

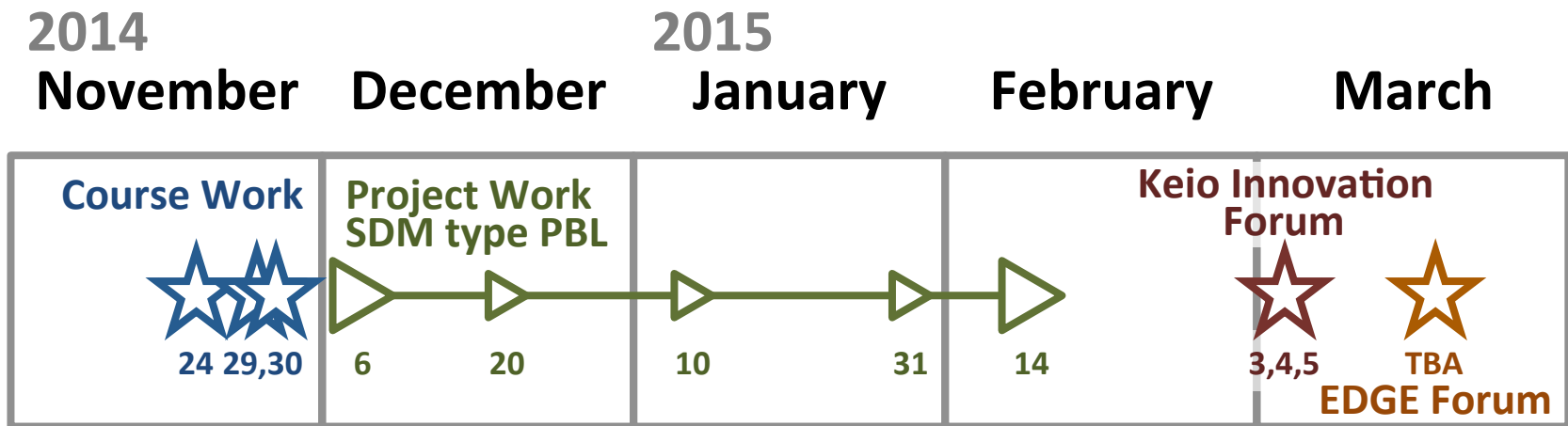


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EDGE Program funded by MEXT
Keio University
Global Innovator Acceleration Program
2014
COURSE WORK

Graduate School of System Design and Management
EDGE Program Team

Keio EDGE Program Schedule 2014-15



Intensive 3-day course work is to get you ready with right equipment. Rest is PBL with mentoring and feedback.

You will make several presentations before the final presentation on February 14th.

Keio Innovation Forum will be held in March where you will present your outcomes. Also, **EDGE Forum** will be held by Tokyo University and among other EDGE program participant you will be presenting your outcomes.

Keio EDGE Program Course Work

2014
November

Course Work



24 29,30

- Day 1 (Nov. 24th, Mon)
 - Design Thinking
 - mindset and tool set
- Day 2 (Nov. 29th Sat)
 - Systems Thinking
 - way of thinking and diagrams
- Day 3 (Nov. 30th, Sun)
 - Business Synthesis
 - concept and basic techniques

SDM Faculty Member

東京大学大学院工学系研究科

航空宇宙工学専攻

慶應義塾大学大学院SDM研究科

博士（**システムエンジニアリング**学）

三菱電機株式会社

技術試験衛星VII型（ETS-VII）

宇宙ステーション補給機（HTV）

慶應義塾大学大学院 SDM研究科

デザインプロジェクト

システムズエンジニアリング

アーキテクティング、

イノベーティブデザイン**方法論**

准教授

イノベーティブ・デザイン LLC

2014 Keio EDGE
2014 Keio EDGE **Systems Architect**



白坂成功

shirasaka@sdm.keio.ac.jp

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Dept. of Mechanical Engineering, **Robotics**

本田技術研究所 二輪R&Dセンター

二輪車エンジン設計

電動パーソナルモビリティ 研究開発

東京大学 超小型衛星戦略研究センター

超小型**人工衛星** 開発

慶應義塾大学大学院 SDM研究科

デザイン プロジェクト

システムズ エンジニアリング

特任助教

イノベーティブ・デザイン LLC

2014°

パートナー、**Systems** Architect

Keio EDGE

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マネジメントコンサルティング
中小からグローバルカンパニー、経営理念から実行

慶應義塾大学大学院 SDM研究科
社会システムデザインの研究
イノベーション戦略
組織デザイン

デザインプロジェクト、SDM序論
起業デザイン論
特任講師

関西学院大学経営戦略研究科
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代表、Systems Architect



橋口寛

h.hashiguchi@sdm.keio.ac.jp

2014

ダートマス大学
Tuck school of Business **MBA**

ダイムラークライスラー日本
自動車ディーラー **経営改善・再生**

アクセンチュア
戦略コンサルティンググループ

鳴海製陶株式会社
企業再生・新事業開発・マーケティング

慶應義塾大学大学院 SDM研究科
起業デザイン論
特任講師

株式会社ユーフォリア
代表パートナー

三菱電機株式会社

人工衛星システム設計

宇宙ビジネスの戦略立案、広報/宣伝活動

(一財) 宇宙システム開発利用推進機構

宇宙ビジネスの海外展開支援

途上国への地球観測衛星売り込み



慶應義塾大学大学院 SDM研究科

システムエンジニアリング

デザインプロジェクト

コンセプトエンジニアリング

准教授

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慶應義塾大学経済学部
(LIEBEN **Ski** Club)

Kelly's English Lab + Freelance
Plain Englishによる**英文**
ライティング・**翻訳**・**通訳**

Bridge-work Inc.
代表取締役、翻訳・**ウェブサイト**制作

慶應義塾大学大学院 SDM研究科
デザインプロジェクト
ディレクターズオフィス
研究員

文部科学省委託事業

2013年度 **イノベーション対話ツール**開発

渡辺今日子

kyoko.watanabe@sdm.keio.ac.jp

2014

Keio EDGE

INTERESTS:
Information Architecture
UX Design
Technical Communication

Team Building

- Introduce yourself to the team. Including your **nickname**.
- Tell your team about one “**innovative solution (product/service/strategy/management/...)**” you noticed recently.
- Discuss and give your **innovative** team a **awesome name**.

15min
Keio EDGE

[Innovative Product Example] P&G: Gel Ball



<http://vip.myrepi.com/gelball/>

- Conventional detergent requires **measuring** but this product completely **omitted this step**.
- Laundry machine that specifically asked for this type of detergent may appear in the market.
- This may become a new “usual”.

Introduction to Design Thinking, Systems Thinking, and Business Synthesis

- Design Thinking
 - It's **empathetic** and focuses on what people **really value**.
- Systems Thinking (Systems Engineering)
 - It's about understanding the **elements** and also how they are **interrelated** and **behave as a system**.
- Business Synthesis
 - **Analytical techniques** of business and finance are truly powerful when it is combined with **synthetical mindset and approaches**.

Keio SDM has strong background: **Design Project** for Master Students

Design thinking



Keio University



Systems thinking



**International
Collaboration**

Management



THE UNIVERSITY
OF ADELAIDE
AUSTRALIA

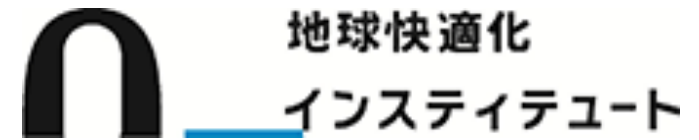
Keio SDM has strong background: **Design Project** for Master Students



