following can be mentioned:

- The strength of technical and humanistic leadership.
- Educational, symbolic and cultural leadership.
- The greater the presence of leadership, the greater the hierarchy.

Sergiovanni, T. J., and Glickman, C. (2007) mention this to point out that the school principal is one of the key elements for a school to function well and have good learning.

Leadership is thus the activity of mobilising and influencing others to develop shared understandings about the goals to be achieved by the school. Setting a common goal and influencing others to share in that goal primarily define leadership (Leithwood and Louis, 2011). International reports (McKinsey and Company, 2008; OECD, 2008) also show that the leadership of school leadership teams is a critical factor in improving learning. Among all the internal school factors.

Sergiovanni, T. J., and Glickman, C (2007) agree in highlighting the importance of pedagogical leadership of school leadership in increasing the quality of learning. The Wallace Foundation Report (Leithwood, Louis, Anderson and Wahlstrom, 2004) found that pedagogical leadership is the second most influential factor, after teaching itself, on student success, and is even more significant in schools located in vulnerable contexts. As Robinson, Hohepa and Lloyd (2009, p. 40) put it: "the more leaders focus their influence, their learning and their relationships with teachers on the core business of teaching and learning, the greater their influence on student outcomes. As Fullan (2014) describes.

In order for the principal to improve his or her progress with students, it is necessary to resort to practices that have to do with what is to be done and that strongly influence the action of the school leader. Excellent research (Leithwood, Day et al., 2006; Day, Sammons et al., 2011; Leithwood, 2009) has described four types of leadership practices that have an impact on student learning:

(a) setting a goal or vision, which contributes to people developing a shared understanding about the organisation, about activities and objectives around a common mission, focused on learners' progress; (b) developing staff, through professional development, incentives or support the capacity of members to respond better to situations is expanded; (c) redesigning the organisation, which contributes to people developing a shared understanding about the organisation, about activities and objectives around a common mission, focused on learners' progress; (d) developing staff, through professional development, incentives or support the capacity of members to respond better to situations is expanded; c) redesigning the organisation, with practices that build a collaborative culture, structure the organisation to facilitate work, change the school culture or manage the environment; and d) managing teaching and learning programmes, through a set of tasks such as monitoring and evaluating teaching, coordinating the curriculum and tracking student progress, protecting the use of class time, the practice of leadership as mentioned by the authors mentioned above can lead to improved processes with students in the school.

For Bolívar (2010), the principal's leadership is most influential in creating favourable conditions for positively influencing student learning and outcomes. However, motivating teachers and students remains a challenge. That is why the principal is a key player in the institution, considering that human beings are endowed with capacities that allow us to live and relate to other people, which are learned and developed in social environments, it is necessary to understand that school environments are a privileged place to carry out this vital learning (Muñoz, 2009).

According to (Goleman, D., Boyatzis, R., Mckee, A., 2017), they affirm that the best leaders do not use a single type of leadership; the efficiency of a leader is in having the ability to change flexibly from one style to another according to the circumstances; as mentioned in his book "Leadership" some of them are:

Authoritarian leadership

- He has a vision for the future.
- Motivates your students constantly.

- You make your students feel that what they do is important to you and to them.
- Gives individual tasks, but always thinking that these ideas have an overall value.
- The student knows at all times what his goal is and what his reward is.
- The objective set is clear, but at the same time it has a certain flexibility.
- It allows for innovation.
- It allows experimentation.
- Accepts risks.

It does not work when:

- Teacher and students have the same or very similar knowledge, as they see the teacher as presumptuous or uninformed.
- Abuses despotism and intransigence.

Leadership coach

- Helps learners to become aware of their strengths and weaknesses.
- Is able to define what the personal, academic and professional aspirations of their learners are.
- Gives a lot of instructions because he/she guides the tasks.
- Gives a lot of feedback to learners.
- Delegates tasks frequently, even those that are considered complex.
- Advocates error as another form of learning.
- Advocates the value of dialogue as a tool to increase accountability among learners.

Verbalises commitment to learners.

Does not work when:

- Pupils express very little willingness to learn.

- Pupils show a considerable lack of motivation.

Conciliatory leadership

- Values learners and their emotions above tasks and task objectives.
- Seeks a good working atmosphere at all times.
- Attaches great importance to loyalty.
- Advocates a certain degree of autonomy in learning.
- Practices unconditional positive reinforcement, i.e. works to increase the self-concept and self-esteem of his students by verbalising their achievements and successes.
- Promotes harmony within the group, as well as the morale of their students.

It does not work when:

- The teacher abuses praise.
- The teacher does not offer short or medium-term solutions that can satisfy the learner.
- Democratic leadership.
- The teacher invests a lot of time in collecting ideas.
- Works with the intention of having the backing of the students.
- Constantly seeks to build trust, respect and commitment in the group.
- Encourages flexibility and responsibility in working because he/she takes learners' opinions and decisions very much into account.
- Is very realistic in terms of achieving objectives.

Disadvantage:

- It slows down with the achievement of objectives, given the plurality of opinions.

- Little group cohesion as it encourages so much participation.

Exemplary leadership.

- The teacher is a high performer and constantly demonstrates this.
- Obsesses about doing tasks better and faster and demands this from their students as well.
- Seeks the same standards and demands from all pupils.
- Has clear ideas, but is not always able to convey them clearly to the group.
- Encourages demoralisation and drop-out due to high standards.
- The learner is more concerned with guessing what the teacher wants than with his or her work in the classroom.
- There is no flexibility.
- Responsibility disappears.
- Tasks are often repetitive, mechanised and boring.
- The learner sees little reward for his or her effort.
- Shows little sensitivity to attention to diversity.
- It does not work when:
 - Learners are homogeneous, highly motivated, highly competent at their tasks and require little individualised attention or monitoring.
 - Some activity or project has to be completed within a given time frame.
 - Coercive or dominant leadership.
 - Only the teacher makes decisions and is inflexible.
 - Does not encourage a critical spirit or the generation of new ideas or suggestions.

- Does not encourage learner involvement in the group.

- Disappears the sense of responsibility.
- It does not encourage the reward system.

It is not very motivating for learners.

Can work when:

A radical change in the direction of a group is needed.

A traumatic or emergency situation occurs in both the group and the school.

Starting from the different types of leadership, a school leader should be a facilitator in all senses, when he/she becomes a principal; he/she should apply the different types of leadership, this would be the most recommendable. Finally, the school leader is a decisive element in educational improvement. However, the stagnation that continues to be experienced in several schools may be due to the school culture established over the years, where a large majority of school leaders continue to adjust their activities to bureaucratic management and administrative burdens. When educational leadership is confined to mere administrative management, responsibilities for the acquisition of the teaching and learning process of students are relegated to the background. The leadership of school management plays an important role in the implementation of the different strategies that aim to build learning conditions for students and to ensure the well-being of all, as suggested by Carbonell (2020), the new functions that the school will have to assume, care, conversation and solidarity.

