




WPI

CICR: Excellence Award Calculator

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The Team



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Christopher Martenson Mechanical Engineering

Philip Rago Data Science

Agenda

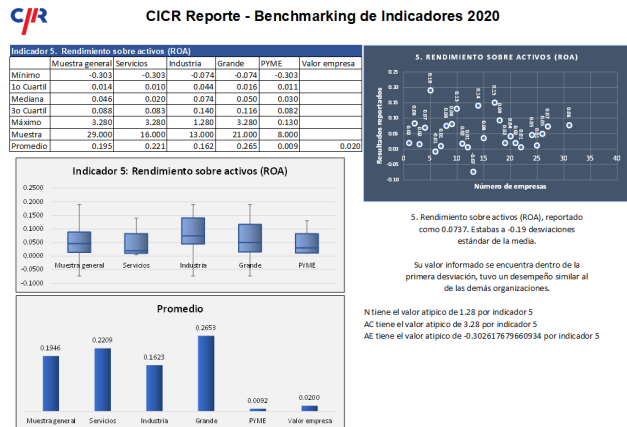


An abstract graphic composed of several overlapping, rounded rectangular shapes in various shades of green, ranging from light lime to a darker forest green. The shapes are arranged in a roughly triangular pattern, pointing towards the right. In the center of this graphic, the word "Introduction" is written in a bold, black, sans-serif font.

Introduction

Project Overview

- Redesign a tool that will automate the necessary calculations and reports to be utilized by CICR through the Excellence Award process
- Improve efficiency and accuracy of data collection and analysis
- Deliver documentation on proper usage of tool for future users



CICR CÁMARA DE INDUSTRIAS DE COSTA RICA

Reporte Benchmarking de Indicadores 2020

Complete este formulario con la información de su empresa y el uso de cada indicador. Esto se divide en secciones para cada categoría de indicadores. Haga clic en el enlace para abrir una hoja de Google para descargar si necesita ayuda para calcular el uso de cada métrica. Seleccione Archivo -> Descargar -> Microsoft Excel para descargar su propia copia de esta hoja de Google <https://docs.google.com/spreadsheets/d/1z76fLsnrB00G0HkFMG6v-z1OUj114bKPO2ME/view?usp=sharing>

* Required

Nombre de Empresa *

Your answer _____

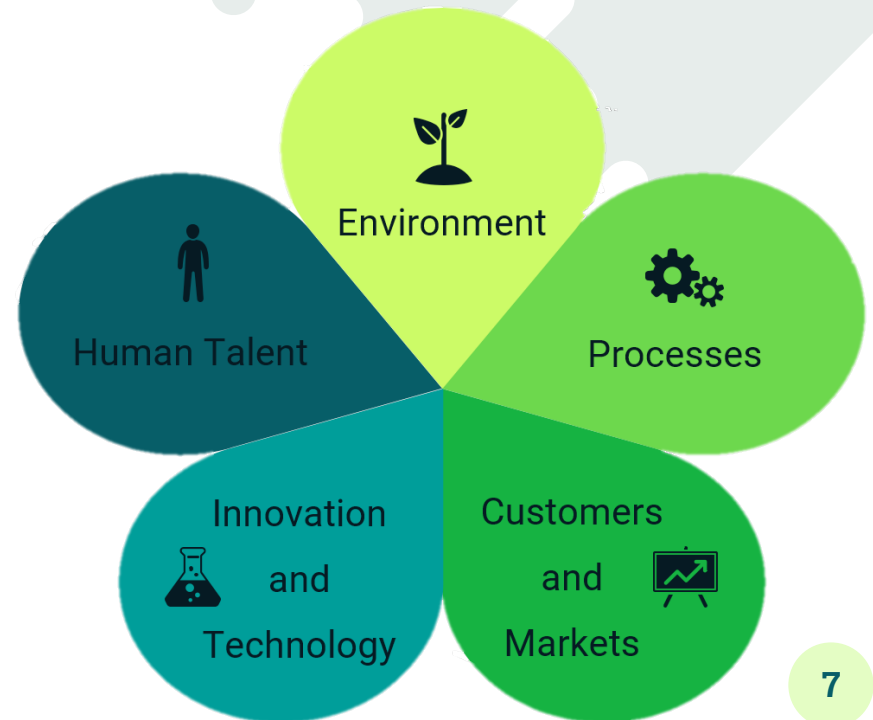
Background

CICR, Excellence Award, Sustainability

La Cámara de Industrias de Costa Rica

“Promote the sustainable development of the industrial sector and support the competitiveness of our associated companies”

