Beginners guide to

understanding + Creativity + Innovation + Predicting the future

for Newbies Pocket Edition

Wathana (Bobby) Sananikhone

Contents

Introduction

This book was created to help Newbies, students or teenagers to understand, learning how to learn and who want to become innovators and creatives while also being able to predict the future.

I myself have studied courses in Graphic Design and Computer science so forgive me if some of the topics covered relate to the subjects mentioned but I will try to make it as general as possible. I may not have a PHD but I do have life experience in these subjects and I hope that is enough to help you. So thank you for reading this ebook.

Please note you can freely use the information on this ebook for your own purposes all I ask is that you just reference my name.

Wathana (Bobby) Sananikhone

How to understand with the Past, present, future

"Understanding is often, though not always, related to learning concepts, and sometimes also the theory or theories associated with those concepts. However, a person may have a good ability to predict the behavior of an object, animal or system—and therefore may, in some sense, understand it—without necessarily being familiar with the concepts or theories associated with that object, animal, or system in their culture. They may have developed their own distinct concepts and theories, which may be equivalent, better or worse than the recognized standard concepts and theories of their culture. Thus, understanding is correlated with the ability to make inferences."

From Understanding Wikipedia - https://en.wikipedia.org/wiki/Understanding

Or google - wikipedia understanding

The information above from Wikipedia has a great explanation about the different ways to understand I recommend reading this to further your understanding.

That being said the below reading is my own twist on understanding.

If you want to understand most things it has a past, present and future. So where does it come from? Well it all has to do with time of course and if you are wondering where time came from it started with the creation of the universe or the big bang theory.

The Past

Let's start with the past. When you look into the past you are going to make assumptions so you need to gather evidence to make it true. If you find it hard to gather evidence then you may need to Infer, deduce, reason, workout or conclude the subject matter. It would also help if you have other people looking at the same thing from there all parties involved can come to a consensus to come up with the right conclusion. If you don't have any other people to help then you are left to your own conclusions which could be faulty. Having many eye balls viewing the same subject matter increases accuracy.

The Present

With the present you can start making comparisons with the past and discover what's changed over time. This will increase you understanding and help with how to use the information.

The Future

Once you have a better understanding of the past and present can you predict the future? There are several techniques and explanations that I will show in later chapters of this book.

Example 1

For example, What's the history behind photography? So, looking back to the past you might think its to do with the renaissance period because they made paintings or portrait paintings. You could say renaissance paintings were a precursor to the camera. Now this kind of reasoning requires a consensus because it's hard to find facts that support this. What about the present? For now, everything has changed because of technology. So, what's the future for photography? This can be a bit more tricky but I predict no change.

Example 2

Which came first art or the wheel? Well if you look to the past you might infer art because there's evidence with cave man drawings which dates back thousands of years ago. So, you then have to prove this is true. What's the present will I believe it's to do with progression and the future I predict no change.

Example 3

What's the history behind the car? Again looking back you could say before cars there was the horse and carriage. And for the present its to do with progression again. For the future you could predict electric cars or if you want to go way out try flying cars.

Example 4

Are we free to do as we please? Not really dating back to the hunter gather times we lived in small communities and from there existed social norms that we stick to. So, you can't decide to kill someone for some reason it goes against these norms and you will be judged by your peers. Once again can you prove this is true? Great what about the present? Well today we have rules and the law and for the future no change.

Example 5

What's the history behind dating? I think in the 1980's you had to use video tapes (does anyone remember that) and the videos contained prospective candidates show casing themselves about who they are you then contact them. As for the present we have online dating and video conferencing. So, what about the future? I'm going to guess virtual reality dating. That's right you can create an entire virtual world where people can interact with each other. You can also create virtual bars or hubs or meeting places or shops as of year 2021.

The mentioned above works for most things and does have a few flaws but I do use it on many occasions. So, in saying that you have got to start from somewhere and I believe this fits nicely.

Concepts and the mind

Concepts are abstract ideas and has similar meanings to idea, notion, abstraction, theory, hypothesis, belief, opinion, view, impression and picture.

I can't figure it out but for some reason the more you practice using the past, present and future your mind finds its easier to understand concepts or come up with your own concepts. You could say using past, present and future is a stepping stone to conceptual.

Experimenting

Experimenting is another way to understand

Experimenting has a close meaning to test, trial, appraise, evaluate investigate, examine, explore, observe, verify.

You can also google – “Definition of experiment” to learn about it more.

Examples of experimenting:

Chefs

If you are a chef you may want to test a new recipe by combining different ingredients and figure out what works and doesn’t work.

Mobile phone users

When you purchase a new mobile phone, you would be curious to know how things work.

So here you would be using the definition of experimenting.

Software Developers

If you are a software developer you may want to implement a new technology by seeing how it works and if you would like to adopt it into your project.

Musicians

Again, with musicians you could experiment with sounds, styles, genres, lyrics etc… to show case a new type of music.

The Senses

More on understanding:

Observing or Sight

Observing has a close meaning to notice see, note, perceive, discern, remark, spot, detect, discover, distinguish, make out.

Here are some examples to use observation:

Wild life observer

Here you would be using observation in particular your vision or sight to spot how animals behave in the wild. This will help you understands animals better.

Chemistry

From chemistry you could experiment with the composition, structure, properties, and reactions of a substance. So here you can use the observation technique.

Chefs

You may use observation to learn how Chefs cook and discover different techniques and styles or draw upon their experience.

Touch

By using touch, you can learn to understand how hard or soft or whatever the feeling is of an object. For example if something is prickly you'll learn not to touch it again because if hurts. This will help you to understand what things feel like. For example wood is hard so you can use it for a number of purposes like making a bat or building a house or using it as a weapon.

Smell

Smell helps you understand the odour of a substance and once again you'll learn how to use or react to that substance.

Hearing

Hearing is obviously excellent of learning and communication when someone is speaking to you. But you can also use hearing to understand other things as well. For example listening to birds or whale sounds helps you understand how they communicate and learn about their behaviour.

Taste

Taste helps you understand for example if something is poisonous or not so for obvious reasons you will learn not to die or get sick from it. So, taste helps you understand flavour.

Feelings

*Feelings are subjective self-contained phenomenal experiences. According to the APA Dictionary of Psychology, a **feeling** is "a self-contained phenomenal experience"; and feelings are "subjective, evaluative, and independent of the sensations, thoughts, or images evoking them". The term feeling is closely related to, but not the same as, emotion. Feeling may for instance refer to the conscious subjective experience of emotions. The study of subjective experiences is called phenomenology. Psychotherapy generally involves a therapist helping a client understand, articulate, and learn to effectively regulate the client's own feelings, and ultimately to take responsibility for the client's experience of the world. Feelings are sometimes held to be characteristic of embodied consciousness.*

From https://en.wikipedia.org/wiki/Feeling

The above is a great read about feelings so follow the link.

Reasoning

This is another way to understand.

Reasoning meaning is close to analysis, hypothesis, inference, premise, rationale, thinking, concluding, deduction, thought, train of thought etc…

"Reason is the capacity of consciously applying logic by drawing conclusions from new or existing information, with the aim of seeking the truth. It is closely associated with such characteristically human activities as philosophy, science, language, mathematics, and art, and is normally considered to be a distinguishing ability possessed by humans. Reason is sometimes referred to as rationality."

From https://en.wikipedia.org/wiki/Reason

You can also google - reason definition and reason

Research

More on understanding:

"A detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding"

From https://dictionary.cambridge.org/dictionary/english/research

***"Research** is "creative and systematic work undertaken to increase the stock of knowledge".[1] It involves the collection, organization and analysis of information to increase understanding of a topic or issue. A research project may be an expansion on past work in the field. To test the validity of instruments, procedures, or experiments, research may replicate elements of prior projects or the project as a whole."*

From https://en.wikipedia.org/wiki/Research to read about it more.

You can also google – "research definition" to find out more.

Subject matter experts

You can also learn to understand by talking to a Subject matter expert.

You can draw upon their experience and not repeat history because they have been through it before.

That's all I can say about understanding for now so can you come up with other ways to understand? Also note that you can use a combination of the above topics mentioned to further your understanding.

Relationships, patterns, properties, etc...

What are relationships?

"Relationships - the way in which two or more people or things are connected, or the state of being connected. Relationships also have similarities to Connection, relation, association, link, correlation, correspondence, interrelation and interconnection." - Oxford Dictionary.

This is another aspect for understanding and the more you think about it the better you will learn and be able to figure things out.

Some examples:

- Is there a relationship between science and technology?
- Is there a relationship between sugar and diabetes?
- Is there a relationship with fatty foods and heart disease?
- Is there a relationship between time and motion?

What are patterns?

Patterns are everywhere in nature, mathematics, art and design and more.

"Patterns in nature are visible regularities of form found in the natural world. These patterns recur in different contexts and can sometimes be modelled mathematically. Natural patterns include symmetries, trees, spirals, meanders, waves, foams, tessellations, cracks and stripes." -

From https://en.wikipedia.org/wiki/Patterns_in_nature

To further your understanding, you could also google - Patterns in nature

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Patterns are also found in mathematics.