It should not be forgotten that the great responsibility of the school establishment and its leadership is to ensure the academic success of students at all times, the educational process cannot be left entirely to the faculty or will that each teacher performs to a lesser or greater extent in his or her classroom. Hence, school management must inevitably intervene directly to guarantee the improvement of teaching and learning offered by the school institution.

School management

Management is another element that the school head must carry out, understood as the action of interacting to seek pedagogical and material support for the educational institution; it is a skill that the school head must have, as it will allow him/her to generate spaces and environments to achieve the educational process. In this sense, management is the greatest factor in enhancing the quality of the school Leithwood, Louis, Anderson and Wahlstrom, 2004. Therefore, both leadership and management are fundamental in the process of developing a good school management function. It is important to mention that the management carried out by the school principal can go in two directions, pedagogical and administrative, as the principal not only fulfils the function of leading the school in the right direction, but within the skills that he/she develops, he/she carries out pedagogical management that has to do with the knowledge of methodologies and processes to achieve learning and also manages administrative processes in the institution, in this respect there are proposals in Latin America that point out about management.

Pacheco-Granados, Robles-Algarín and Ospino-Castro (2018), conducted a research on the analysis of administrative management in educational institutions at the basic and middle levels in rural areas of Santa Marta, Colombia. In which four dimensions were considered; the administrative approach, management level, uses of operations research in education and decision making. The conclusion was that there is no defined administrative approach in these institutions, following the research there is only a moderate presence in the use of research techniques, also 72% of the principals do not use supports to make decisions and finally 48% of them do not use theoretical references.

Cerdas, Torres, García and Fallas (2017). They conducted an investigation on the analysis of the administrative management of Costa Rican educational centres: perception of the teaching staff and the management. The result was a lack of knowledge among teachers about the essential functions of administrative management.

Solórzano (2017), for his part, carried out his research work entitled Leadership of the principal and administrative management at the José Antonio Encinas Educational Institution UGEL06, in which he concluded that there was a close and significant relationship between the principal's leadership, teamwork, organisation and community participation and administrative management.

In the same context, Bonifacio (2019) conducted a research study entitled Knowledge management and administrative management in the staff of the administrative headquarters of the Local Education Management Unit (UGEL) San Román 2019. In this research work it is concluded that both variables are correlated, which indicates that, in order to have a better administrative management, it is necessary to have the necessary knowledge in this field.

The above elements serve to observe that in school management it is necessary that the profile of the person who fulfils the function in the school must have knowledge that allows him/her to lead the school institution in the best way, such as: leadership, management, and management.

Innovation in school leadership

Regarding innovation, Hargreaves and Fink (2008) argue that innovations attract early enthusiasts, but it is more difficult to convince the more sceptical educators to join in the hard work of making change happen (P.15).

It is considered that innovation is not only creating new things or doing new things, but also recovering what has not been done in daily practice and which gives results, but in addition, for innovation it is argued that to achieve the transformation of the school with the vision of the school head, it is necessary to make a small effort where those who participate in the school are in agreement and the head teacher has made agreements for this innovation that is intended to be carried out. Therefore, it is considered that the agreements and the leadership of the head teacher are fundamental, as he/she has to carry out a great deal of pedagogical management and in the formation of school environments that allow teachers to be motivated for this innovation.

In this regard, Hargreaves and Fink point out that there must be leadership for change, where they indicate that the principal must enter into sustainable leadership, as they point out that it is important to sustain, sustain, think about preserving the sustainability of the environment and commit to it. The school and its context are important, respecting contexts as a way of proposing innovation. The aforementioned authors take the term sustainability from the field of the environment and point to Lester Brown when he defined a sustainable society as one capable of satisfying its needs without reducing the possibilities for future generations to satisfy theirs (p. 27), seen in this way and transferring to the educational area Michel Fullan mentions that educational sustainability is the capacity of a system to involve itself in the complexities of continuous improvement coherent with the deep values of the end of the person (p.28).

With these proposals, the authors point to the idea that change must be lasting and respect values as a fundamental part of preserving the environment by outlining concrete strategies for understanding seven principles of sustainability in leadership and change in schools.

1. Depth - Education must preserve, protect and foster that which is sustained as an enrichment of life: the fundamental moral purpose of deep and broad learning for all.
2. Duration - preserves and nurtures the most valuable aspects of life over the long term, year after year from one leader to the next.
3. Breadth - it sustains the leadership of others as well as depends on it, for in a complex world no one leader, no one institution, no one country should control everything.
4. Fairness - Sustainable leadership does not harm its environment, but actively improves it, does not take resources, does not thrive on others, but shares to grow with others and the wider community, and is socially just.

5. Diversity - Sustainable leadership fosters cohesive diversity as solid ecosystems are biologically diverse and empowering. Sustainable leadership drives diversity in teaching and learning and learns from them, generates cohesion.
6. Initiative - It generates and develops material and human resources, does not exhaust them, recognises and rewards, cares for its managers and ensures that they are the ones who take care of themselves, does not exhaust its leaders with innovation overload, as there is prudence in its process.
7. Conservation - Sustainable leadership respects the best of the past and learns from it, to create a better future, amidst the chaos of change, it is unwavering in preserving and renewing long-established goals, it has memory. (p.31).

Therefore, the authors point out that sustainable educational change and leadership are three-dimensional: they have depth, breadth and length, therefore it can be understood that, for them, innovation must consider these three elements in order for the centre to perpetuate itself. For there is no point in improving grades in institutions if they do not reflect deep and broad learning.

The profile of the school head.

The profile of the position defines the characteristics, tasks and responsibilities that must be developed in a job, as well as the attitudes, skills and abilities that the person who performs a function within an organisation or institution must have. In this sense, in the Ministry of Public Education there are manuals and organisational charts that specify the functions of those who work in the educational area in our country.

The school principal is a function that is carried out by someone who is given a commission to carry out this activity, in (Manual of organization of the scuelate of primary education November 1980).

One head teacher per school, primary school teacher.

PURPOSE OF THE POSITION To administer, in the school under his/her charge, the provision of educational services at primary level, in accordance with the rules and guidelines established by the Secretariat.

General functions

1. To ensure that the curriculum and study programmes are implemented in accordance with the rules, guidelines and other provisions and instructions laid down by the Ministry of Public Education in the field of school-based primary education.
2. to plan and organise the activities, resources and support necessary for the development of the curriculum and study programmes.
3. directing, within the school, the execution of school control, educational extension and assistance services activities.
4. Evaluate the development and results of the activities of the teaching staff in the school, the classroom and the community.

Experience: To have held the position of group teacher, with a career ladder opinion.

Judgement: To make decisions regarding the development of primary school education, to manage human relations and to suggest changes.

Initiative: To create and propose work alternatives, solve problems and propose solutions.

Ability: To organise and lead groups, listen, give feedback and relate to others.