Keio SDM Design Project 2014 Proposers



NEC

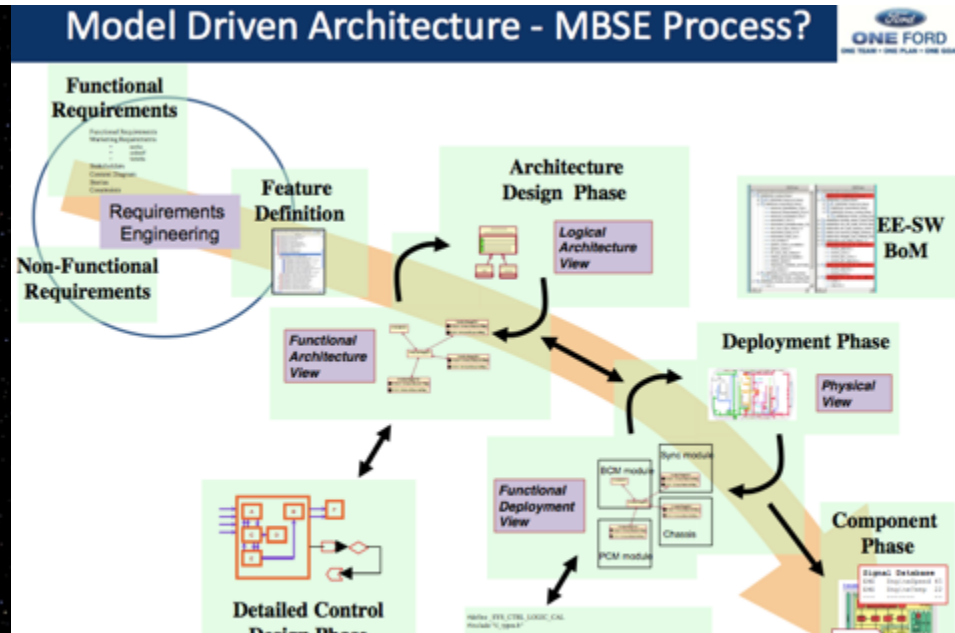


横浜市役所



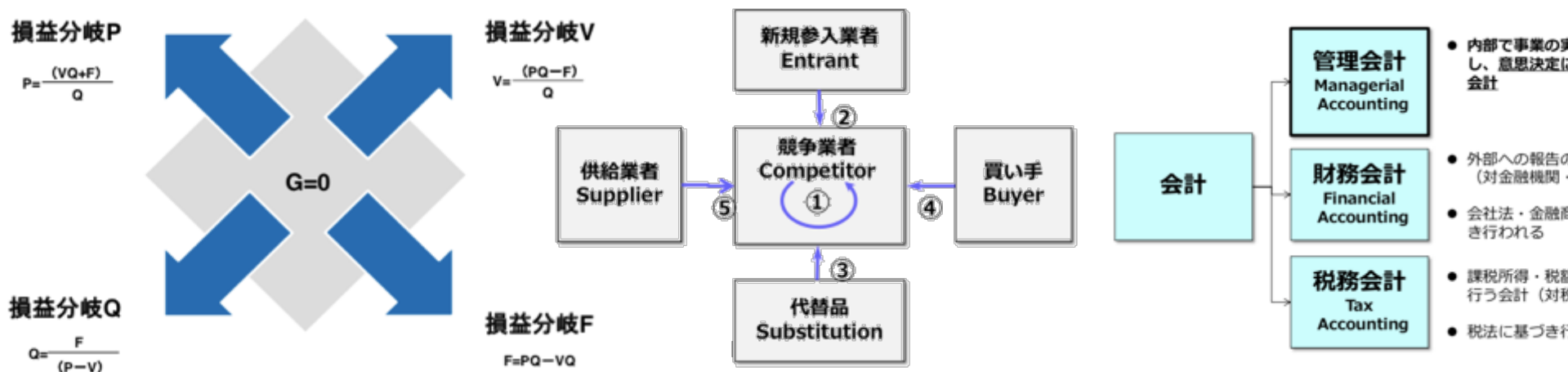
Keio SDM has strong background: **Systems Engineering** Master's Degree

- Nations **only** university to provide degree program in Systems Engineering.
- Offers training programs for many **companies**: JAXA, NEC, MELCO, HONDA, NISSAN, more



Keio SDM has strong background: Entrepreneurship Design Theory Class

- **MBA type methods and tools** are taught so they are more useful in case for **start-up businesses**.
- Many faculty members and also students are **start-up founders and company CEOs**.



Think innovative, Divergent/Convergent thinking, Insight

- **Think innovative**
 - **Out of the box!!** You need to **know the box**, too.
 - Not a crazy idea generation. **New** and **valuable**.
- **Divergent/Convergent thinking**
 - **Explore** and **expand** the solution space.
 - **Organize** and **focus** to find the way out the box.
- **Insight**
 - **unusual** but **interesting**
 - **unfamiliar** but **convincing**

Think innovative, Divergent/Convergent thinking, Insight

- Think innovative
 - It's new. Define "newness".
 - It's valuable to someone.
 - It's fascinating and exciting for you.
- Divergent/convergent thinking
- Insight

Design Thinking

- **d.school** materials
 - Introduction to Design Thinking PROCESS GUIDE
 - Bootcamp Bootleg
- **IDEO** materials
 - Human Centered Design Toolkit
 - Creative Confidence

What is Design Thinking?

*“Design Thinking is a **mindset.**”*

by 

It's Human-Centered.

常に人間を意識しながら考える

It's Collaborative.

多様性を活かすことによる恩恵

It's Optimistic.

どの様な状況でも自分たちは出来るのだという信念

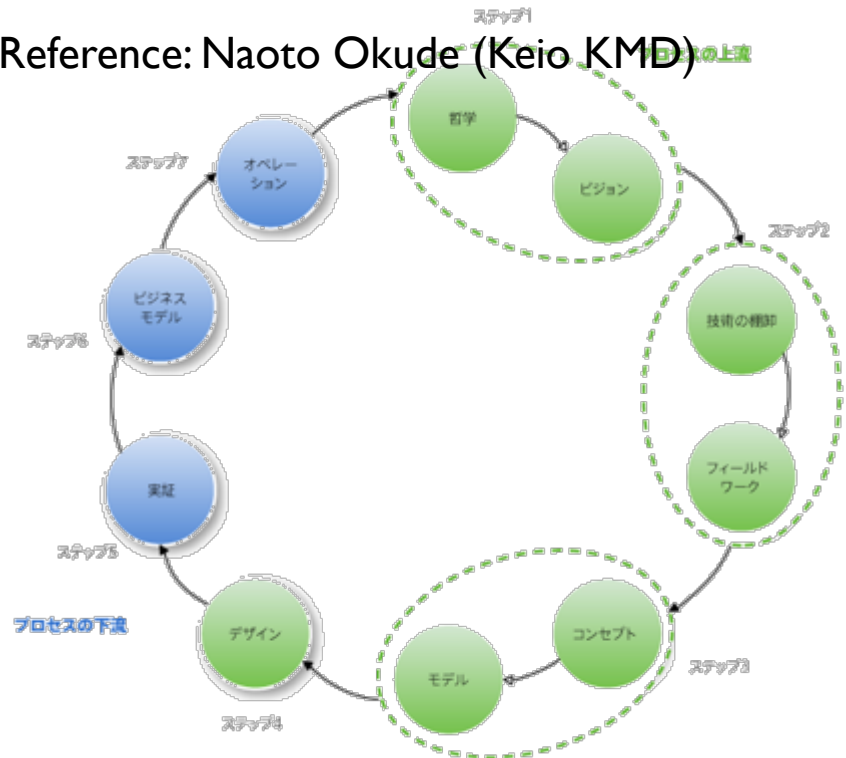
It's Experimental.

早く、たくさん失敗して経験から学ぶ

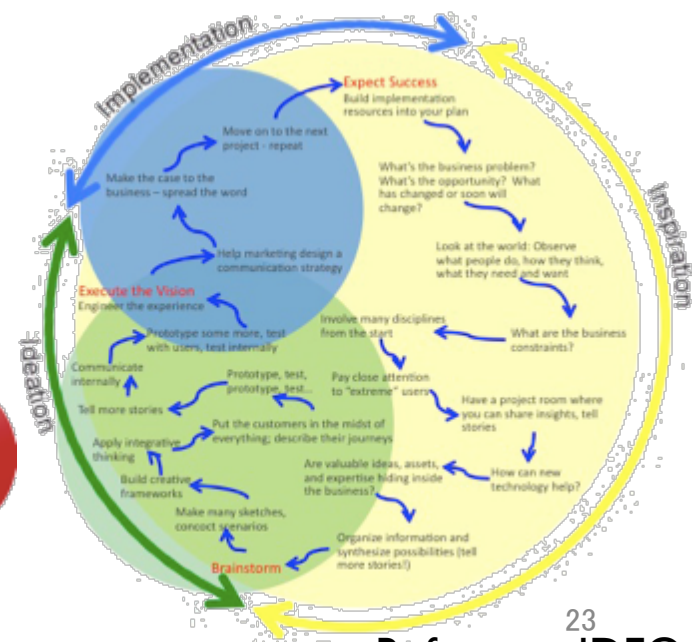
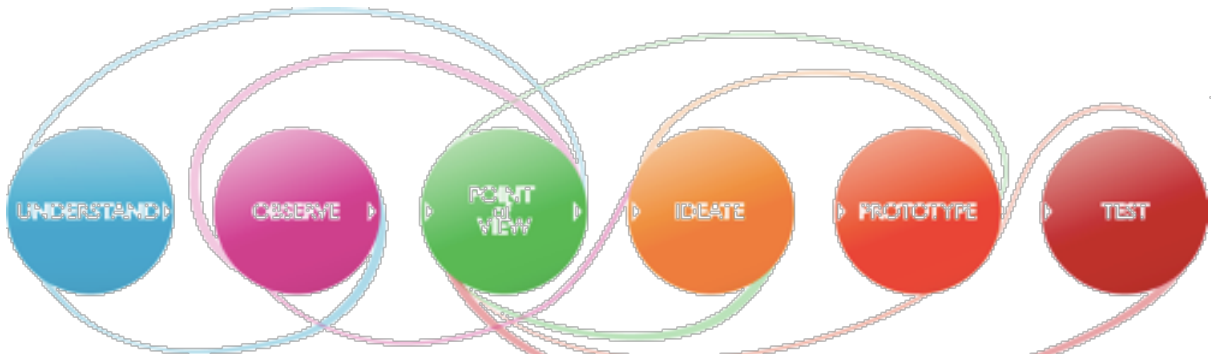
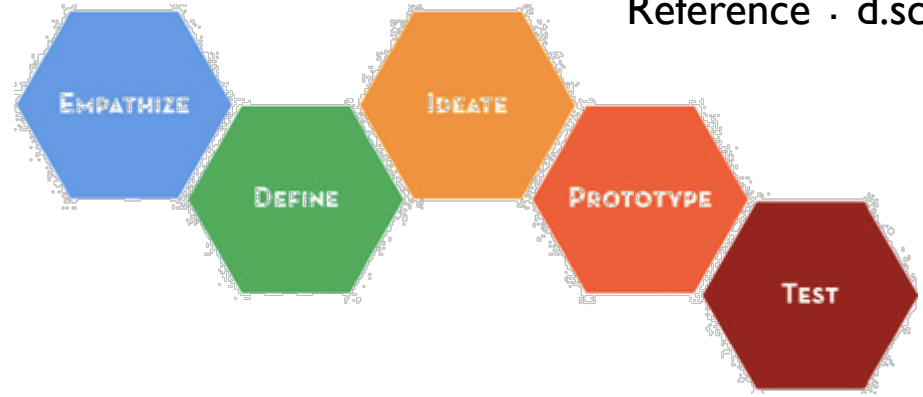
Reference: Design Thinking for Educators Toolkit, IDEO, 2011

