

**PROJECT  
MANAGEMENT  
OFFICE (PMO)  
RETURN ON  
INVESTMENT**

**FINAL REPORT**

**MACRO  
SOLUTIONS**

# ABOUT THE COMPANY

TIGER SCREWS <sup>1</sup>	
Type	Privately held corporation
Capital	100% National
Headquarters	Shanghai - China
Employees	800
Production	4,200 tons / month
Product Mix	12,000 products
Revenues (last year)	\$ 48,000,000
Ranking	3 <sup>rd</sup> in the country, 18 <sup>th</sup> in the world
Major markets (in order of sales share)	Brazil, Venezuela, Mexico, USA, Canada, Angola, Nigeria

<sup>1</sup>Tiger Screws is a fictitious company that was created to illustrate how to calculate the return on investment of a PMO. Any resemblance to a real company is entirely coincidental.



Tiger Screws was founded in 1961 and is currently the third largest screw manufacturer in the country.

It has the capacity to produce 4200 tons per month and a portfolio of 12,000 products comprising 280 different lines.

With sales of \$ 48,000,000.00 last year, Tiger Screws has been growing an average of 21% per year. The leader company in this segment has sales of \$ 79,000,000.00, with an average growth of 15% per year.

Tiger Screws sales are divided into 70% for the domestic market and 30% in six other countries in the American and African continents.

The administration of Tiger Screws is executed by a Board of Directors formed by shareholders plus a few notable people from the industry. The president of the Board of Directors is also the president of the company.

The company has about 800 employees working in three production units located in Shanghai, **China**, Osasco, **Brazil** and Bangkok, **Thailand**.

The company also has distribution centers in Santos, Brazil and Guangzhou, China.

## PROJECT PORTFOLIO

The following table lists the projects that will be managed by the PMO in the next five years. The selection of these projects was made using Tiger Screw's corporate portfolio management process.

The financial results were calculated directly for projects with tangible benefits and indirectly for projects involving intangible benefits. For such cases, the benefits were determined using the AHP (Analytic Hierarchy Process) and the simplified Bayesian Estimate techniques. The financial figures presented below are already converted into their present values.

ID	PROJECT	DURATION	BUDGET	FIN. RESUL. (\$)	ROI	AREA	RISK	COMPLEXITY
1	Review of Product Mix	6	460,000	128,800	28%	Marketing and Sales	High	High
2	Zero Accidents	12	300,000	123,000	41%	Industrial	Low	Medium
3	Internationalization of Production Units	23	6,350,000	11,430,000	180%	Planning	Very High	High
4	Modernization of the Instrumentation System	8	2,420,000	1,573,000	65%	Industrial	Medium	Medium
5	E-commerce	4	350,000	126,000	36%	Information Technology	Medium	Medium
6	Corporate Office Projects	7	450,000	364,500	81%	Planning	Low	Low
7	New Markets	13	360,000	248,400	69%	Marketing and Sales	High	High
8	University Tiger Screws	7	350,000	258,110	74%	Human Resources	Low	Low
9	New Line for the Oil Industry	18	2,850,000	598,500	21%	Research and Development	High	High

**PROJECT PORTFOLIO (continuation)**

ID	PROJECT	DURATION	BUDGET	FIN. RESUL. (\$)	ROI	AREA	RISK	COMPLEXITY
10	New Distribution Center	19	3,600,000	2,124,000	59%	Logistics	Very High	High
11	Import Finished Products	22	2,080,000	4,430,400	213%	Marketing and Sales	Very High	High
12	Opening of Capital	24	1,200,000	660,000	55%	Financial	High	High
13	Social Media	5	225,000	41,116	18%	Marketing and Sales	Very Low	None
14	ERP System	9	1,240,000	347,200	28%	Information Technology	High	High
15	New Maintenance Policy	17	680,000	95,200	14%	Industrial	Medium	Medium
<b>Total</b>		<b>194</b>	<b>22,915,000</b>	<b>22,548,226</b>				

**PORTFOLIO STRATIFICATION**

In order to simplify the simulated data, projects were classified into **4 (four) “categories” according to the level of complexity of the project.**

The projects with the same level of complexity will be grouped and calculated as a single element.