"A pattern is a series or sequence that repeats. Math patterns are sequences that repeat based on a rule, and a rule is a set way to calculate or solve a problem." –

From https://study.com/academy/lesson/what-is-a-pattern-in-math-definition-rules.html

I'm not going to explain it here too much but if you want to understand more you can google the search terms:

Pattern definition math

Types of patterns in mathematics

Patterns in Art and design.

"A pattern is a design in which lines, shapes, forms or colours are repeated. The part that is repeated is called a motif. Patterns can be regular or irregular." –

From https://www.bbc.co.uk/bitesize/guides/z3c4jty/revision/1

For patterns in Art you can google the search term:

Types of patterns in art

Teaching patterns in art

There are also other definitions like patterns in **music or rhythms** and patterns in **human behaviour** etc… I'll let you research or figure that out. For patterns in music google - patterns in music.

As an exercise can you find if there is a pattern with the numbers drawn for lotto?

What are properties?

There are several definitions for properties like a thing or things belonging to someone; possessions collectively. Similar related terms include possessions, belonging, effects, assets and resource.

In this case we are going to look at properties found in science.

"The properties of matter include any traits that can be measured, such as an object's density, color, mass, volume, length, malleability, melting point, hardness, odor, temperature, and more. ..."

Form -https://en.wikibooks.org - Science: An Elementary Teacher's Guide/Properties of Matter

Take gold for example its physical properties include:

- It is soft
- Has a high melting point
- It's a good conductor of electricity and heat
- It is heavy and dense

Properties are also found in mathematics in particularly geometry.

The square for example has the following properties:

- It has 4 equal sides
- It has 4 equal angles
- It has 4 axes of symmetry

You can also include that shapes in general have a dimension you can measure.

Opposites and inverse

A lot of things have an opposite and this is very easy to understand.

Examples include:

- Advantage and disadvantage
- Pros and cons
- Good and bad leaders
- Day and night
- Off and On
- matter and anti-matter
- Positive and negative
- Plus and minus

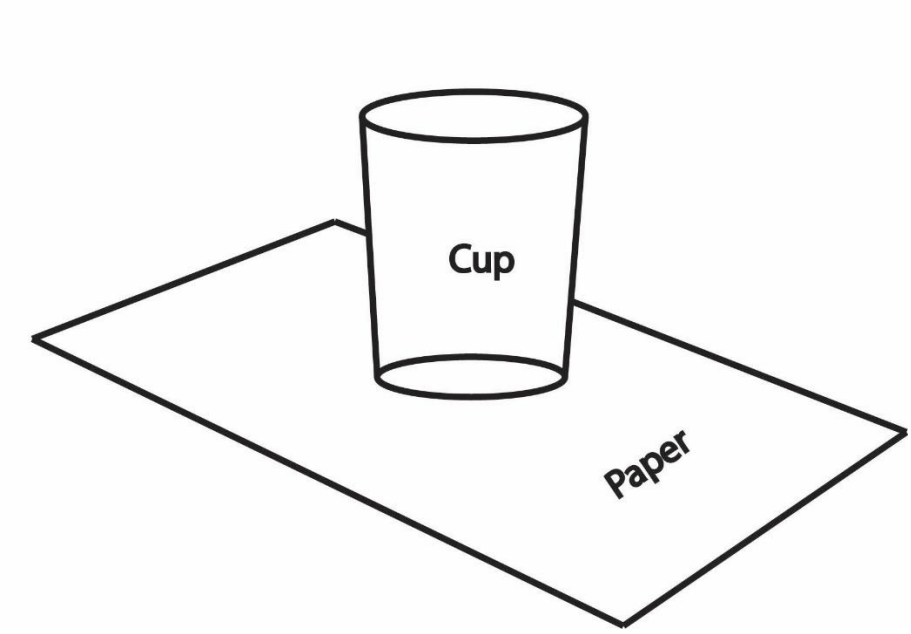
OK that's great so how do you use it?

You could use the above to solve problems or use it to be creative/innovative.

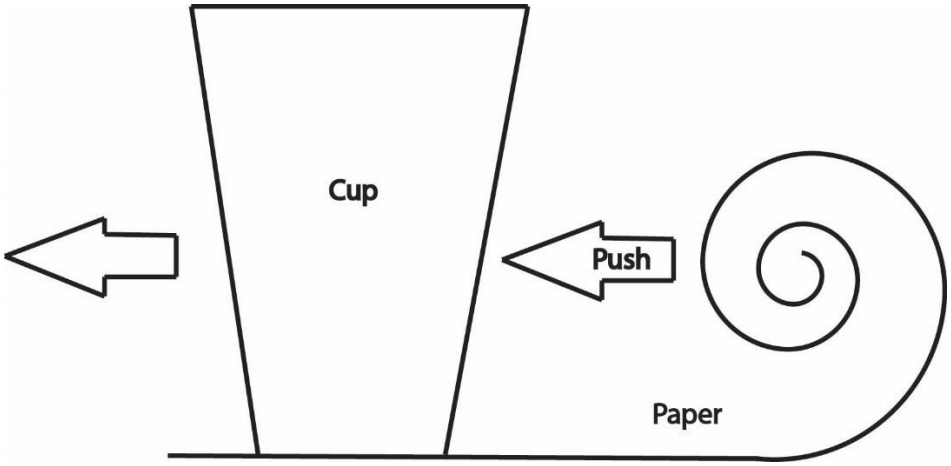
Below is an example that I discovered which solves a problem with properties.

Problem, you want to move a cup off a piece of paper without lifting it. How do you do that?

See the diagram below.



In this case the paper has a rollable property you could use it to push the cup off it. So, you can use that to solve the problem.



That's all I can think of in this chapter. As an exercise can you think of your own?

Here is another example of properties:

Electric charge

Electric charge is the physical property of matter that causes it to experience a force when placed in an electromagnetic field. There are two types of electric charge: positive and negative (commonly carried by protons and electrons respectively). Like charges repel each other and unlike charges attract each other. An object with an absence of net charge is referred to as neutral. Early knowledge of how charged substances interact is now called classical electrodynamics, and is still accurate for problems that do not require consideration of quantum effects.

https://en.wikipedia.org/wiki/Electric_charge

Learning by repeating and practicing

“Learning is the process of acquiring new understanding, knowledge, behaviours, skills, values, attitudes, and preferences.”

From Wikipedia - https://en.wikipedia.org/wiki/Learning

I’m not going to go to deep into learning because there are plenty of resources out there on the internet, I will leave that for you to research. But one aspect that I will focus on which I think is useful is learning by repeating and practicing.

Like with most things when you are dealing with learning you have to remember and understand. By repeating you strengthen that into memory and also your understanding. From my experience when I am learning something new by repeating and practicing, I begin to notice stuff that I’ve missed. I also then start to discover other insights that I didn’t know before. So how do you know when you’ve repeated enough times to understand. Well it starts from when you go around in circles with the subject matter. My advice to you is to repeat, repeat, practice, practice. If you have a photographic memory then that’s a bonus.

As a note I know there are memory strategies that you can use to remember but in my opinion you still need to repeat.

In general, there are other places where repeating and practicing works.

For example:

- Athletes train by repeating and practicing to get better. They may experiment with things like technology to help improve themselves.
- To remember something you need to repeat, repeat and practice, practice.
- Become a better car driver by repeating and practicing.
- Become a better chef by repeating and practicing

The scientific method

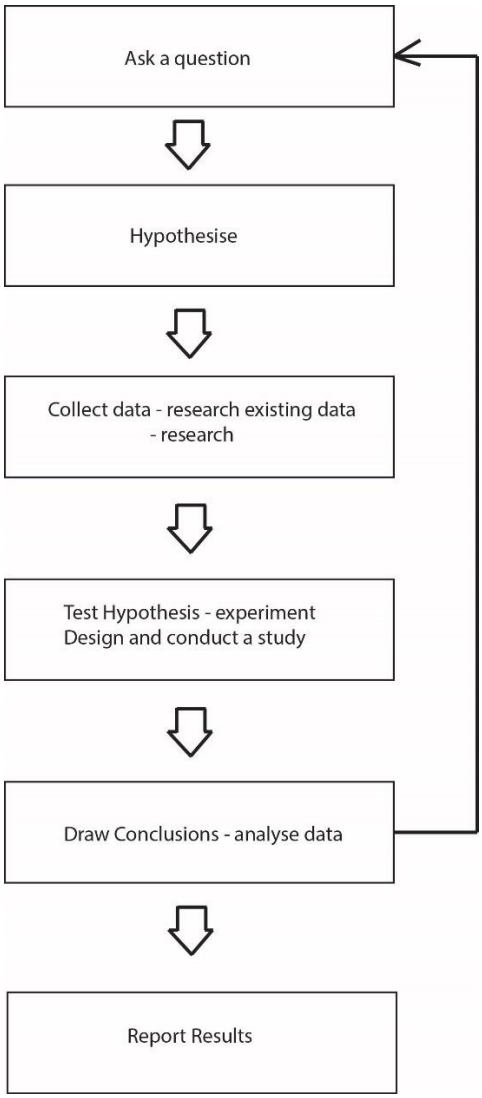
What is Science?