How we “do” Design Thinking?

Reference: Naoto Okude (Keio KMD)



Reference : d.school



2014 Reference: Hasso Plattner Institute

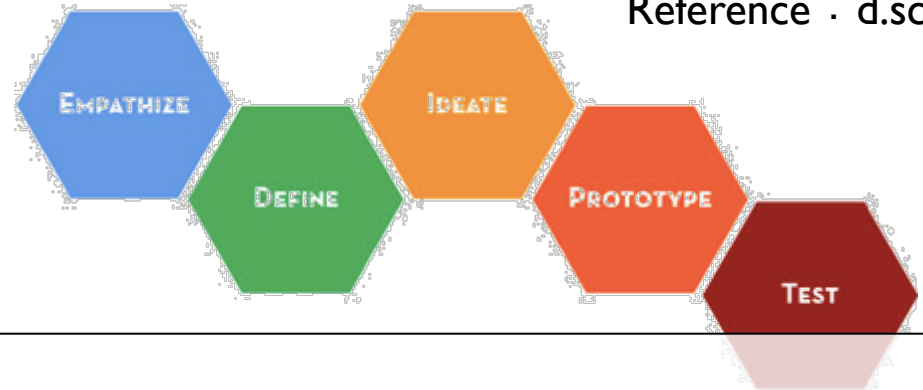
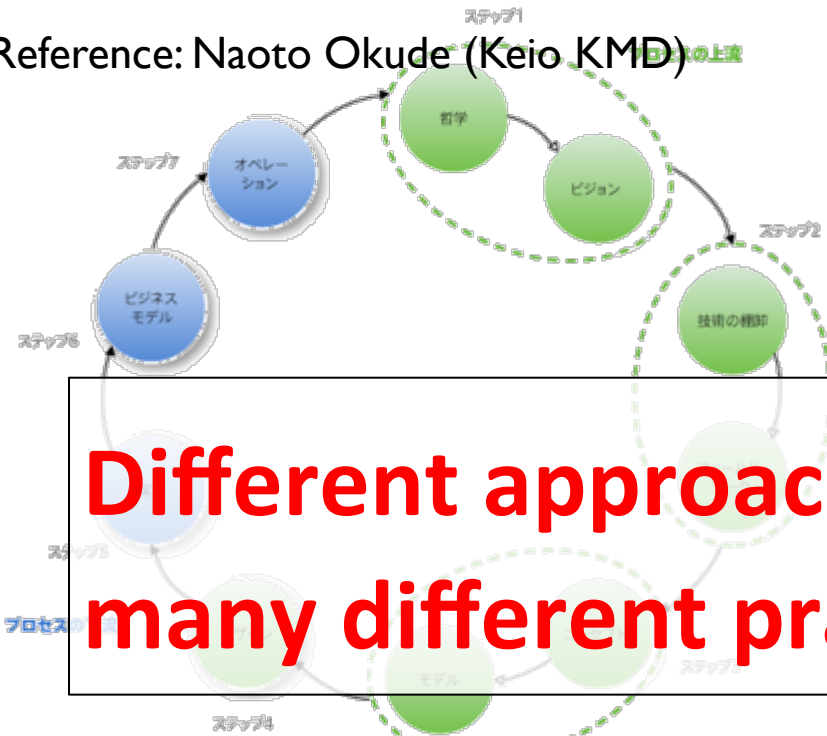
Keio EDGE

23 Reference: IDEO

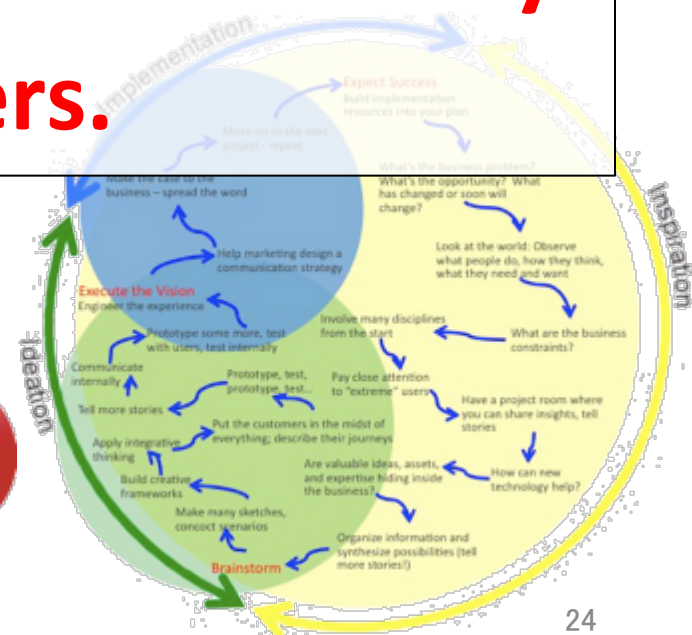
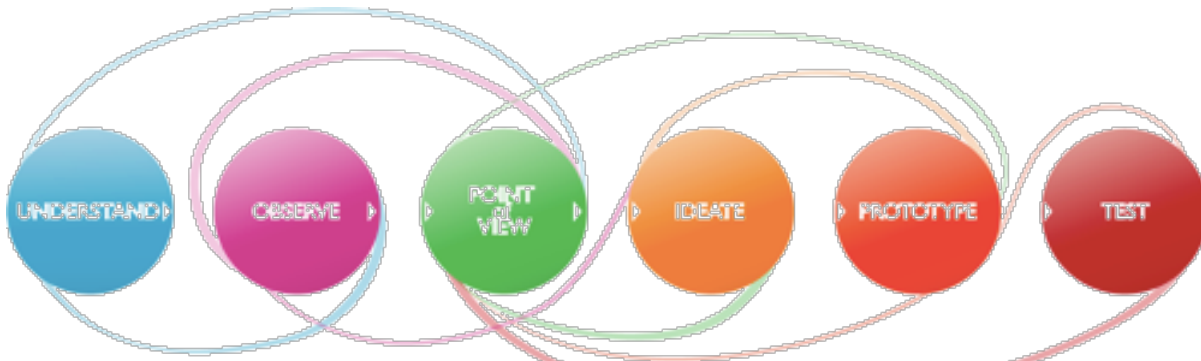
How we “do” Design Thinking?

Reference: Naoto Okude (Keio KMD)

Reference : d.school



Different approaches are introduced by many different practitioners.



What are different from how we used to do things and Design Thinking?

- **Observation**

- Ethnographical approach. More qualitative than quantitative.

- **Ideation**

- Done in group of diverse people is encouraged.

- **Prototyping**

- Fail fast and learn fast and more. Do while thinking, think while doing mentality.