COMPLEXITY	PROJECTS	TOTAL DURATION	TOTAL BUDGET	TOTAL FINANCIAL RESULT
High Complexity	8	134	18,140,000	19,967,300.00
Medium Complexity	4	41	3,750,000	1,917,200.00
Low Complexity	2	14	800,000	622,610.00
No Complexity	1	5	225,000	41,115.95
<b>Total</b>	<b>15</b>	<b>194</b>	<b>22,915,000</b>	<b>22,548,225.95</b>

**PROBABILISTIC DISTRIBUTION DATA PROFILE**

For simulation purposes, the **variation in schedules, budgets and financial results** is determined by a percentage to be added or taken away from the baseline value.

DURATION / BUDGET						
COMPLEXITY	Without PMO			With PMO		
	OPTIMISTIC	MOST LIKELY	PESSIMISTIC	OPTIMISTIC	MOST LIKELY	PESSIMISTIC
High Complexity	+25%	+50%	+75%	+0%	+5%	+15%
Medium Complexity	+25%	+50%	+75%	+0%	+5%	+15%
Low Complexity	+15%	+30%	+45%	+0%	+5%	+15%
No Complexity	+10%	+20%	+30%	+0%	+5%	+15%

**Two data sets are presented:** these compare the results obtained when no PMO exists or no project management process is established against those obtained when there are established processes for project management or a PMO.

These variations are evaluated based on market studies and research on the value of project management.

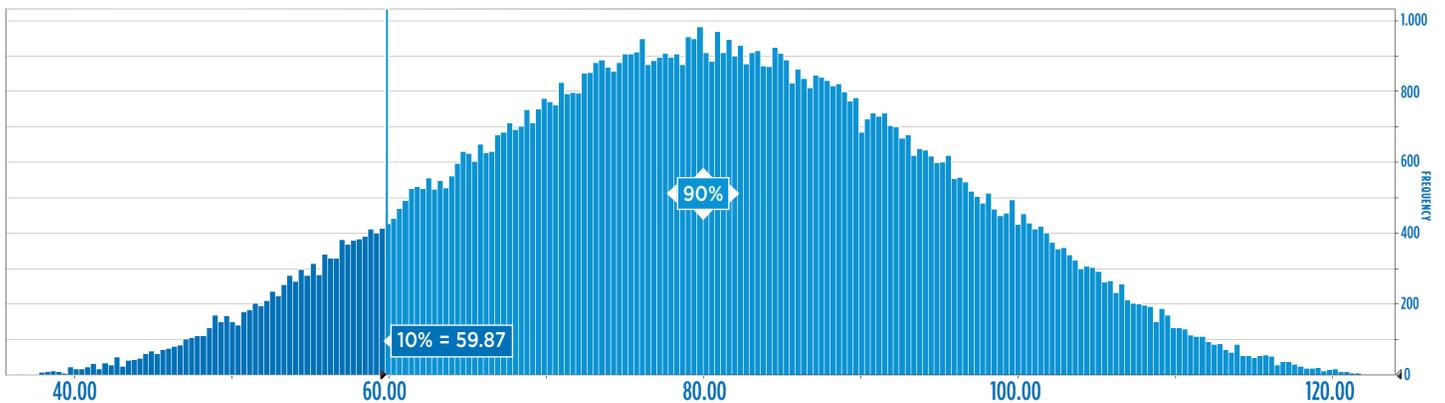
FINANCIAL RESULT						
COMPLEXITY	Without PMO			With PMO		
	OPTIMISTIC	MOST LIKELY	PESSIMISTIC	OPTIMISTIC	MOST LIKELY	PESSIMISTIC
High Complexity	+0%	-20%	-30%	+10%	+5%	+0%
Medium Complexity	+0%	-20%	-30%	+10%	+5%	+0%
Low Complexity	+0%	-20%	-30%	+10%	+5%	+0%
No Complexity	+0%	-20%	-30%	+10%	+5%	+0%

In the case of Tiger Screws, they opted for a conservative/pessimistic perspective of the gains to be obtained with a PMO, where the optimistic outlook with the PMO assumes that the baseline case values are kept (0%) and no additional gain will be obtained.

