BENCHMARKING THE CONSTRUCTION INDUSTRY: AN ADAPTATION OF THE WORLD MANAGEMENT SURVEY METHODOLOGY

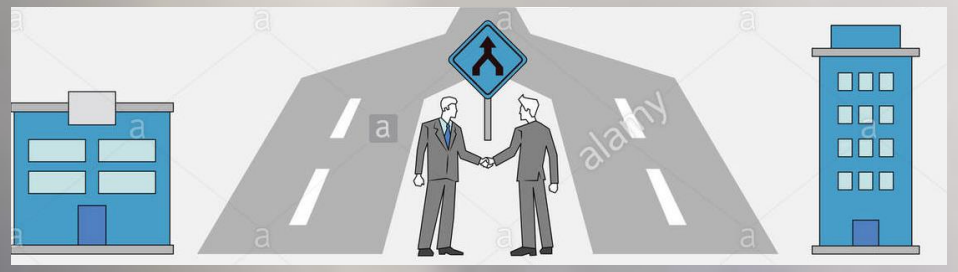
Paper ID:57

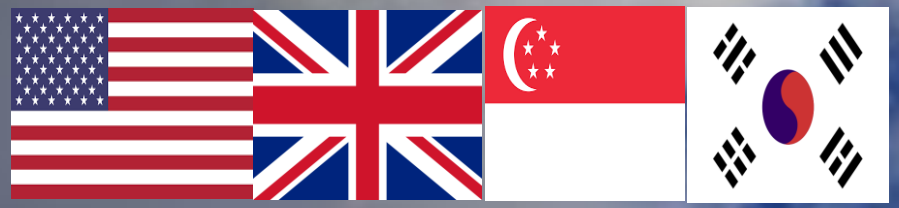
Mauricio Bonilla , and Tito Castillo

INTRODUCTION

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

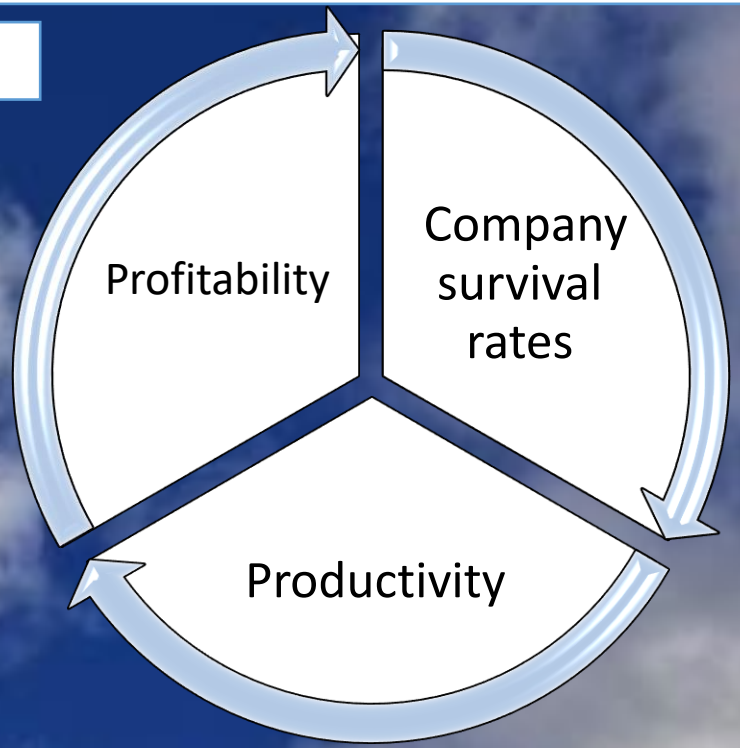
¿What is Benchmarking?





¿Why is it important to measure performance?