Other similar approaches

- IDEO, Design Thinking
 - Human-centric
 - Collaborative
 - Driven by experimentation
- SRI, 5 Disciplines of Innovation
 - Important Customer and Market Needs
 - Value Creation
 - Innovation Champions
 - Innovation Teams
 - Organizational Alignment
- INDEX: Design to Improve Life
 - Design to improve life compass
- and more



SAP, ドイツ



WORK IN TEAMS

CIID, デンマーク

ZIBA, 米国

Design Thinking around the world



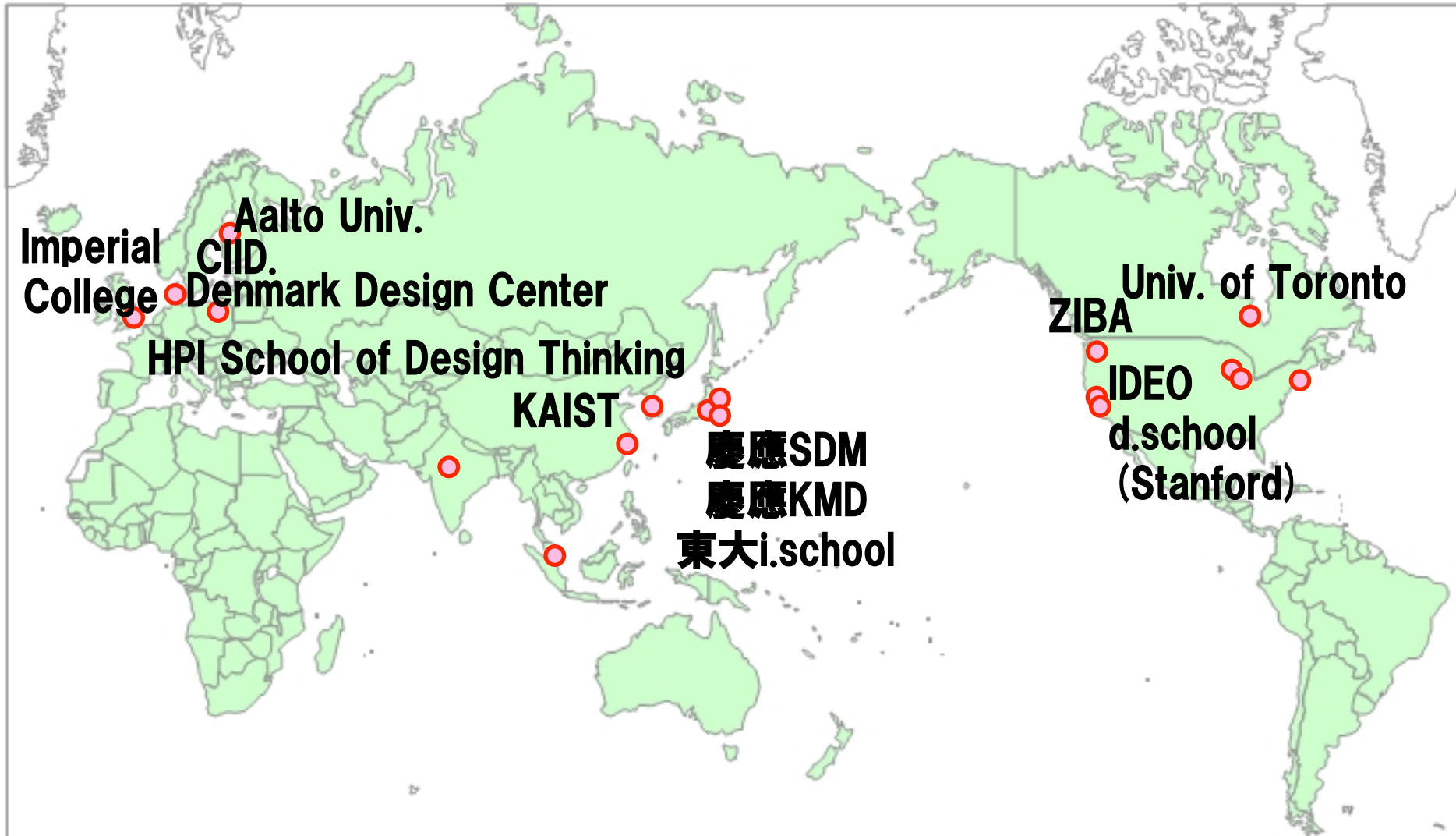
2014

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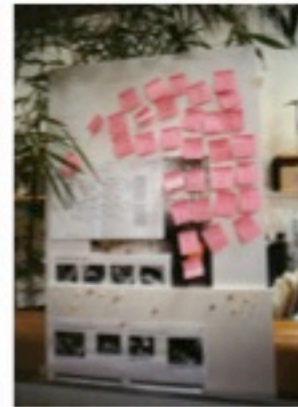
P&G, 米国

Design Thinking around the world



Design Thinking around the world

Design Thinking Practice : IDEO



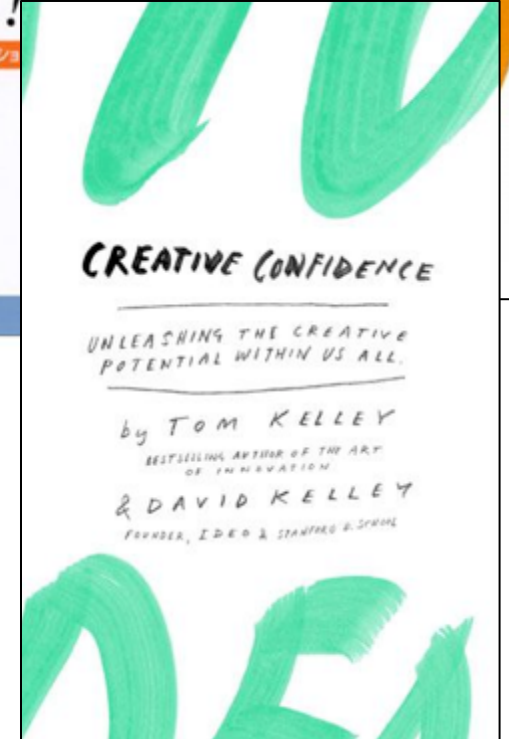
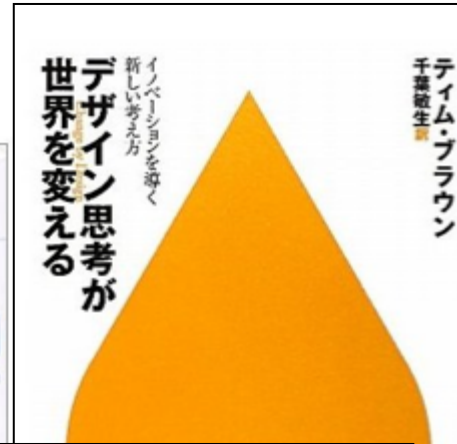
IDEO CEO: Tim Brown



2014



Design Thinking around the world



Stanford Univ.
d.school

IDEO

Design Thinking around the world

HARVARD
MAGAZINE

Published on *Harvard Magazine* (<http://harvardmagazine.com>)

The Business of Design Thinking



Harvard University

MMMProgram
Design thinking
+ Process thinking



MMM=MBA+MEM

The dual-degree program that integrates management, operations and design.

NORTHWESTERN UNIVERSITY

McCormick
Northwestern Engineering

Kellogg
School of Management

Northwestern University

Reference: Harvard Magazine <http://harvardmagazine.com/2013/01/the-business-of-design-thinking>

http://www.kellogg.northwestern.edu/programs/fulltimemba/mba_programs/mmm_program.aspx

2013 100 Most Desirable MBA Employers

Where MBA students say they'd most like to work

Rank	Employer	2013 Fortune Ranking	% students who put in top 5
1	Google	55	28.38%
2	McKinsey & Co.	N.A.	16.58%
3	Apple	6	14.82%
4	Amazon	49	14.41%
5	Boston Consulting Group	N.A.	12.19%
6	Bain & Company	N.A.	11.63%
7	Nike	126	10.72%
8	Walt Disney	66	10.54%
9	Deloitte	N.A.	9.78%
10	Goldman Sachs	68	8.50%
11	Facebook	482	7.89%
12	J.P. Morgan	18	7.46%
13	IDEO	N.A.	7.45%
14	Microsoft	35	7.39%
15	Starbucks	208	6.07%

