



# Creative Thinking

[itsmecevi.github.io](https://itsmecevi.github.io)  
[widyaanalytic.com](https://widyaanalytic.com)

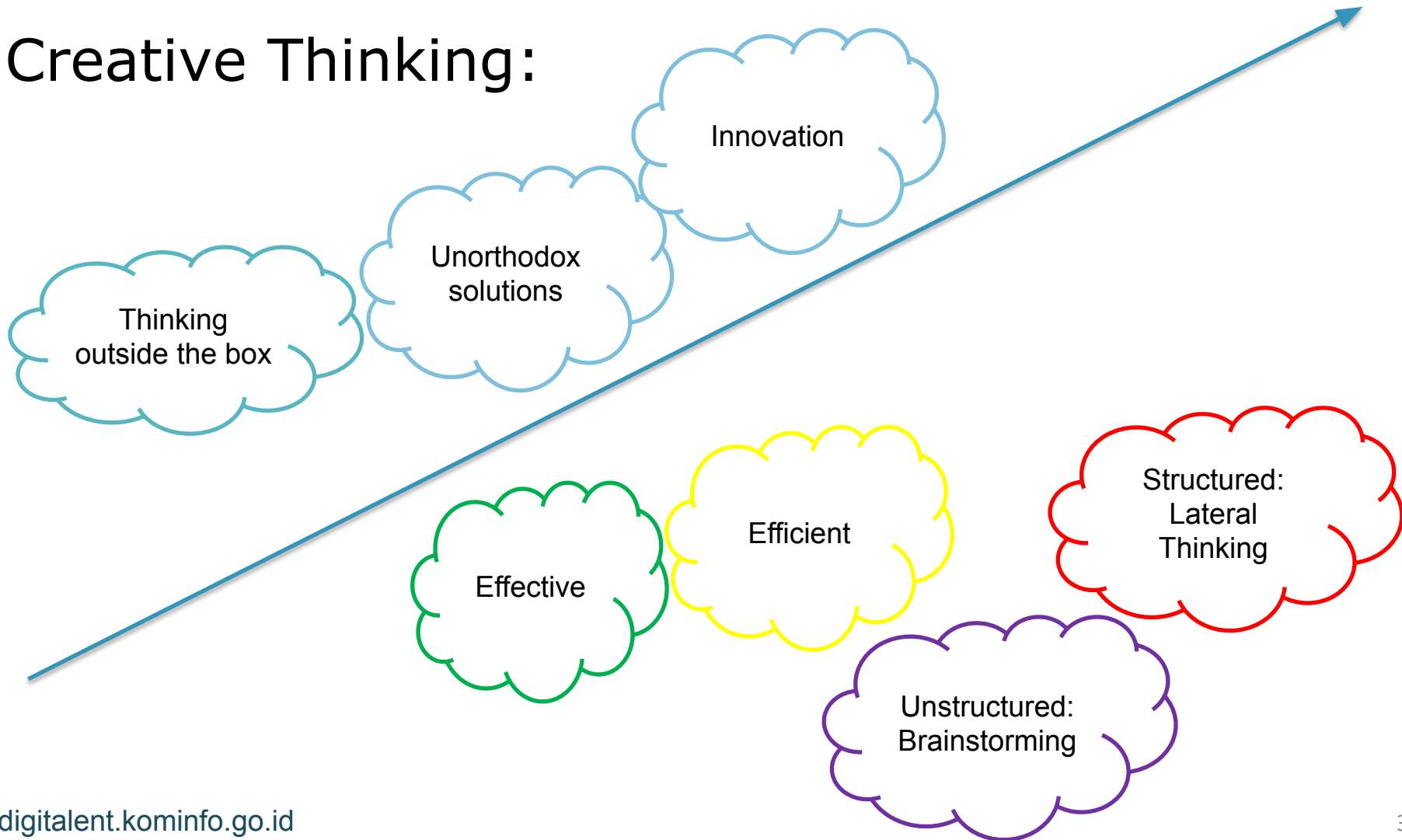
# Topik:

1. Menjelaskan Konsep Kreativitas yang berhubungan dengan big data
2. Menjelaskan Tahapan Proses Kreatif (process)
3. Melakukan Teknik “Creative Thinking”
4. Menyusun Proposal Pemecahan Masalah dan Pengambilan Keputusan

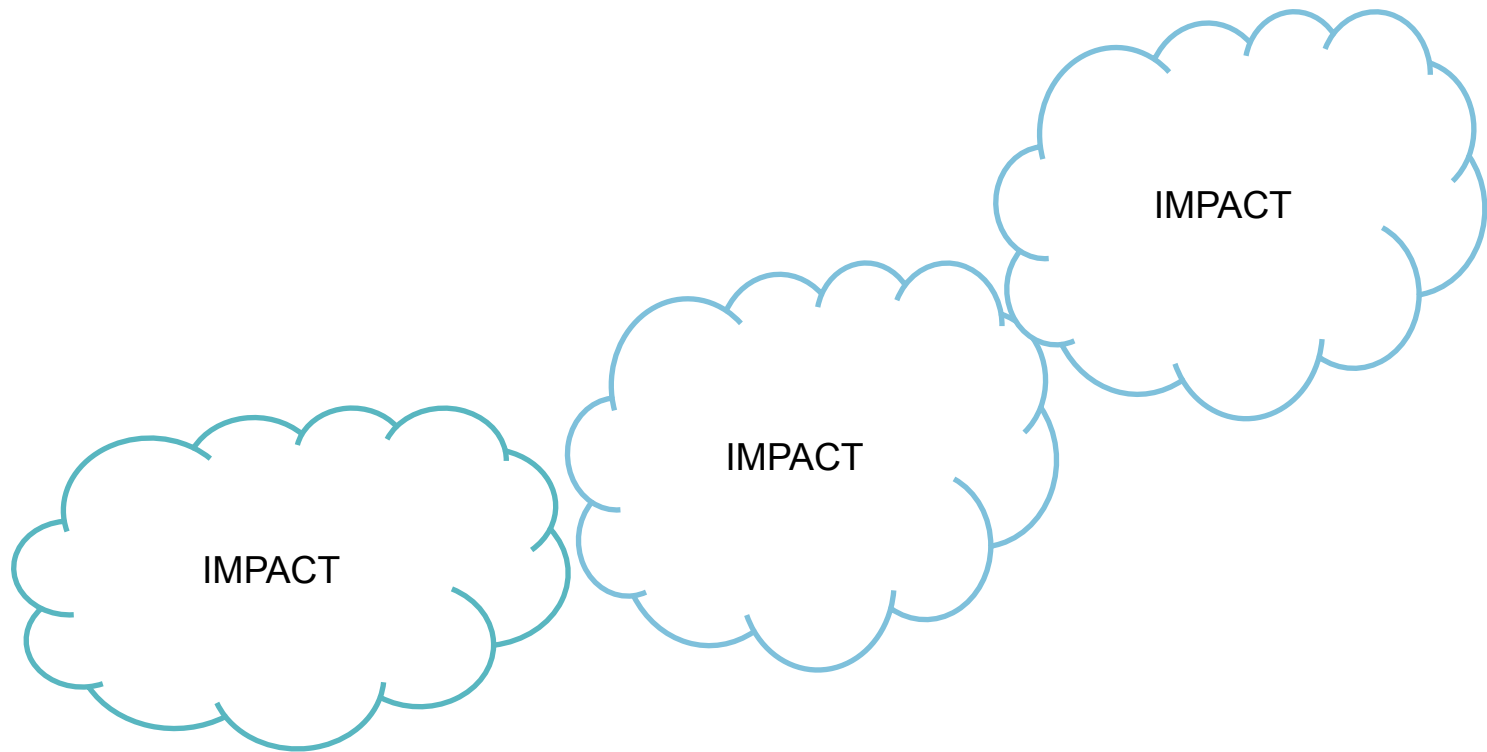
# Output / Keluaran:

1. Mencari contoh kasus yang terkait dengan big data
2. Menyusun proposal pemecahan masalah

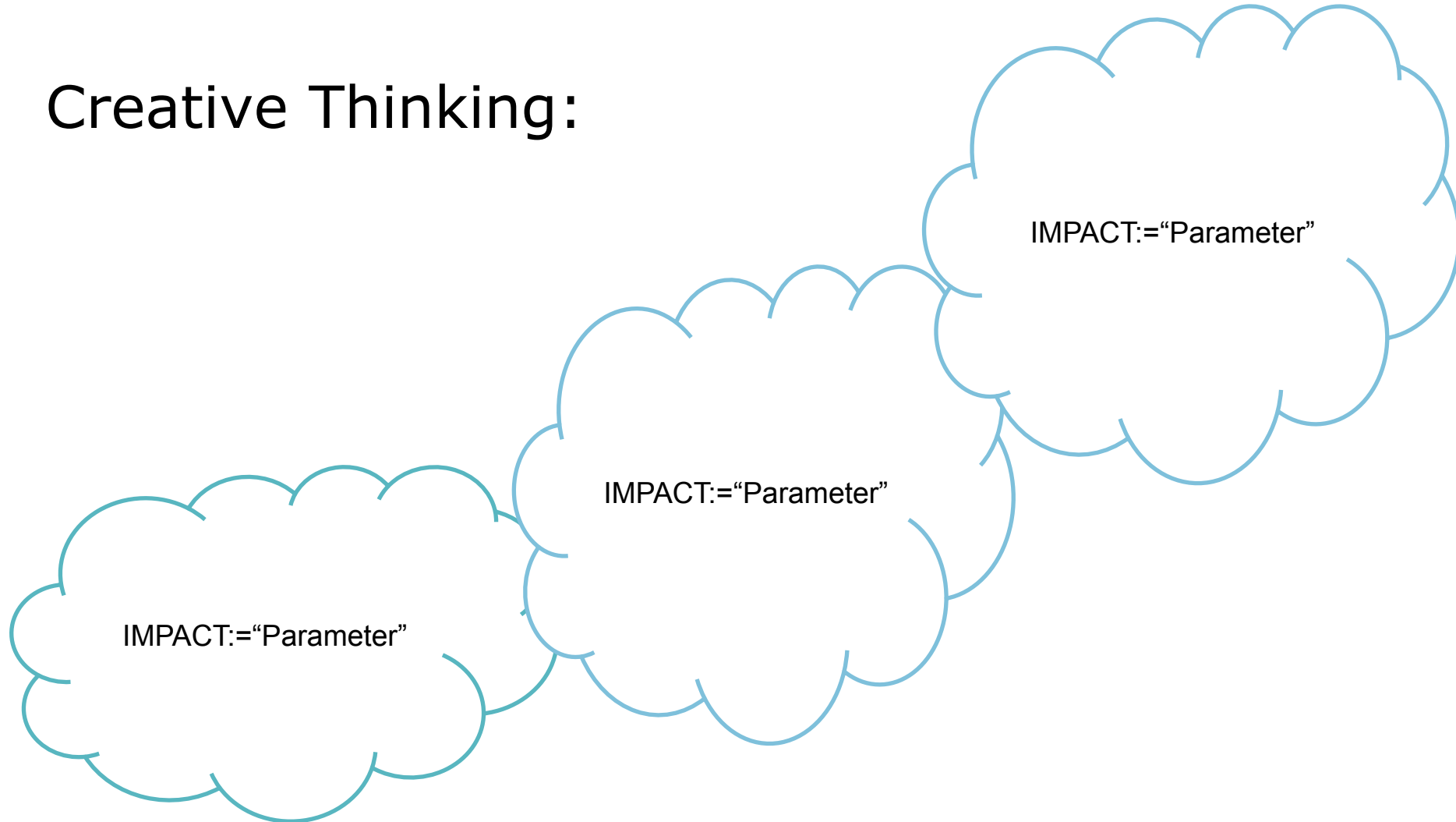
# Creative Thinking:

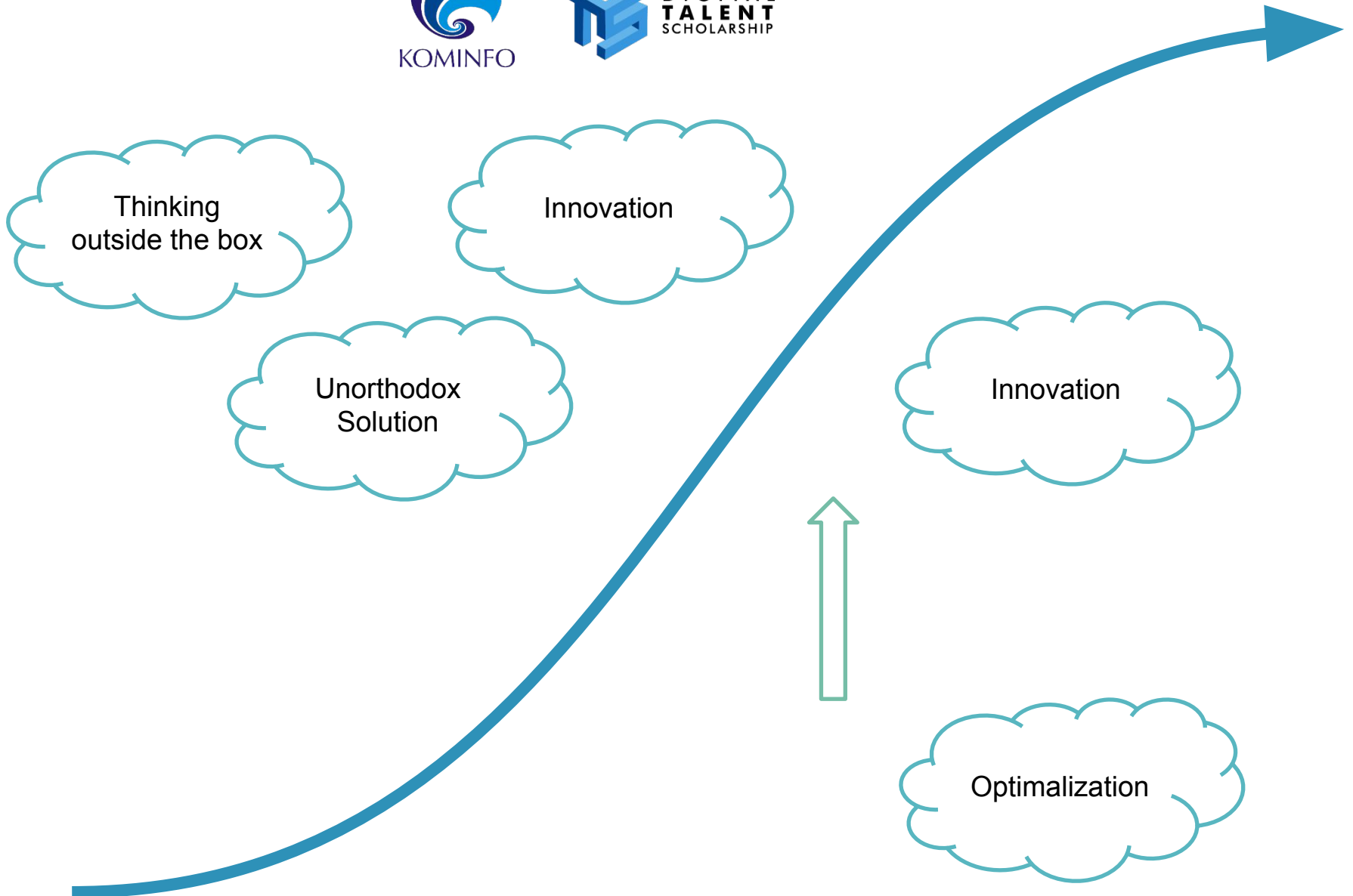


# Creative Thinking:



# Creative Thinking:





Innovation

Thinking  
outside the  
box

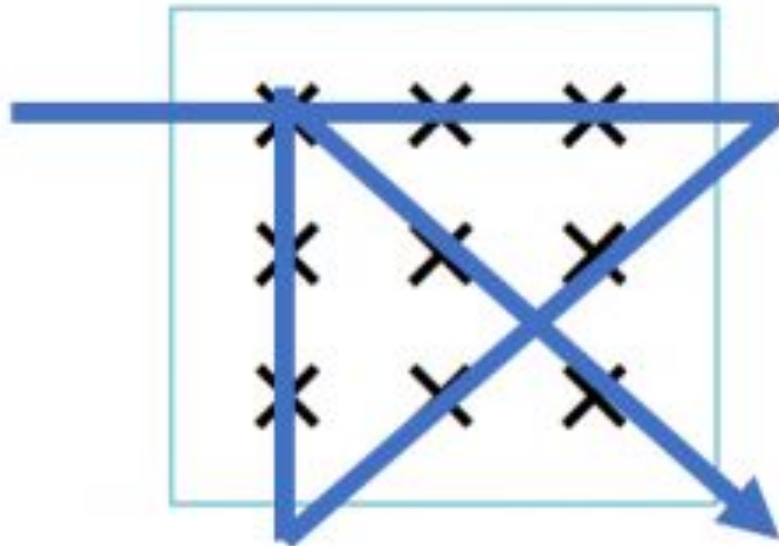
Unorthodox  
solutions

Hubungkan X  
dengan Max 4 garis  
tanpa mengangkat  
pensil / pulpen



Thinking  
outside the box

Hubungkan X  
dengan Max 4 garis  
tanpa mengangkat  
pensil / pulpen





Types of  
Creative  
Thinking:

1. Analysis

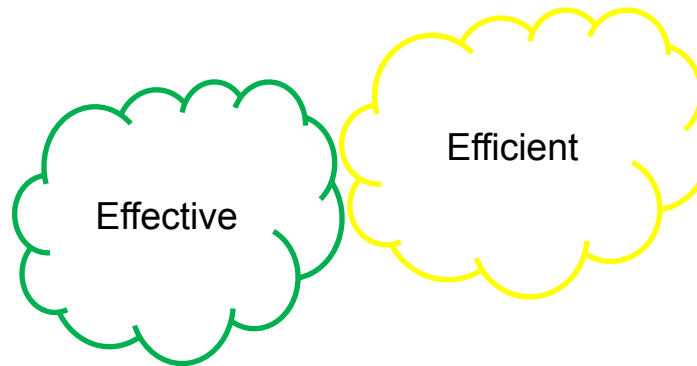
2.  
Open-Mindedne  
ss

3.  
Problem-Solving

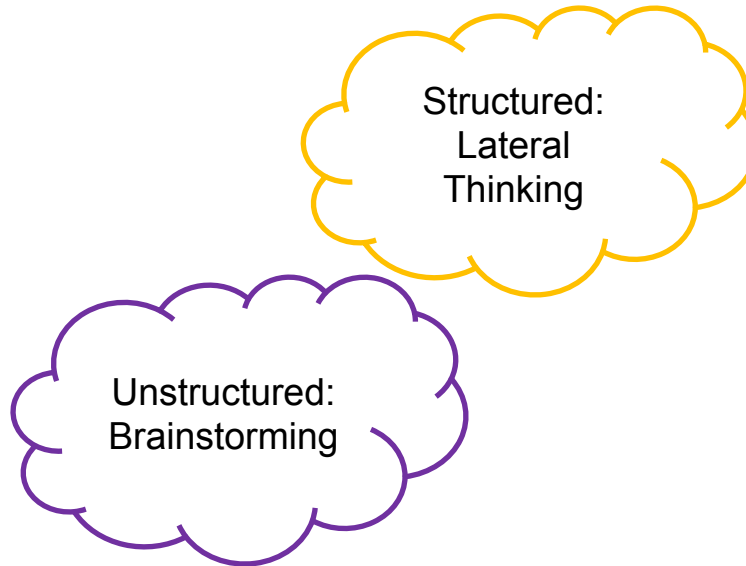
4. Organization

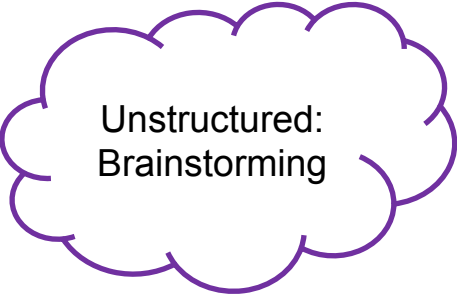
5.  
Communication

# Creative Thinking:



# Creative Thinking:



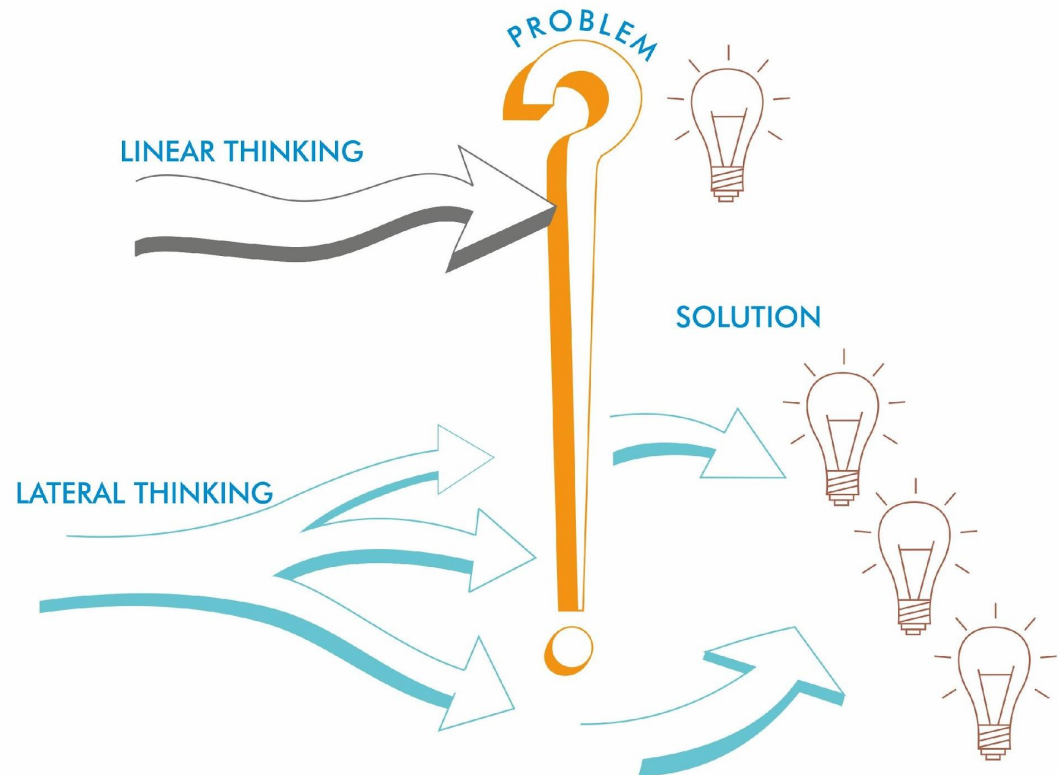


Unstructured:  
Brainstorming

Ada 4 pendapat Alex Osborn dalam upaya mengatasi batasan dalam Brainstorming:

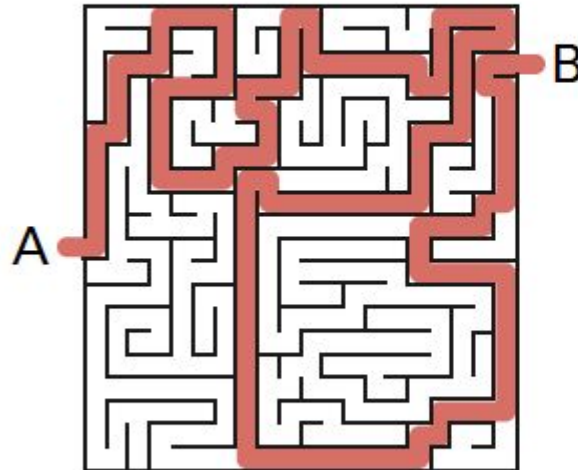
1. Tidak boleh ada kritik ide
2. Cari jumlah ide yang besar
3. Bangun pada tiap ide lainnya
4. Dorong ide yang liar dan berlebihan

Structured:  
Lateral  
Thinking



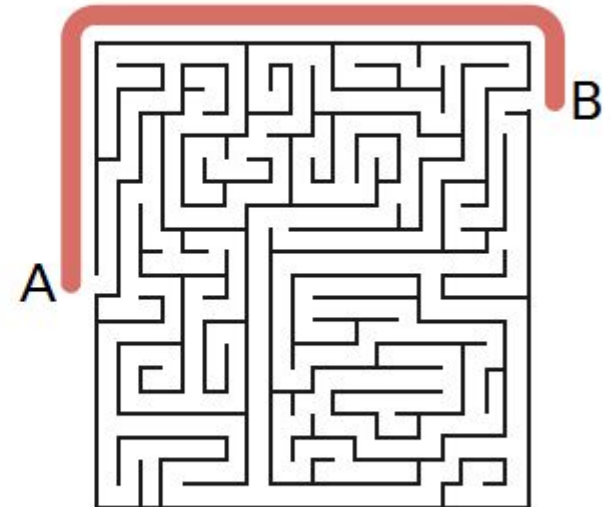
Structured:  
Lateral  
Thinking

### Vertical Thinking

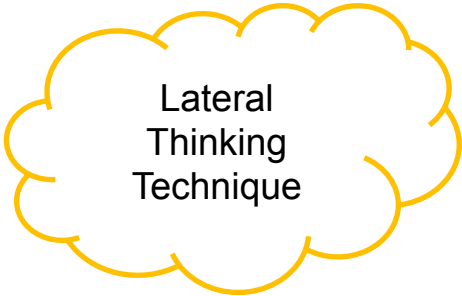


Abides by the rules

### Lateral Thinking



Ignores the rules

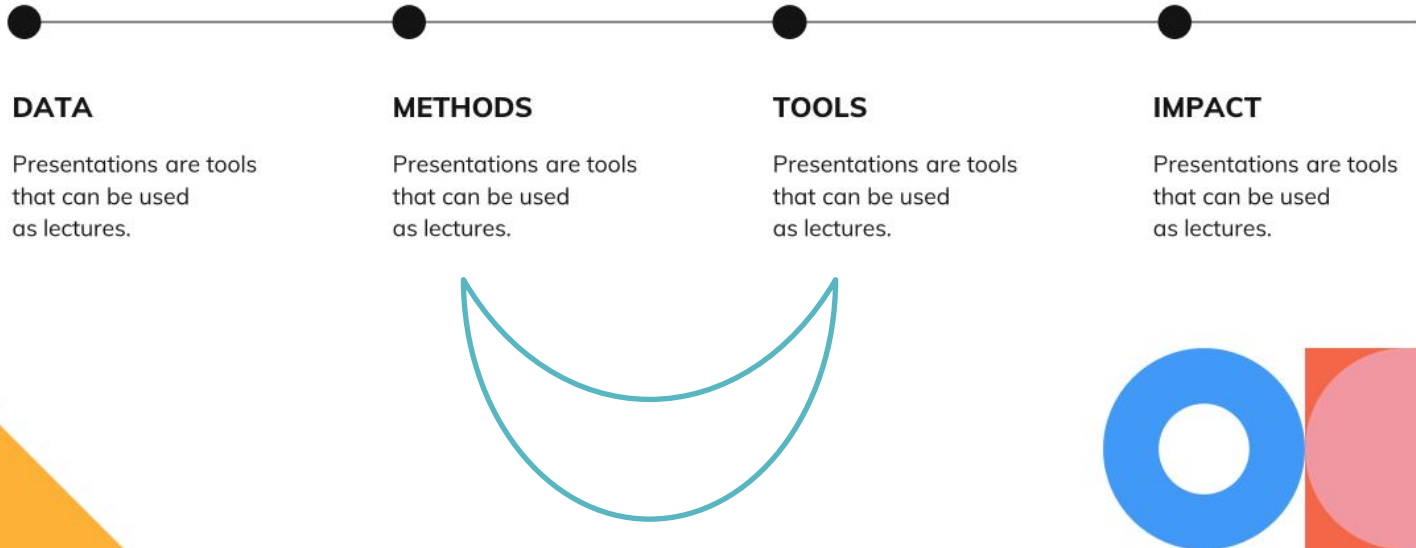


Lateral  
Thinking  
Technique

## Lateral Thinking Techniques Explained

1. Alternatives: Use concepts to breed new ideas
2. Focus: Sharpen or change your focus to improve your creative efforts
3. Challenge: Break free from the limits of accepted ways of doing things
4. Random Entry: Use unconnected input to open new lines of thinking
5. Provocation and Movement: Move from a provocative statement to useful ideas
6. Harvesting: Select the best ideas and shape them into practical solutions
7. Treatment of Ideas: Strengthen and shape ideas to fit an organization or situation

# Connecting the dots...



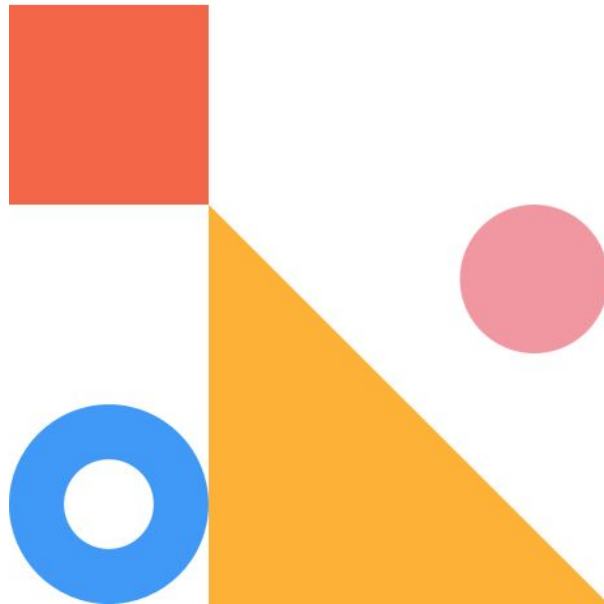


# Big Data Decision Sciences

Data, Methods, Tools, Impact

AGILE, KANBAN, LEAN,  
MVP, STARTUPS

MU-SIGMA.COM



# Key Points

TO BE DATA DRIVEN, IT'S NOT ENOUGH TO COLLECT AND MINE DATA. WE NEED THE CULTURE

DON'T OPTIMISE for data! Optimise for learning!



# Social Problem = Wicked Problem

Difficult or impossible to solve because of this four factors:

1. Incomplete or contradictory knowledge
2. The number of people and opinions involved
3. The large economic burden
4. The interconnected nature of these problems with other problems.

Example:

1. Poverty is linked with education
2. Nutrition with poverty
3. The economy with nutrition
4. The economy with marital status
5. Inequality
6. Political instability
7. Death & Disease

## 10 Social Problem Characteristics:


1. No definitive formulation
2. It's hard, maybe impossible, to measure or claim success with wicked problems
3. Solutions to wicked problems can be only good or bad, not true or false
4. There is no template to follow when tackling a wicked problem
5. There is always more than one explanation for a wicked problem
6. Every wicked problem is a symptom of another problem (Interconnected)
7. No mitigation strategy for a wicked problem has a definitive scientific test because humans invented wicked problems and science exists to understand natural phenomena
8. Offering a "solution" to a wicked problem frequently is a "one shot" design effort because a significant intervention changes the design space enough to minimize the ability for trial and error.
9. Every wicked problem is unique
10. Designers attempting to address a wicked problem must be fully responsible for their actions.