Management practices



In the construction, best management practices can make companies increase their productivity up to 32% (Baladrón and Alarcón 2017)

INTRODUCTION

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

Manufacturing, Retail, Education, Health

(Bloom & Van Reenen, 2007)

4 groups of dimensions and 18 management practices

telephone interviews aimed at company managers

WMS WORLD MANAGEMENT SURVEY

Construction

(Construction Industry Institute(CII), 2000)

165 questions with 11 best management practices

They used surveys to collect the data

Ramírez et al.(2004)

15 management dimensions

used surveys for work and office personnel

Opitz et al.(2016)

Adapted the 15 management dimensions of Ramírez et al. (2004)

used personal and telephone interviews

(Cha & Kim, 2018)

7 management dimensions

collected project data through surveys and bibliographic compilations

OBJECTIVE

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

- The objective of this research was to develop a benchmarking exercise of minimum management practices in construction, using a website to obtain information from construction companies through an adaptation of the World Management Survey (WMS) methodology.

METHODOLOGY

1. Scope
2. Development of a questionnaire
3. Testing and validation of the questionnaire
4. Creation of a website
5. Sample Selection
6. Data collection

RESULTS

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

The **7 dimensions** and the **34 lean management practices** defined in this study.

-Operations management

-Performance Monitoring

-Target Settings

-Talent management

-Occupational Health and Safety

-Leadership and Change Management

-Enterprise risk

A **website was created** to collect the data to carry out the Benchmaking exercise between construction companies

RESULTADOS DEL DESEMPEÑO DE SU EMPRESA

Dimensión	PREGUNTA	Puntuación	Puntaje de la dimensión	
			Gráfico de Barras	Gráfico de Radar
OPERACIONES	Introducción de técnicas modernas	3	4	0.8
	Razón para introducir técnicas modernas	5		
	Estandarización	3		
	Buen uso del talento humano	5		
MONITOREO	Documentación de procesos y mejora continua	3	4.2	0.84
	Seguimiento del desempeño	3		
	Revisión del desempeño	5		
	Reuniones sobre el desempeño	5		
	Gestión de consecuencias	5		
METAS	Tipos y Balance de Metas	3	3.6	0.72
	Interconexión de metas	2		
	Horizonte temporal de las metas	3		
	Extensión de las metas	5		
	Claridad y comparabilidad de las metas	5		
GESTIÓN DEL TALENTO	Inculcar una mentalidad de talento / Gestión del Talento	4	4	0.8
	Construcción de una cultura de alto rendimiento a través de incentivos y evaluaciones.	4		
	Remoción de personas de bajo desempeño, haciendo espacio para los talentosos.	4		
	Desarrollar el talento promoviendo al personal de buen desempeño.	4		
SALUD Y SEGURIDAD OCUPACIONAL	Planificación del trabajo	3	3	0.6
	Orientación y formación en SSO.	2		
	Políticas y Objetivos	3		
	Organización	2		
	Planificación	3		
	Implementación	4		
	Evaluación y Mejora	4		
LIDERAZGO Y GESTIÓN DEL CAMBIO	Descongelamiento	3	3	0.6
	Liderazgo	4		
	Cambio	3		
	Re Congelamiento	2		
RIESGO EMPRESARIAL	Identificación	5	4.2	0.84
	Análisis y evaluación	5		
	Respuesta	4		

GRÁFICO DE BARRAS

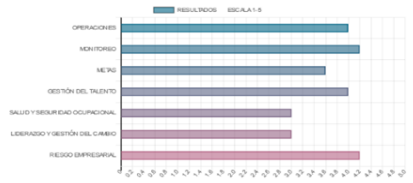
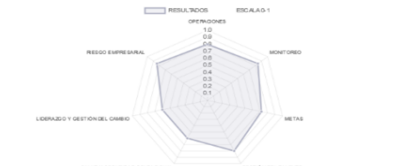