Stanford University, d.school



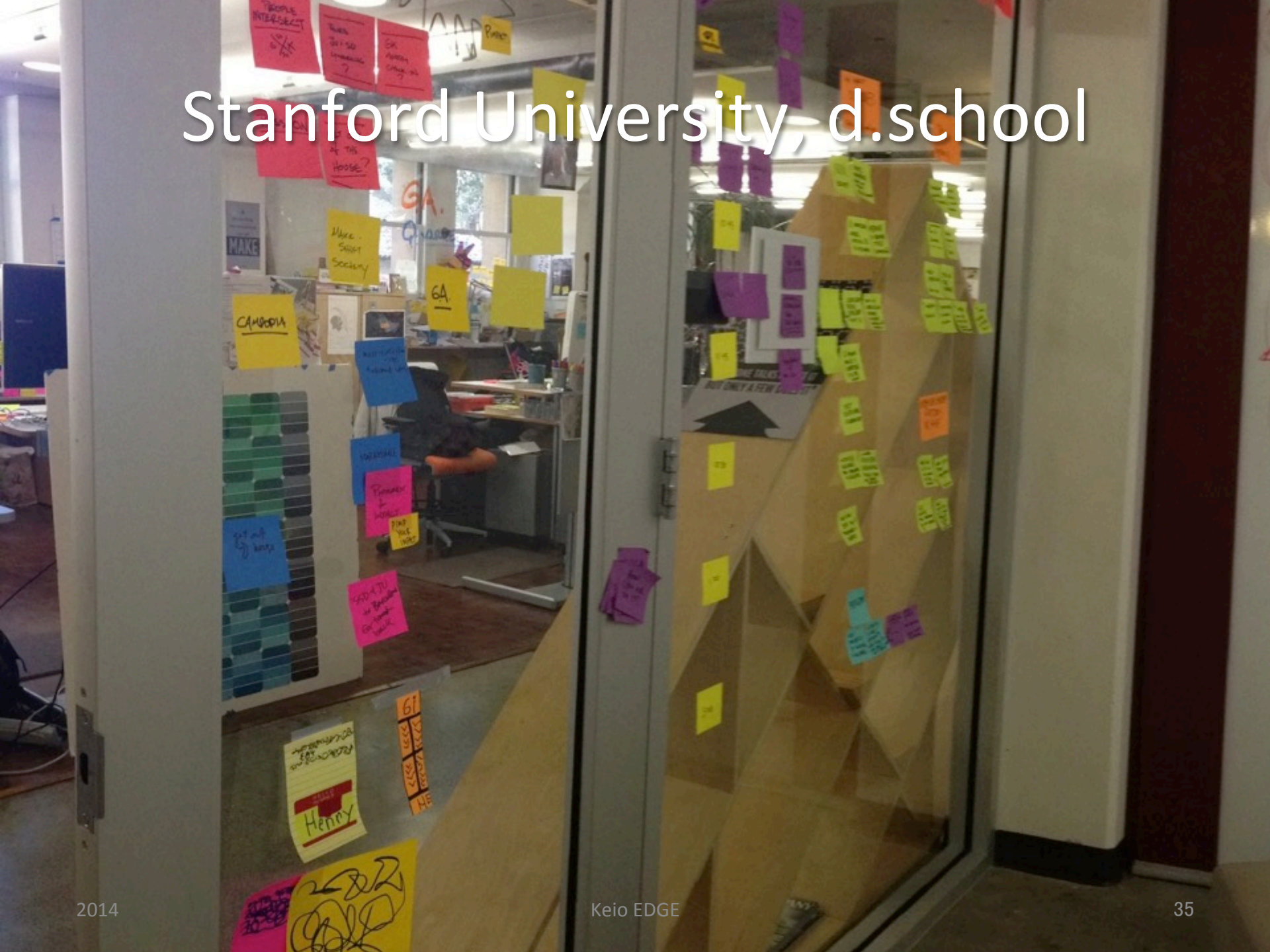
Stanford University, d.school



Handwritten notes and diagrams on whiteboards:

- Top right: SCOTT D. OFFICE HO...
- Left side: BAD RAP, Human Knot, Lava, Group Juggling
- Center: Guns Room (with a small sign), Paper Planes (with a drawing of a paper plane), a red star-like diagram.
- Right side: A diagram with a bracket labeled CBA, and a table with numbers 1, 2, 3 and corresponding values.
- Bottom right: -Test 3, 30, 28

Stanford University, d.school



Workshop: Introduction

- Why we workshop
 - to get you ready to conduct “**interdisciplinary and innovative thinking group work**”
 - gain experience to think outside of the box
- What is expected
 - be creative
 - aim for innovative outcome
 - contribute your team with your uniqueness
 - **have fun!**
- What is NOT expected
 - be critical
 - land for feasible (easy) outcome
 - turning off your logical part of your brain

Workshop: Context

Healthcare

- You are a team thinking about launching a start-up business in healthcare domain.
- Your scope is global and have not decided what to focus on.
- You are in the phase of developing your concept.

Workshop: What you do

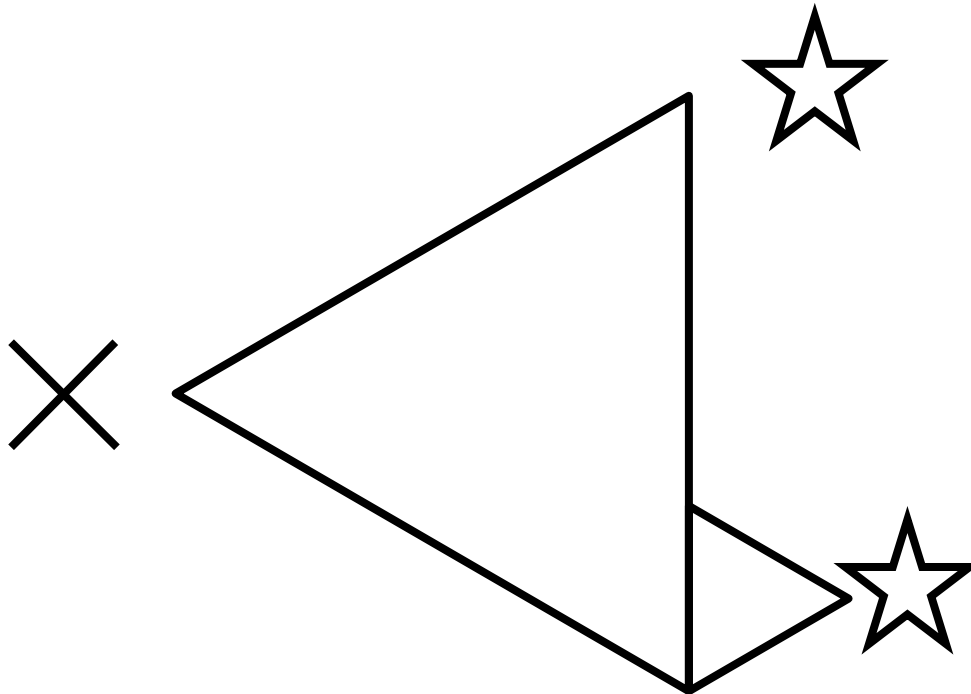
- Divergent thinking.
 - stretch, expand, explorer, extend, leap, jump, discover ... your mind and thinking.
 - take advantage of diversity
- Convergent thinking.
 - summarize, abstract, organize, structurize, distill, unpack, ... your thoughts and ideas.
 - take advantage of diversity
- Work in interdisciplinary mode.
- Finding insight(s).
- Think innovatively and obtain innovative results.

Let's get started.

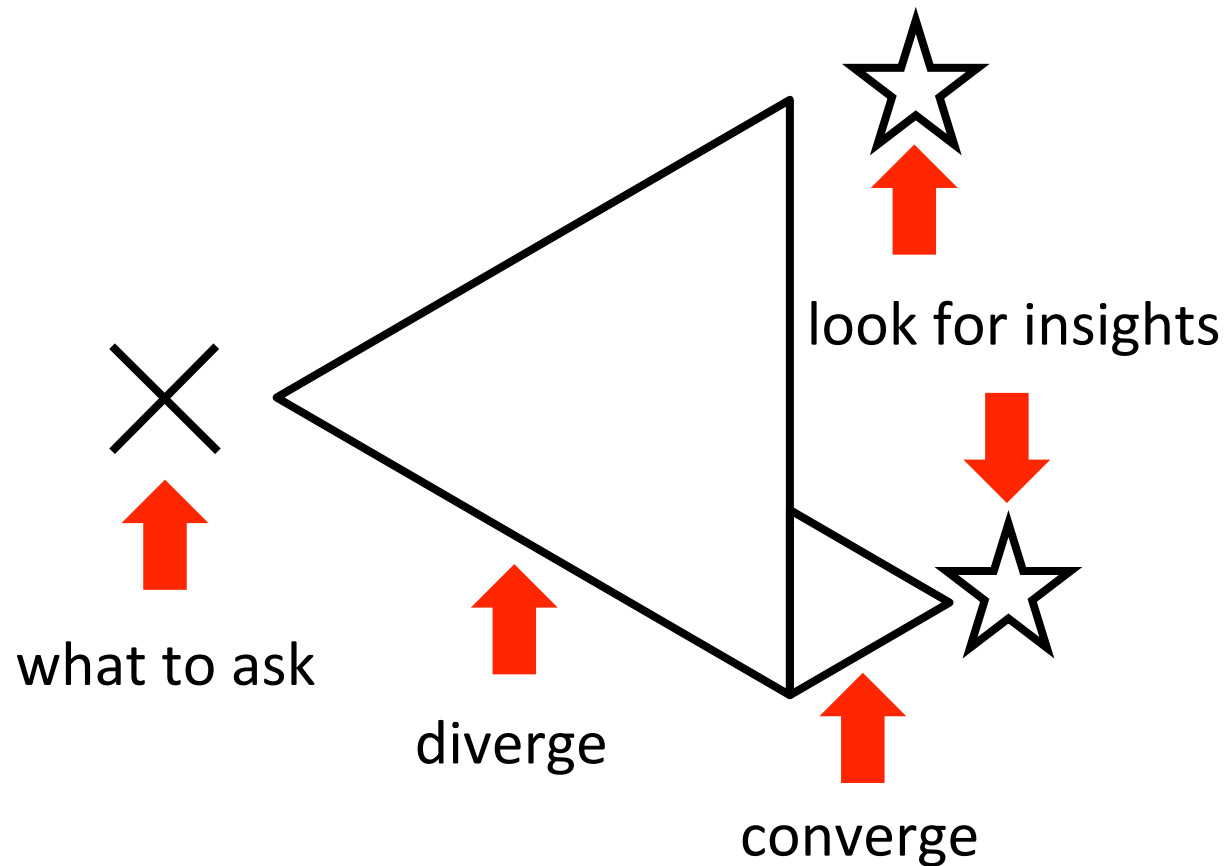
Ideation?