"Science is a systematic and logical study towards how the universe works. Science is a dynamic subject. Science can also be defined as the systematic study of the nature and behavior of the material and physical universe, based on observation, experiment, and measurement, and the formulation of laws to describe these facts in general terms."

From Wikiversity - Use of science concepts in daily lives - https://en.wikiversity.org

Now the definition is out of the way we are going to concentrate on the scientific method.

The below diagram shows how this works.



Example1:

Step 1 - Ask a question:

Is there a link between smoking and lung cancer?

Step-2 - Hypothesise:

You might think yes

Step 3 - Collect data/Research:

You may collect data by finding out how many people who smoke.

Find more statistics about those who smoke.

Step 4 - Test Hypothesis:

You could test the chemical makeup of a cigarette and see if there are any links.

You could also use a lung screening machine to test your hypothesis.

Step 5 - Draw Conclusions:

Reading the results you can now come up with conclusions.

Step 6 - Report Results:

Here you can prepare documents and other things to show to your colleagues.

The scientific method doesn't always have to be confined to the other sciences like biology, psychology or Physics etc... You can use it in other areas as well including everyday life too.

So, here's another example:

Step 1 - Ask a question:

Why won't my car start?

Step-2 - Hypothesise:

You think it's the battery

Step 3 - Collect data/Research:

You might note the brand and type of battery

Step 4 - Test Hypothesis:

You use a car battery tester - analyser

Step 5 - Draw Conclusions:

By reading the results from the battery tester you conclude that it is a battery problem.

Step 6 - Report Results:

No need for a report here.

Mathematics

Maths is everywhere and helps us understand the world better.

I'm not going to go to deep in explaining maths because we learn this in schools and universities but I will say is you got to know when and where to apply it. Don't forget you can use google to find more about mathematics. If you want to learn more about mathematics, try brilliant.org.

Mathematics with statistics

Is another branch of mathematics that is equally important and again you got to know when and where to apply it. Some applications include:

- Applied statistics, theoretical statistics and mathematical statistics
- Statistics in society
- Statistical computing etc...

Are you a genius?

Geniuses exhibit x-factor or several x-factors if they are really good. Not only that but they appear to be super human. Everybody has some sort of genius in them at varying levels. So, there are different types geniuses.

Tiger Woods is a golfing genius.

We all know Isaac Newton the mathematics genius

Michael Jackson was a music genius

Andy Warhol was an arts genius

Creativity

What is creativity?

"Creativity is defined as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others."

"Three reasons why people are motivated to be creative:

- *need for novel, varied, and complex stimulation*
- *need to communicate ideas and values*
- *need to solve problems"*

From Human Motivation, 3rd ed., by Robert E. Franken

You might want to also add that creativity is necessary for innovation.

From here I will show you a number of techniques to be creative.

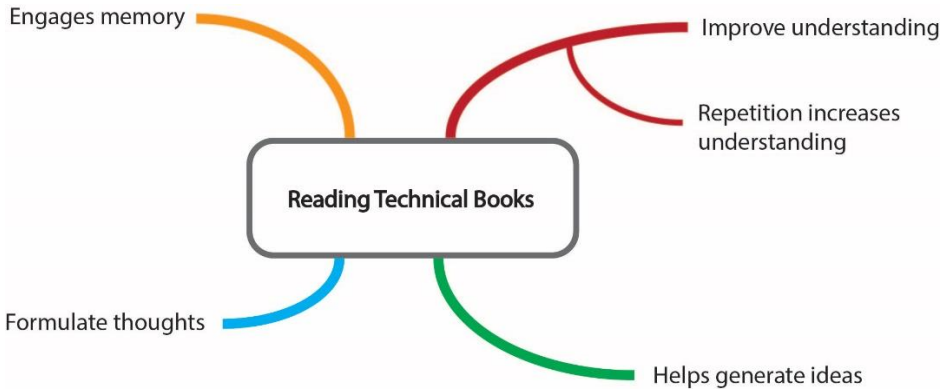
I'm not gonna list every technique but I will as a challenge to see if you can come up with your own techniques.

Mind Mapping

"Mind mapping is a powerful technique to help you visually develop and organize ideas and information"

From - Understand What is Mind Mapping and Its Uses - https://www.mindmaps.com/what-is-mind-mapping

Here is an example diagram:



Please go to MindMaps at https://www.mindmaps.com

They have a great explanation and examples that you can learn from.

Asking Questions

"All teaching and learning lies in the art of questioning. Questioning which is the basis of teaching task encourages recalling , deepens the learning process and comprehension , promotes the imagination and problem-solving , satisfies the sense of curiosity , and increases the creativity."

From - Role of Creative Questioning in the Process of Learning and Teaching - Ali Reza Zolfaghari , Davood Fathi , Masoud Hashemi

There are lots of information on this topic on the internet just google these words:

Asking questions creativity or Asking questions creative thinking

Imitation

It's true you can copy other people's ideas. This may go against the spirit of creativity but it's there.

Brainstorming

"Brainstorming is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.

In other words, brainstorming is a situation where a group of people meet to generate new ideas and solutions around a specific domain of interest by removing inhibitions. People are able to think more freely and they suggest as many spontaneous new ideas as possible. All the ideas are noted down without criticism and after the brainstorming session the ideas are evaluated."

From – Brainstorming - https://en.wikipedia.org/wiki/Brainstorming

Again there is plenty of information about brainstorming on the internet just google – brainstorming

Combinations, mixing, mashup, hybrid

Combinations are similar to mixing, mashup, hybrid, blend, merger and fusion etc..

Combinations are everywhere here are a few examples:

This is my favourite technique. As a note I've always wanted to use the combination technique to Science, Technology and in Art to create something new since the year 1997 but I didn't know how to go about it back then and was a little too young to think straight or figure things out. That's when I discovered the combination and hybrid technique when I was in Art and Design School a lot of years later this was the missing link. You can not only use the combination technique in Art, Science and Technology but other things as well which I have listed below. This technique may not be new to some people but it's new to me.

Music (mashup)

With music mashups you can combine genres or styles etc… to create something new.

Cooking

With cooking you are combining ingredients together to make food.

Smart phones

With mobile phones you are combining different technologies together like having a camera, torch, music player, facial recognition as well as functioning as a phone.

Hybrid cars

Hybrid cars means combining a petrol engine with an electric motor

Smart TV

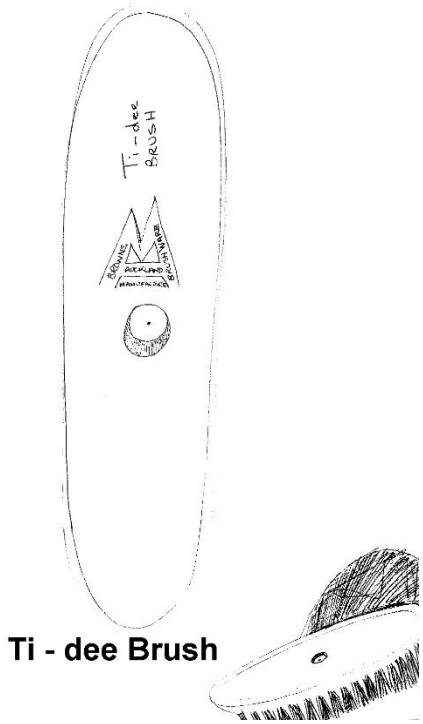
With the Smart TV you are combining a web browser, WIFI and third-party streaming services like NETFlex, YouTube etc…

Art and design (combination technique)

I learnt this technique in art and design school. So, I'm going to show how to use it.

As a side note you can use this technique in many places and not just the arts. With a little more thought and practice you can achieve this. Its another way of being creative. The smart phone is a good candidate for this technique because you are using different technologies and techniques in combinations or mixing things together.

Step 1: Start with a given stimuli – The Ti-dee brush – Focus on areas of interest in this case wood



Step 2:

Focus on a subject matter

Concept focus:

research destruction

Step 3:

Research material that relates to destruction and also focus on the aesthetics

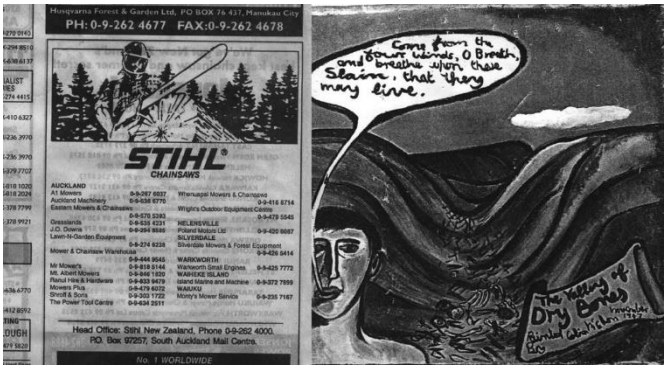


Diagram 1

Diagram 2

Step 4:

Create 2D or 3D drawings from your research and reinforce the idea of hybrid. Here I've combined diagram 1 with diagram 2 with a few modifications.