GRÁFICO DE RADAR



RESULTS

A total of **58 surveys** were obtained

Leaving **41 viable companies**

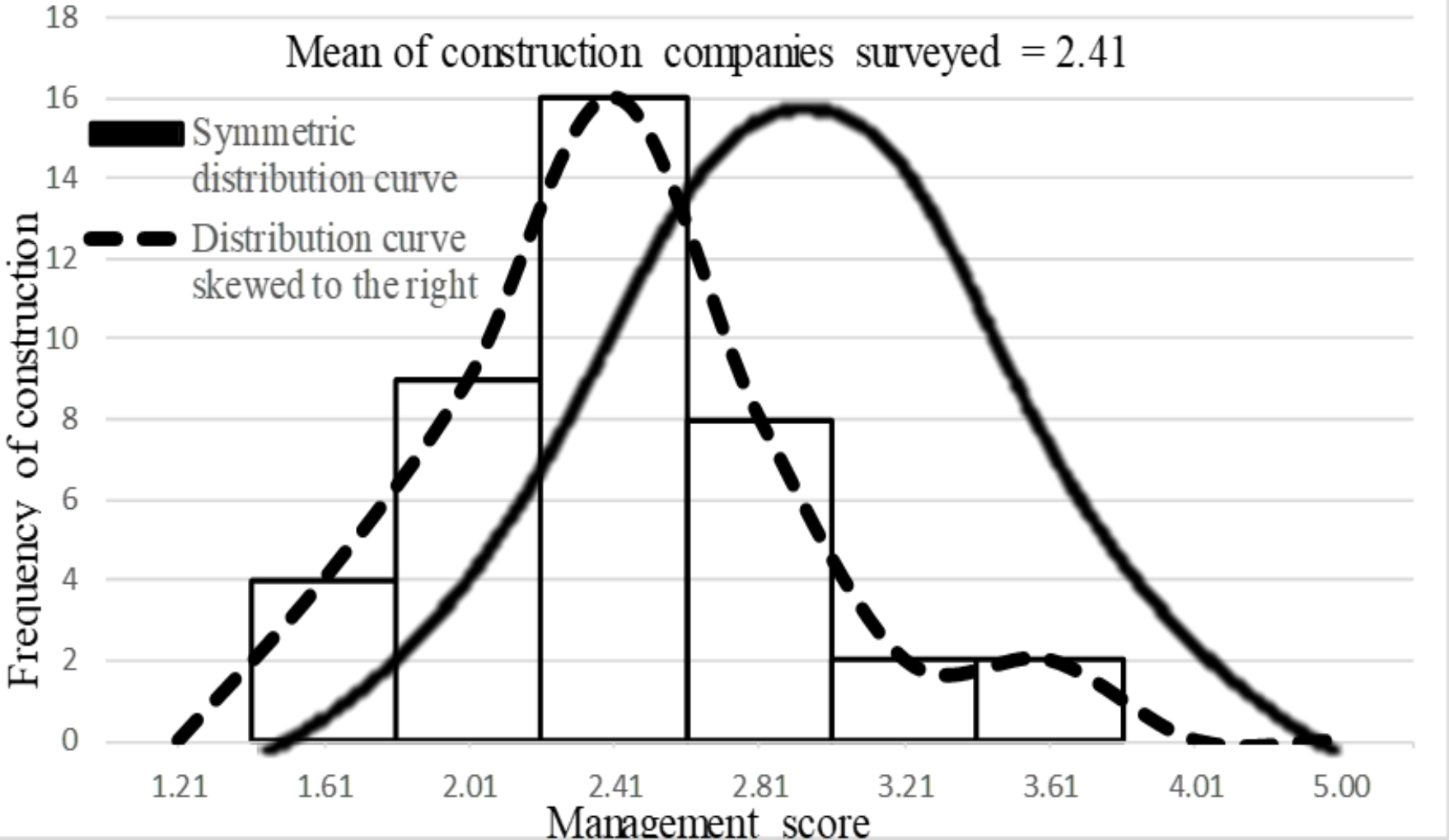
13 micro companies, 18 small, 8 medium and 2 two large companies

The result of the Alpha de Cronbach coefficient was 0.91, which indicates that the internal consistency of the evaluation instrument is excellent