# PORTFOLIO SIMULATION

Based on the basic data of the portfolio and the probabilistic distribution data profile, schedules, budgets and financial results were simulated using triangular distributions for each "category", generating distribution frequency graphs for each data set evaluated.

## IMPROVEMENT IN TIME



### STATISTICS

Trials	100,000
Mean	79.77
Median	79.78
Standard Deviation	15.02

### PERCENTILE

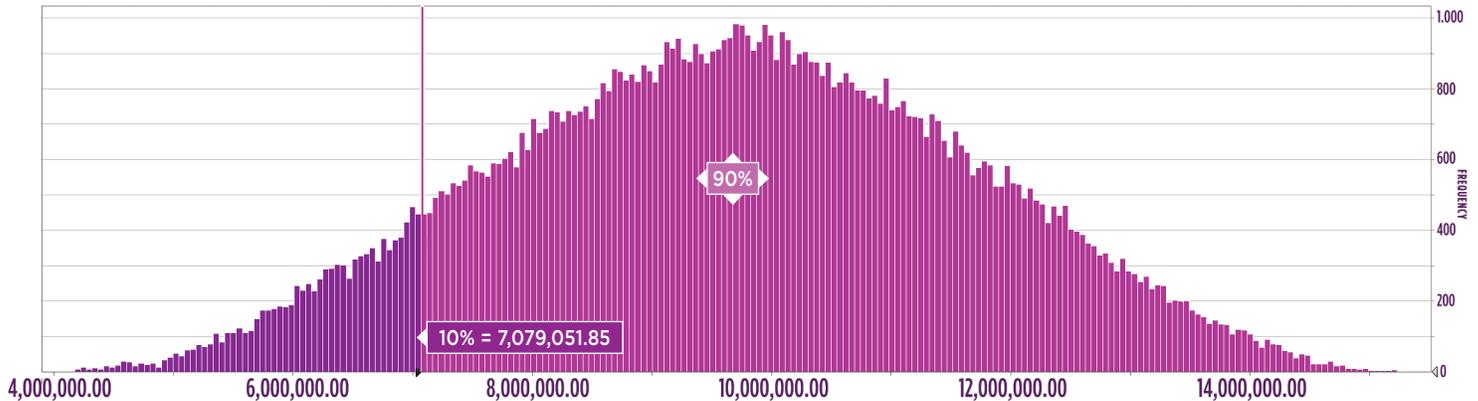
0%	31.29	60%	83.80
10%	<b>59.87</b>	70%	88.08
20%	66.53	80%	93.03
30%	71.52	90%	99.69
40%	75.77	100%	126.78
50%	79.78		

### CONCLUSION

There is a 90% probability that the time gain using the PMO will be a minimum of **59.87 months**.

Please note that the objective of time gain is to evaluate the reduction in the projects' workload and not necessarily a faster completion of work.

**GAIN IN BUDGETS**



**STATISTICS**

Trials	100,000
Mean	9,702,355.47
Median	9,710,732.45
Standard Deviation	1,974,491.61