Rittel, Horst. "Dilemmas in a General Theory of Planning." Policy Sciences, 1973: 155-169.


# Social Problem = Wicked Problem




## Critical Thinking vs Creative Thinking vs Design Thinking



Critical analysis: making clear, focused, reasoned, careful, and intentional decisions

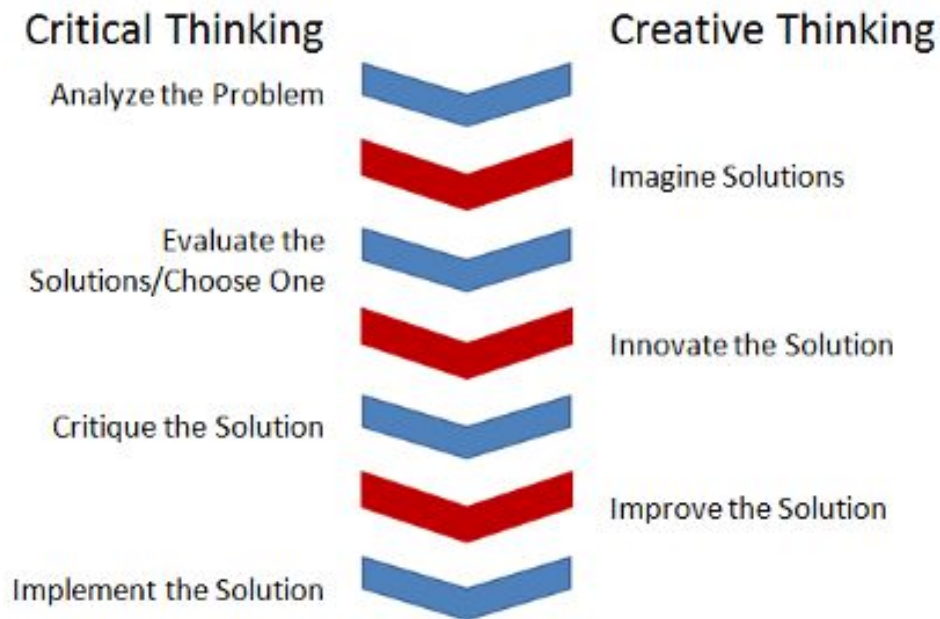


The generation of new ideas /  
“outside the box”



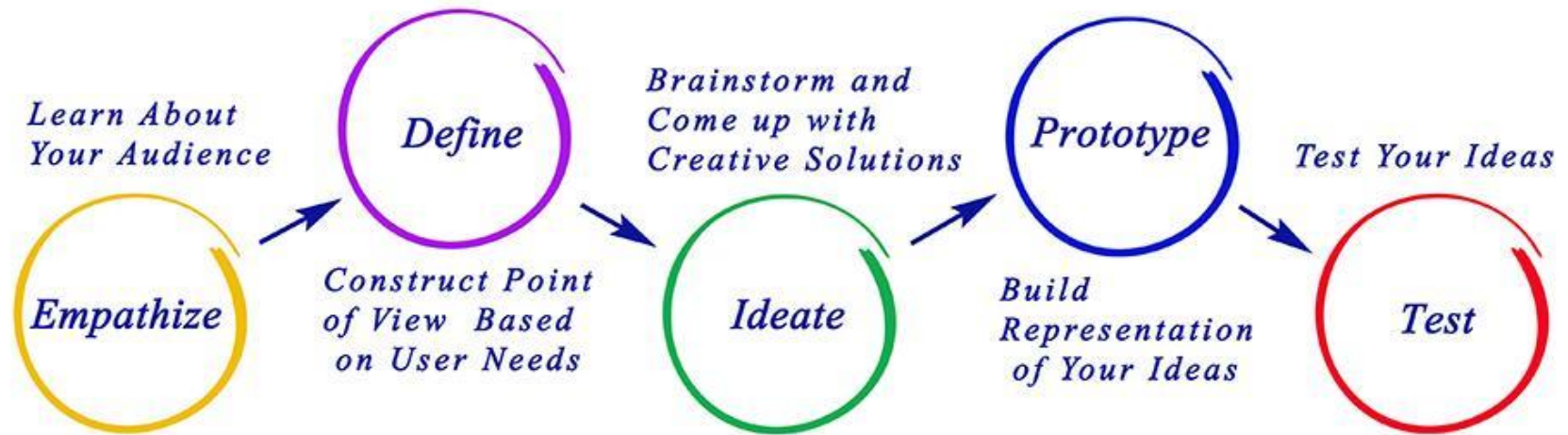
Parameters can constantly  
change on the basis of what you  
discover

# Process:



## Process:

### *Design Thinking Process*



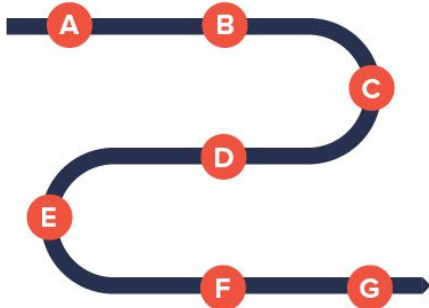


# Tools:





# Tools: A list & To do list



My to-do list	
<input type="checkbox"/>	Develop a new feature for the web application.
<input type="checkbox"/>	Buy a helmet for cycling.
<input type="checkbox"/>	Have lunch with Maria on Wednesday.
<input type="checkbox"/>	Analyze the survey results.
<input type="checkbox"/>	Deliver the company accounts on day 30.
<input type="checkbox"/>	Publish an article, on Monday.
<input type="checkbox"/>	Save a music CD to have in the car.
<input type="checkbox"/>	Call Dad for his birthday (day 8).
<input type="checkbox"/>	I would like to visit New Zealand.
<input type="checkbox"/>	Learn to use Sketch.

Calendar
<input type="checkbox"/> NOV 30: Deliver accounts
<input type="checkbox"/> DEC 1: Publish article
<input type="checkbox"/> DEC 3: Lunch with Maria (14:00)
<input type="checkbox"/> DEC 8: Call Dad for his birthday

Next actions
<input type="checkbox"/> Write an article
<input type="checkbox"/> Analyze survey results
<input type="checkbox"/> Define the new feature specifications
<input type="checkbox"/> Search tutorials about Sketch
<input type="checkbox"/> Buy helmet for cycling

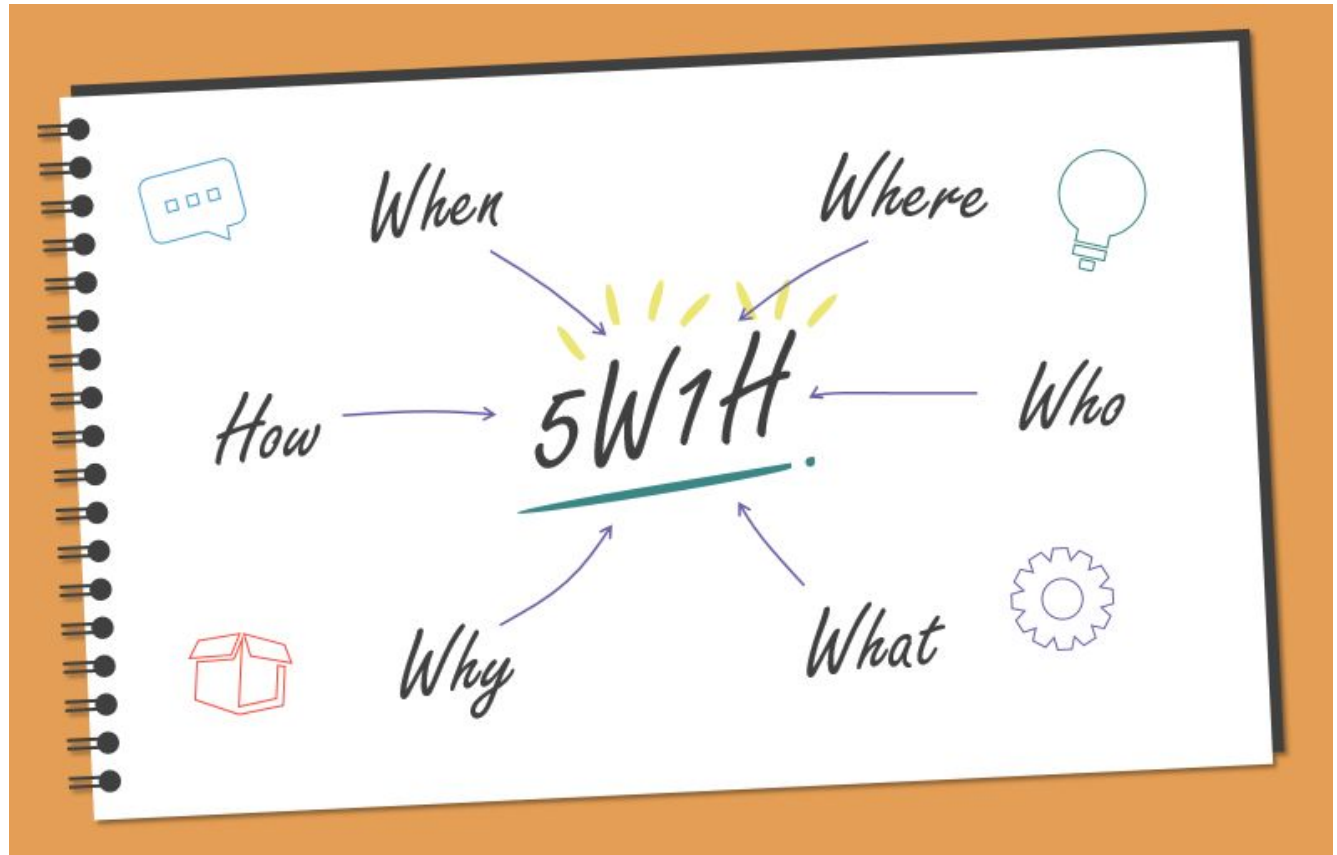
Context: #internet

Context: #shopping

Someday/Maybe
<input type="checkbox"/> Save a music CD to listen in the car
<input type="checkbox"/> Consider traveling to New Zealand

Projects
<input type="checkbox"/> Develop new feature for the web application
<input type="checkbox"/> Learn to use Sketch

## Tools: 5W 1H



## Tools: The Checklist / Brainstorming Alex Osborn Applied Imagination

- Why?
- Where?
- When?
- Who?
- What?
- How?



