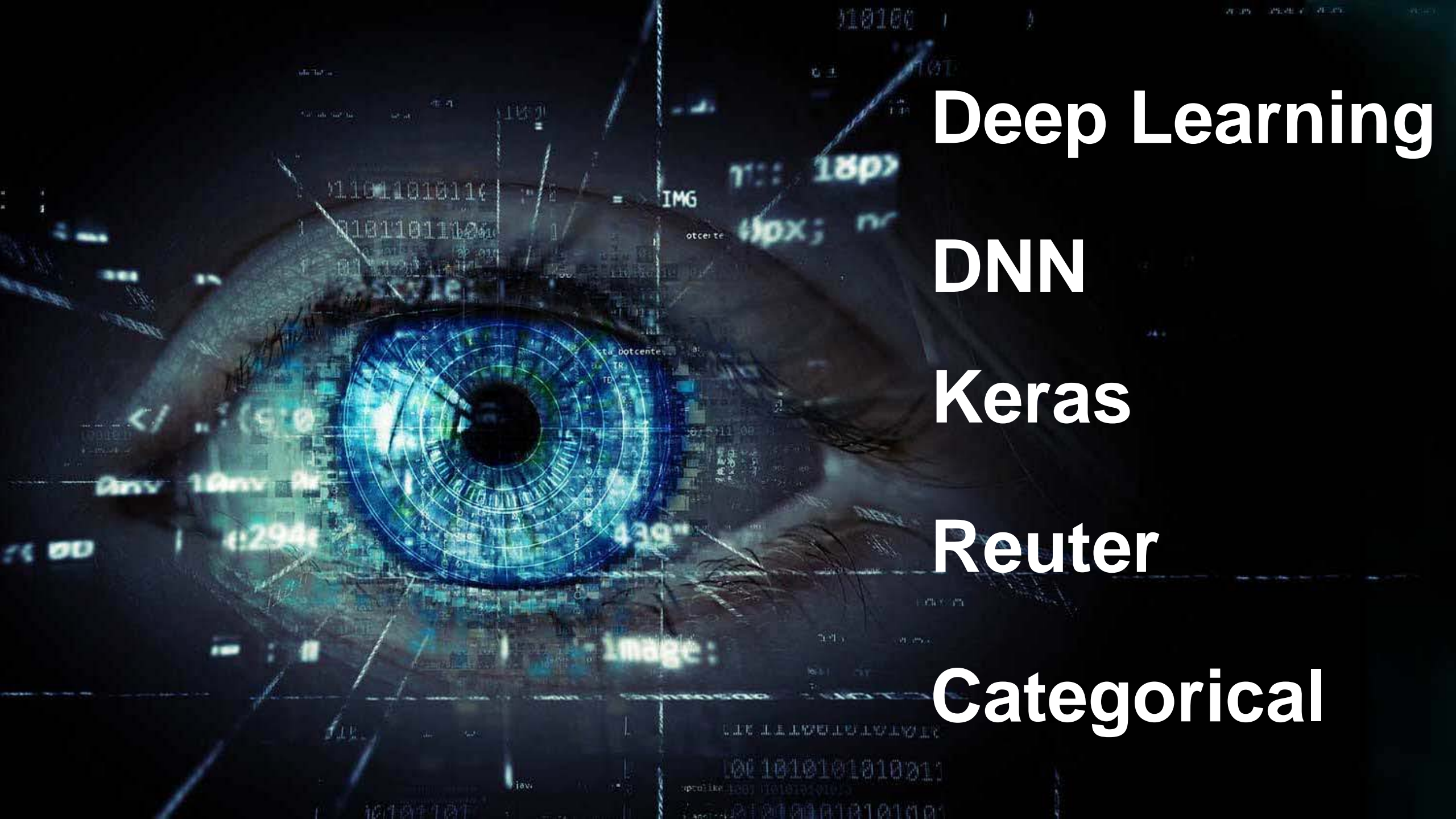# Deep learning For text Classification And recognition

Using Reuters's Dataset

Deep Learning

DNN

Keras

Reuter

Categorical

Outline

01 **Dataset**

Introduce Reuter's Dataset

02 **DNN Architecture**

How we build the Deep Neural Networks

03 **Result**

The result of DNN's predict

04 **Conclusion**

How it extends to more applications

Reuters Dataset

History

Reuters was founded in London in 1851. A news agency was established on the Royal Exchange in London.

Founder

保羅·朱利葉斯·羅伊特（Paul Julius Reuter）

From 1851 to 2019

REUTERS

Service

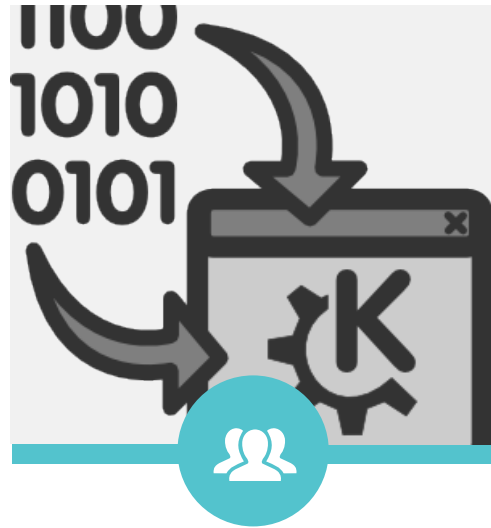Covers business news for banks, brokerages and commercial companies.

Value

Reuters' value to newspapers lies not only in the financial news it provides, but also in its ability to lead the way in reporting internationally important news.
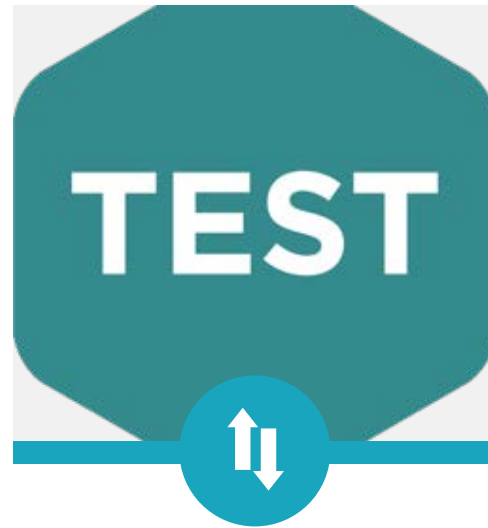
Expand

In 1872, Reuters expanded its operations to the Far East, followed by South America in 1874.
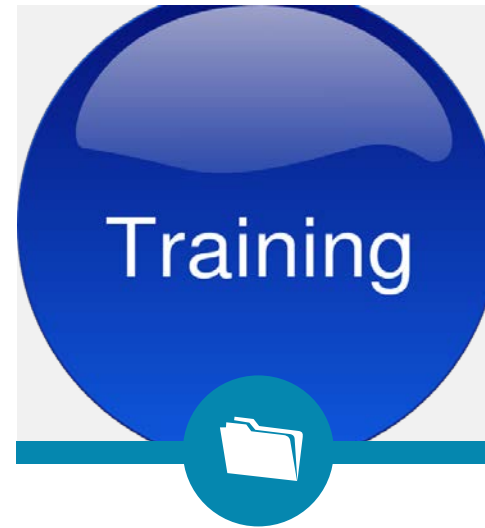
Reuters Dataset