- Why do you ideate?
- When do you ideate?
- How do you ideate?

Ideation Strategy: **Activity** perspective



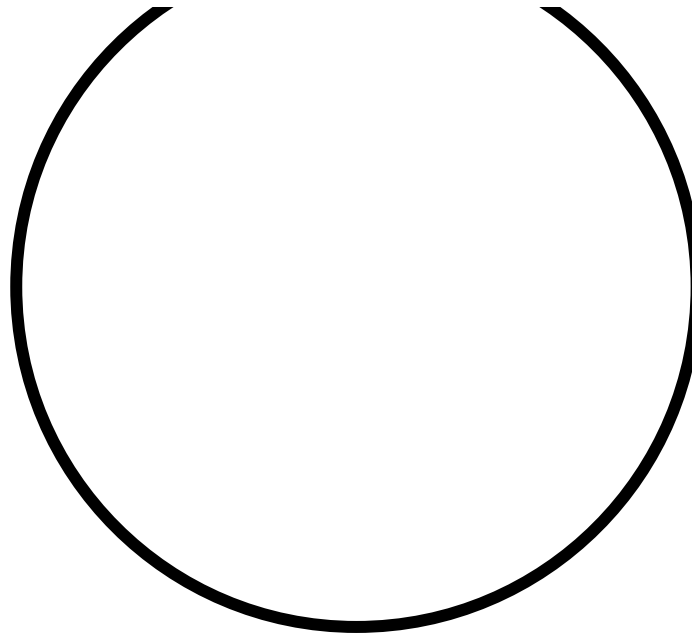
Ideation Strategy: **Activity** perspective