# Tools: The Checklist / Brainstorming Alex Osborn Applied Imagination

- Why?
- Where?
- When?
- Who?
- What?
- How?

## SCAMPER TECHNIQUE

S	<p>Substitute</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
C	<p>Combine</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
A	<p>Adapt</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
M	<p>Modify/Magnify</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
P	<p>Purpose</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
E	<p>Eliminate</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>
R	<p>Rearrange/Reverse</p> <p>1. Enteryourtexthere 2. Enteryourtexthere</p>

# Tools: Six Thinking Hat De Bono

## Six Thinking Hats



**White hat**

### **Facts**

*Gather data to understand the issue or problem to solve.*



**Yellow hat**

### **Positivity**

*Be optimistic. Probe for value and benefit.*



**Black hat**

### **Judgment**

*Spot difficulties and dangers. Question the feasibility of approaches to the problem.*



**Red hat**

### **Feelings**

*State hunches and intuition without judgment or prejudice.*



**Green hat**

### **Creativity**

*Express new concepts and perceptions.*



**Blue hat**

### **Analysis**

*Used to manage the process and make sure that each hat is used correctly.*

# Tools: Six Thinking Hat De Bono



## Facts

*Gather data to understand  
the issue or problem to solve.*

Gathering facts and data based on these problem-solving questions with **neutral** and **unbiased** principle:

- What do we know about this issue?
- What don't we know about this issue?
- What can we learn from this situation?
- What information do we need to solve this problem?
- Are there potential existing solutions that we can use to solve this problem?

## Tools: Six Thinking Hat De Bono



### *Positivity*

*Be optimistic. Probe for value  
and benefit.*

This hat represents enthusiasm and optimism. Like a bright, sunny day, it include:

- What is the best way to approach the problem?
- What can we do to make this work?
- What are the long-term benefits of this action?

## Tools: Six Thinking Hat De Bono



### **Judgment**

*Spot difficulties and dangers.  
Question the feasibility of  
approaches to the problem.*

The black hat is the opposite of the yellow hat and represents judgment. Wearers of this hat look for ways that the situation can go wrong. It include:

- How will this idea likely fail?
- What is this idea's fatal flaw?
- What are the potential risks and consequences?
- Do we have the resources, skills, and ability to make this work?



## Tools: Six Thinking Hat De Bono



### **Feelings**

*State hunches and intuition  
without judgment or prejudice.*

While you have the red thinking hat, your primary goal is to intuitively suggest proposals and plans of action based on feelings and hunches. It include:

- Make intuitive insights known.
- Seek out your team's hunches and feelings.
- Reveal an idea's hidden strengths.
- Use instinct to identify potential weaknesses.
- Find internal conflicts.

## Tools: Six Thinking Hat De Bono



Green hats are used for creative thinking. Wearing this hat lets you think outside the box to explore more possibilities and bend the rules of problem-solving. This creative thinking should be free from judgment and criticism. It include:

- Do alternative possibilities exist?
- Can we do this another way?
- How can we look at this problem from other perspectives?
- How do we think outside the box?

## Tools: Six Thinking Hat De Bono



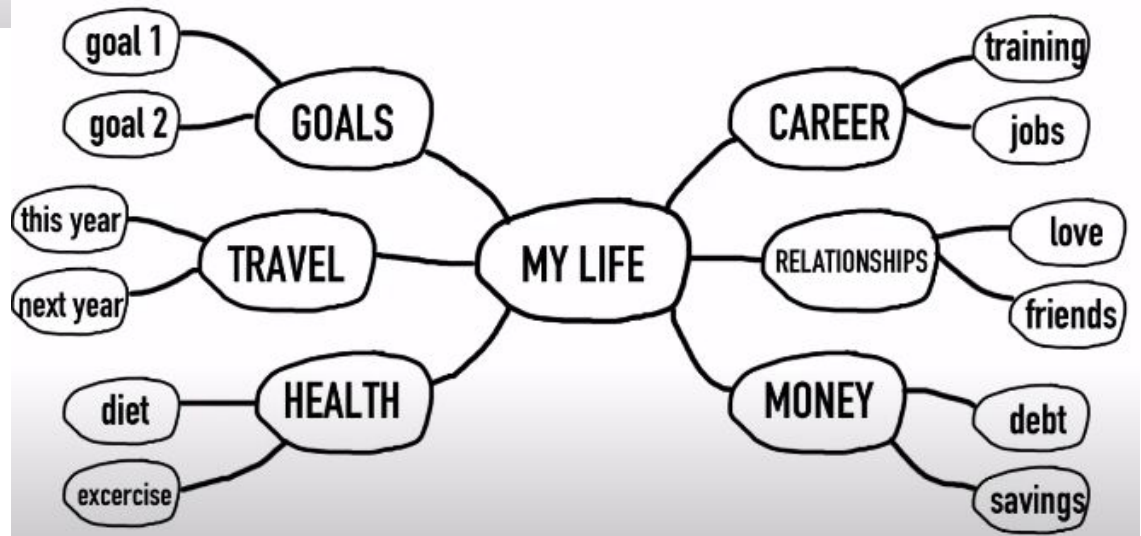
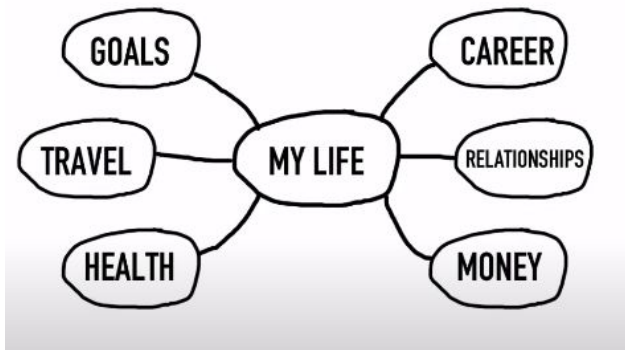
### **Analysis**

*Used to manage the process  
and make sure that each hat  
is used correctly.*

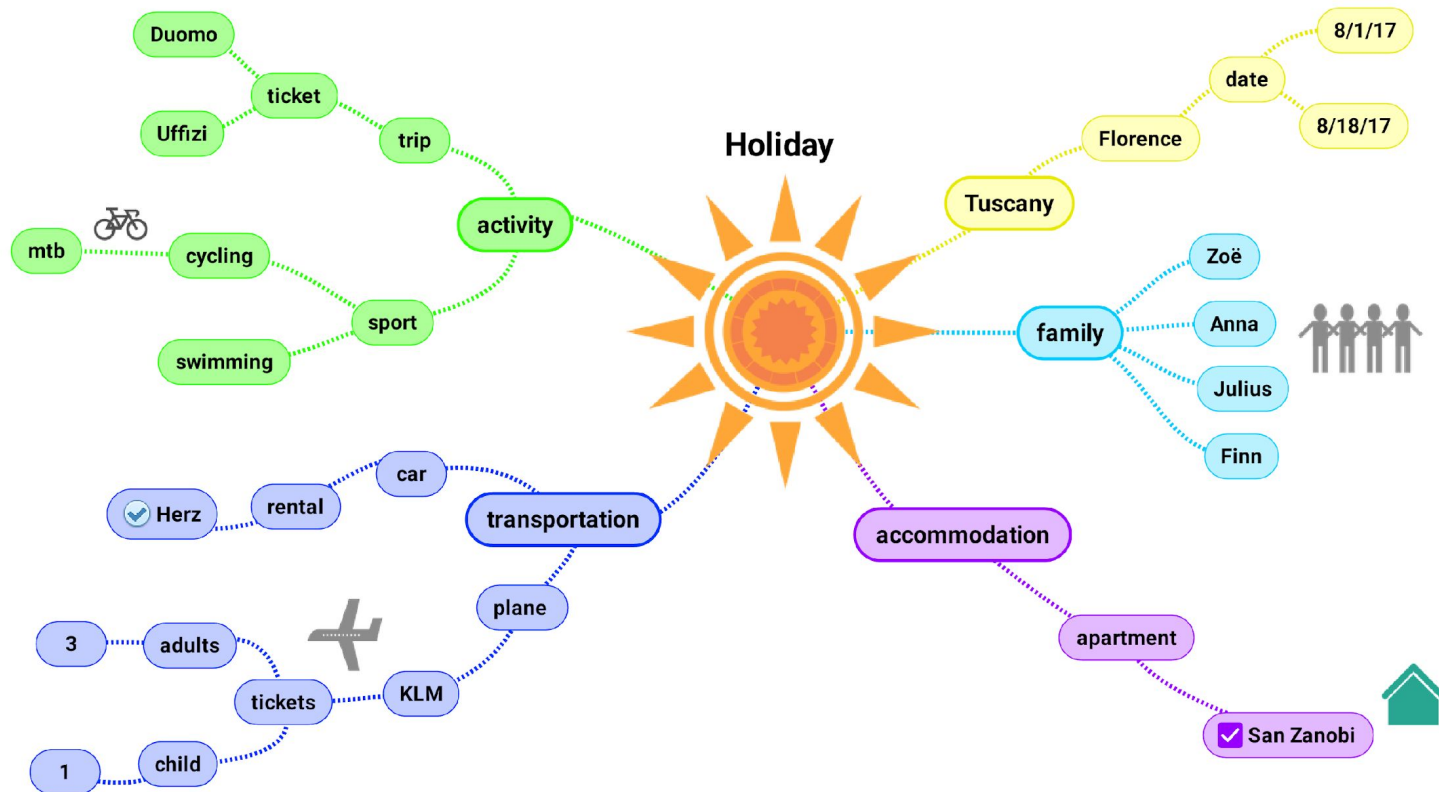
This hat provides a management role and will help you analyze the situation. When wearing the blue hat, your job is to manage the thinking of the other hats to ensure that the team stays focused and works more efficiently toward a workable solution. It include:

- Efficiently and effectively improve the thinking process.
  - Ask the right questions that help you direct and focus your thinking.
  - Maintain and manage agendas, rules, goals, and tasks.
  - Organize ideas and proposals, and draw up action plans.
- 
- What is the problem?
  - How do we define the problem?
  - What is our goal and desired outcome?
  - What will we achieve by solving the problem?
  - What is the best method for going forward?