Database

11,228 news sources

Testing Data

2246 news for testing

Testing Data

8982 news for training

Proportion

80:20 training / test ratio

BIG DATA
Pre-processing

Data

Digitizing
Classification
Pre-processing
Two-dimensional

The original data should be audited from two aspects: completeness and accuracy. The quality of the data and the choice of features determine the upper limit of machine learning. Including data acquisition, cleaning, feature selection, feature processing.
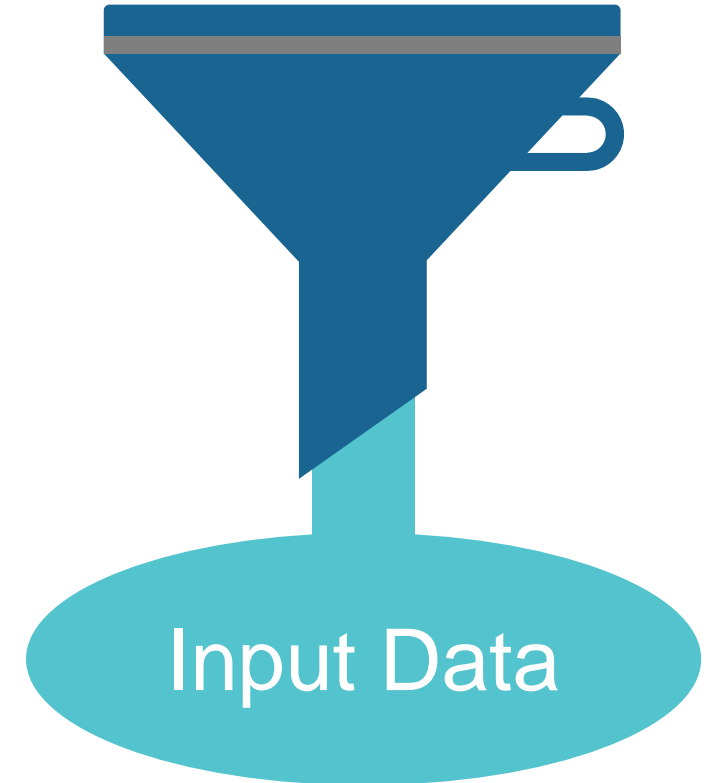
1010011010010000010101
0011110111011011011010
1010000111001010011001
0101001110101000010101
0001011010110110110100
0101011100010101000010
1000101110101100010011
0100110100100001010010
0111101110110110110101
0100001110010101100010
1010011010100010101010
0010110101101101101001

Input Data

Data Pre-pressing

Classification matrix

Divide various English words into 1-10,000 common words according to frequency. And number them by frequency of use.

Categorical

Use "Keras.utils.np_utils import to_categorical" & Def "to_one_hot" function to label training & testing data.

News Matrix(As Train_X)

Import 8982 training news individually according to its letter code into a 8982 * 10000 matrix

Data Pre-pressing

Classification

Reuters' data set is categorized into 46 news categories based on characteristics.

Digitizing

Divide various English words into 1-10,000 common words according to frequency. And number them by frequency of use.

Dimension

Map high-dimensional data to low-dimensional space. Use fewer data dimensions. At the same time, the characteristics of more original data points are retained.

DNN Introduction

Input layer

Enter data into Deep Neural Networks and calculate weights

Activation Function

The use of an excitation function in a neural-like network can decouple the output layer from the linear relationship. Make deep neural network predictions better.

Hidden layer

Only one layer of transformation will not help much, we will add other layers to increase stability. This is the so-called hidden layer.

Loss Function

The loss function is used to evaluate the degree of inconsistency between the predicted value f (x) of the model and the true value Y.

Output layer

The output layer can have more than one output. In this way, the model can be flexibly applied to classification and regression.

Architecture

Hidden layer
The hidden layer uses 64 neurons. The activation function uses "RELU".

Output layer
The output layer uses 46 neurons for 46 classifications.

Another activation function
The activation function uses "Softmax". It matches the probability distribution of 0 ~ 1.

Loss Function
> 2 categorical loss functions use "categorical_crossentropy"

Infographic Style

Train_X for 7982

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Train_Y for 7982

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Train_X for 1000

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Train_Y for 1000

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

以下為模板

Infographic Style

Contents Title

Contents Title

Contents Title

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. You can simply impress your audience and add a unique zing and appeal to your Presentations.

Content Title Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title

Contents Title

Contents Title

Contents Title

Infographic Style

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation.

"You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation. Get a modern PowerPoint Presentation that is beautifully designed. You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation."

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.
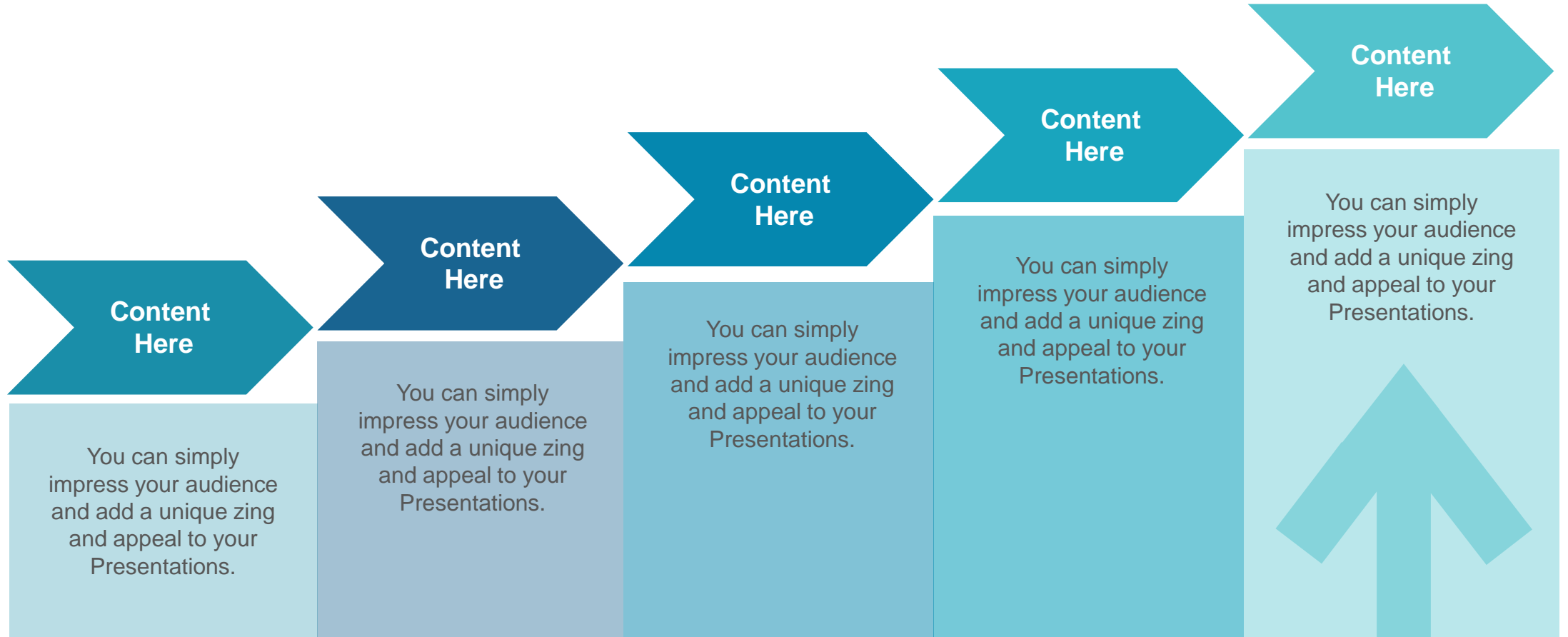
Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

32.45%

$15

Content Here
You can simply impress your audience and add a unique zing.