Ideation Strategy: Solution space perspective

Solution Space

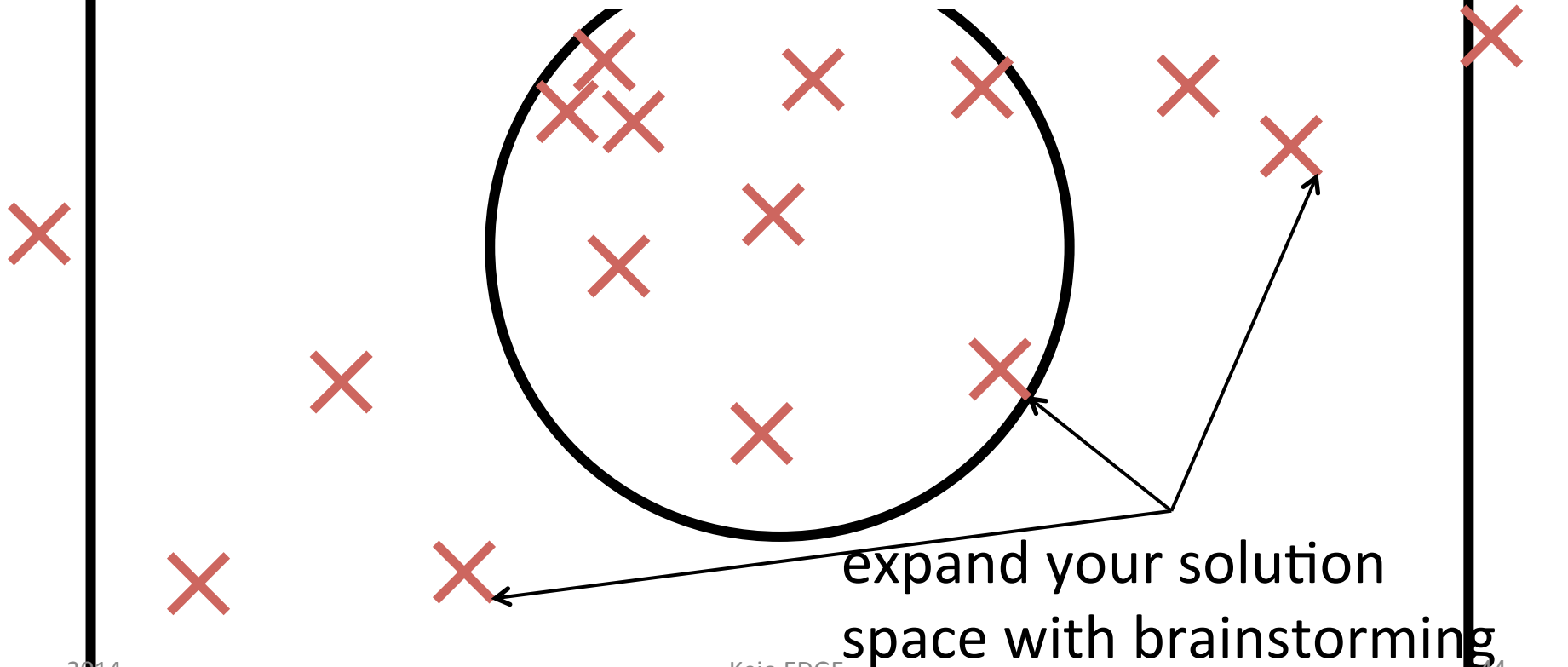
Conventional Solution Space



Ideation Strategy: Solution space perspective

Solution Space

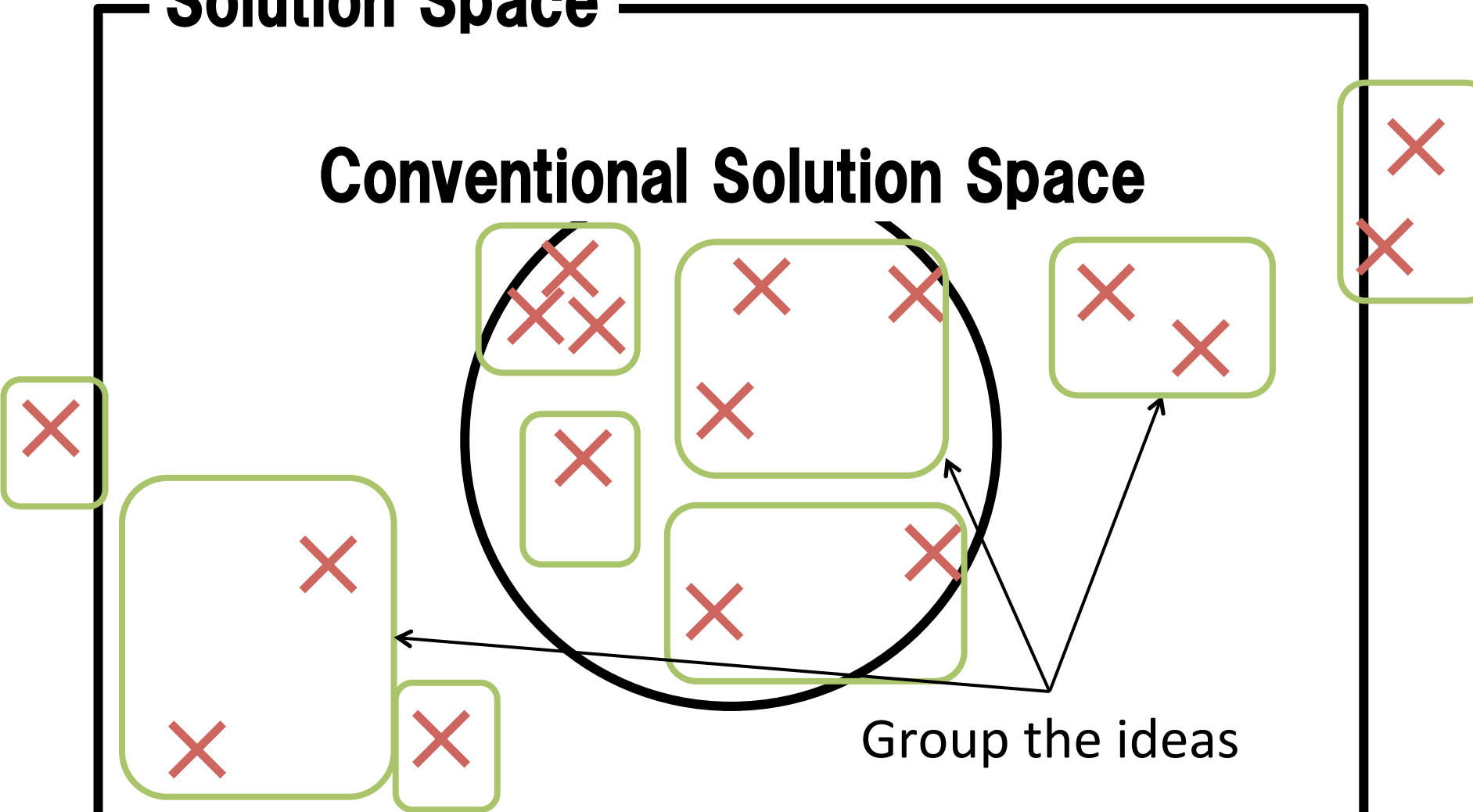
Conventional Solution Space



Ideation Strategy: Solution space perspective

Solution Space

Conventional Solution Space

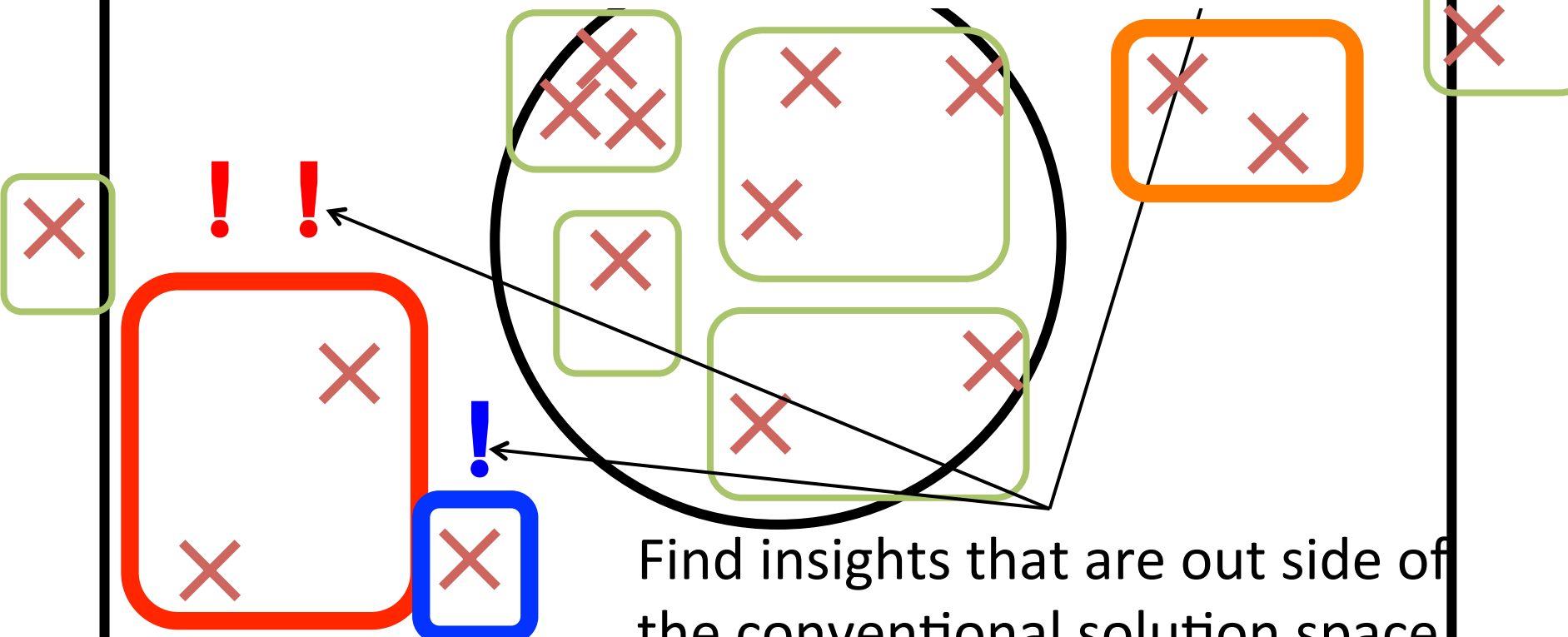


Group the ideas

Ideation Strategy: Solution space perspective

Solution Space

Conventional Solution Space!

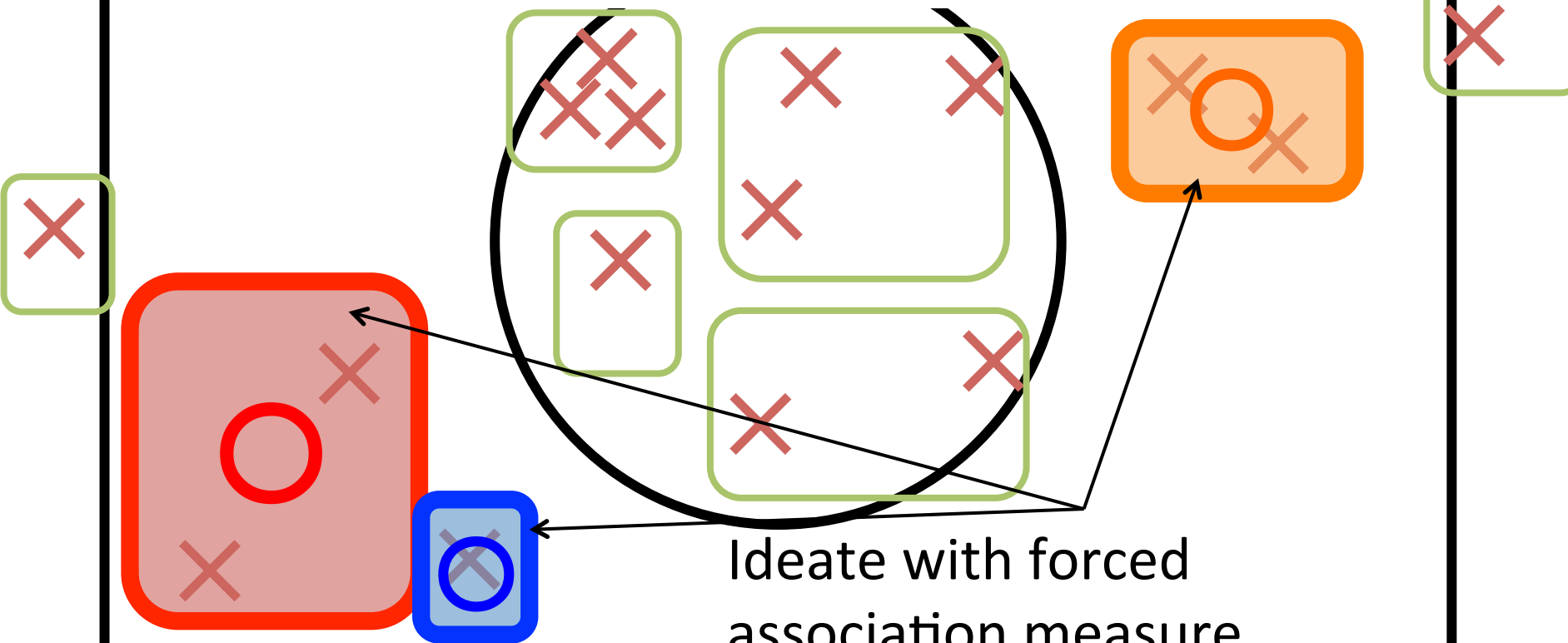


Find insights that are out side of
the conventional solution space

Ideation Strategy: Solution space perspective

Solution Space

Conventional Solution Space



Ideate with forced
association measure

Ideation Tactics

- You need to define the “context”.
- You need to define the problem.
- **Intentionally** think outside the box!
 - Need to know what defines the box.
 - Need to know what is inside the box.
- **NOT about finding an idea but expanding your idea options further.**

Ideation Methods

- **Free** Association Measure
- **Forced** Association Measure

Ideation Methods

- **Free** Association Measure
 - Brainstorming, ...
- **Forced** Association Measure
 - Osborn's Checklist, Matrix Measure, ...

Why collaborate?