# Tools: Mind Mapping Tony Buzan



# Tools: Mind Mapping Tony Buzan



# Tools: SWOT Analysis

SWOT stands for Strengths, Weaknesses, Opportunities, and Threats, and so a SWOT Analysis is a technique for assessing these four aspects of your business.

Strengths What do you do well? What unique resources can you draw on? What do others see as your strengths?	Weaknesses What could you improve? Where do you have fewer resources than others? What are others likely to see as weaknesses?
Opportunities What opportunities are open to you? What trends could you take advantage of? How can you turn your strengths into opportunities?	Threats What threats could harm you? What is your competition doing? What threats do your weaknesses expose to you?

# Tools: SWOT Analysis

1. Financial
2. Customer
3. Internal
4. Learning & Growth

LivePlan

UPer Crust Pies

SWOT Analysis

## S Strengths

**Location:** Our first location downtown will draw in visitors and downtown shoppers.

**Uniqueness:** We stand out as a unique alternative to fast food and we offer consistently high-quality food in a distinctive atmosphere.

**Strong management:** We have assembled a team that embraces different disciplines with expertise in all areas of the business.

## W Weaknesses

**Lack of capital:** All startup funds will come from loans and investors.

**Lack of reputation:** We haven't established ourselves as reputable meat pie provider yet.

## O Opportunities

**Area growth:** Yubtchatown is growing by 8.5% annually.

**Working families with children:** This is a growing population, both in numbers and in their choice of convenient foods. Two-income families have less time to prepare a meal.

## T Threats

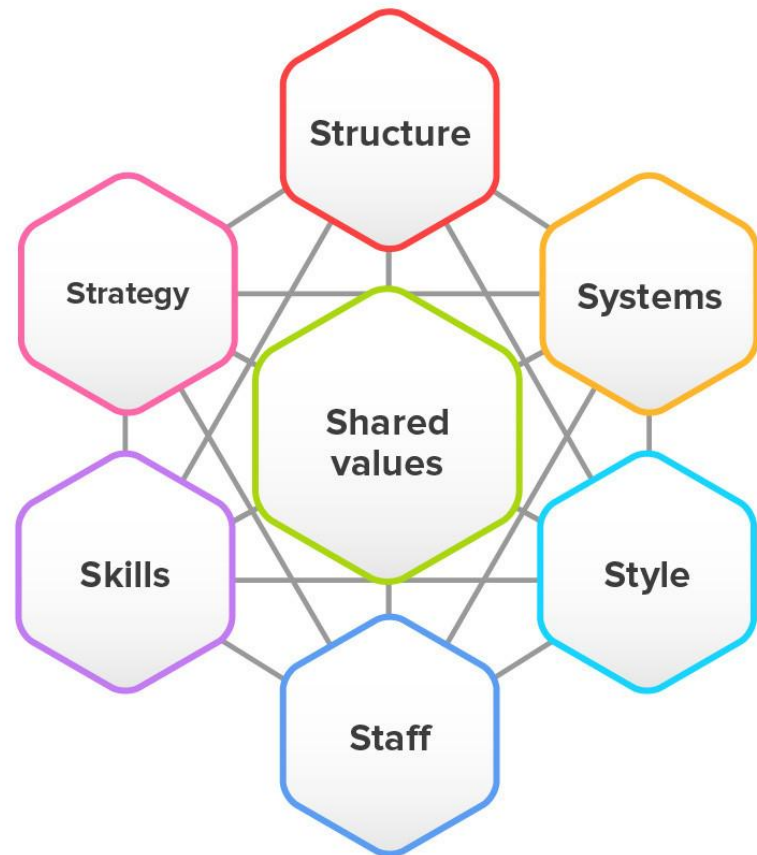
**Competition:** One competitor sells similar pies, and has loyal customers as well as a relationship with businesses that regularly buy from them.

**Being unprepared for opening numbers:** Initial poor service or product quality could discourage customers from returning.



# The McKinsey 7-S Framework

Hard Elements	Soft Elements
Strategy	Shared Values
Structure	Skills
Systems	Style
	Staff





# The McKinsey 7-S Framework

These changes could include restructuring, new processes, an organizational merger, new systems, and change of leadership. Follow these steps:

1. Start with your shared values: are they consistent with your structure, strategy, and systems? If not, what needs to change?
2. Then look at the hard elements. How well does each one support the others? Identify where changes need to be made.
3. Next, look at the soft elements. Do they support the desired hard elements? Do they support one another? If not, what needs to change?
4. As you adjust and align the elements, you'll need to use an iterative (and often time-consuming) process of making adjustments, and then re-analyzing how that impacts other elements and their alignment. The end result of better performance will be worth it.

# The McKinsey 7-S Framework

## Checklist Questions for the McKinsey 7-S Framework

### Strategy:

- What is our strategy?
- How do we intend to achieve our objectives?
- How do we deal with competitive pressure?
- How are changes in customer demands dealt with?
- How is strategy adjusted for environmental issues?

### Structure:

- How is the company/team divided?
- What is the hierarchy?
- How do the various departments coordinate activities?
- How do the team members organize and align themselves?
- Is decision making and controlling centralized or decentralized? Is this as it should be, given what we're doing?
- Where are the lines of communication? Explicit and implicit?

# The McKinsey 7-S Framework

## Checklist Questions for the McKinsey 7-S Framework

### Systems:

- What are the main systems that run the organization?  
Consider financial and HR systems as well as communications and document storage.
- Where are the controls and how are they monitored and evaluated?
- What internal rules and processes does the team use to keep on track?

### Shared Values:

- What are the core values?
- What is the corporate/team culture?
- How strong are the values?
- What are the fundamental values that the company/team was built on?

# The McKinsey 7-S Framework

## Checklist Questions for the McKinsey 7-S Framework

### Style:

- How participative is the management/leadership style?
- How effective is that leadership?
- Do employees/team members tend to be competitive or cooperative?
- Are there real teams functioning within the organization or are they just nominal groups?

### Staff:

- What positions or specializations are represented within the team?
- What positions need to be filled?
- Are there gaps in required competencies?

### Skills:

- What are the strongest skills represented within the company/team?
- Are there any skills gaps?
- What is the company/team known for doing well?
- Do the current employees/team members have the ability to do the job?
- How are skills monitored and assessed?

# The McKinsey 7-S Framework

Current Situation (Point A)

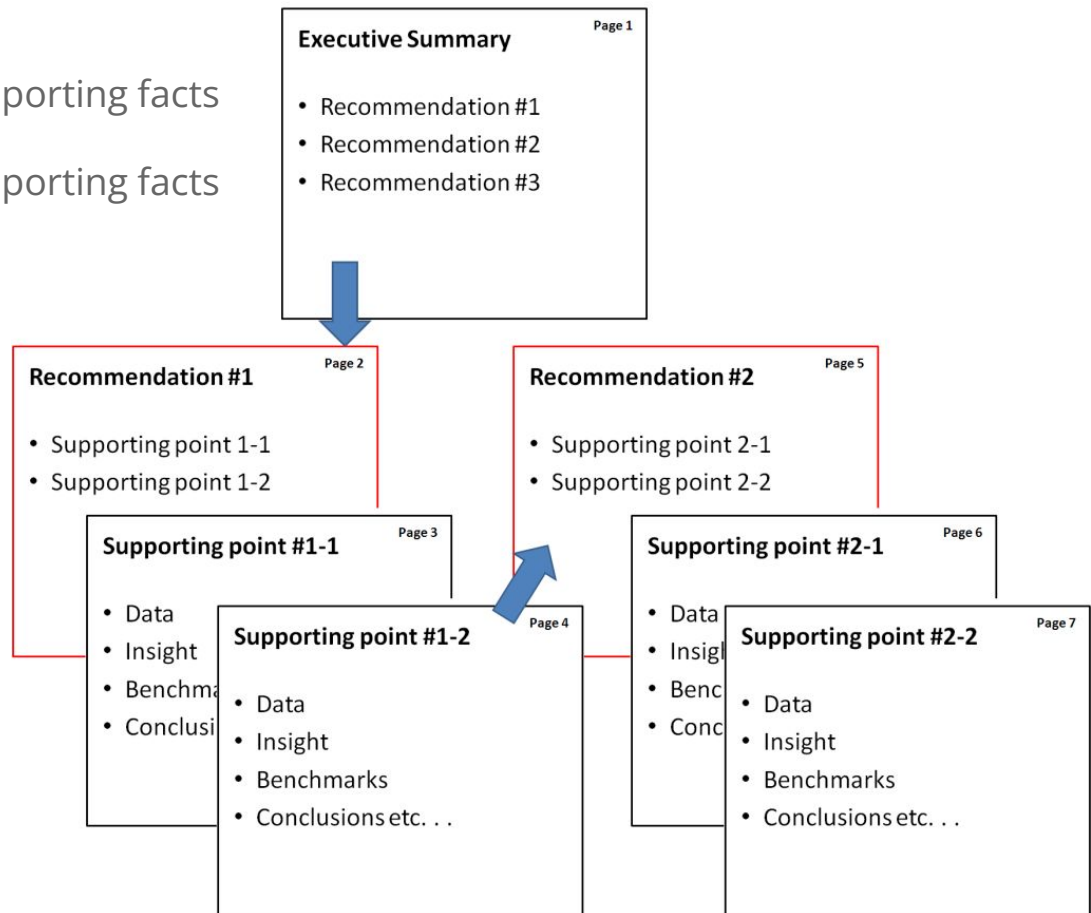
	Shared Values	Strategy	Structure	Systems	Style	Staff	Skills
Shared Values							
Strategy							
Structure							
Systems							
Style							
Staff							
Skills							

Future Situation (Point B)

	Shared Values	Strategy	Structure	Systems	Style	Staff	Skills
Shared Values							
Strategy							
Structure							
Systems							
Style							
Staff							
Skills							

# Minto's Pyramid Principle

- Page 1 = executive summary
- Page 2-4 = recommendation #1 and supporting facts
- Page 5-7 = recommendation #2 and supporting facts