Simple Portfolio Presentation

You can simply impress your audience and add a unique zing and appeal to your Presentations.
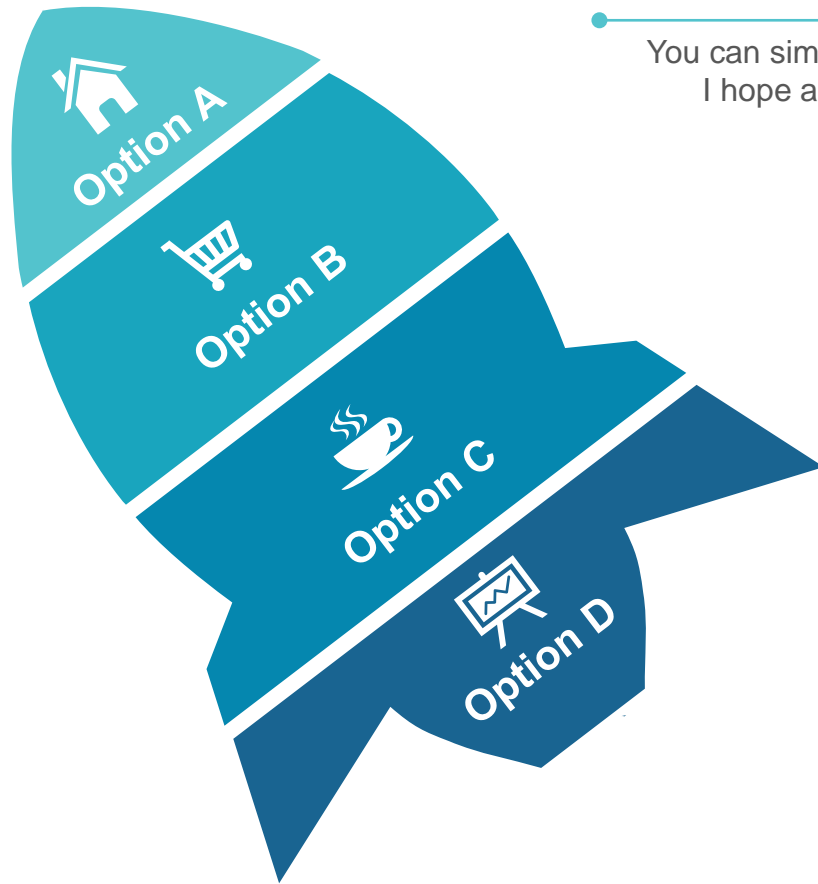
Simple Portfolio

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Portfolio Presentation

You can simply impress your audience and add a unique zing and appeal to your Presentations.

AWESOME
PRESENTATION

Infographic Style

Option A

Option B

Option C

Option D

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation. Get a modern PowerPoint Presentation that is beautifully designed.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation.
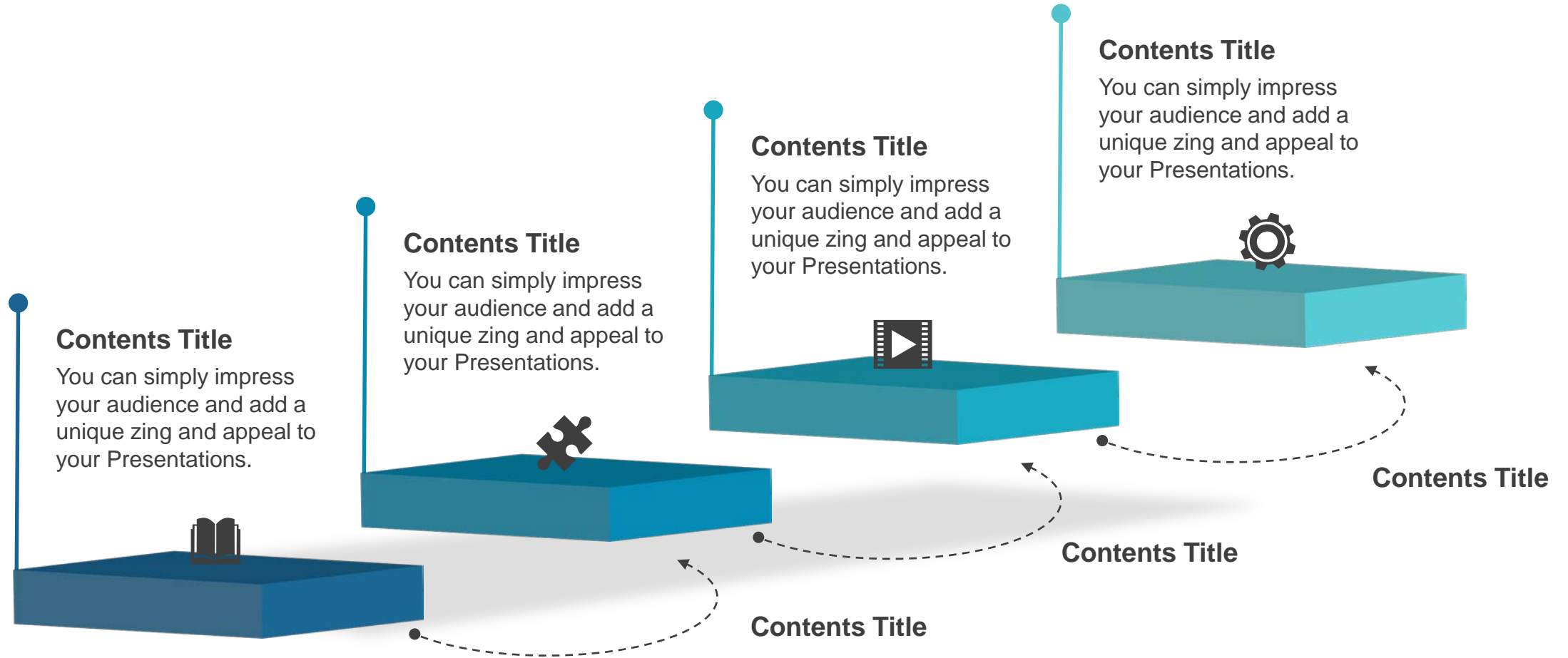
Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation.

Infographic Style

Contents Title

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title

Contents Title

Contents Title

ALLPPT
Layout
Clean Text Slide
for your
Presentation

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. You can simply impress your audience and add a unique zing and appeal to your Presentations. Get a modern PowerPoint Presentation that is beautifully designed. You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Infographic Style

Contents _ Graph

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed.

TEXT
Add Your Text

Contents _ Graph
Example Text : Get a modern PowerPoint Presentation that is beautifully designed.

Contents _ Graph
Example Text : Get a modern PowerPoint Presentation that is beautifully designed.

Contents _ Graph
Example Text : Get a modern PowerPoint Presentation that is beautifully designed.
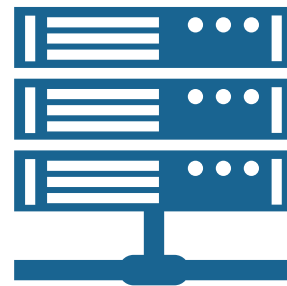
Contents _ Graph
Example Text : Get a modern PowerPoint Presentation that is beautifully designed.

Infographic Style

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Portfolio Presentation

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation.

01

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation .

02

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation .

03

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation .

04

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation .
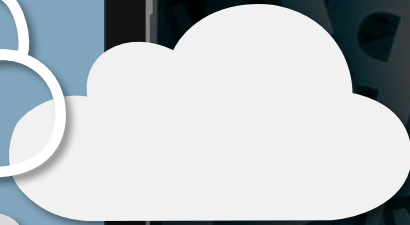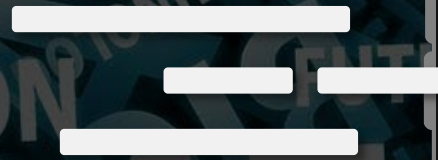
Infographic Style

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

❖ Simple PowerPoint
❖ Easy to change colors, photos and Text.
❖ You can simply impress your audience and add a unique zing
❖ Simple PowerPoint

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

A line chart spans the top with a y-axis from 0 to 10000 (in increments of 1000) and an x-axis labeled Item 1 through Item 7. Two lines (light teal and darker teal) plot data across the items.

Text Here	**Text Here**	**Text Here**	**Text Here**
Easy to change colors, photos and Text.	Easy to change colors, photos and Text.	Easy to change colors, photos and Text.	Easy to change colors, photos and Text.

Add Text	**Text Here**	**Text Here**	**Text Here**
Easy to change colors, photos and Text.	Easy to change colors, photos and Text.	Easy to change colors, photos and Text.	Easy to change colors, photos and Text.