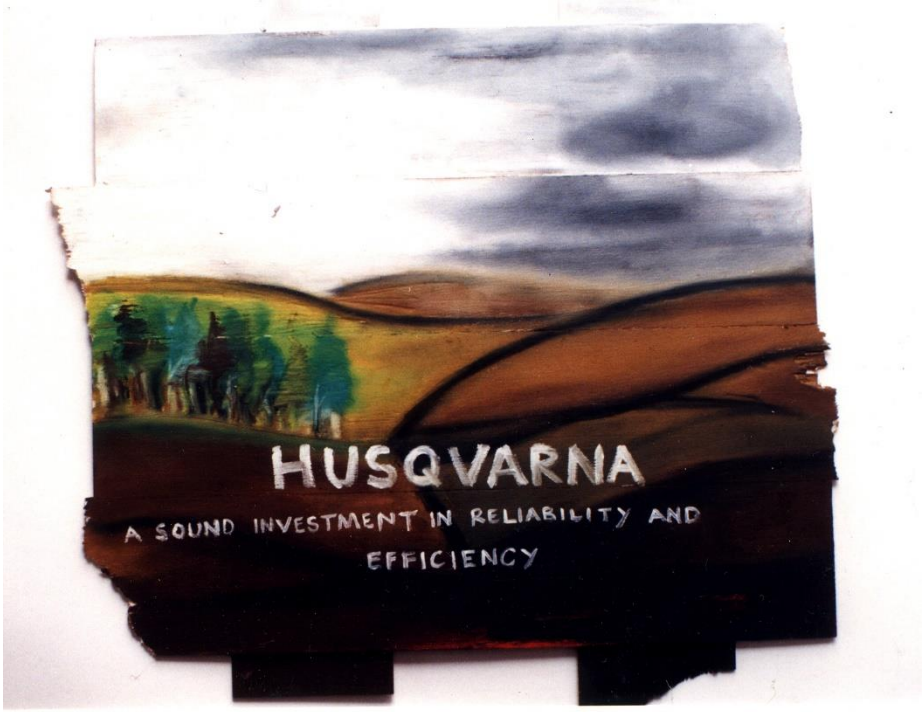
Step 5:

Experiment by creating 2D or 3D drawings.

Step 6:

The final conclusion

To conclude the final 2D or 3D drawings incorporate research and experiments from above using combinations or hybrids.


HUSQVARNA
A SOUND INVESTMENT IN RELIABILITY AND
EFFICIENCY


WELCOME
TO
HUSQVARNA

Google Wave

Note: Google wave also uses the combination technique.

Does anyone remember Google wave? Google's open source real-time communication and collaboration service that came out in 2009. It tries to reinvent email and combines e-mail with instant messaging and real-time collaboration. Notice the combination technique used with e-mail and messaging. It also has a set of api's that you can use to extend google wave's functionality.

I would like to mention that Google wave originated from me. I made up a couple of sketches that shows how it would work. Somehow I had the pleasure of someone taking these sketches to Google for evaluation and believe it or not they built it. Unfortunately I didn't get a mention that's alright Google I forgive you I'm just delighted that they believed in my idea and built it.

Unfortunately Google wave did not catch on the problem maybe was that it was too confusing and lack of interest.

If the want to learn more just google – Google wave or from YouTube search Google wave.

You can also find it here: https://en.wikipedia.org/wiki/Google_Wave

You can also find the YouTube video here: https://www.youtube.com/watch?v=v_UyVmITiYQ

As a side note I've read on the internet that some parts of google wave have been incorporated into Microsoft Loop to be released in 2022 stating:

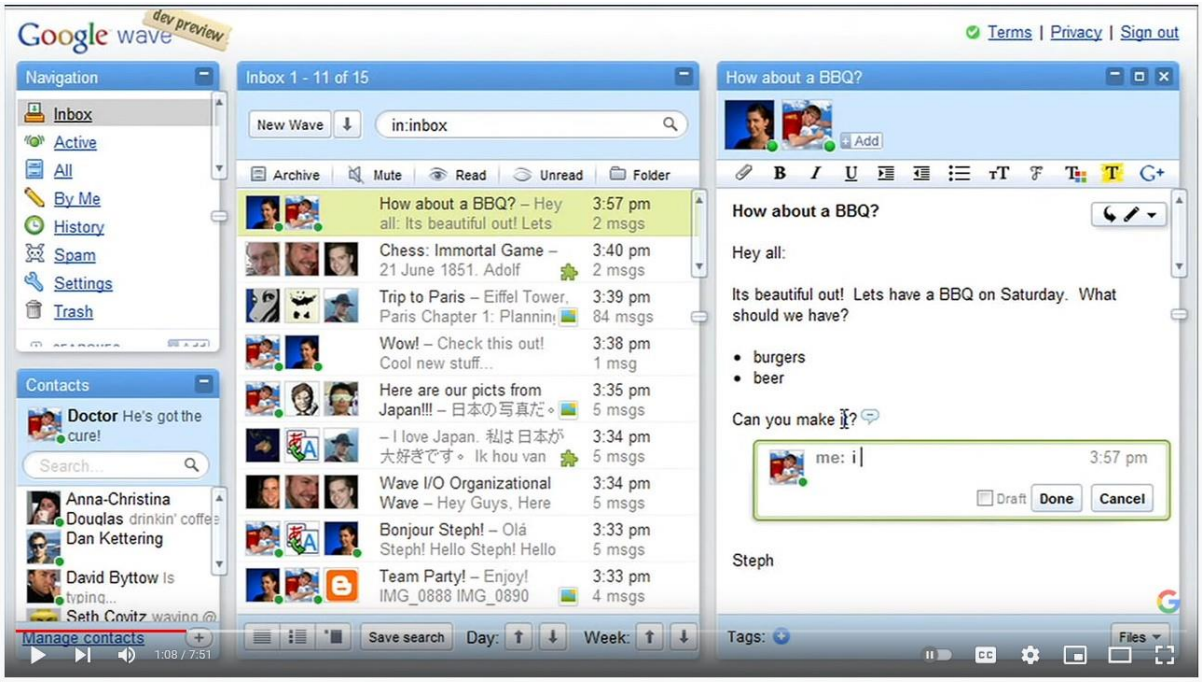
"It's no secret that Loop bears some resemblance to Google Wave".

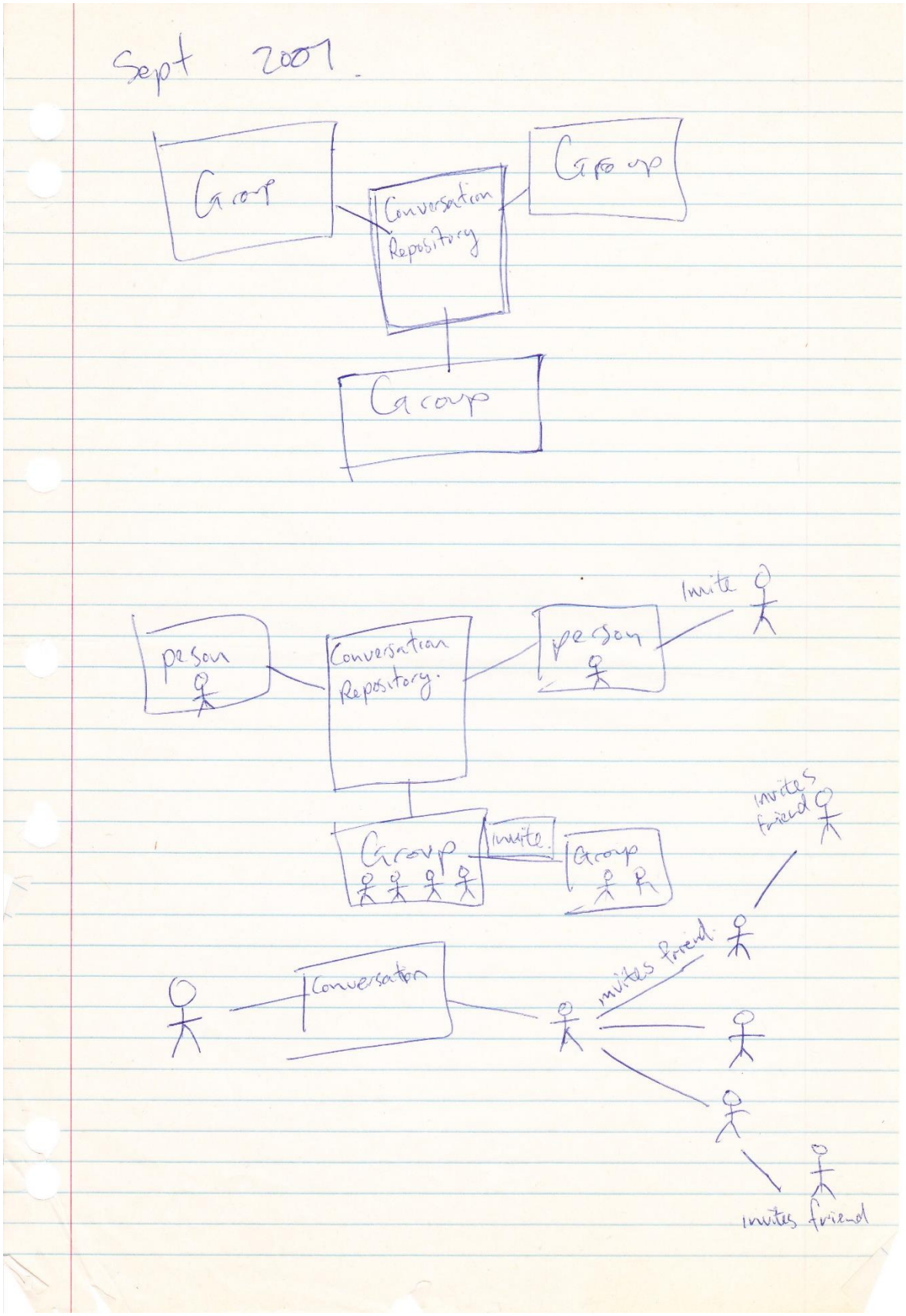
https://www.androidheadlines.com/2021/11/microsoft-loop-new-take-on-google-wave.html