Attitude: Respectful, committed and responsible. (Organizational Manual organization of Primary Education November 1980. pp. 15, 26.)

[In addition, the primary school head teacher:

The role of the professional is clearly defined.

Understand what you need now and in the future. There are no limits in communication for those who fit the profile.

Currently, in order to fill the position of school principal in primary schools, it is necessary to take part in a competitive examination in order to obtain the post, as this is stipulated in the guidelines of the Ministry of Public Education.

ICTs

The different technologies for communication such as computers, the internet, telephones and other tools during the pandemic were fundamental for the educational phenomenon to continue, in this sense the different governments of the Republic of Mexico implemented as a strategy to not cancel classes, opting for the use of the technology at hand. This does not mean that all children, parents and teachers had these tools to continue the educational work, however, work continued and teachers were the heroes of the whole educational process in the country and in the different countries of the world. ICTs came to resolve in some way the situation that was posed by the pandemic in the face of a social confinement that was necessary and in this way contain the spread of the epidemic that was being experienced by COVID-19.

We worked at a distance and returned to the reunion of families, as social confinement was a propitiatory factor, and in some way the recognition of the work of teachers returned. All of this in some way revealed the limitations that existed in the country with respect to the use and application of technology as a tool for educational work. Teachers, parents and students were introduced to the knowledge and use of ICTs, making it necessary to implement them at all levels of education.

School principals had to change their way of seeing the school, from their leadership, management, and their ways of generating environments for the achievement of learning. This has led school principals themselves to reflect on their training and the profile needed to carry out the function.

Methods and materials

In order to carry out this research and corroborate the theoretical assumption presented, it was necessary to consider those who work as school principals, since they are the ones who know and carry out the function. For this reason, all principals were considered as a field of study, and a sample was taken from them, comprising the principals of primary schools in the municipalities of Tecomán and Armería, who work in sector IV of primary education in the state of Colima.

In order to find out how they thought about their role in post-pandemic times, it was necessary to construct an instrument, a survey (see appendix), which was applied as a questionnaire to all the principals in these municipalities.

After the application of the instrument (78 in total), it was reviewed from a quantitative and qualitative perspective, as the questions in the questionnaire were open-ended (see appendix). For systematisation, the most repetitive answers were counted, which are presented below in a table with the five questions that were asked of the principals.

Results

Questions	Percentage response
1.- Given the scenario left by the pandemic, do you think it is necessary to redefine the profile of principals?	78 managers 100% Responded that a new profile is needed.
2.-Academic elements and skills that a head teacher should possess after the pandemic.	<ul style="list-style-type: none"> - socio-emotional skills - empathy - being more active - open to change - skills in the use of virtual tools. - shared leadership. - emotional intelligence. - flexibility - adaptation to change - resilience - discipline - knowledge of regulations - academic knowledge - knowledge of students' learning processes - knowledge of special education - leadership skills - conflict mediation - knowledge of technology - receptiveness to advice, counselling and criticism.

3.- Elements to define a new profile for school principals so that they can perform their function better.	<ul style="list-style-type: none"> - attend to oneself emotionally. - have a more perceptive mind - have more autonomy - training and administrative support - pedagogical aspects and social-emotional skills - engagement - empathy - adaptability - knowledge of regulations, laws, and articles related to education. - ensure learning without neglecting the emotional side.
4.- The most important skills that a school principal currently possesses.	<ul style="list-style-type: none"> - be organised - affective - empathetic - have a broad academic knowledge - conciliatory - active - proactive - initiative - innovative - mostly administrative due to the burden of the authority's request. - conflict resolution - emotion management - reconciliation - working with parents - delegating and decision making
5.- Support needed to improve their role.	<ul style="list-style-type: none"> - generating peer-to-peer learning and professionalisation communities. - user team - social work - secretary - psychologist - support materials to regularise teachers and students. - administrative support to have time for academics. - socio-emotional skills. - socio-emotional assistance - support and backing from the SEP for teachers. - Let teachers work on academics and reduce administrative activities. - a secretary - a sub-directorate - management of digital platforms - technological equipment

Table 1 Instrument applied
Source: Own elaboration

Conclusions

The profile of the current school principal requires a transformation that allows him/her to be up to date with the needs of society and the demands of the students, which is why it is essential for the school principal to have professional training to carry out this function, because as can be seen in the results of the instrument applied to 78 current principals, they recognise that better training is needed to carry out the function that they perform.

The primary school organisation manual indicates the minimum necessary characteristics, but it dates from 1980, which limits it to the present time, and other needs and skills that a school principal must have are emerging, and this becomes clear with the phenomenon of the COVID-19 pandemic, which makes transparent the needs of the population and from them the needs of the schools, and of those who work in them, a great lack of knowledge of the use of ICTs, and the need for their implementation and constant use in the post-pandemic period.

The Theoretical Assumption is fulfilled, stating that there is a need for a new profile for primary school principals to strengthen the knowledge and skills they already have, but at a professional level, as shown by the different responses to the instrument applied to working principals.

What is presented in this document cannot be generalised, as the application of the instrument was a very small sample, but it does provide us with elements for reflection and for continuing to contribute to a new profile in which the mastery of emotions, the management of ICTs, skills that will have to be prioritised in the training of teachers in training institutions, as they are fundamental for the primary school headteacher, are essential.

References

- Cerdas Montano, V., García Martínez, J. A., Torres Vitoria, N., & Fallas Vargas, M. A. (2017). Análisis de la Gestión Administrativa de Centros educativos costarricenses: Percepción del Colectivo Docente y la dirección. *Revista Ensayos Pedagógicos*, 12(2), 95. <https://doi.org/10.15359/rep.12-2.5>
- Day, C., Gu, Q., & Sammons, P. (2016). The impact of leadership on student outcomes. *Educational Administration Quarterly*, 52(2), 221–258. <https://doi.org/10.1177/0013161x15616863>
- Day, C., Hall, C., & Whitaker, P. (1998). *Developing leadership in primary schools*. Paul Chapman.
- Fullan, M., & Langworthy, M. (n.d.). *A rich seam: How new pedagogies find deep learning*. Canadian Electronic Library.
- Goleman, D., Boyatzis, R., & McKee, A. (2017). *El Líder Resonante Crea Más*. Debolsillo.
- Hargreaves, A., Fink, D., & Escolà, R. F. (2008). *El Liderazgo Sostenible: Siete Principios para el Liderazgo en centros Educativos Innovadores*. Secretaría Técnica, Ministerio de educación política social y deporte.
- J., R. V. M. (2007). *School leadership and student outcomes: Identifying what works and why*. Australian Council for Educ. Leaders.
- Jesús, V. S. J. de. (2001). *Vademécum: Del maestro de escuela primaria*. Porrúa.
- Leithwood, K. A. (2004). *How leadership influences student learning: Review of research*. Center for Applied Research and Educational Improvement, University of Minnesota.
- Louis, K. S. (2015). Linking leadership to learning: State, district and local effects. *Nordic Journal of Studies in Educational Policy*, 2015(3), 30321. <https://doi.org/10.3402/nstep.v1.30321>
- Pacheco-Granados, R. J., Robles-Algarín, C. A., & Ospino-Castro, A. J. (2018). Análisis de la Gestión Administrativa en Las Instituciones Educativas de los niveles de básica y media en las zonas rurales de Santa Marta, Colombia. *Información Tecnológica*, 29(5), 259–266. <https://doi.org/10.4067/s0718-07642018000500259>
- Sergiovanni, T. J., & Glickman, C. (2007). *Rethinking leadership: A collection of articles*. Corwin.