"

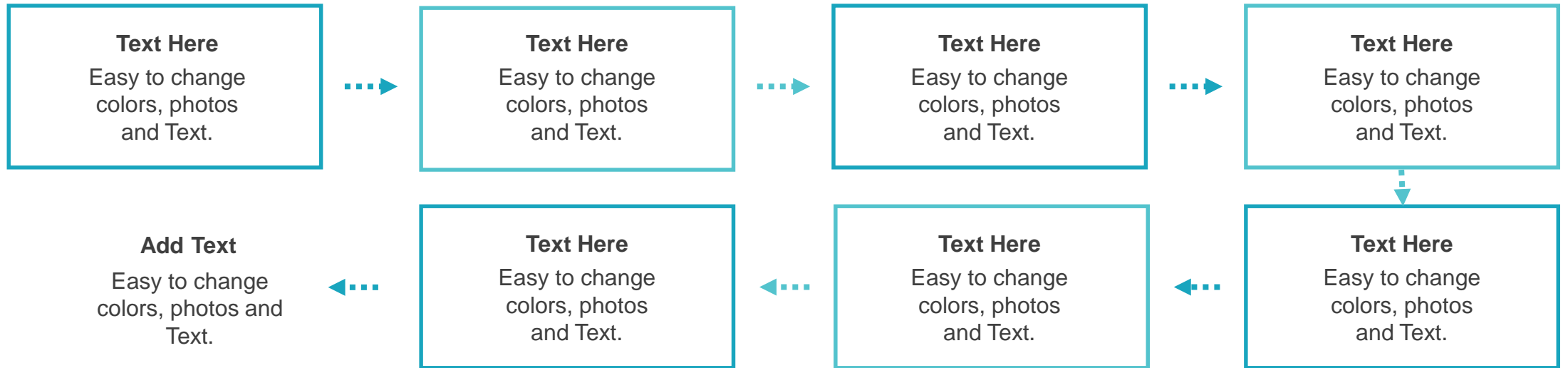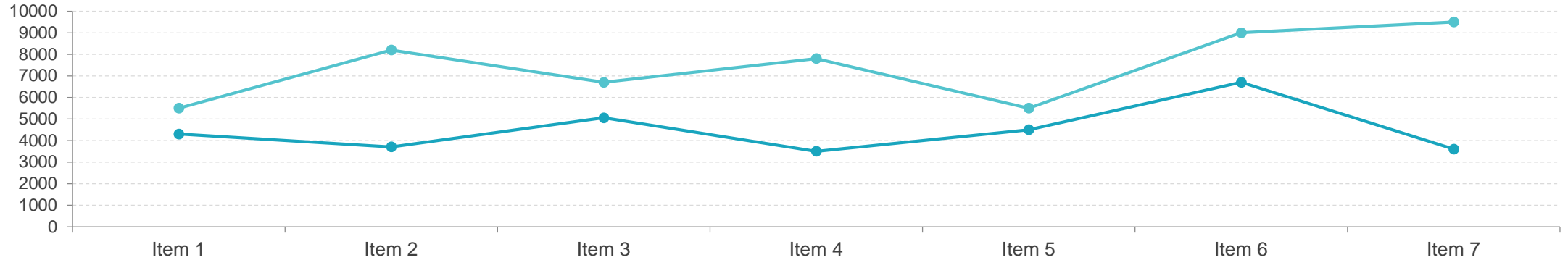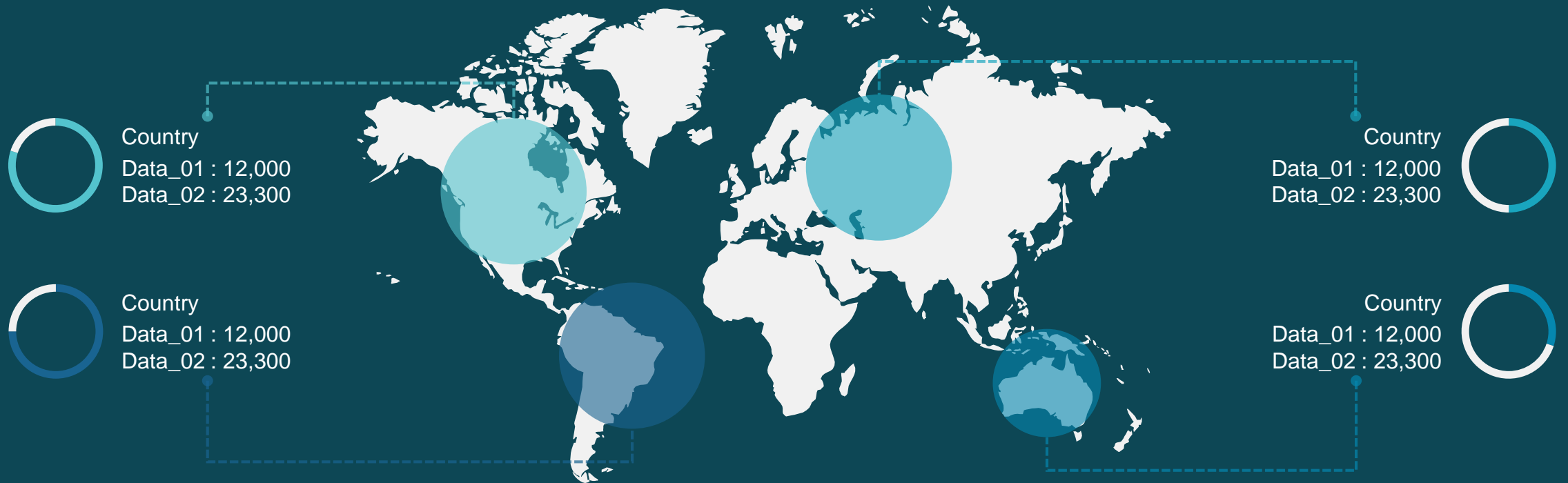You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. You can simply impress your audience and add a unique zing and appeal to your Presentations. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation.

"

BIG DATA

PRESENTATION

Infographic Style

Country
Data_01 : 12,000
Data_02 : 23,300

Country
Data_01 : 12,000
Data_02 : 23,300

Country
Data_01 : 12,000
Data_02 : 23,300

Country
Data_01 : 12,000
Data_02 : 23,300

01 Your Contents Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

02 Your Contents Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

03 Your Contents Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

04 Your Contents Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Add Text Simple PowerPoint Presentation

Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Get a modern PowerPoint Presentation that is beautifully designed.

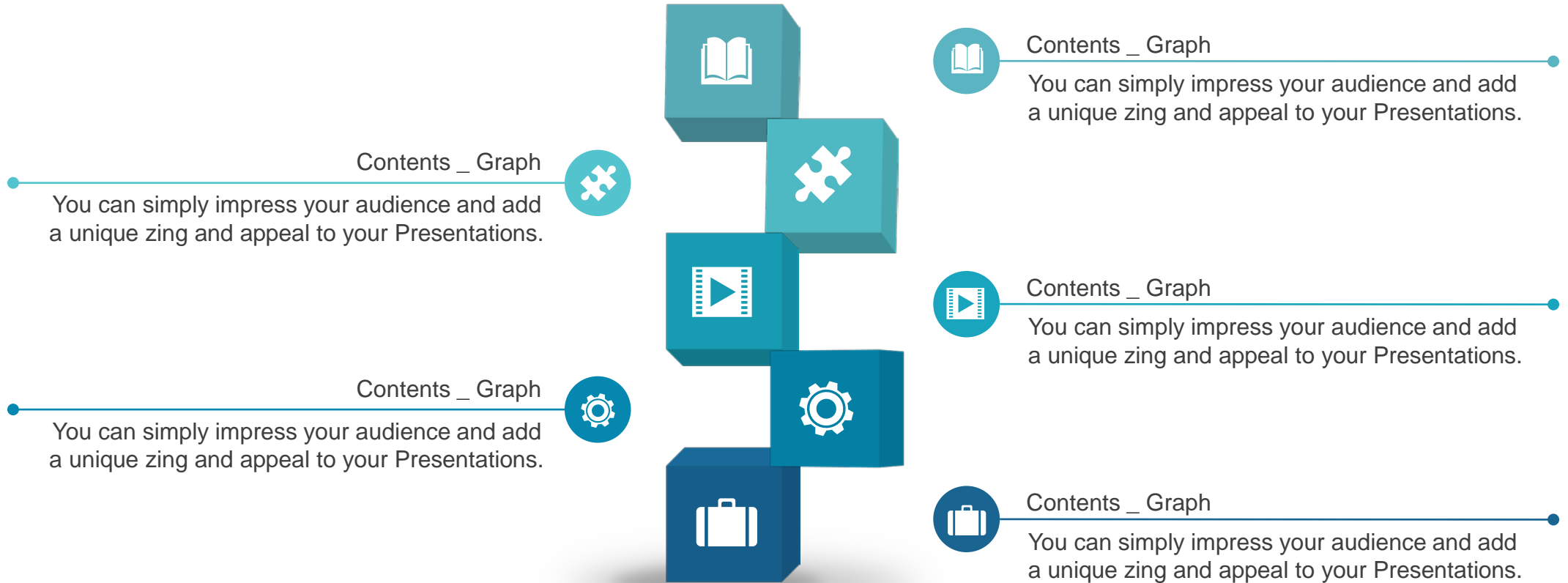Get a modern PowerPoint Presentation that is beautifully designed.