- Promotes a better business climate
- Signed plan to become carbon neutral by 2050
 - Using renewable sources for power
 - Working to reduce deforestation within country
 - Converting public transportation to be electric



Malcolm Baldrige Award

- First established by the U.S. Congress in 1987
- The Baldrige Criteria for Performance Excellence:
 - Leadership
 - Strategy
 - Customers
 - Measurement, Analysis, and Knowledge Management
 - Workforce
 - Operations
 - Results



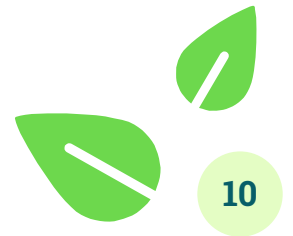
[2]



Methodology

Methodology

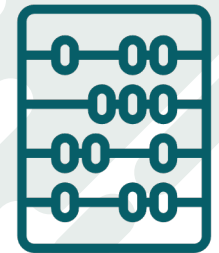
- **Objective 1:** Meet with the director of the Excellence Award to establish an understanding of current process and design requirements
- **Objective 2:** Redesign the method to accurately collect applicant data
- **Objective 3:** Redesign and automate data analysis tool used to generate a report
- **Objective 4:** Automate a report generation for companies to receive
- **Objective 5:** Deliver documentation of proper usage and expansion



The Design of the Excellence Award Calculator

Previous Infrastructure

LIDERAZGO Y PLANIFICACIÓN ESTRATÉGICA		
1. Razón interanual de ventas anuales netas	$\text{Ventas anuales netas periodo 2019} / \text{Ventas anuales netas periodo 2018}$	1.2
2. Crecimiento interanual de utilidad anual neta	$(\text{Utilidad anual neta periodo 2019} - \text{Utilidad anual neta periodo 2018}) / \text{Utilidad anual neta periodo 2018}$	
3. Margen de EBITDA	$(\text{EBITDA periodo 2019} / \text{Ventas anuales netas periodo 2019}) * 100 \%$	
4. Razón de endeudamiento	$(\text{Pasivo circulante 2019} + \text{Pasivo a largo plazo 2019}) / \text{Total de Activos 2019}$	
5. Rendimiento sobre activos (ROA)	$\text{Utilidad anual neta 2019} / \text{Activo total 2019}$	



Considerations for Designing the Project

Automation

- Efficiency
- Faster Feedback to Companies
- Reduce Human Error in Analysis Process

Easy to use

- Reduce Human Error in the Data Collection Process
- Faster and easier training process