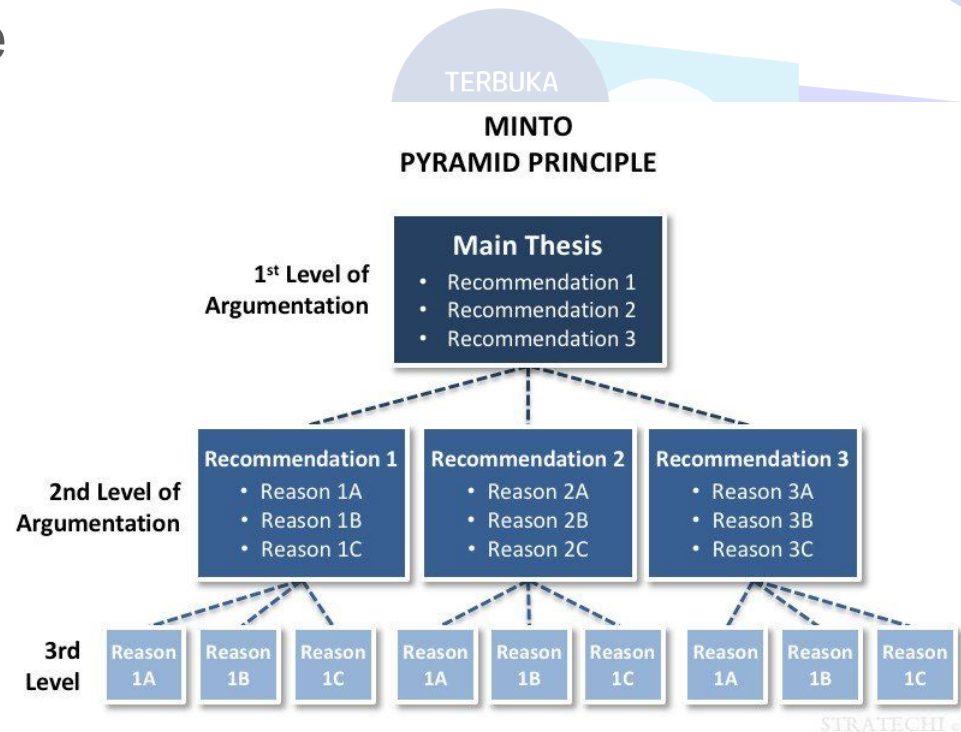


# Minto's Pyramid Principle

Metode yang digunakan untuk membangun argumen yang terstruktur

Key take-aways:

1. Mulai dari ide utama di level teratas
2. Kelompokkan argumen dan data pendukung
3. Pastikan argumen sudah sesuai dengan urutan logika (top-down)

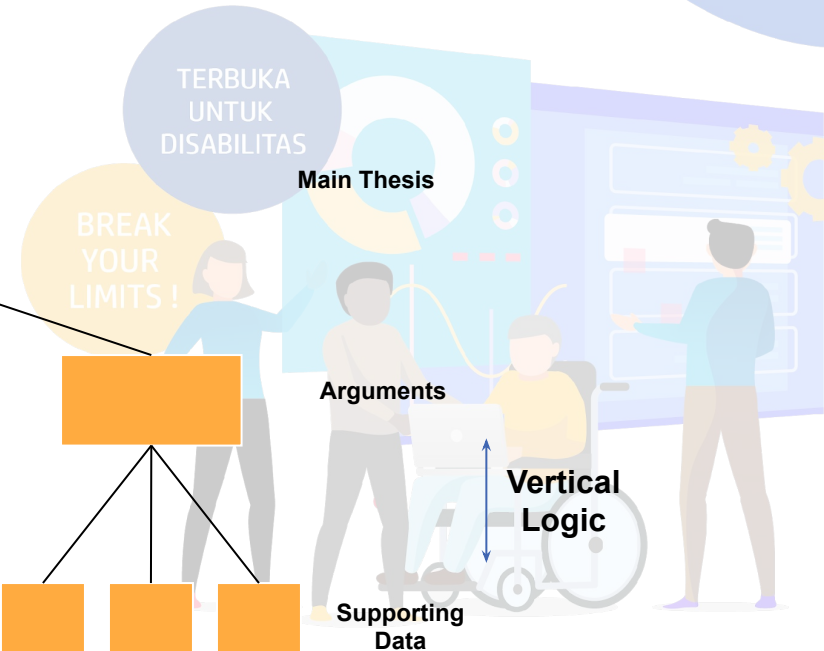
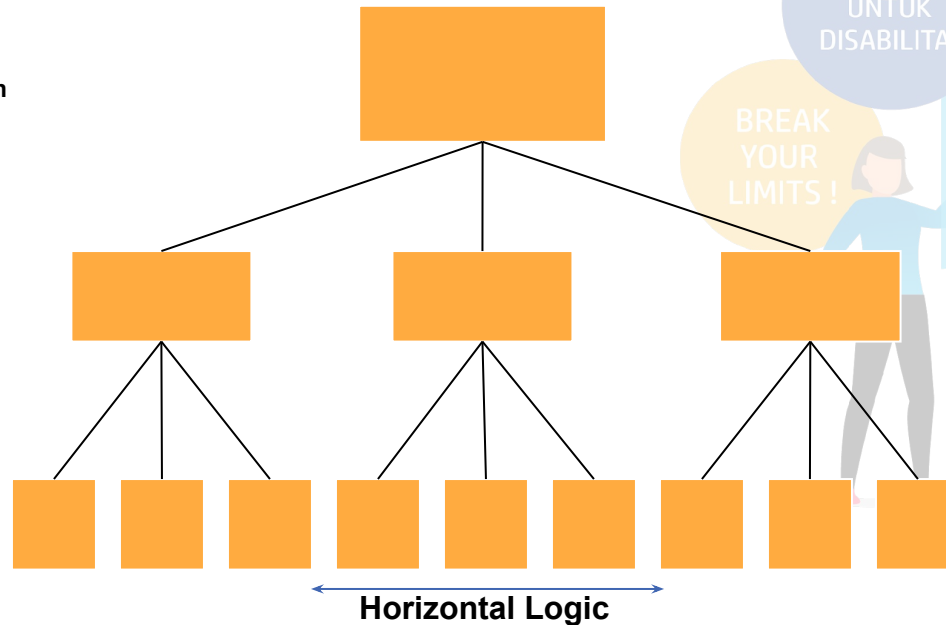


# Minto's Pyramid Principle

Jawaban dari pertanyaan yang telah dirumuskan

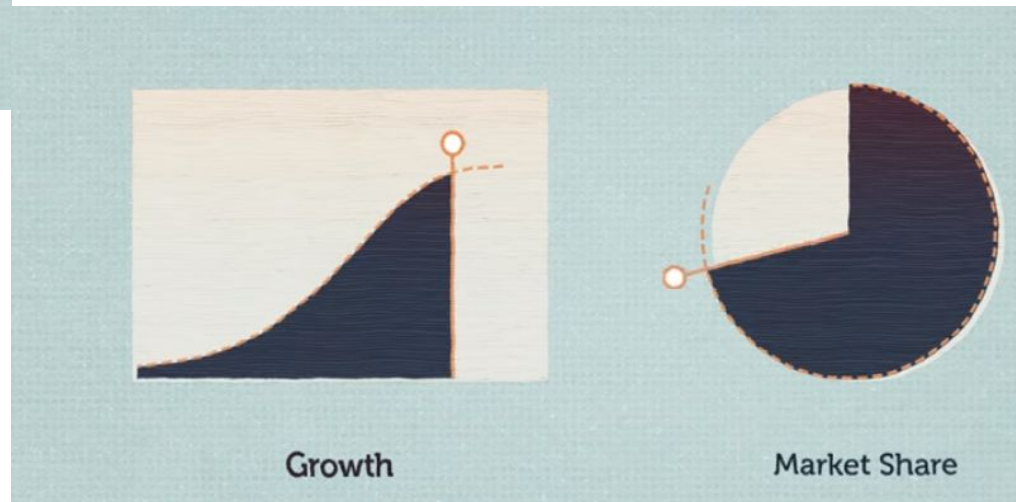
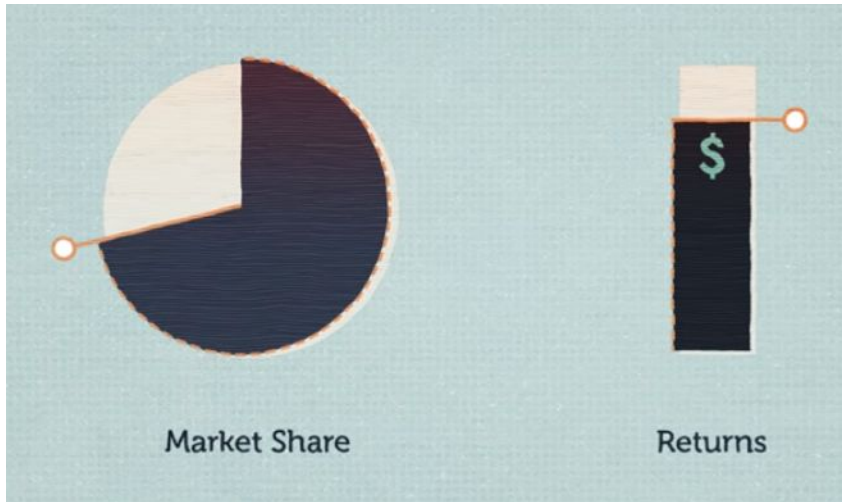
Argumen utama yang membuktikan jawaban di atas