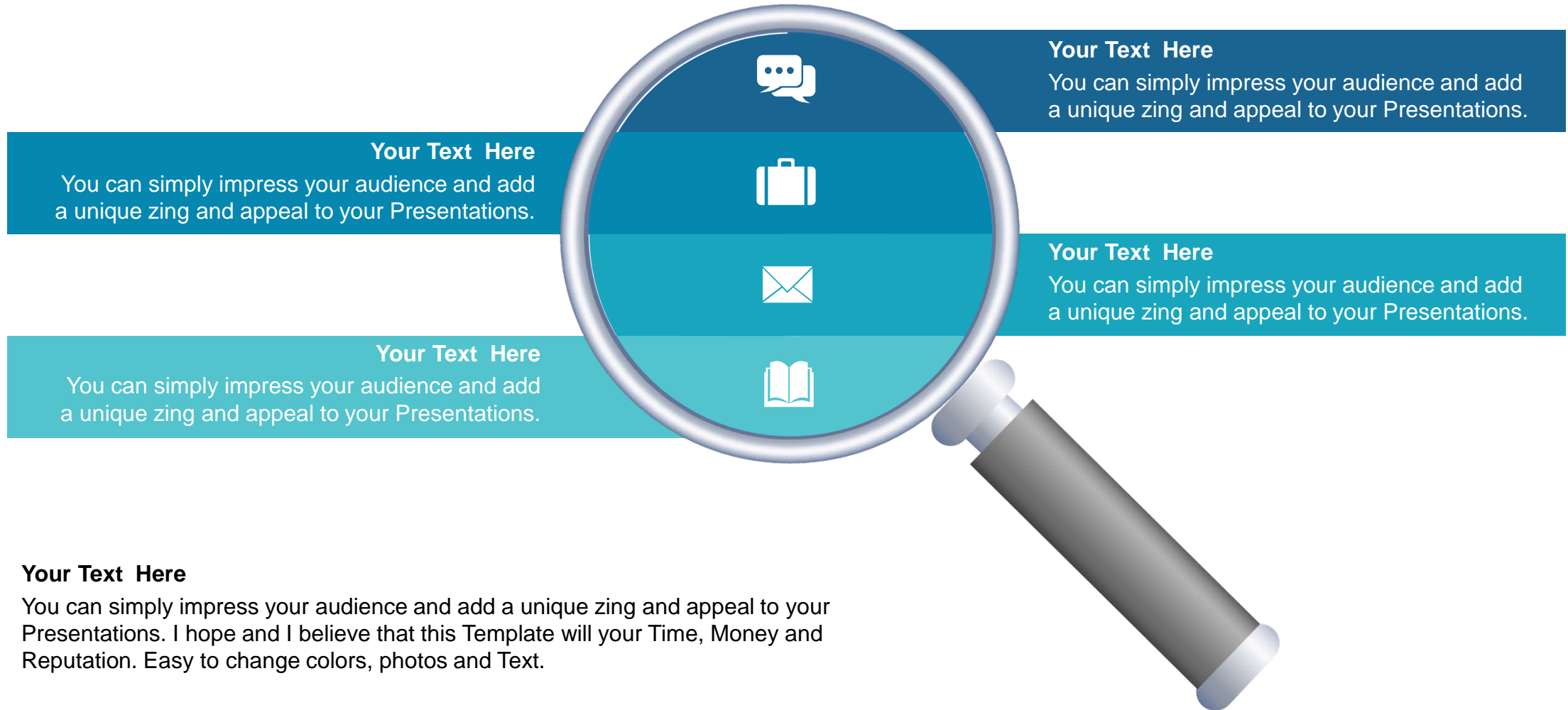Get a modern PowerPoint Presentation that is beautifully designed.

We Create Quality Professional PPT Presentation

Infographic Style

Contents _ Graph
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents _ Graph
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents _ Graph
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents _ Graph
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents _ Graph
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

Your Text Here
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here
You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text.

Simple Portfolio Presentation

"ALLPPT
Layout
Clean Text
Slide
for your
Presentation"

POWERPOINT > You can simply impress your audience and add a unique zing and appeal to your Presentations
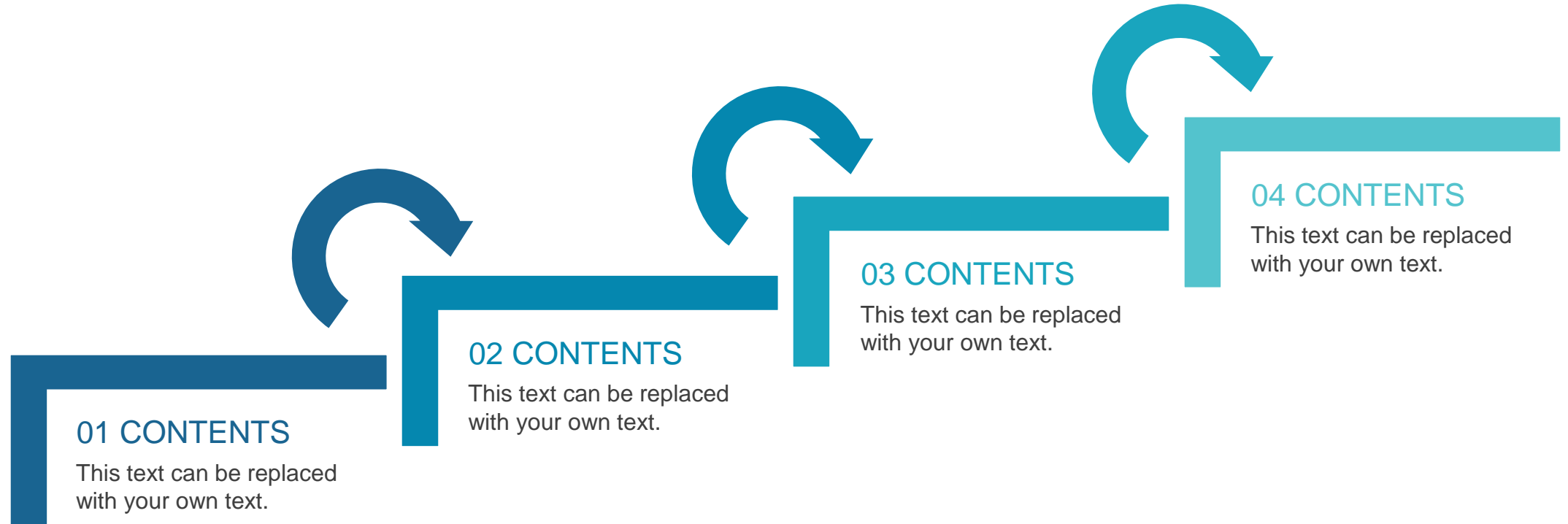
CONTENTS > You can simply impress your audience and add a unique zing and appeal to your Presentations.