Solórzano Córdor, D. (1970, January 1). *“Liderazgo del director y la gestión administrativa en la Institución Educativa José Antonio encinas UGEL 06.”* Institutional Repository.

<https://repositorio.ucv.edu.pe/handle/20.500.12692/8320>.

Inventory optimization/control through an MRP SYSTEM in artisanal bakeries geographically located in Huauchinango Puebla

Optimización/control de inventarios mediante un SISTEMA MRP en panificadoras artesanales situadas geográficamente en Huauchinango Puebla

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Abstract

Mexico has more than 40 thousand baking companies where 92.5% are artisanal, these businesses employ 1.5 million inhabitants, specifically in Huauchinango, Puebla there are more than 150 businesses corresponding to this productive sector, which daily face new competitors, Therefore, they seek to maintain 100% functionality of inventories and production planning so that customer service is satisfactory. Inventories represent the stocks of raw materials (PM) and inputs that are transformed to meet the production objectives for the star products (White bread/French bread), which accounts for 48% of total sales. This article describes the preparation of an MRP, as a PM planning manager, fully covering 48% of sales policies, reducing inventory by 22.10%, through a quantitative methodology based on: The batch x batch technique or disposal, effective inventory management and development of an MPS model (14-day acquisition period). The economic contribution is observed through the effective MRP system for bakeries, which will reduce obsolete or expired inventories, and allow timely purchasing. and form of the MP and inputs.

Resumen

México cuenta con más de 40 mil empresas panificadoras donde el 92.5% son artesanales, estos negocios emplean a 1.5 millones de habitantes, específicamente en Huauchinango, Puebla existen más de 150 negocios correspondientes a este sector productivo, los cuales diariamente se enfrentan a nuevos competidores, por lo cual buscan mantener al 100% la funcionalidad de los inventarios y la planeación de la producción para que el servicio al cliente sea satisfactorio. Los inventarios representan las existencias de materia prima (M.P) e insumos que son transformados para cumplir con los objetivos de producción para los productos estrellas (Pan blanco/pan francés) el cual expone el 48% de las ventas totales. El presente artículo describe la elaboración de un MRP, como gestor de planificación de M.P, cubriendo en su totalidad el 48% de políticas de venta, disminuyendo en un 22.10% el inventario, mediante una metodología cuantitativa basada en: La técnica de lote x lote o disposición, manejo efectivo de inventarios y desarrollo de un modelo MPS (Periodo de adquisición de 14 días)., la contribución económica se observa mediante el sistema MRP efectivo para las panificadoras, que disminuirá inventarios obsoletos o caducos, y permitirá la compra en tiempo y forma de la M.P e insumos.

Inventories, Artisan bakeries, MRP System

Inventarios, Panificadoras artesanales, Sistema MRP

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Introduction

In the experience of Enríquez (2010) in Mexico and the world, bread consumption is a variable of flavor and nutrition that is found in each of the homes, specifically in Huauchinango, Puebla, artisanal bread-making companies are relevant to supply food needs, which is why they must meet customer expectations 100%, taking into account that the commercial market is becoming more competitive every day. This competitive environment requires the development of quantitative methodologies that contribute to delivering the main sales products in a timely manner, which in more than 70% of artisan bread businesses are exposed through high sales of white bread/French bread due to its low cost and permissibility for different consumption modalities (Bassett , Gimenez , Pinho , and Sarmán , N, 2013).

As described above, it is relevant to apply operations management techniques that effectively manage the acquisition of PM and inputs, and do not generate inventories that bring with them economic and space waste (Nery De La Cruz, 2022), in response to this The need arises for this research article based on the design and implementation of an MRP system for artisanal bakeries geographically located in Huauchinango Puebla to optimize/control inventories and production levels (Poma, Pernia and Quiroz, 2014). The designed MRP model aims to: Implement a system based on a Material Requirements Plan (MRP) through the use of Excel 2016 software in artisanal bread producing companies located in Mexican territory, to improve productivity, reduce 22.10% of expired inventories and guarantee the existence of 98% of raw materials and inputs for future production of white bread/French bread.

The methodology carried out is based on the following phases:

- Phase 1) Situational analysis of baking organizations in Huauchinango Puebla (SWOT).
- Phase 2) Data collection and information analysis: Development of a forecast model (Linear Regression).
- Phase 3) Development of MRP system: The MRP system was developed in Excel technological software and has two main functionalities: 1) Capacity planning, 2) Inventory control, taking into account correct production management to meet the requirements of the raw material that is requested for the production of the final product. This MRP model is characterized by calculating the optimal quantities of PM ensuring receipt within the requested time (14 days), likewise it includes the quantitative assessment of the total products to be produced, it is convenient to mention that to prepare the MRP, the following stages of operations management:
 - Stage 1) Development of the bill of materials (BOM): According to Urbano, García, de la Mora, Vargas and Cruz, (2021), when carrying out this management technique, the parts, PM or supplies essential for manufacture the final product (white bread/French bread), this list of materials is classified according to the level of depth of the elements.
 - Stage 2) Inventory registration (MPS Master Production Plan Development): This technique allows accounting for the MP or inputs available within temporary, fixed or semi-fixed warehouses/warehouses, taking into account that an effective inventory registration will avoid making purchases of unnecessary raw materials (Mendoza and Vera, 2022). When carrying out this technique, the current amount of raw material is known quantitatively, as well as the missing or near-scarce inputs. However, the development of the MPS exposes the number of units to be produced (Nazate , 2023), in the same way the time in which the order must be ready (Improvement in the level of customer service) contemplating the administrative cycle from the moment the MP is acquired, manufacturing, sale.

- Stage 3) Development of the template for the adaptation of the MRP system model for baking companies.

Finally, the results obtained validate the improvement obtained with the implementation of the MRP system.