Data yang mendukung argumen utama

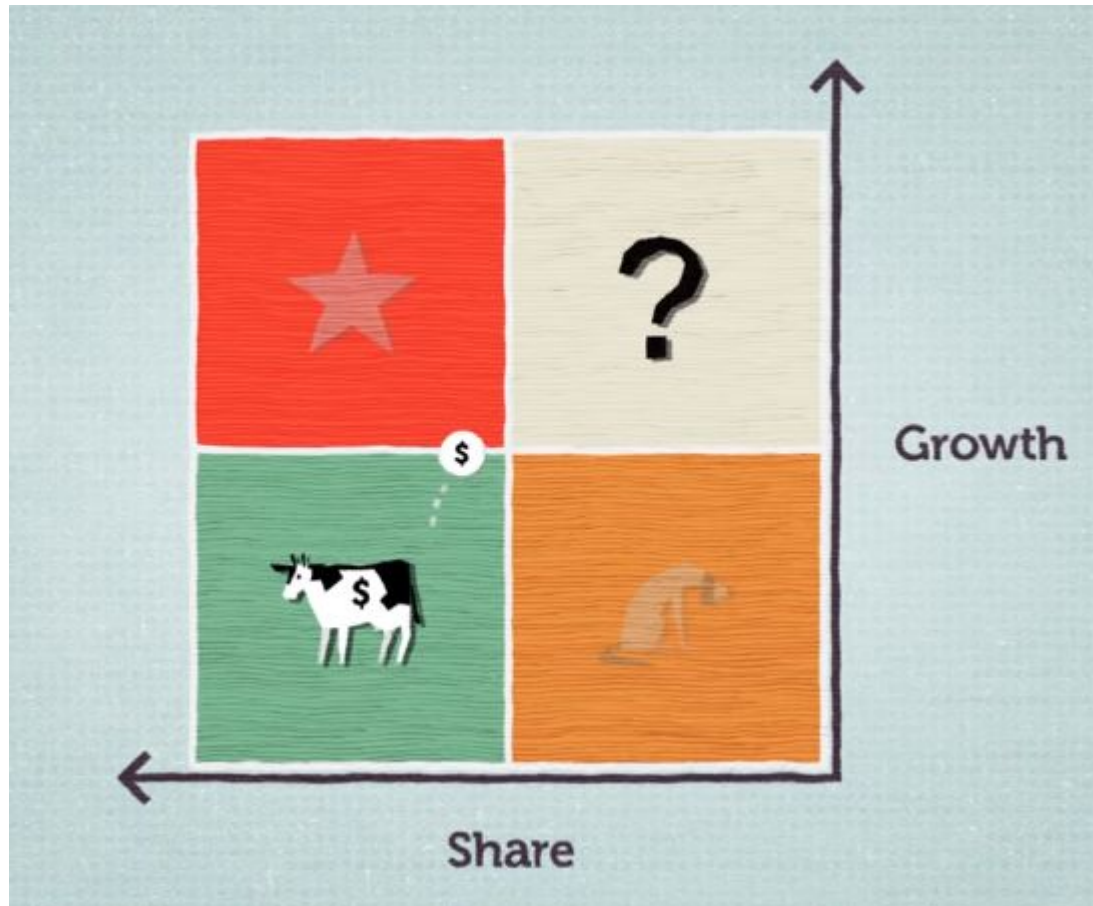




# BCG Growth–Share Matrix



# BCG Growth–Share Matrix



# BCG Growth–Share Matrix

- 1.Low Growth, High Share.** Companies should milk these “cash cows” for cash to reinvest.
- 2.High Growth, High Share.** Companies should significantly invest in these “stars” as they have high future potential.
- 3.High Growth, Low Share.** Companies should invest in or discard these “question marks,” depending on their chances of becoming stars.
- 4.Low Share, Low Growth.** Companies should liquidate, divest, or reposition these “pets.”

## In-Class Exercise

Sebagai konsultan di Perusahaan Digits (produsen peralatan rumah tangga), Anda mengusulkan untuk memindahkan lokasi pabrik dari Tiongkok ke Vietnam. Berikut merupakan beberapa informasi yang mendukung rekomendasi tersebut:

1. Biaya produksi di Vietnam lebih rendah dan dapat memangkas pengeluaran sebesar Rp 400 miliar per tahun
2. Teknologi manufaktur yang digunakan oleh perusahaan sudah dikembangkan di Vietnam
3. Biaya untuk membangun pabrik di Vietnam sebesar Rp 1 triliun
4. Jaya harus membayar *one-time payment* sebesar Rp 200 miliar kepada pemerintah Vietnam sebagai *investment cost*
5. Serikat buruh di Vietnam kurang aktif, sehingga mengurangi resiko mogok kerja
6. Vietnam memiliki pertumbuhan ekonomi di atas 5% tiap tahunnya
7. Vietnam merupakan produsen plastik #1 di dunia
8. Vietnam memiliki sumber daya manusia yang masif dan kompeten
9. Vietnam telah memiliki peraturan hukum yang jelas dan akomodatif terkait operasional manufaktur
10. Keadaan sosial politik di Vietnam cukup stabil selama 5 tahun terakhir
11. Upah minimum di Vietnam 10% lebih rendah dibandingkan Tiongkok
12. Vietnam memiliki infrastruktur fisik (listrik, akses jalan) yang mendukung proses produksi manufaktur

Pilih 9 dari 12 informasi di atas dan gunakan Piramida Minto untuk mengelompokkan informasi tersebut menjadi 3 bagian. Lalu tuliskan argumen yang mencerminkan masing-masing bagian. (Note: no right or wrong. Be creative!)

## *In-Class Exercise*

**Main Thesis**

Memindahkan pabrik produksi  
Perusahaan Digits dari  
Tiongkok ke Vietnam

**Arguments**

??

??

??

**Supporting  
Data**

??

??

??

??

??

??

??

??

??

# More Creative?



# ***Belajar Mandiri***

Peserta akan diminta untuk mengidentifikasi masalah dan merumuskan langkah-langkah yang dapat mereka lakukan untuk menyelesaikan masalah tersebut menggunakan pendekatan dan tools yang telah diajarkan sebelumnya.

- Research Question
- Urgensi dari RQ tersebut
- Structuring arguments using Minto's Pyramid
- Bagaimana menggunakan data untuk supporting argumen tersebut

TERBUKA  
UNTUK  
DISABILITAS

LEARN  
YOUR  
LIMITS!

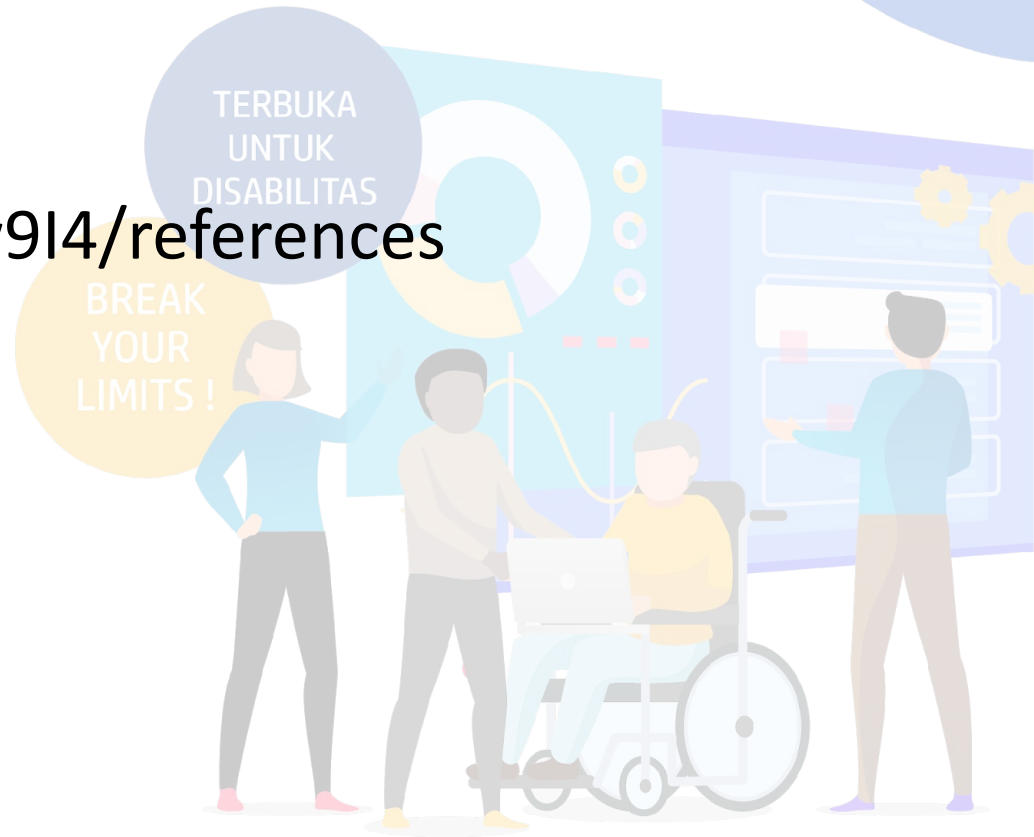
# Proyek Kelas

- Contoh dataset: <https://archive.ics.uci.edu/ml/datasets/Census+Income>
- Predict if an individual makes greater or less than \$50000 per year
- Langkah-Langkah:
  - Peserta dapat menggunakan contoh data diatas ata umemilih data lain yang tersedia di <https://archive.ics.uci.edu/ml/datasets.php>, <https://www.kaggle.com/datasets>, maupun sumber data lain
  - Lakukan exploratory data analysis atau analisi sstatistik sederhana dari data tersebut.
  - Merumuskan pemetaan masalah berdasarkan data tersebut.
  - Jelaskan langkah-langkah apa saja yang diperlukan untuk melakukan data preprocessing.Kemudian lakukan data preprocessing dengan tools yang telah diperkenalkan sebelumnya.
  - Langkah berikutnya,rencanakan prediksi apa yang akan anda lakukan dengan data tersebut,kemudian lakukan prediksi dengan tools Machine Learning yang telah diperkenalkan sebelumnya.



# *Referensi*

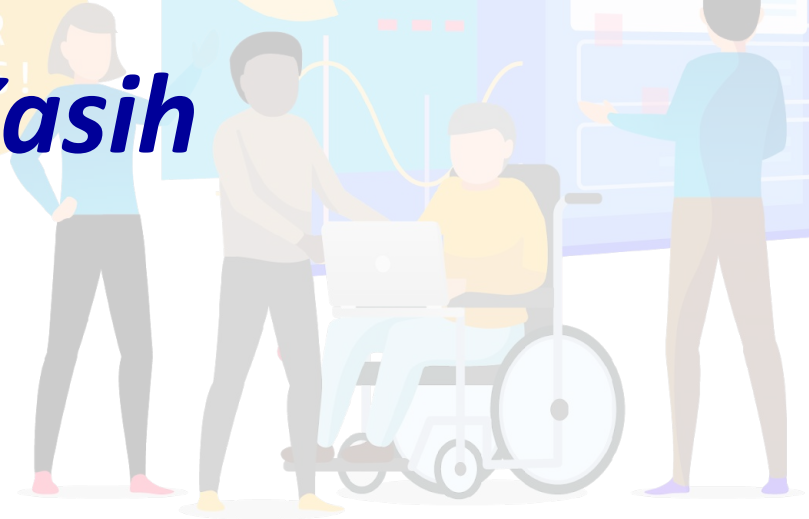
<https://trello.com/b/fCiyw9l4/references>



***Terima Kasih***





TERBUKA  
UNTUK  
DISABILITAS

BREAK  
YOUR  
LIMITS!



## IKUTI KAMI



-  digitalent.kominfo
-  digitalent.kominfo
-  DTS\_kominfo
-  Digital Talent Scholarship 2019

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