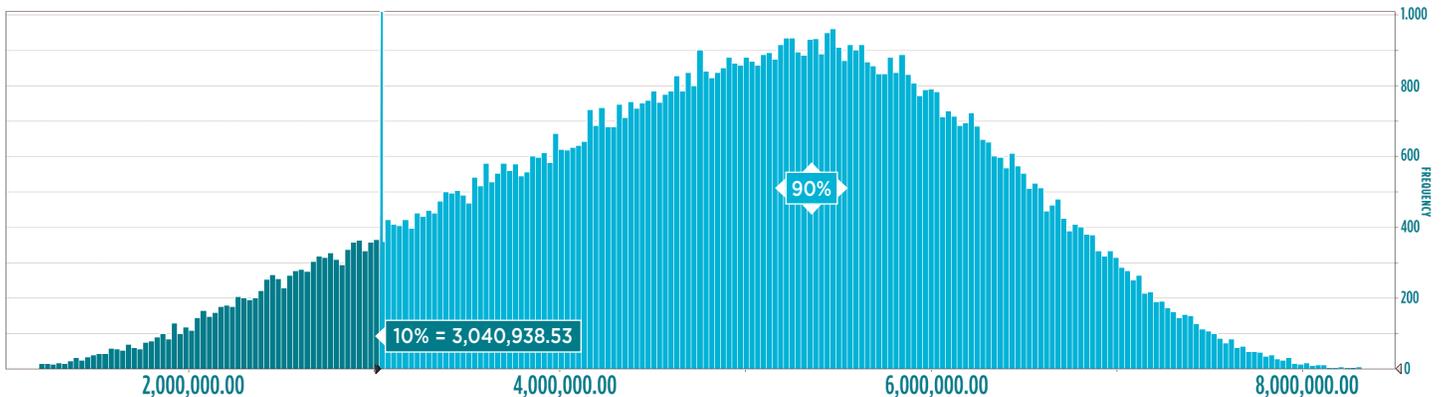
**PERCENTILE**

0%	3,606,978.10	60%	10,226,382.08
<b>10%</b>	<b>7,079,051.85</b>	70%	10,798,999.79
20%	7,949,33.15	80%	11,453,496.87
30%	8,615,088.26	90%	12,322,497.62
40%	9,182,361.04	100%	15,765,007.69
50%	9,710,723.29		

**CONCLUSION**

There is a 90% probability that **savings in financial investments** (budgets) using the PMO will be at least **\$7,079,051.85**.

**GAINS IN FINANCIAL RESULTS**



**STATISTICS**

Trials	100,000
Mean	4,885,464.95
Median	4,990,530.57
Standard Deviation	1,318,293.80

**PERCENTILE**

0%	658,194.03	60%	5,338,818.99
<b>10%</b>	<b>3,040,938.53</b>	70%	5,679,229.44
20%	3,697,475.40	80%	6,058,075.00
30%	4,204,554.59	90%	6,544,955.20
40%	4,622,957.56	100%	8,315,454.74
50%	4,990,451.82		

**CONCLUSION**

There is a 90% probability that **the gains in financial results** with the use of the PMO will be at least **\$3,040,938.53**.

## INVESTMENTS IN PMO

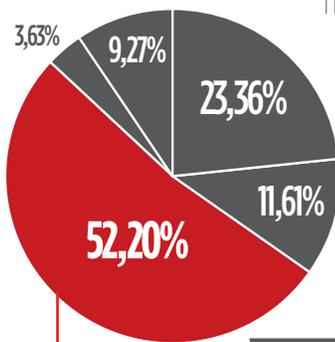
The following table shows the level of expenditure needed in order to secure the investment of the PMO for the next 5 years. The investments will be converted to their present values assuming an interest rate of **13% per year**.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL	TOTAL PV
Infrastructure	50.000	50.00	20.000	30.000	50.000	200.000	161.368,16
Consulting	800.000					800.000	800.000,00
Personal	420.000	420.000	420.000	420.000	420.000	2.100.000	1.669.277,96
Equipment	100.000					100.000	100.000,00
Other	10.000	10.000	10.000	10.000	10.000	50.000	39.744,71
<b>Total</b>	<b>1.380.000</b>	<b>480.000</b>	<b>450.000</b>	<b>460.000</b>	<b>480.000</b>	<b>3.250.000</b>	<b>2.770.390,83</b>

## AHP - IMPORTANCE OF THE PMO ON BENEFITS AND RESULTS

The following matrix compares the contribution of project management processes (PMO) to the results obtained; however, there may be other factors as well, since the results can be improved not only by the PMO, but also by many other external factors, and these need to be considered.