Methodology to be developed

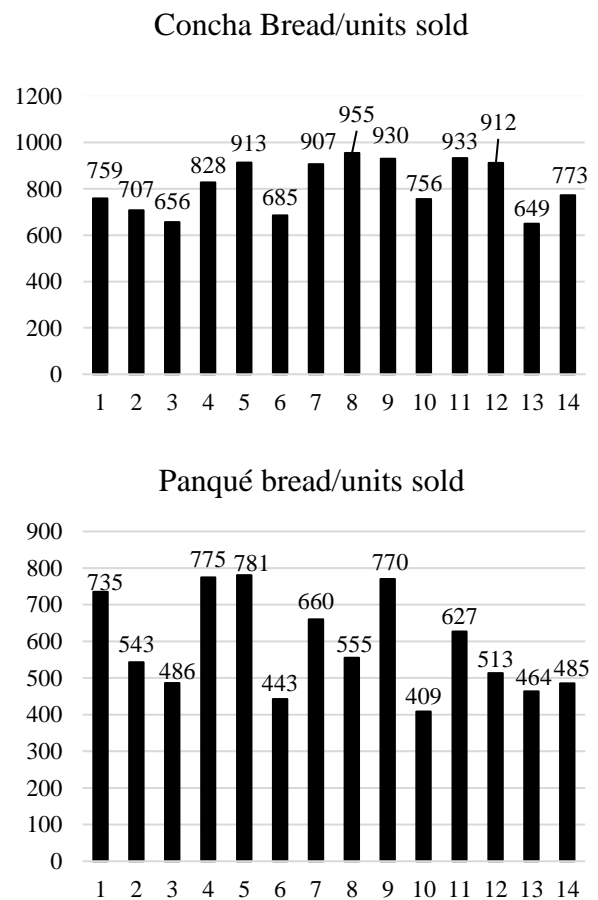
The methodology to be developed is shown below: Phase 1) Situational analysis of the baking organizations in Huauchinango Puebla (SWOT): With the preparation and analysis of the SWOT matrix (Figure 1 FODA analysis of artisanal baking companies in Huauchinango Puebla), the Strengths are listed, which characterize the artisanal baking companies located in the city of Huauchinango Puebla and area of influence, which are considered for the development of the implementation of the MRP, in the same way the existing Opportunities are shown to execute the suitable methods and techniques, related to supply, production and the level of service when the MRP system is implemented, in the same way They describe and analyze the weaknesses of bakeries taking into account that they must be eliminated and/or minimized to face the local and regional market. Finally, the Threats that significantly affect bakeries by not complying with the work plan, established strategies and methods are shown.

Strengths	Weaknesses
F ₁) It has a large market of consumers of various ages.	D ₁) Size of the company.
F ₂) Variety in product lines.	D ₂) Size (Infrastructure) of the warehouse.
F ₃) Affordable product prices.	D ₃) Demand Planning.
F ₄) Product quality.	D ₄) Safety inventory in small quantities
F ₅) Product with unique flavor and texture.	D ₅) Irregularity in the request of raw materials.
F ₆) Trained staff.	
Chance	Threats
O ₁) Expansion of facilities.	A ₁) Emergence of new competitors in the region.
O ₂) Greater production capacity	A ₂) Local, regional, state and national contingencies.
O ₃) Launch of new products	A ₃) Economic crisis.
O ₄) Demand growth.	A ₄) Resistance to the adaptation of new methods and/or strategies.
O ₅) Possibility of financing.	A ₅) Continuous and temporary loss of clients.
O ₆) Open new sales points in the region.	

Figure 1 FODA analysis of artisanal baking companies in Huauchinango Puebla
 Source: Own elaboration

Phase 2) Data collection and information analysis: Development of a forecast model (Linear Regression).

The collection of information was carried out, which allowed us to know the product with the greatest demand in the bakeries, through a random sampling of sales, the types of bread that provide sales support to the bakeries during 14 sales periods (Days) were recorded. (Figure 2 Sampling of sales recorded in bakeries in the region).



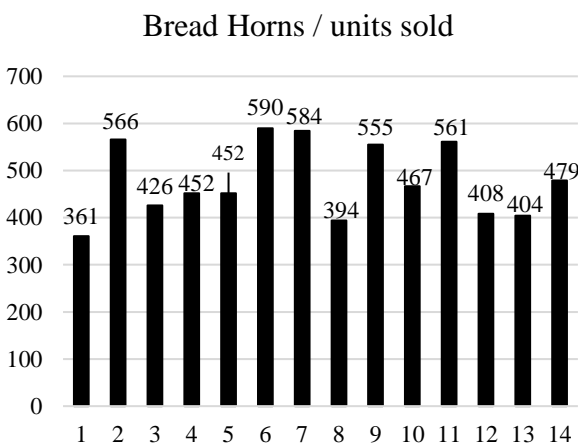
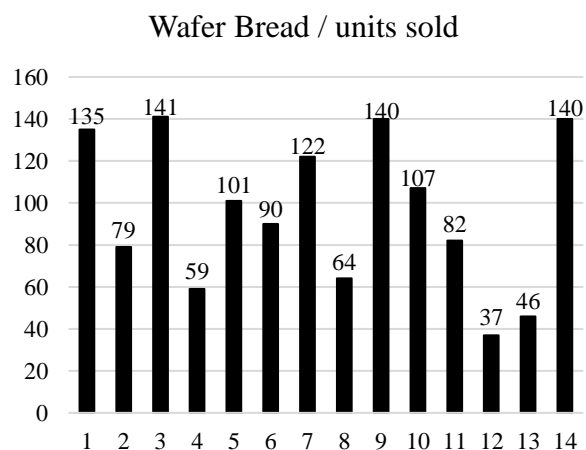
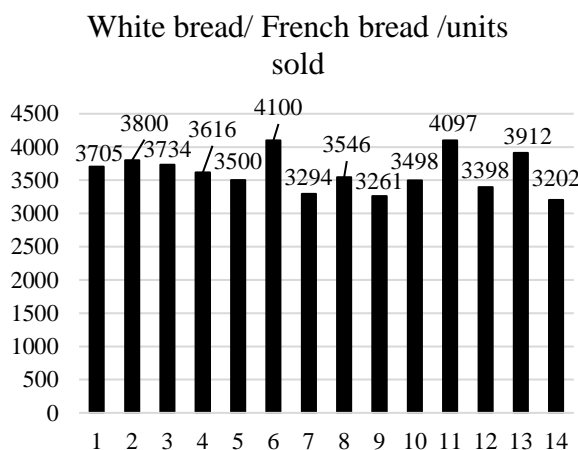
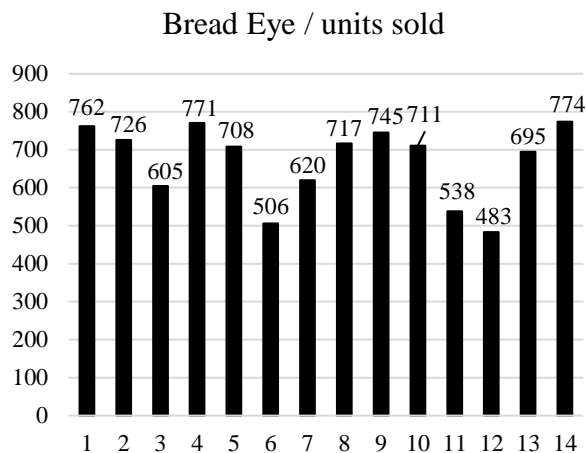
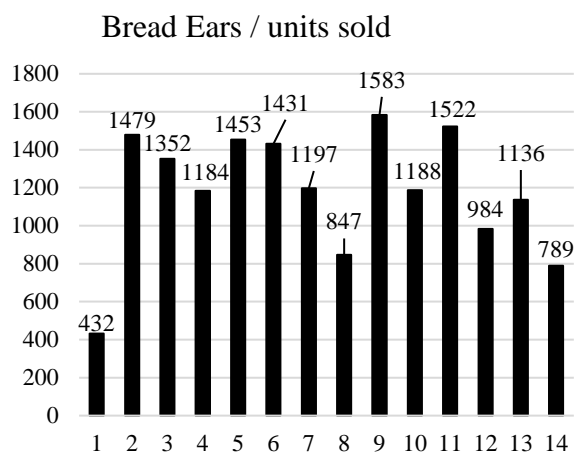