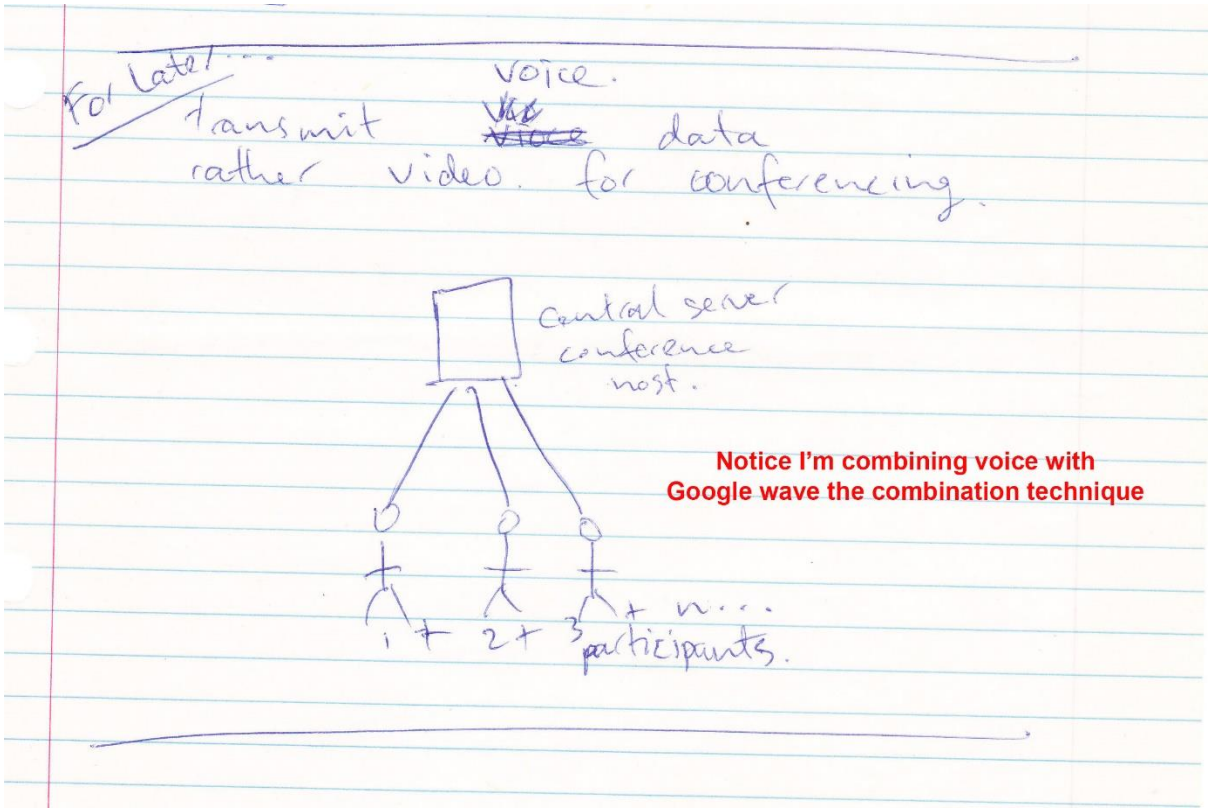
Just google Microsoft Loop for more information and check for the differences or google - microsoft loop google wave

But wait Google wave lives on with Rizzoma (https://www.rizzoma.com) So give it a try.

Just to prove that the idea came from me I've added these sketches in this document. First here is a screen shot of the product or interface.

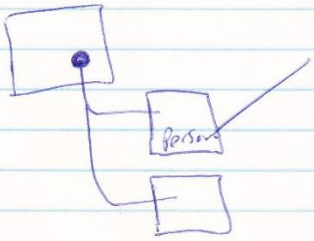

Google wave
dev preview
Terms | Privacy | Sign out
Navigation
Inbox
Active
All
By Me
History
Spam
Settings
Trash
Contacts
Doctor He's got the cure!
Search...
Anna-Christina
Douglas drinkin' coffee
Dan Kettering
David Byttow Is typing...
Seth Covitz waving @
Manage contacts
1:08 / 7:51
Inbox 1 - 11 of 15
New Wave
in:inbox
Archive
Mute
Read
Unread
Folder
How about a BBQ? – Hey all: Its beautiful out! Lets
3:57 pm
2 msgs
Chess: Immortal Game – 21 June 1851. Adolf
3:40 pm
2 msgs
Trip to Paris – Eiffel Tower, Paris Chapter 1: Plannin
3:39 pm
84 msgs
Wow! – Check this out! Cool new stuff...
3:38 pm
1 msg
Here are our picts from Japan!!! – 日本の写真だ。
3:35 pm
5 msgs
– I love Japan. 私は日本が大好きです。 Ik hou van
3:34 pm
5 msgs
Wave I/O Organizational Wave – Hey Guys, Here
3:34 pm
5 msgs
Bonjour Steph! – Olá Steph! Hello Steph! Hello
3:33 pm
5 msgs
Team Party! – Enjoy! IMG_0888 IMG_0890
3:33 pm
4 msgs
Save search
Day:
Week:
How about a BBQ?
Add
How about a BBQ?
Hey all:
Its beautiful out! Lets have a BBQ on Saturday. What should we have?
burgers
beer
Can you make it?
me: i
3:57 pm
Draft
Done
Cancel
Steph
Tags:
Files


Sept 2001
Group
Conversation Repository
Group
Group
person
Conversation Repository
person
Invite
Group
Invite
Group
invites friend
Conversation
invites friend
invites friend


For Later...
Transmit voice. data
rather video. for conferencing.
Central server
conference
host.
Notice I'm combining voice with
Google wave the combination technique
1 2 3 ... n
participants.

Sept 2007 Conversation module.

Conversation

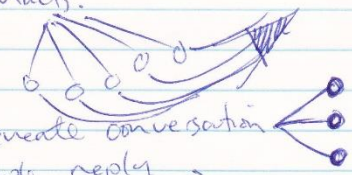


make private conversation.

pop up box

- invite person for private conversation
- invite person for private conversation through personal email.
- invite person to link in group/network.

Send broadcast message to contacts.



create conversation

people reply.

↳ then you can select people for detailed conversation.

↳ add to private conversation.

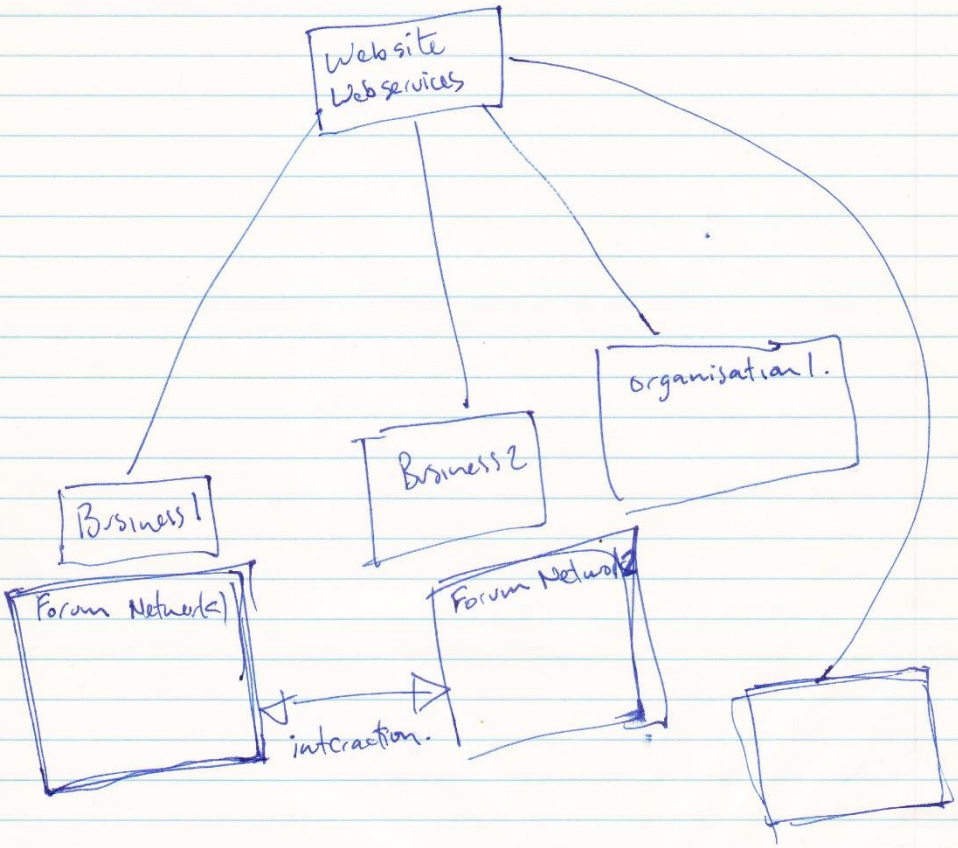
Most of the time they will be asking questions?