Expandable

- Adapt to changes/ expansion in the award
- Larger companies can participate

Provide Accurate Data

- Companies can use the data effectively



Analyzing and collecting data

Reporte Benchmarking de Indicadores 2020

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* Required

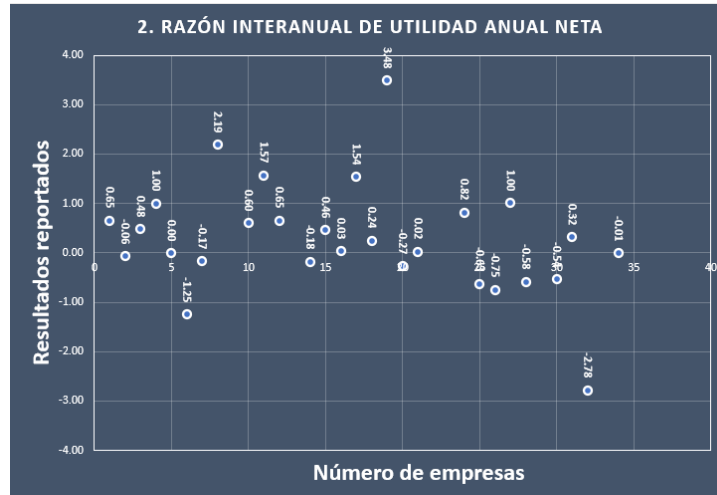
Nombre de Empresa *

Your answer

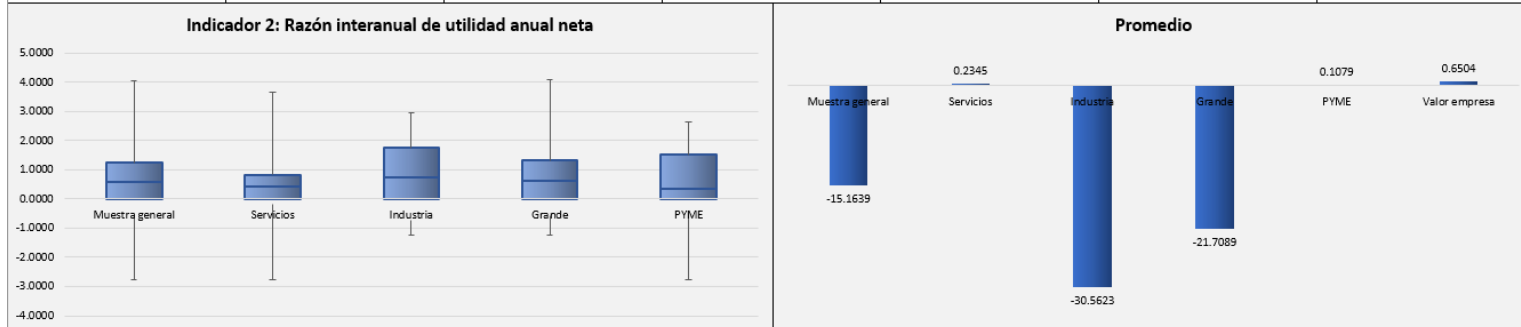
Sector *

Servicios

Industria

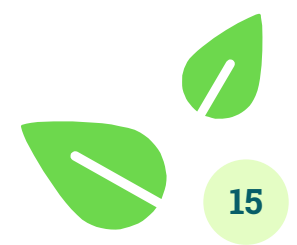
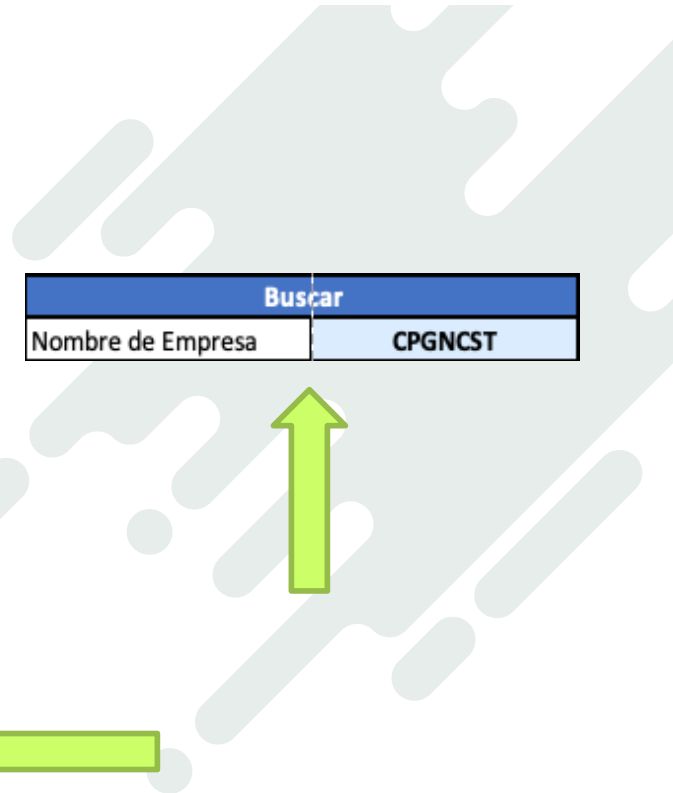
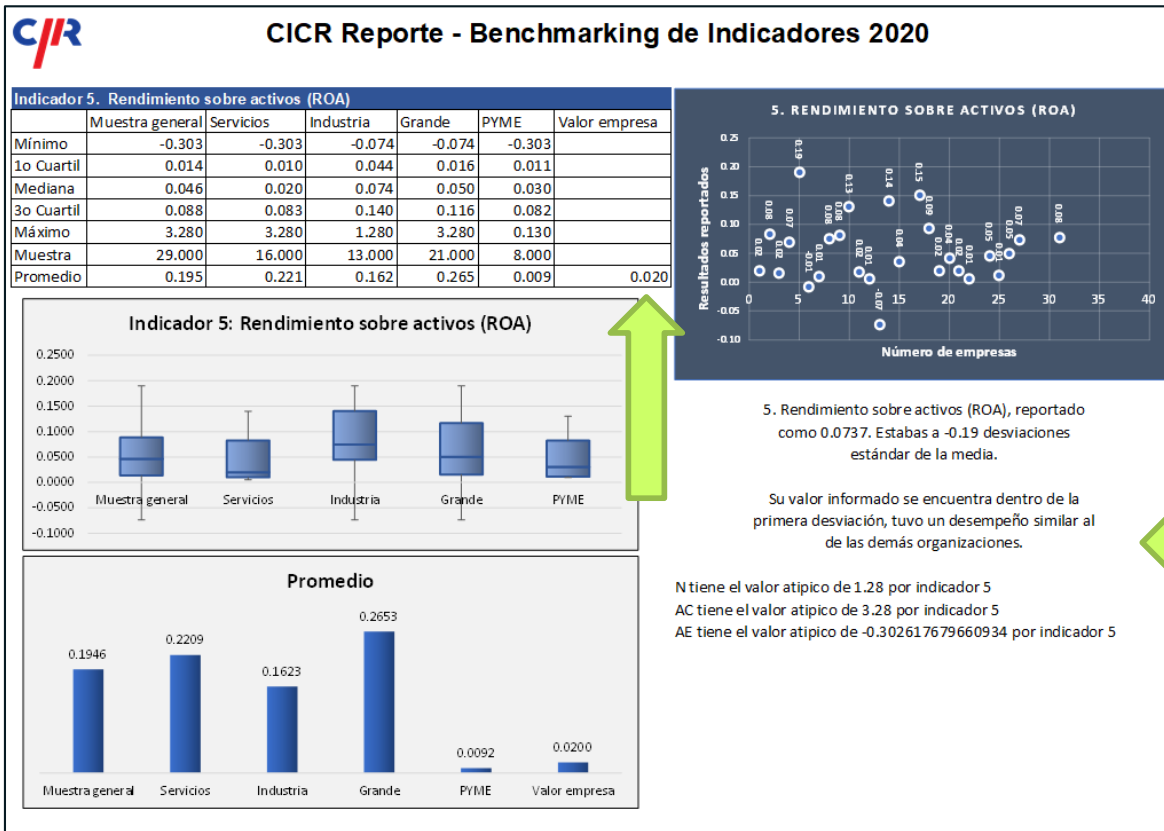