Figure 2 Sampling of sales recorded in bakeries in the region
 Source: Own elaboration

Sales were subsequently analyzed through a descriptive statistics study, showing that white bread/French bread accounts for 48% of total sales (Figure 3% of sales in baking companies in Huauchinango Puebla).

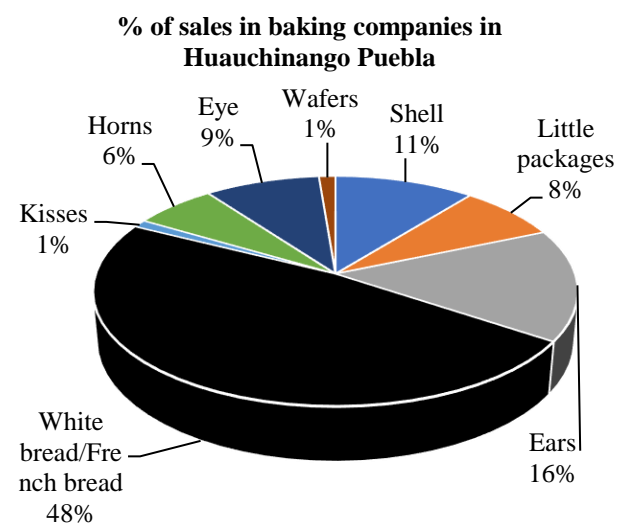


Figure 3 % of sales in baking companies in Huauchinango Puebla
 Source: Own elaboration

Once the star product has been determined (White bread/French bread 48% of general sales), the linear regression analysis is carried out in which the statistical equation is obtained to predict the average demand for the product $-15.91x + 3738.1$ (Figure 4 White bread/French bread sales forecast (Linear Regression)), using the resulting regression equation, a minimum forecasted demand for period (Day) 15 of $3499.45 \approx 3500$ units is obtained.

White Bread/French Bread Sales Forecast (Linear Regression)

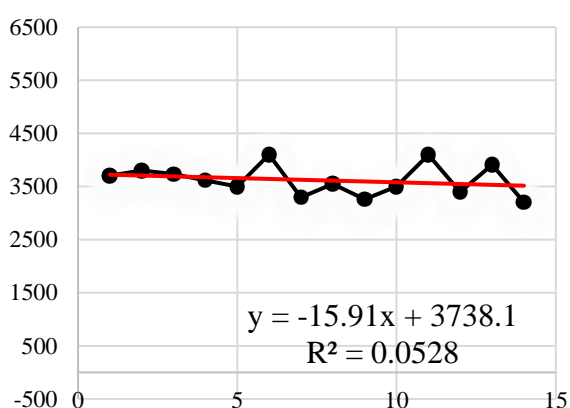


Figure 4 White bread/French bread sales forecast (linear regression).
Source: Own elaboration

Phase 3) MRP system development

To develop the MRP system, the intervention of the following variables was considered:

- I. The product to be produced: According to the level of sales, it is deduced that the product selected is white bread or French bread (Figure 5 White bread/French bread).



Figure 5 White bread/French bread
Source: Own elaboration

- II. The predicted demand: According to the linear regression model, a predicted demand of $3499 \approx 3500$ units is established.
- III. Order delivery dates: 14-day intervals for each order issuance in accordance with the production policies of artisanal baking companies.
- IV. List of necessary materials (flour, sugar, salt, yeast, water) to carry out the production of each unit of product and the total production.

Phase 3 is made up of 3 stages which are described below:

Stage 1) Development of the bill of materials (BOM): The bill of materials (BOM) is a prerequisite for the development of the MRP system (Acosta, 2020), this list of materials allows knowing the raw material and the quantity involved. For the preparation of white bread/French bread, for the case presented it was classified into two levels: The first level is made up of the final product (White bread/French bread), while the second level contains the following elements: Flour , sugar, salt, yeast and water, likewise at this level the quantities essential for the production process are delimited (Figure 6 List of materials (BOM) for the production of white bread/French bread).

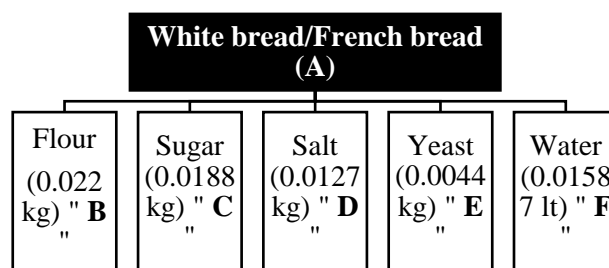


Figure 6 List of materials (BOM) for the production of white bread/French bread. Source: Own elaboration

Stage 2) Inventory registration (MPS Master Production Plan Development): For correct compliance with stage 2, a record was made of the current status of the average inventories in the baking companies analyzed, through a detailed record of materials available for immediate use (already in stock) and materials that are on order from suppliers, the available raw materials, the Lead Time, the batch size LxL (Lot x Batch), the scheduled receptions are exposed (Table 1. Record of necessary elements of the MPS Master Production Plan).

Variable	MP Available	Lead Time	Lot size	Scheduled receptions
White bread/French bread (Units) "A"	3499	1	3800 units	0
Flour (kg) "B"	156	2	45 kg	0
Sugar (kg) "C"	7	2	LxL	0
Salt (kg) "D"	9	1	LxL	0
Yeast (kg) "E"	3	2	15 kg	0
Water (L) "F"	112	1	LxL	0

Table 1 Record of necessary elements of the MPS Master Production Plan

Source: Own elaboration

Once the current inventory has been established, the MPS is calculated, taking into account that the baking companies have ovens that must be used 100%, which is why they have a capacity of 3800 units, it is important to do so. mention that the operational policy for the use of the oven may vary according to the sales seasons, once the previous variables have been determined, the MPS model is carried out in the Excel technological software (Table 2. MPS for baking companies).