PRESENTATION > You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

01 CONTENTS

This text can be replaced with your own text.

02 CONTENTS

This text can be replaced with your own text.

03 CONTENTS

This text can be replaced with your own text.

04 CONTENTS

This text can be replaced with your own text.

Your Text Here

Easy to change colors, photos and Text.

Your Text Here
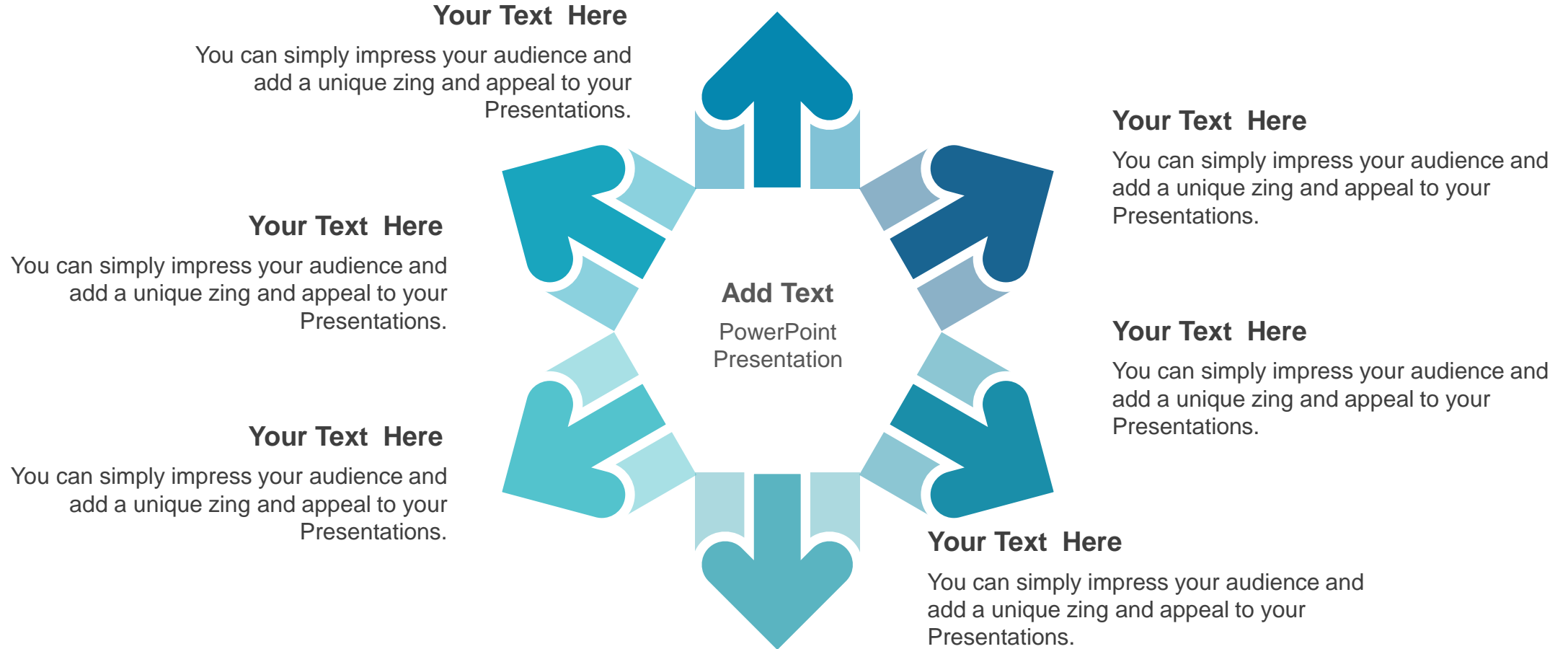
Easy to change colors, photos and Text.

Your Text Here

Easy to change colors, photos and Text.

Your Text Here

Easy to change colors, photos and Text.

Infographic Style

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Add Text

PowerPoint Presentation

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

Infographic Style

Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.
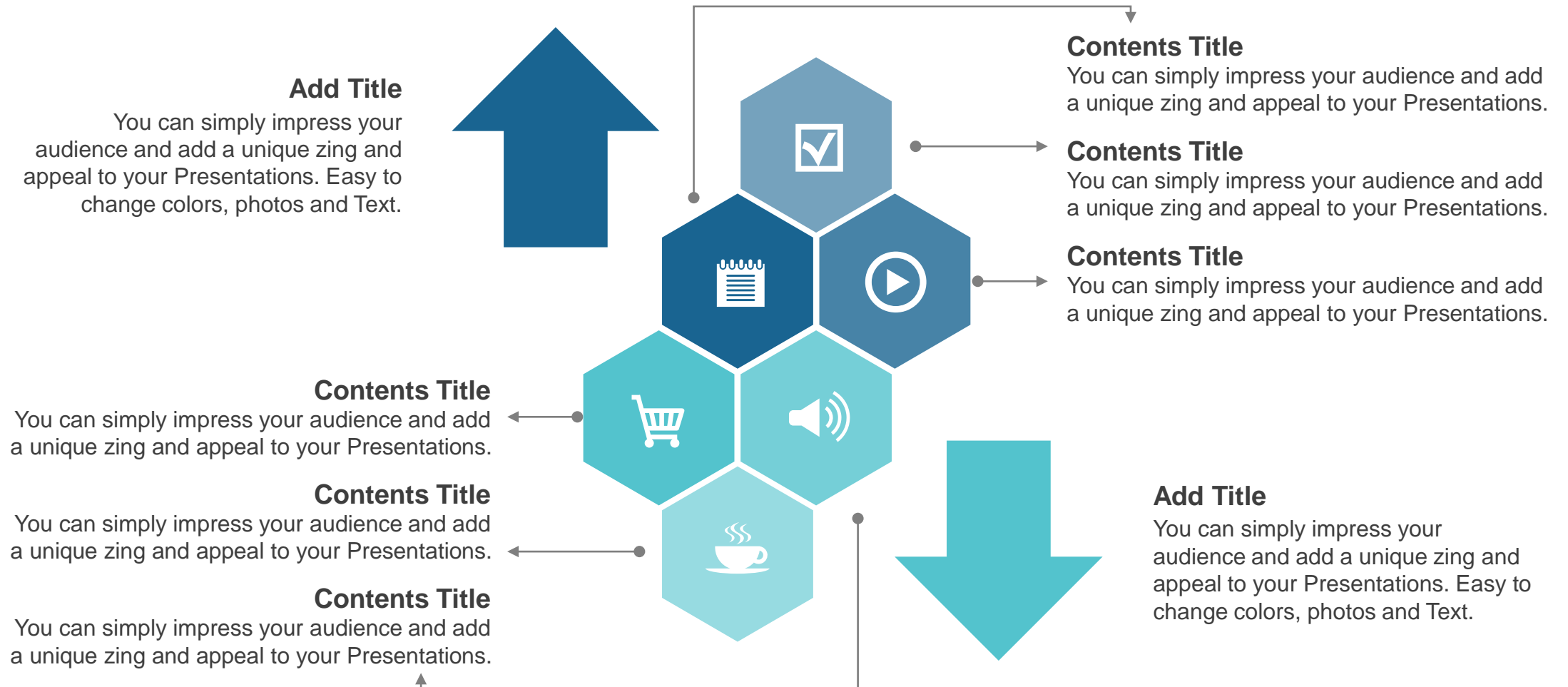
Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Your Text Here

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Infographic Style

01

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations.

02

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

03

Content Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Get a modern PowerPoint Presentation that is beautifully designed.

Infographic Style

Add Title
You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Contents Title
You can simply impress your audience and add a unique zing and appeal to your Presentations.

Add Title
You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

AWESOME SLIDE

LOREM IPSUM DOLOR SIT AMET,

LOREM IPSUM DOLOR SIT AMET,
CU USU AGAM INTEGRE IMPEDIT.

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text. You can simply impress your audience and add a unique zing and appeal to your Presentations. You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text. I hope and I believe that this Template will your Time, Money and Reputation. I hope and I believe that this Template will your Time, Money and Reputation.