By using the AHP technique, which was carried out with the stakeholders, it was concluded that the contribution of the PMO to the **overall results is 52.2%**, with an inconsistency index of 6.8%. The results were calculated using a Analytic Hierarchy Process-enabled software



		1	2	3	4	5	
		MARKET CHANGES	LEGISLATION	PROJECT MANAGEMENT (PMO)	LOW TECHNICAL SKILLS	OTHERS	
MARKET CHANGES	1		Likely	Less likely	Very likely	Likely	1
LEGISLATION	2			Very unlikely	Very likely	As likely as	2
PROJECT MANAGEMENT (PMO)	3				Highly likely	Very likely	3
LOW TECHNICAL SKILLS	4					Less likely	4
OTHERS	5						5
INCONSISTENCY INDEX: 6,8%		1	2	3	4	5	
PROBABILITY		23,36%	11,61%	52,20%	3,63%	9,21%	

# RESULTS

By comparing the simulated data against the baseline case, it is possible to highlight improvements in time, budget and financial results, as seen below.

<b>GAINS IN FINANCIAL RESULTS (\$)</b> Resulting from budget reduction and an improvement in the financial results.	<b>10,119,990.38</b>
<b>FINANCIAL GAINS / PORTFOLIO VALUE (%)</b>	<b>44.16%</b>
<b>IMPROVEMENT IN TIME / EFFORT</b> RELIABILITY OF 90%	<b>59.87 months</b>
<b>IMPORTANCE OF THE PMO ON RESULTS (%)</b>	<b>52.20%</b>
<b>FINANCIAL GAINS ADJUSTED FOR IMPORTANCE OF THE PMO ON RESULTS (\$)</b>	<b>5,282,634.98</b>
<b>PMO INVESTMENT (\$)</b>	<b>2,770,390.83</b>
<b>PMO RETURN ON INVESTMENT (\$)</b>	<b>2,512,244.15</b>
<b>PMO RETURN ON INVESTMENT (%)</b>	<b>90.68%</b>

# FINAL COMMENTS

The values presented are statistical reference values calculated by means of previously defined parameters.

The results on return on investment presented herein support the decision process to introduce or continue the implementation efforts of a PMO in any given organization.

## RICARDO VARGAS

Ricardo Viana Vargas is a project, portfolio and risk management specialist. During the past 15 years, he has been responsible for over 80 major projects in various countries and in many areas, comprising an investment portfolio of **over 18 billion dollars**.

He was the first Latin American volunteer to be elected Chairman of the Board for the Project Management Institute (PMI).

## CONSULTING

Macrosolutions is able to provide your organization with the state-of-the-art in project, portfolio and risk management. Our experience and our clients prove these benefits.

### Project Management Office (PMO) Implementation and Structuring

Use the Macrosolutions consulting services to obtain the necessary skills and manage projects within your company's strategy.

### Projects Offices Assessment, Optimization and Restructuring

Ensure superior results from your company's Project Office using the experience of someone who has more than 100 PMOs implemented in the world.

### Portfolio and Investment Management

How to perform numerous potential projects with limited resources? We'll show you the solution to this and other portfolio management challenges.

### Structuring the Risks Management Processes

Gain competitive advantage through the proper threats and opportunities management on your projects.

## TRAINING

Learn from the most respected professionals in the market. Macrosolutions offers customized courses for your company, covering many different subjects.

- **Project Management: Establishing Competitive Advantages**
- **Risk Management**
- **Portfolio Management**
- **Negotiation Techniques for Project Managers**
- **Managing Complex Projects and Projects in Crisis**
- **PMO - Project Management Office**

## MACROSOLUTIONS

With more than 80 clients in Brazil and other countries, Macrosolutions is **ready to offer the state-of-the-art in products and services** in project, portfolio and risks management areas.

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- Crisis Management
- Training
- Lectures and Speeches
- Mediation and Negotiation

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Achieve better results through the integrated and related projects management or projects that share resources, technology, suppliers and other stakeholders.

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From 0 to 100% in 3 weeks! Understand why our Accelerated Benefits® methodology will provide visibility to your project results in a record time.

### Applying Quantitative Methods and Risks Simulators in Projects

Increase the reliability of yours predictions results using the ultimate mathematical and statistical simulators for deadlines and budgets.

## WORKSHOPS

Help a fictitious company to manage its projects portfolio and understand in practice the decision making models **to select the appropriate projects for the strategic business objectives**.



Get to know the **most awarded project management workshop in the world** and understand in practice how project management ensures more effective results to your business and your life.

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