	3800							
	Days							
	fifteen	16	17	18	19	twenty	twenty-one	
Initial inventory	101	101	417	102	152	202	102	102
Forecast	3499	3484	3468	3452	3436	3420	3404	
Orders	3800	3400	4115	3750	3750	3900	3800	
MPS	3800	3800	3800	3800	3800	3800	3800	
Final inventory	101.00	417	102	152	202	102	102	

Table 2 MPS for baking companies

Source: Own elaboration

Stage 3) Development of the template for the adaptation of the MRP system model for baking companies: With the information obtained in the previous stages, the MRP system model is created, this model is located in the Excel technological software, by developing the following scheduling template (Table 3 MRP template for baking companies):

Element: A	Lot size :								Component: Father											
Availability	Lead Time:				Days															
Day	fifteen	16	17	18	19	twenty	twenty-one													
MPS Requirement																				
Scheduled receptions																				
Availability projection																				
Net requirements																				
Net order																				
ORDER PLANNED RELEASE																				

Table 3 MRP template for baking companies

Source: Own elaboration

To calculate the availability projection in the Excel technological software, the following formula was used.

$$\text{Availability projection} = \text{Previous availability projection} - \text{Gross inventory} + \text{Scheduled withdrawals} + \text{Net order} \tag{1}$$

Results

The results obtained for each section are:

Phase 1) Situational analysis of the baking organizations in Huauchinango Puebla (SWOT): This phase brought with it the detection of areas for improvement in the baking organizations, highlighting the resistance to change on the part of the staff, which was the guideline for taking the decision to make the proposal in Excel technological software, to automate the MRP and solve the resistance to the adaptation of new methods and/or strategies. Likewise, considering that they are artisanal companies, using an easily accessible technological means allows the 100% compliance with the use of the MRP.

Phase 2) Data collection and information analysis: Development of a forecast model (Linear Regression): With the use of different tools we effectively forecast specific sales for subsequent periods, in the same way a standard equation was determined, whose function The main thing will be the forecast of future sales, to make an assertive calculation for the acquisition of MP and inputs that feed the programmed MRP templates.

Phase 3) MRP system development: The resulting MRP system model is set out below:

MRP for the production of white bread/French bread (Table 4 MRP White bread/French bread):

Element: A	Lot size: 3800								Component: White bread/French bread											
Availability	Lead Time				1 day Days															
Day	fifteen	16	17	18	19	twenty	twenty-one													
MPS Requirement																				
Scheduled receptions																				
Availability projection	3499	3499	15	3500	3550	3600	3500	3500												
Net requirements																				
Net order																				
PLANNED ORDER RELEASE	3800			7600	3800	3800	3800	3800												

Table 4 MRP White bread/French bread

Source: Own elaboration

MRP For the acquisition of MP Flour “Element B” (Table 5 MRP Flour “Element B”):

Element: B Availability		Lot size: 156		Four, Five Lead Time 2 days		Component: "Flour" Amount 0.022	
Day	fifteen	16	17	18	19	twenty	twenty-one
MPS Requirement	0	167	84	84	84	84	0
Scheduled receptions							
Availability projection	156	156	3.4	40	2	8	14
Net requirements			11	50	43	82	76
Net order			45	90	45	90	90
ORDER PLANNED RELEASE	45	90	45	90	90		

Table 5 MRP Flour “Element B”
Source: Own elaboration

MRP for the acquisition of MP Sugar “Element C” (Table 6 MRP Sugar “Element C”):

Element: C Availability		Lot size: 7		LxL Lead Time 2 days		Component: "Sugar" Amount 0.0188	
Day	fifteen	16	17	18	19	twenty	twenty-one
MPS Requirement	0	143	71	71	71	71	0
Scheduled receptions		0	0	0	0	0	0
Availability projection	7	7	0	0	0	0	0
Net requirements			136	71	72	71	72
Net order			136	71	72	71	72
ORDER PLANNED RELEASE	136	71	72	71	72		

Table 6 MRP Sugar “Element C”
Source: Own elaboration

MRP for the acquisition of MP Sal “Element D” (Table 7 MRP Sal “Element D”):

Element: D Availability		Lot size: 9		LxL Lead Time 2 days		Component: "Salt" Amount 0.0127	
Day	fifteen	16	17	18	19	twenty	twenty-one
MPS Requirement	0	97	48	48	48	48	0
Scheduled receptions		0	0	0	0	0	0
Availability projection	9	9	0	0	0	0	0
Net requirements			88	48	48	48	49
Net order			88	48	48	48	49
ORDER PLANNED RELEASE		88	48	48	48	49	

Table 7 MRP Salt “Element D”
Source: Own elaboration

MRP for the acquisition of MP Yeast “Element E” (Table 8 MRP Yeast “Element E”):

Element: E Availability		Lot size: 3		fifteen Lead Time 2 days		Component: "Yeast" Amount 0.0044	
Day	fifteen	16	17	18	19	twenty	twenty-one
MPS Requirement	0	33	17	17	17	17	0
Scheduled receptions		0	0	0	0	0	0
Availability projection	3	3	0	13	eleven	9	8
Net requirements			30	17	4	6	7
Net order			30	30	fifteen	fifteen	fifteen
ORDER PLANNED RELEASE	30	30	fifteen	fifteen	fifteen		

Table 8 MRP Yeast “Element E”
Source: Own elaboration

MRP for the acquisition of Water inputs “Element F” (Table 9 Water input “Element F”):

Element: F Availability		Lot size: 112		fifteen Lead Time 1 day		Component: "Water" Amount 0.0158	
DAY	fifteen	16	17	18	19	twenty	twenty-one
MPS Requirement	0	120	60	60	60	60	0
Scheduled receptions		0	0	0	0	0	0
Availability projection	112	112	0	0	0	0	0
Net requirements			8	60	60	60	60
Net order			8	60	60	60	60
ORDER PLANNED RELEASE		8	60	60	60	60	

Table 9 Water Input “Element F”
Source: Own elaboration

It is worth mentioning that the validation of the effectiveness of the MRP system, in artisanal baking companies located in Huauchinango Puebla, obtained a level of acceptance of the MRP of 100% and a significant improvement that is described below:

- 22.10% improvement in the inventory level with respect to the initial status “Decrease in obsolete/expired inventories” (White bread/French bread) (Figure 7 White bread/French bread inventory control).