Send message to ~~everyone~~ immediate contacts first

reduce number of people able to send to.

block person

Limit number of messages per day.

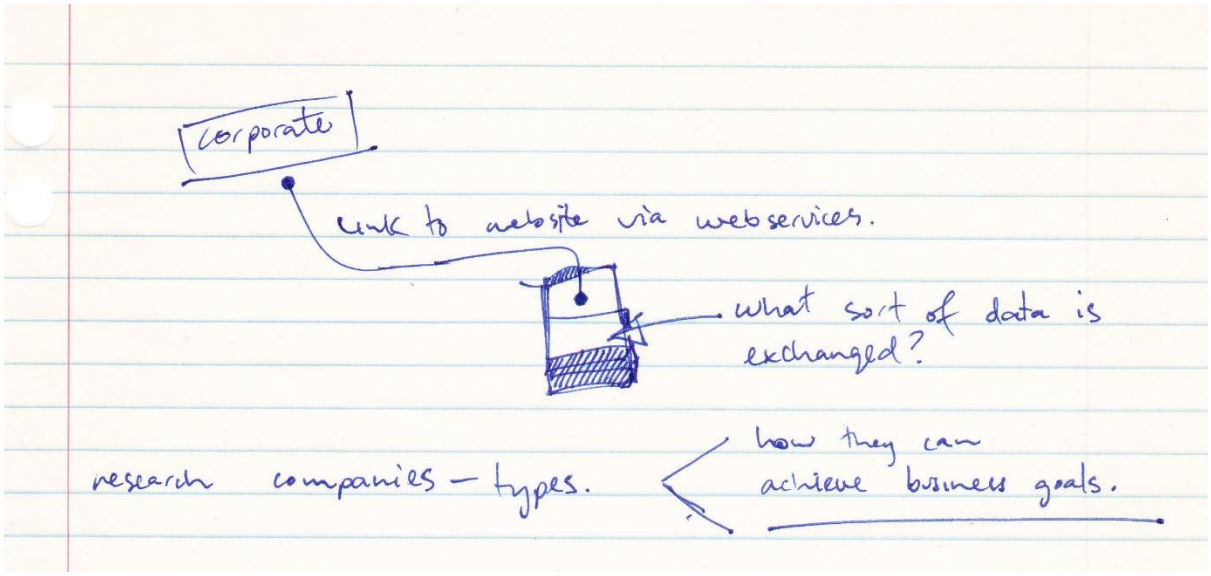


Advantages

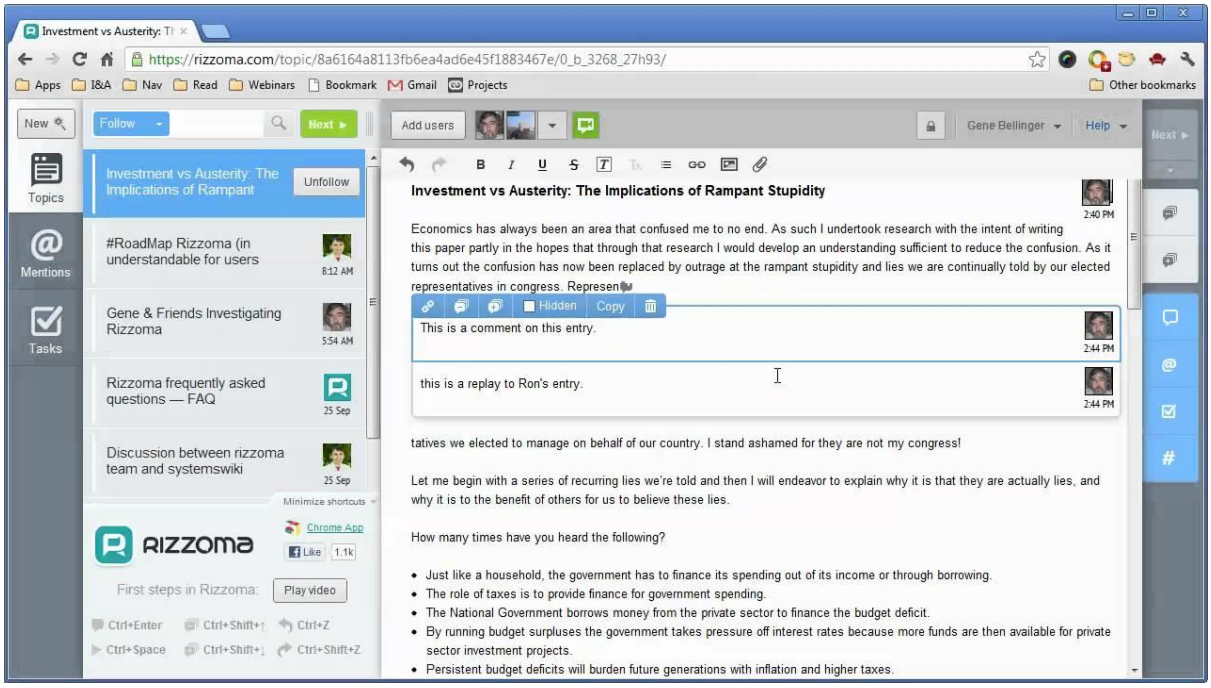
Keep conversations in house.
Network with groups / departments (email system)

Disadvantages.

Can't beat internal email system.



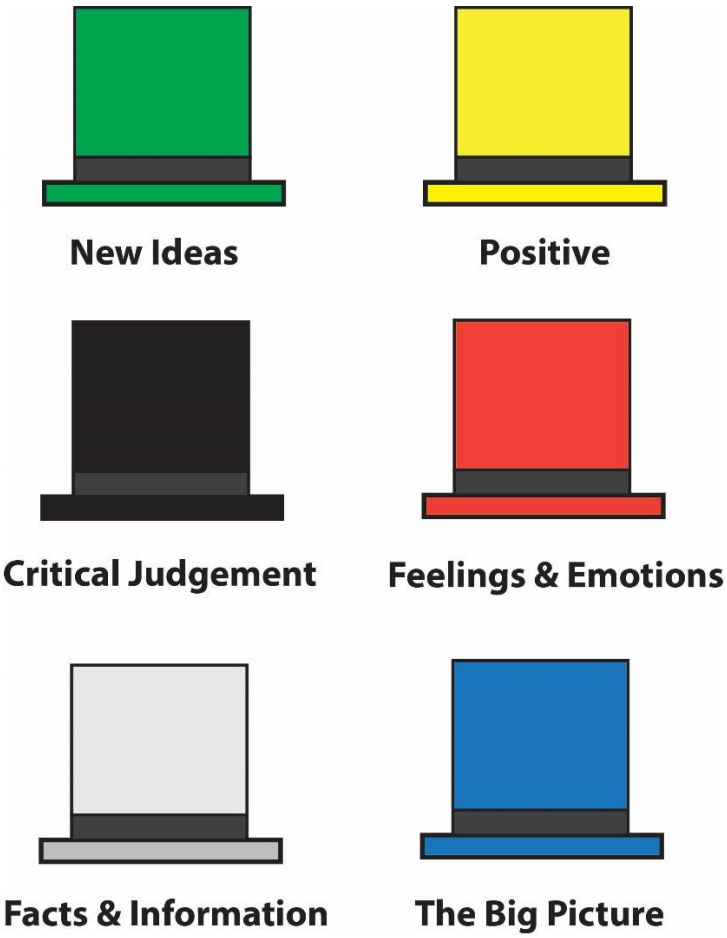
Here is Rizzoma the replacement for Google wave:



Six hats

"Six Thinking Hats was written by Dr. Edward de Bono. "Six Thinking Hats" and the associated idea parallel thinking provide a means for groups to plan thinking processes in a detailed and cohesive way, and in doing so to think together more effectively"

From Wikipedia - Six Thinking Hats - https://en.wikipedia.org/wiki/Six_Thinking_Hats



More descriptions:

Red – intuition, hunches and feelings

White – facts and data

Yellow – benefits, positive aspects

Black – caution, risks, and weaknesses

Green – creative ideas

Blue – managing the thinking, focus and summary

For more information you can google six hats or buy the book.

Story telling

By story telling you can combine many ideas together and picture how things could work.