Infographic Style

Contents Here

Your Text Here

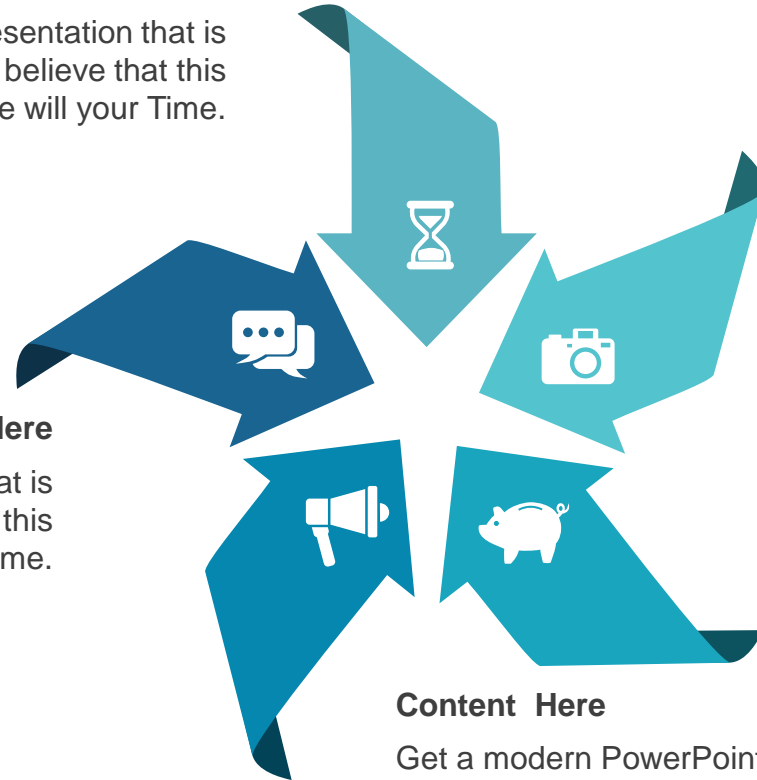Example Text : Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text.
You can simply impress your audience and add a unique zing and appeal to your Reports and Presentations with our Templates.

Your Text Here

Example Text : Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text.
You can simply impress your audience and add a unique zing and appeal to your Reports and Presentations with our Templates. Get a modern PowerPoint Presentation that is beautifully designed.
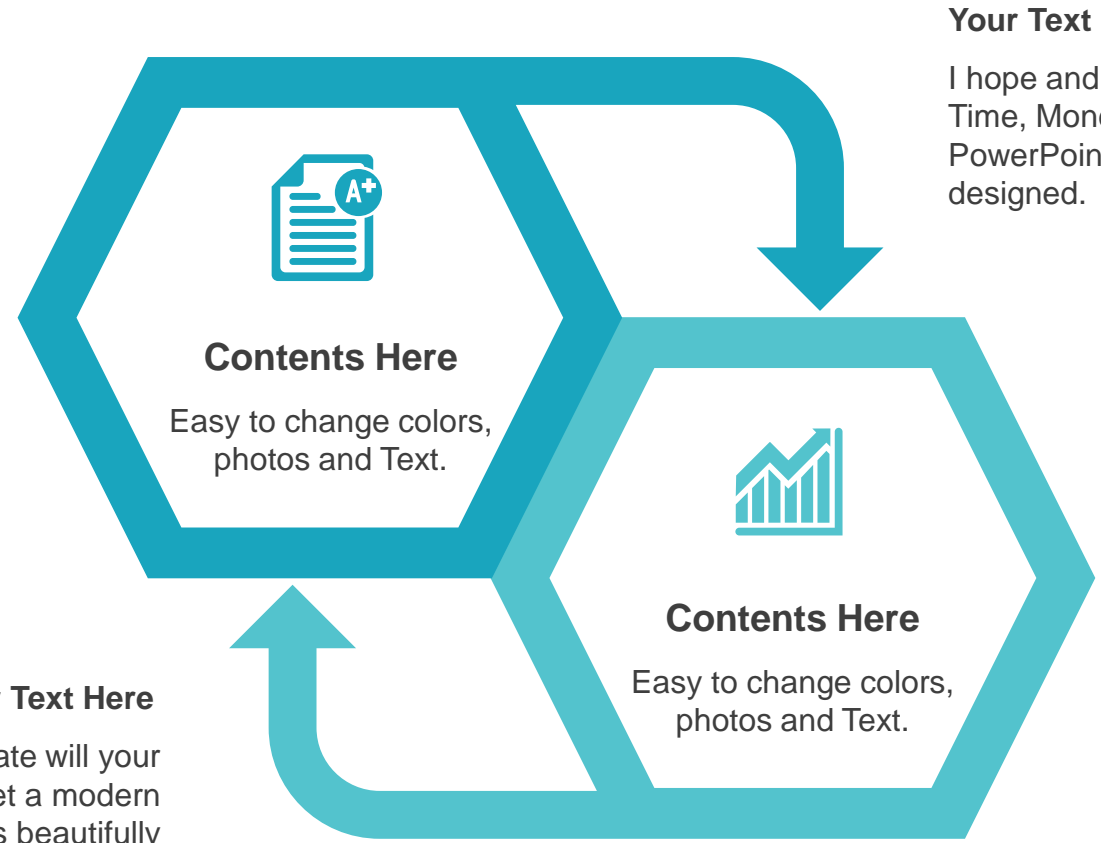
Infographic Style

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation. Get a modern PowerPoint Presentation that is beautifully designed.

Contents Here

Easy to change colors, photos and Text.

Contents Here

Easy to change colors, photos and Text.

Your Text Here

I hope and I believe that this Template will your Time, Money and Reputation. Get a modern PowerPoint Presentation that is beautifully designed.

Modern PowerPoint

You can simply impress your audience and add a unique zing and appeal to your Presentations. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation.

✓ You can simply impress your audience and add a unique zing and appeal to your Presentations.

✓ You can simply impress your audience and add a unique zing and appeal to your Presentations.

✓ You can simply impress your audience and add a unique zing and appeal to your Presentations.

✓ You can simply impress your audience and add a unique zing and appeal to your Presentations.

Professional PowerPoint Designed

Infographic Style

Content Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time.

Content Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time.

Content Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time.

Content Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time.

Content Here

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time.

Infographic Style

01

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

03

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

05

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

02

Your Text Here

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

04

Column Style

Contents A

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text.

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Get a modern PowerPoint Presentation that is beautifully designed.

Contents B

Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text. Get a modern PowerPoint Presentation that is beautifully designed. I hope and I believe that this Template will your Time, Money and Reputation. Easy to change colors, photos and Text.

You can simply impress your audience and add a unique zing and appeal to your Presentations. Easy to change colors, photos and Text.

Get a modern PowerPoint Presentation that is beautifully designed.

You can simply impress your audience and add a unique zing.

You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation. Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text. You can simply impress your audience and add a unique zing and appeal to your Presentations. You can simply impress your audience and add a unique zing and appeal to your Presentations. I hope and I believe that this Template will your Time, Money and Reputation. You can simply impress your audience and add a unique zing and appeal to your Presentations. You can simply impress your audience and add a unique zing and appeal to your Presentations. Get a modern PowerPoint Presentation that is beautifully designed.

Get a modern PowerPoint Presentation that is beautifully designed. Easy to change colors, photos and Text.