Inventory		Inventory	
Inventory	Inventory	Inventory	Inventory
1	2.2	2	1.7

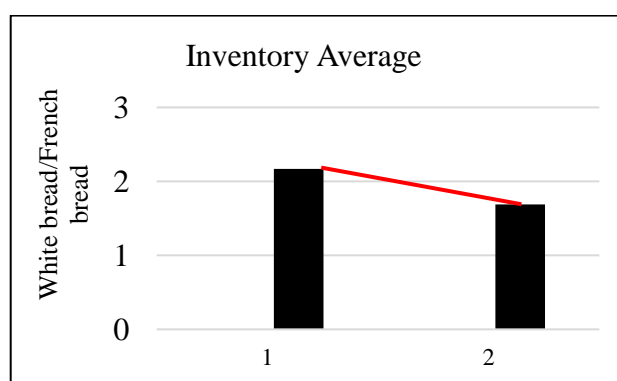


Figure 7 White bread/French bread inventory control.
Source: Own elaboration

Now, from an economic perspective, inventory control of white bread/French bread through an MRP system represents an annual saving of \$53,222.40, considering that currently a piece of white bread/French bread has a cost of \$3.30, by reducing inventories.

By 22.10% the optimal amount of demand will be produced, ceasing to produce 48 pieces of white bread/French bread, which are not sold the next day, which is why they have to make an expired inventory, generating economic losses for the artisanal bakeries of Huauchinango, Puebla. It is important to mention that by establishing adequate inventory levels for baking companies (perishable products) it will be possible to satisfy 48% of potential customers who buy white bread/French bread, in the same way the loss of customers will be reduced, and the acquisition of MP and inputs in quantities not necessary.

Gratitude

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Conclusions

Planning turns out to be a valuable tool that allows generating significant savings in transformation organizations, this tool corresponding to Operations Management, makes use of different quantitative methodologies within which is the MRP System, the MRP brings with it the optimal calculation to acquire raw materials and inputs, and reduce the generation of high inventory levels, which represent economic losses for organizations, such is the case of artisanal bread-producing companies geographically located in Huauchinango Puebla.

These transformation organizations seek to reduce economic losses and improve the Planning of Material Requirements, because they are companies that do not generate high profits, they find in this type of techniques the appropriate means to significantly improve the economic environment and the level of customer service.

Specifically, by developing the MRP model in the Excel technological software, we provide baking organizations with an economical and adaptable programmable means to control the requisitions of raw materials and inputs, adopting an economic benefit that annually amounts to \$53,222.40, maintaining a population of white bread/French bread consumers of 48% captive, and generating the acquisition of flour, sugar, salt, yeast and water in a timely manner, avoiding the unnecessary purchase of these products, bringing with it that within the warehouses /warehouses there are the correct and necessary supplies, reducing the use of spaces and the generation of obsolete or expired inventories.

The implementation of this application allows us to verify that an administrative operations management tool combined with the good use of Excel technological software, provides optimal and portable solutions to common problems that cause a lack of inventory control and economic losses to artisanal companies producing bread in Huauchinango Puebla.

References

- I. Acosta F, J. A. (2020). Prototipo de sistema simulador en paralelo con un sistema de Planificación de Requerimientos de Materiales MRP. Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez- Investigación. Coordinación General de Investigación y Posgrado. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: <http://cathi.uacj.mx/bitstream/handle/20.500.11961/16614/rep%20tec%20Desarrollo%20e%20Implementaci%C3%B3n%20de%20un%20prototipo%20MRP..pdf?sequence=3&isAllowed=y>

- II. Bassett, M. N., Gimenez, A., Pinho, O., y Sammán, N. (2013). Importancia del pan blanco como fuente de nutrientes: reducción de sodio y fortificación con calcio. *Diaeta*, 31(145), 07-14. Revista Scielo. ISSN 1852-7337. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: http://www.scielo.org.ar/scielo.php?pid=S1852-73372013000400002&script=sci_arttext&tlng=pt
- III. Enríquez P, I. (2010). Economía del pan: Consumo y configuración territorial en México. *Problemas del desarrollo*, 41(162), 177-179. Revista Scielo. ISSN 0301-7036. Facultad de Ciencias Políticas y Sociales, UNAM. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0301-70362010000300009
- IV. Mendoza, M. S., y Vera, C. M. (2022). El control de inventarios y su impacto en la liquidez de la distribuidora " Miguel Sebastián" Manabí-Ecuador 2019-2020. *593 Digital Publisher CEIT*, 7(3), 158-169. Dialnet. Universidad Técnica de Manabí. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: <https://dialnet.unirioja.es/servlet/articulo?codigo=8534724>
- V. Nazate L, D. A. (2023). Diseño del plan maestro de producción para la empresa alimenticia Kem Cía. Ltda (Bachelor's thesis). Universidad Técnica del Norte. Facultad de Ingeniería en Ciencias Aplicadas Carrera de Ingeniería Industrial. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: <http://repositorio.utn.edu.ec/jspui/bitstream/123456789/13702/2/04%20IND%20404%20TRABAJO%20DE%20GRADO.pdf>
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- VII. Poma, J. M. R., Pernia, E. O., y Quiroz, J. P. (2014). Diseño e implementación del sistema MRP en las pymes. *Revista de la Facultad de Ingeniería Industrial* 17(2): 48-55 (2014) UNMSM. ISSN: 1560-9146 (Impreso) / ISSN: 1810-9993 (Electrónico). [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: <https://www.redalyc.org/articulo.oa?id=81640856006>
- VIII. Urbano A, J., García S, L. E., de la Mora R, T., Vargas G, J., y Cruz G, V. (2021). Mejora de la Productividad en una Empresa Fabricante del Norte del Estado de Veracruz. *Conciencia Tecnológica*, (61). Revista Conciencia Tecnológica. ISSN: 1405-5597. Instituto Tecnológico de Aguascalientes México. [fecha de Consulta 19 de diciembre de 2023]. Disponible en URL: <https://www.redalyc.org/journal/944/94467989005/94467989005.pdf>

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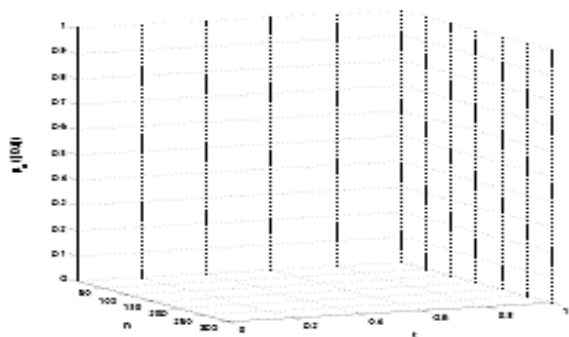
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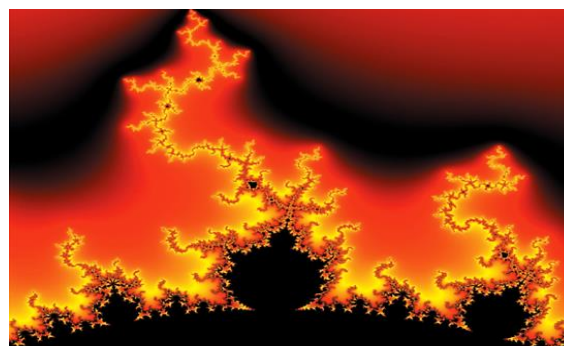


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