Here is an example story which I came up with in the year 2003:

You are about to finish work for the day. Thinking that you would rather have a quiet night instead of spending money wining and dining, you decide to watch a movie. Easily enough you could hop on the net and browse the online library of movies and have it downloaded straight into your home before you get back.

Unfortunately time is against you, remembering that you have to pick up the wife on the way home. Instead during the walk to your car you use your voice activated smart phone.

Upon reaching your car the doors unlock sensing your presents, you hop in. Still undecided about what to watch you continue searching. Instead of using the visual display of your smartphone, voice activation methods are transferred to your cars audio system. From there you continue searching. Until you select a movie you like.

Once home and after a quiet chat over dinner with your wife, you decide to watch your movie which is stored on your direct video decoder. Half way through the movie you decide there's time for one more. Again, you make a selection, this time rather then using your smartphone you use a portable tablet screen while watching the first movie. Once your second choice has been made downloading starts immediately, so by the time your first movie finishes the second is ready to play at the command of your voice.

So I wasn’t too far of the mark instead of downloading a movie we stream it now.

That’s it for this chapter now can you come up with your own techniques?

Innovation

What is innovation?

“Innovation in its modern meaning is "a new idea, creative thoughts, new imaginations in form of device or method." Innovation is often also viewed as the application of better solutions that meet new requirements, unarticulated needs, or existing market needs.”

From Wikipedia – Innovation - https://en.wikipedia.org/wiki/Innovation

Types of Innovation include (note you can google these terms to find out more) :

- Incremental Innovation
- Disruptive Innovation
- Architectural Innovation
- Radical innovation

There is a really good write up of these types at - Types of Innovation - https://techblog.constantcontact.com/software-development/types-of-innovation

Other good websites include - Types of Innovation – The Ultimate Guide with Definitions and Examples - https://www.viima.com/blog/types-of-innovation

Or you can google these words - types of innovation or innovation or innovation examples.

Example of incremental can be mobile 4G to 5G or TV HD to 4K to 8K resolution or windows 7 to windows 8.

Example of radical innovation: Video Rental vs Streaming. Back in the days you had to physically go to a store and rent some movies today we have content streaming across the internet. This is a completely new way to do things and is therefore a radical innovation. You can not only watch movies but different subject matter content as well. Example of streaming services include NetFlix and YouTube etc…

Timing in creativity and innovation

When inventing something new you got to make sure the timing of things are correctly in place. For example using the Video rental vs streaming service above you will need to make sure the network infrastructure can handle streaming content for its time. So bandwidth can be an issue because its not ready for primetime. So the timing of things must be considered to make sure you are ready for success.

Usefulness

When you are inventing or creating something most of the time it has to be useful. If not then what's the point. Of course there are exemptions like Art here you are creating pieces work that could focus on aesthetics meaning it could be beautiful or not most of the time it doesn't serve a purpose.

So when you are creating something keep in mind what you think will be useful.

On the other hand sometimes if you have a problem then you could find a useful solution. For example if it rains you don't want people to enter your front door because they may bring in dirt and grim therefore you could use a door mat here they can swipe their feet and also stops them from slipping.

Another example is Two-Factor Authentication here if you go to a website you will need to login with your email and password for example from there the website will send you a code via email or to your smart phone then you would enter that code on the website to gain entry.

Stem vs steam

What is Stem

In education, the acronym STEM stands for the disciplines of science, technology, engineering, and mathematics. There are a ton of useful information about STEM on the internet just google - stem in education or what is stem education and why is it important.

Just as a side note here are some STEM careers:

- Statistician
- Software developer
- Actuary
- Civil Engineer
- Psychologist
- Physician

What is Steam

STEAM stands for science, technology, engineering, art and mathematics. I'm more of an advocate for STEAM then STEM because I think the arts in STEAM is just as important. Why? Because you cannot rely solely on STEM that's not how the world works. If you don't have the arts it makes for a boring world, we need the arts its been around for thousands of years. The arts like music, art and design, dance etc… are just as valid. Again there are lots of information about STEAM on the internet just google -steam education or steam vs stem.

STEAM helps to:

- Ask questions
- Connect the dots
- Problem solve
- Think creatively
- Be innovative

Supporters of STEAM

Another proponent of the arts in STEAM is Sir Ken Robinson. He also supports creativity.

You can google his name to find more about him and what he believes. There is also a number of YouTube videos you can watch as well.

For example from YouTube:

Do schools kill creativity? - Sir Ken Robinson

Sir Ken Robinson makes an entertaining and profoundly moving case for creating an education system that nurtures (rather than undermines) creativity.

So, you want to be an entrepreneur

I am going to focus on Information technology because I have experience in this area. But you might be able to apply this to other industries if you think hard enough about it.

With any reasonable size company, you're going to need co-founders. The number of co-founders can be from 2-4. I've seen one startup having up to 16 co-founders so its really up to you.

To start of you will need to find a niche in the market and develop a protype or proof of concept. Please note when developing your business be aware of the toyota vs rolls Royce. I recommend the Toyota first because when you develop you will go through several changes and rolls Royce does not allow this and could be more expensive to implement plus the amount of time wasted to make something perfect. So don't try to make everything perfect to start off with.

Once complete you will probably need to run your business for 1 to 2 years before you can look for an investor to help to expand your business.

If your business is large enough you might be able to create eco-systems.

What Is a Business Ecosystem?

"A business ecosystem is the network of organizations—including suppliers, distributors, customers, competitors, government agencies, and so on—involved in the delivery of a specific product or service through both competition and cooperation. The idea is that each entity in the ecosystem affects and is affected by the others, creating a constantly evolving relationship in which each entity must be flexible and adaptable in order to survive as in a biological ecosystem."

https://www.investopedia.com/terms/b/business-ecosystem.asp

An example is the Google ecosystem they have gmail, youtube, search, google play, android, chrome browser, maps and others that interrelate or not interrelate with each other creating an ecosystem. They also collaborate with other strategic partners.

The price wars

As you would know you will have competitors and their fees could be more or less than your fees. So if you want to be competitive your fees will have to be even or less then your competitors. Enter the price wars to be competitive you'll need to work out your total operating costs and then work out your pricing structure from there. If you want to be cheaper you will need to optimize your operating cost or cut corners to be competitive.

If you are a retailer than your pricing structure will be different because you are dealing with items. There are many other ways to be cheaper but I hope you get the point. If you can't be any cheaper you need a point of difference meaning what makes you product better.

Predicting the future

Here are my own thoughts about predicting the future. Do you remember with the past, present, and future technique having many eye balls increases accuracy well I don't have that luxury so these conclusions could be faulty but this is my attempt.

Early prediction

Early prediction starts with something small and gets progressively larger.

This technique can be applied to most things but not all.

One of the key parts with Early Prediction is the environment and every environment has a couple of key factors contributing to the growth of that.

Note: You could think of the environment as an eco-system

Note: You could use the past, present, and future technique for the below examples

Facebook

Facebooks environment started within the university and the key factors contributing to that growth was the internet, word of mouth and its addictive nature. From there it exploded.

So, in the case here is you want to predict the popularity of the website.

EDM

House and Techno music now called EDM (Electronic dance music) started its environment in the night clubs during the 70's and 80's playing disco music and the key factors to EDM's growth was word of mouth, DJ culture, radio play and advertising. While in later years people started going to Raves or out-door events consisting of thousands of people all partying together. Plus, it was just a cool thing to do which spread from one person to another so there's a coolness factor.

So, in this case you want to predict what it takes to grow the popularity of EDM.

Volcanos

The environment for volcanos is geology.

You may want to predict when the next eruption will occur.

So, the key factors that may contribute an explosion is the flow of lava and what lies beneath the crater I'm taking a guess here. I'm not a volcanologist but you get the picture.

With those key factors you can then use special equipment to monitor and analyse the volcano.

What's in it for you

By figuring out the environment and key factors you will be able to predict which part the future you want. You may need to manipulate/add/subtract some key factors to help with your predictions.

Goal setting

Is goal setting like forecasting? (I'll let you think about it)

Goal setting is like preparing or creating your own future you have targets to meet. This will force you into making changes for that vision. Sometimes you will hit road blocks but that is part of the process and you will have to navigate through that.

Types of goal settings:

- For Athletes: I want to be the best.
- For retailors: They may want to increase foot traffic
- For Students: I want to make through high school and get into university
- For Technology Companies: They may want to radically change how to do things

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Predicting the future with data

Another way to predict the future is to gather data from there you can make predictions. You can then use maths, statistics, machine learning, algorithm and artificial intelligence or a combination of the mentioned above. From here you can see how maths and statistic plays an important part. In this case it also includes computer science.

If you want to learn more just google - predicting the future big data machine learning or Can machine learning predict the future? Or predicting the future with data.

Remember the saying:

"The best way to predict the future is to invent it" – well this is a handy phrase.

More on predicting the future:

Try reading this website for more info - https://en.wikipedia.org/wiki/Prediction or google - wikipedia predicting

Trends

Another way to predict the future is through trends.

Trends are similar to tendency, movement, drift, swing, shift, course, current, run, direction, inclination, leaning, bias and bent.

Trends are also similar to patterns and forecasting.

As you can see there are many aspects to trends.