Indicador 2. Razón interanual de utilidad anual neta	Muestra general	Servicios	Industria	Grande	PYME	Valor empresa
Mínimo	-447.4040	-2.7800	-447.4040	-447.4040	-2.7800	
1o Cuartil	-0.5473	-0.1800	-0.7480	-0.5825	-0.4268	
Mediana	0.0250	0.2441	-0.0047	0.0300	-0.0634	
3o Cuartil	0.6934	0.6504	1.0000	0.7353	1.0843	
Máximo	3.4850	3.4850	2.1900	3.4850	2.1900	
Muestra	30	15	15	21	9	
Promedio	-15.1639	0.2345	-30.5623	-21.7089	0.1079	0.6504



Límite Inferior	-10.47
Límite Superior	4.42
2. Razón interanual de utilidad anual neta	
0.65	FALSE
-0.06	FALSE
0.48	FALSE
1.00	FALSE
0.00	FALSE
-1.25	FALSE
-0.17	FALSE
2.19	FALSE
#N/A	TRUE
0.60	FALSE
1.57	FALSE
0.65	FALSE
#N/A	TRUE
-0.18	FALSE
0.46	FALSE
0.03	FALSE
1.54	FALSE
0.24	FALSE
3.48	FALSE
-0.27	FALSE
0.02	FALSE
#N/A	FALSE
#N/A	FALSE
0.82	FALSE
-0.63	FALSE
-0.75	FALSE
1.00	FALSE
-0.58	FALSE
#N/A	FALSE
-0.54	FALSE
0.32	FALSE
-2.78	FALSE
#N/A	FALSE
-0.01	FALSE
#N/A	FALSE
#N/A	FALSE
#N/A	FALSE
#N/A	FALSE
#N/A	FALSE

Reporting Data

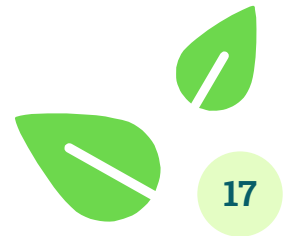




Recommendations

Recommendations:

- **Recommendation 1:** Access past data to compare individual companies and categories of business with current numbers
- **Recommendation 2:** Provide suggestions on sustainability and resources to connect with other organizations
- **Recommendation 3:** Develop an app or website to encourage participation
- **Recommendation 4:** Improving the handling of outliers



Conclusion



WPI

Acknowledgements

Sponsors:

Akira Hidalgo Segura

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Sergio Arias Leitón

Advisors:

James Chiarelli

Pratap Rao

The background features a vibrant green gradient with a complex, abstract pattern of white and light green shapes. These shapes include elongated, rounded rectangles and irregular, organic forms that overlap and interlock, creating a sense of movement and depth. The overall aesthetic is modern and clean.

Questions?

Sources

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Image Sources

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[2] Swenson. (2018, October 22). Four U.S. Organizations Receive Nation's Highest Honor for Performance Excellence. Retrieved December 10, 2020, from <https://www.nist.gov/news-events/news/2016/11/four-us-organizations-receive-nations-highest-honor-performance-excellence>