RESULTS

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

Management of construction companies nationwide

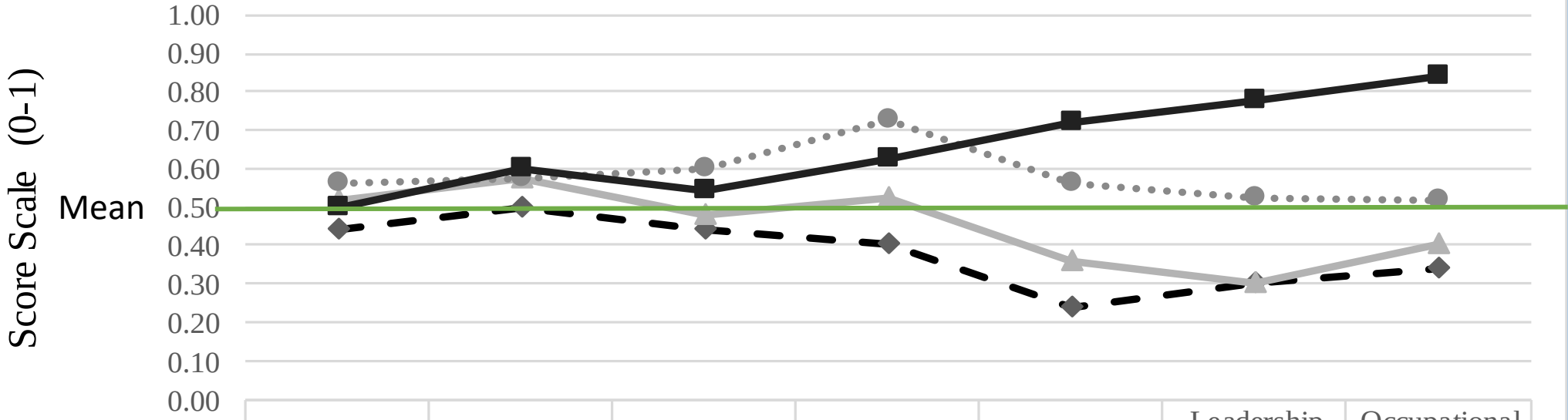


National average	2.41
Mode	1.83
Median	2.40
Pearson's bias equations	[S1=1.09; S2=0.06]

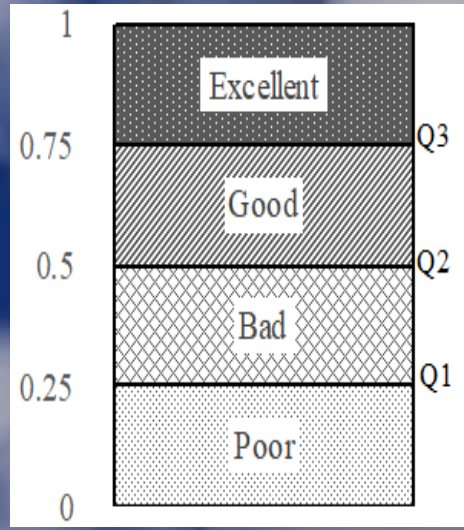
RESULTS

IGLC 28
BERKELEY, CA 6-12 JULY 2020
28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

The construction industry of Ecuador



	Target settings	Talent management	Performance monitoring	Operations management	Enterprise risk	Leadership and change management	Occupational Health and Safety
Micro	0.44	0.50	0.44	0.40	0.24	0.30	0.34
Small	0.52	0.58	0.48	0.53	0.36	0.30	0.40
Medium	0.56	0.58	0.60	0.73	0.56	0.53	0.51
Large	0.50	0.60	0.54	0.63	0.72	0.78	0.84



$$\text{Dimension score} = \frac{\sum \text{question score}}{5 * \text{number of question by dimension}}$$

(1) Ramírez et al.(2004)

Conclusions

- During this study, 7 dimensions and 34 management practices applied to the construction industry were defined. These were determined through a literature review and statistically validated with experts from different construction companies to be the minimum necessary to characterize construction management.
- By adapting the World Management Survey (WMS) methodology, it was possible to create a tool to develop an external benchmark. A website collected information from 41 companies, which were able to evaluate their management practices. These data allowed to measure differences and diagnose management practices in different size construction companies.
- The main contribution of this research is a questionaire to evaluate the minimum common management practices for construction companies, with a Lean aproach. The website containing the questionnaire is available for free through the link: **http://www.benchmarkingempresasconstructoras.com/**

THANK YOU

Mauricio Bonilla and Tito Castillo

Emails:
- mrbonilla.fic@unach.edu.ec
- tcastillo@unach.edu.ec