Here is another aspect of trends:

Trend analysis

"Trend analysis is the widespread practice of collecting information and attempting to spot a pattern. In some fields of study, the term "trend analysis" has more formally defined meanings.

Although trend analysis is often used to predict future events, it could be used to estimate uncertain events in the past, such as how many ancient kings probably ruled between two dates, based on data such as the average years which other known kings reigned."

https://en.wikipedia.org/wiki/Trend_analysis

Here are some examples of trends:

- Top 10 Hottest Fashion Trends
- Spotting trends in a line graph or any other graph to be able to make a prediction
- Trending search topics in Google

Guessing

Guessing is similar to:

Estimate, predict, calculate, approximate, hypothesize, speculate, surmise and reckon.

You can also use predicting. Predicting is also similar to:

Forecast, foresee, prophesy, divine, anticipate, see, say, project, envision and envisage.

Both of these terms are very similar and is used with clues, prior knowledge, personal experiences to anticipate what comes next.

You can also google these terms.

Some examples for Predicting:

- It's a cloudy day today I predict it might rain. This might be obvious but here you are using personal experiences to anticipate.

- If someone consumes a lot of sugary products like soft drinks and chocolates, they could get diabetes.

- There are a lots of storms and bush fires lately around the world I predict it could have an effect on the earth's environment. Here you are using clues like bush fires, storms, car emissions and ice caps melting etc… to make a prediction.

Everything has an ending

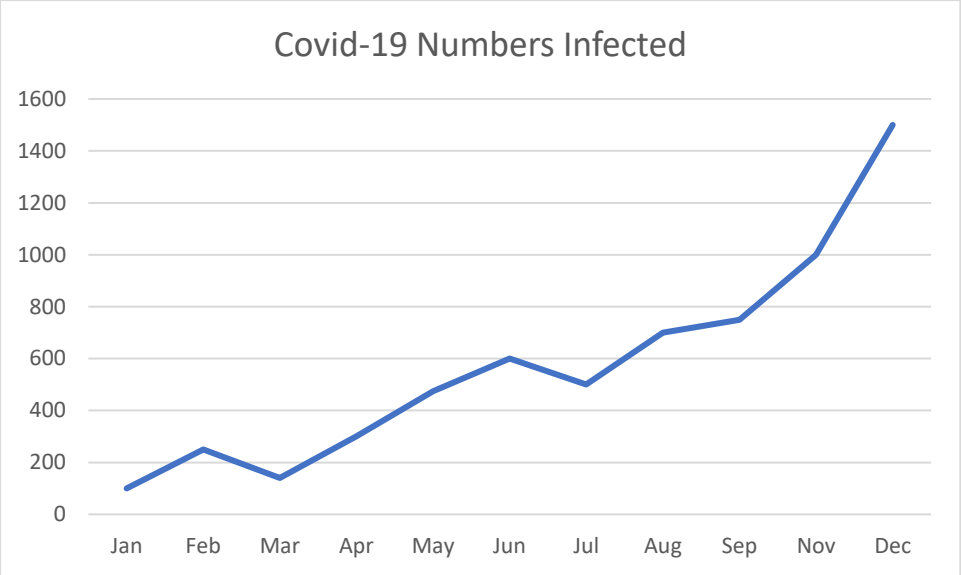
Another way to predict the future is to know things have an ending. This way you can prepare your self for the future or what lies ahead. Here are a few examples below:

School has an ending	From here you can plan your future after school.
Your Job has an ending	Here you can plan your life after work.
Friendships have an ending	This can be due to a number of reasons like not liking the person any more or they pass away.
The earth has an ending	This can be due to the sun reaching its end of life and exploding to wipe out every planet in the solar system. I'm not an astronomer but you get the point. You need to plan for this if possible.
Cyclones have an ending	You must plan for what happens before and after.
Facebook has an ending	Yes Facebook has an ending this time I will let you figure that out.
Businesses have an ending	This can be due to a number of reasons but I'll let you think about that too. As a side note I read somewhere on the internet saying "So you have a successful business now change or die" so be careful.
Life has an ending	We all know this but I want to point out an interesting thing about life and that is "Why are you here?". You are here to get through life no matter what it throws at you. Remember the old saying "Life is a journey" well that is true. You can plan for your end of life if possible.

As you can see a lot of things have an ending and you must take note to plan ahead if possible. Also, can you see the pattern here? That is the starting and ending pattern.

Someone figured that out

To start off with everything man or women made thing is an invention. Take for example the line graph



Here someone invented that. Remember in the previous chapters about relationships well someone used that. They may have also used reasoning as well.

Another example would be mathematics people invented that as well.

What I'm trying to empathise is that you can figure or invent stuff on your own or in groups too.

You need to be insightful. There are millions of examples out there all you got to figure out is the intension of the invention. It also helps if you can problem solve.

Other invented examples:

- Art or drawing
- The internet
- Construction techniques
- Marketing
- Paper
- Statistics
- Chemistry
- Figuring out the speed of light
- HTML5 etc…
- Democracy

What do I mean by groups:

There are many types of groups but I'll just list a few here.

Friends group:

Here you can work collaboratively with each other on any project or thing.

Business groups:

From here you are working in a company or business working on a project or thing.

Industry groups:

Here you are collaboratively working with one or many businesses or profit and non-profit organisations to achieve a goal, project or thing.

Take the internet for example.

Here you have The W3C (World Wide Web Consortium) an international organization that creates standards for the World Wide Web. And ECMAScript is a JavaScript standard intended to ensure the interoperability of web pages across different browsers. It is standardized by Ecma International in the document ECMA-262. Back in the days Google also helped to standardized HTML 5 by searching the internet for common element names like articles and sections, header, footer etc… As you can see there are lots of collaboration between entities to push the internet industry forward. I would also like to include all the universities that helped in the development of the internet as well.

Design Thinking

What is Design Thinking?

"Design thinking is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test. Involving five phases—Empathize, Define, Ideate, Prototype and Test—it is most useful to tackle problems that are ill-defined or unknown."

https://www.interaction-design.org/literature/topics/design-thinking

The above link explains the five phases in greater detail and is also a great read so click on the link or you could google - design thinking or design thinking examples or design thinking Stanford.

Universities that teaches creativity and innovation

Here is a list of university courses that teach creativity and innovation you might want to look for courses in your area or find online courses. Check out what they teach by visiting their website it could be insightful.

University of Technology Sydney Australia (UTS)

Creative Intelligence and Innovation

The Bachelor of Creative Intelligence and Innovation (BCII) is a unique combined degree that encompasses high-level critical and creative thinking, invention, complexity, innovation, future scenario building and entrepreneurship; leading-edge capabilities that are highly valued in the globalised world.

https://www.uts.edu.au/future-students/transdisciplinary-innovation/undergraduate-courses/creative-intelligence-and-innovation

or google - bachelor of creative intelligence and innovation uts

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Stanford Design Thinking

We believe everyone has the capacity to be creative. The Stanford d.school is a place where people use design to develop their own creative potential.

https://dschool.stanford.edu/

Putting design to work

We build on methods from across the field of design to create learning experiences that help people unlock their creative potential and apply it to the world.

Design can be applied to all kinds of problems. But, just like humans, problems are often messy and complex—and need to be tackled with some serious creative thinking. That's where our approach comes in. Adding the d.school's tools and methods to a person's skill set often results in a striking transformation. Newfound creative confidence changes how people think about themselves and their ability to have impact in the world.

https://dschool.stanford.edu/about or google - d.school Stanford

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MIT Center for Art, Science & Technology (CAST)

MIT has long been a place where a productive interplay of art, science, and technology drives innovation and creativity. The word “arts” was etched in stone more than 100 years ago inside the dome in the Lobby 7 entrance. Visiting artists have been welcomed since the 1970s. The “Infinite Corridor” in the center of campus joins together engineering labs, architectural studios, and music practice rooms.

The MIT Center for Art, Science & Technology (CAST) was established in 2012 to create new opportunities for art, science, and technology to thrive as interrelated, mutually informing modes of exploration, knowledge, and discovery. The projects it supports and presents take many forms, including boundary-crossing research by faculty, collaborative work with visiting artists, cross-disciplinary classes, performances, installations, symposia, and publications. A joint initiative of the Office of the Provost, the School of Architecture and Planning (SA+P) and the School of the Humanities, Arts and Social Sciences (SHASS), the Center is funded in part by a generous grant from the Andrew W. Mellon Foundation.

MIT sees making as an essential form of thinking. The arts introduce new ideas and material things into this vision—in provocative, illuminating, and beautiful ways. CAST’s mission adds an essential dimension to MIT’s motto—Mens et Manus—mind and hand, or learning by doing.

Whether you’re an artist, engineer, scientist, humanities scholar, prospective student, or art lover, CAST invites you to explore MIT’s creative culture of experimentation, risk-taking, and imaginative problem solving.

https://arts.mit.edu/welcome-to-cast/

https://arts.mit.edu/cast/

or google - MIT Center for Art, Science & Technology

Conclusion

Congratulations you have made it to the end. I hope you have a grasp of what it takes to understand and to be creative and innovative plus predicting the future. So get out there and create something weather big or small or a technique or anything.