Columns
Infographic
Simple
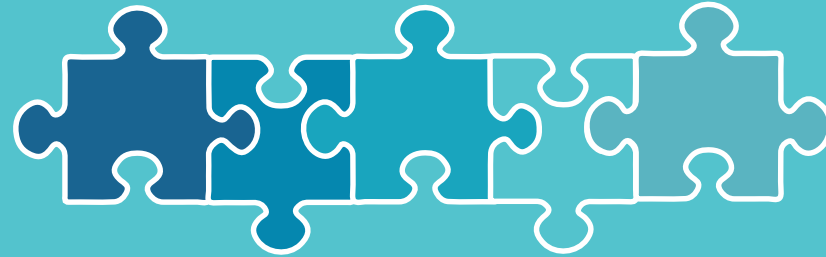**Portfolio**
Designed

Column
# Infographic

THANK YOU

Insert the Sub Title of Your Presentation
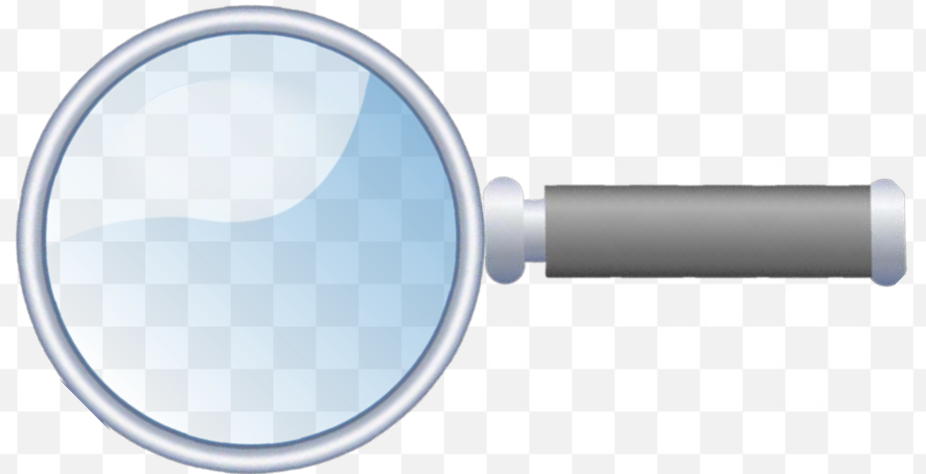
Fully Editable Shapes

1010011010010000010101
0011110111011011011010
1010000111001010110011
0101001110101000010101
0001011010110110110100
0101011000101010000010
1000101110101100010011
0100110100100001010100
0111101110110110110101
0100001100101011010010
1010011010100010101010
0010110101101101101001
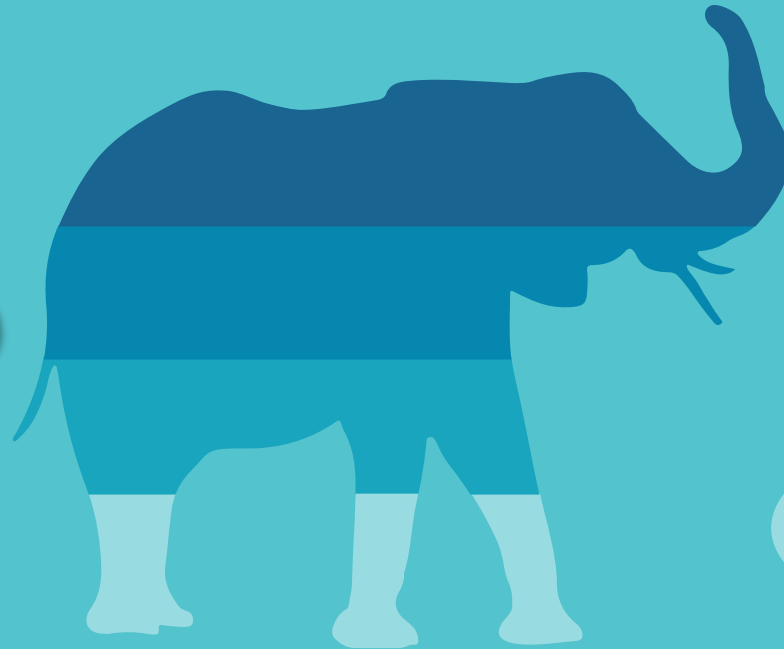
BIG DATA

Fully Editable Shapes And PNG

Fully Editable Icon Sets: A

You can Resize without losing quality

You can Change Fill Color & Line Color

FREE

PPT
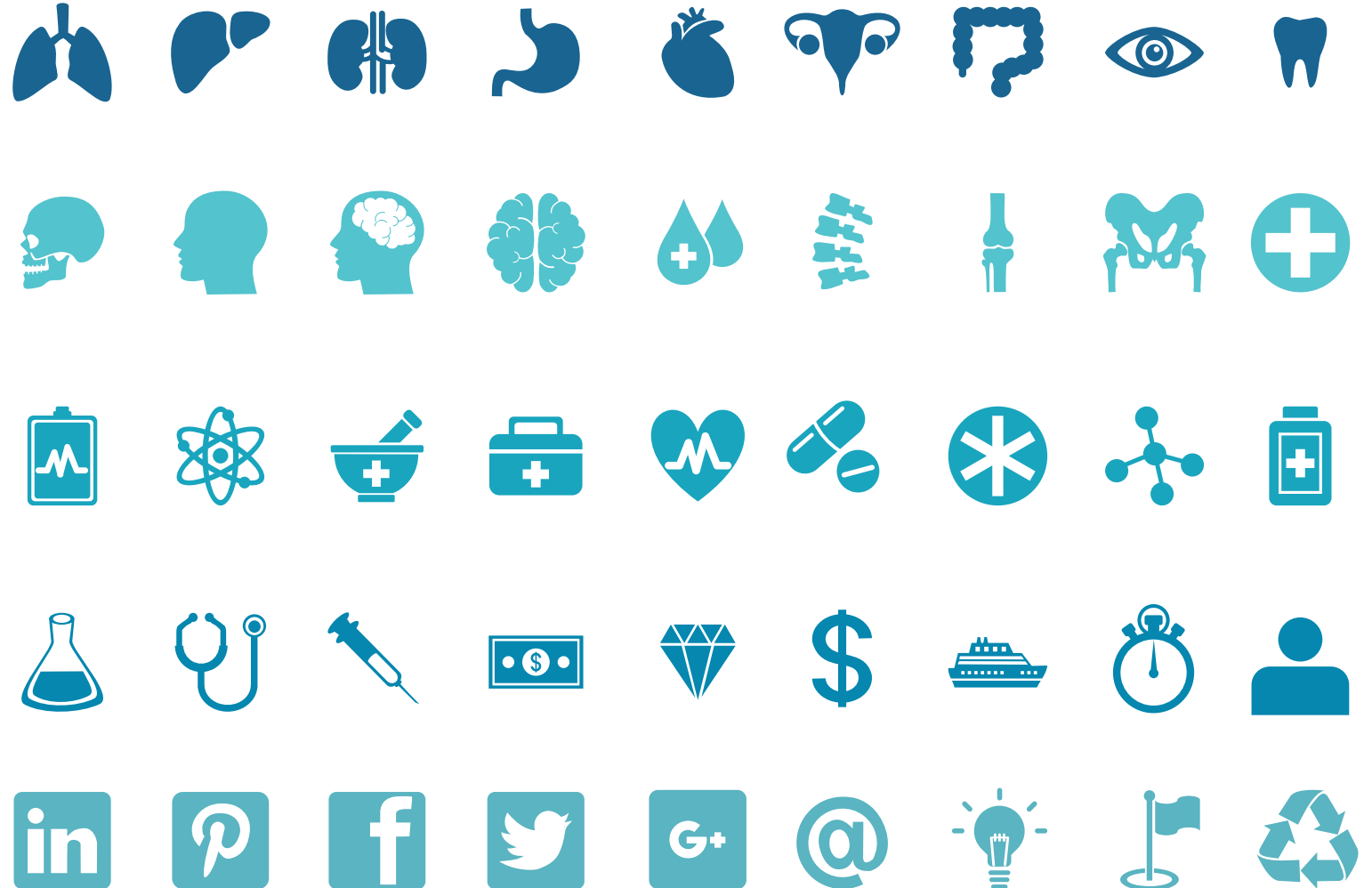
TEMPLATES

www.allppt.com

Fully Editable Icon Sets: B

Fully Editable Icon Sets: C

You can Resize without losing quality

You can Change Fill Color & Line Color

FREE PPT TEMPLATES