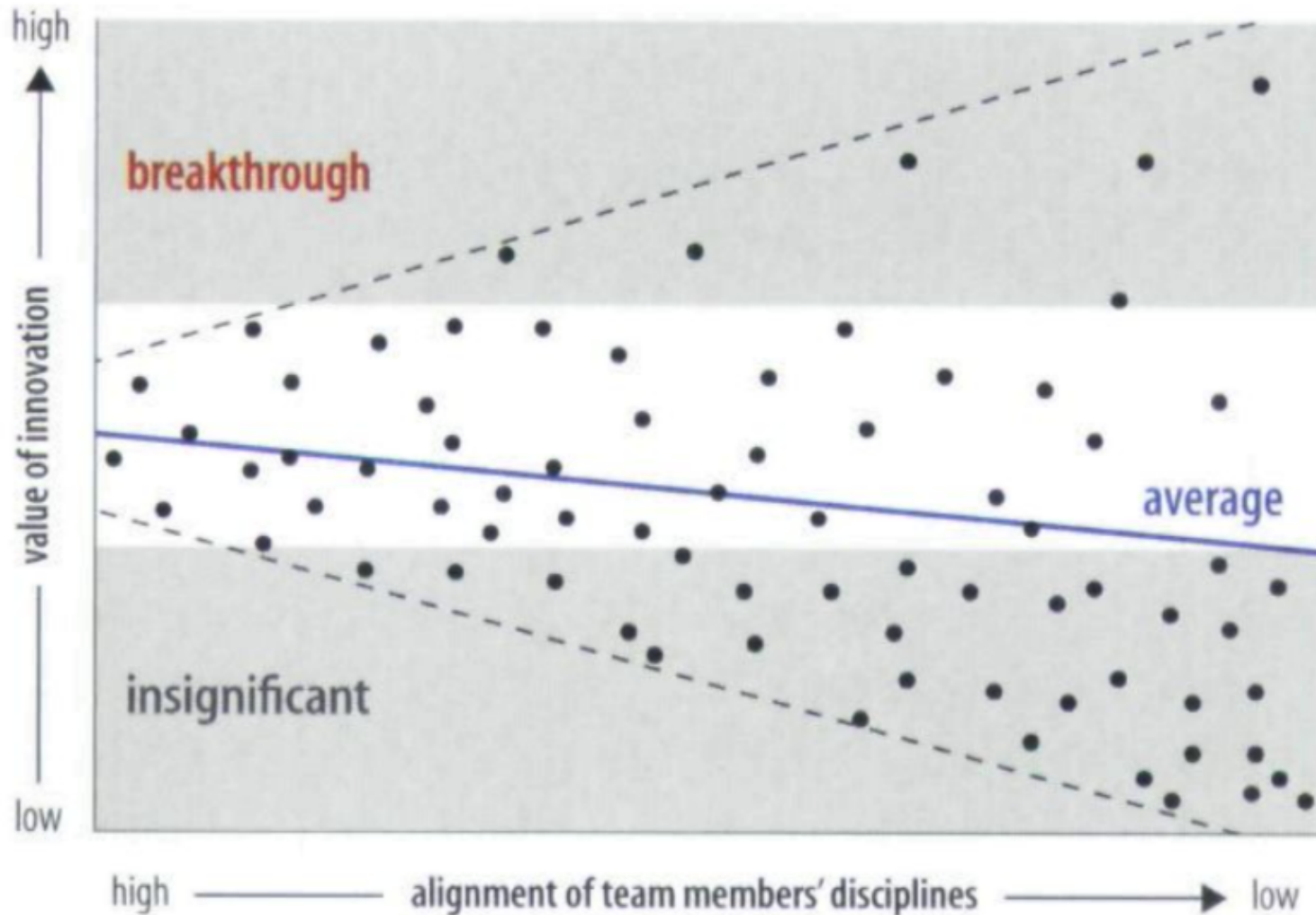
Evidence for a Collective Intelligence Factor in the Performance of Human Groups

Anita Williams Woolley,^{1*} Christopher F. Chabris,^{2,3} Alex Pentland,^{3,4}
Nada Hashmi,^{3,5} Thomas W. Malone^{3,5}

Psychologists have repeatedly shown that a single statistical factor—often called “general intelligence”—emerges from the correlations among people’s performance on a wide variety of cognitive tasks. But no one has systematically examined whether a similar kind of “collective intelligence” exists for groups of people. In two studies with 699 people, working in groups of two to five, we find converging evidence of a general collective intelligence factor that explains a group’s performance on a wide variety of tasks. This “c factor” is not strongly correlated with the average or maximum individual intelligence of group members but is correlated with the average social sensitivity of group members, the equality in distribution of conversational turn-taking, and the proportion of females in the group.

Woolley, Anita W. and others . "Evidence for a Collective Intelligence Factor in the Performance of Human Groups." *Science* 330, no. 6004 (2010): 686-688.

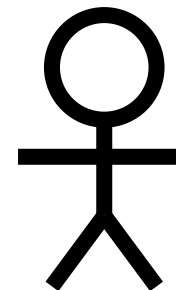
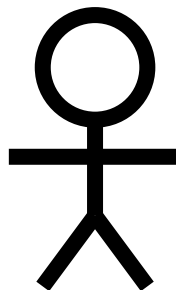
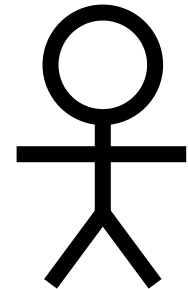
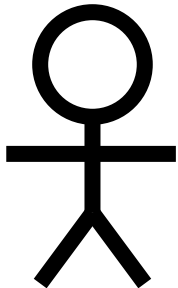
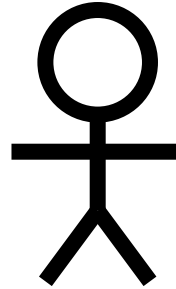
Why collaborate interdisciplinary?



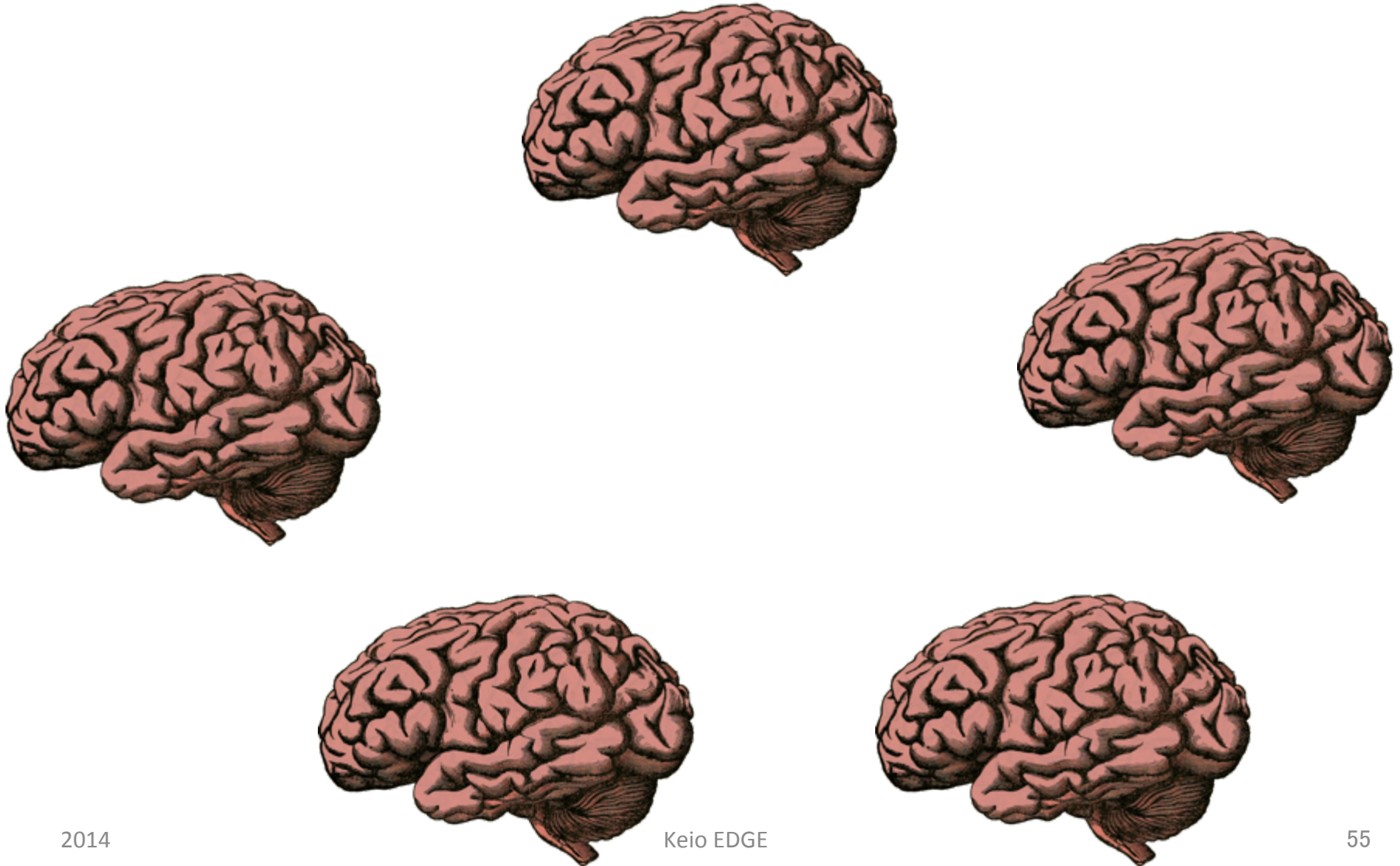
Brainstorming

- A kind of **Free Association** Measure
 - It means it is encouraged to ***build on the ideas of others.***
 - You should ***write (or draw) clearly*** and ***be vocal*** every time you place your post-it note so that ***others have more chance to build on your ideas.***
- Go for ***quantity!***
 - It is not sniper rifling the best solution but more like shooting a shot gun.
 - Brainstorming mode:
 - ***welcome wild/crazy ideas!***
 - ***give every post-it note a short positive feedback!***

Brainstorming as a **Free Association** Measure

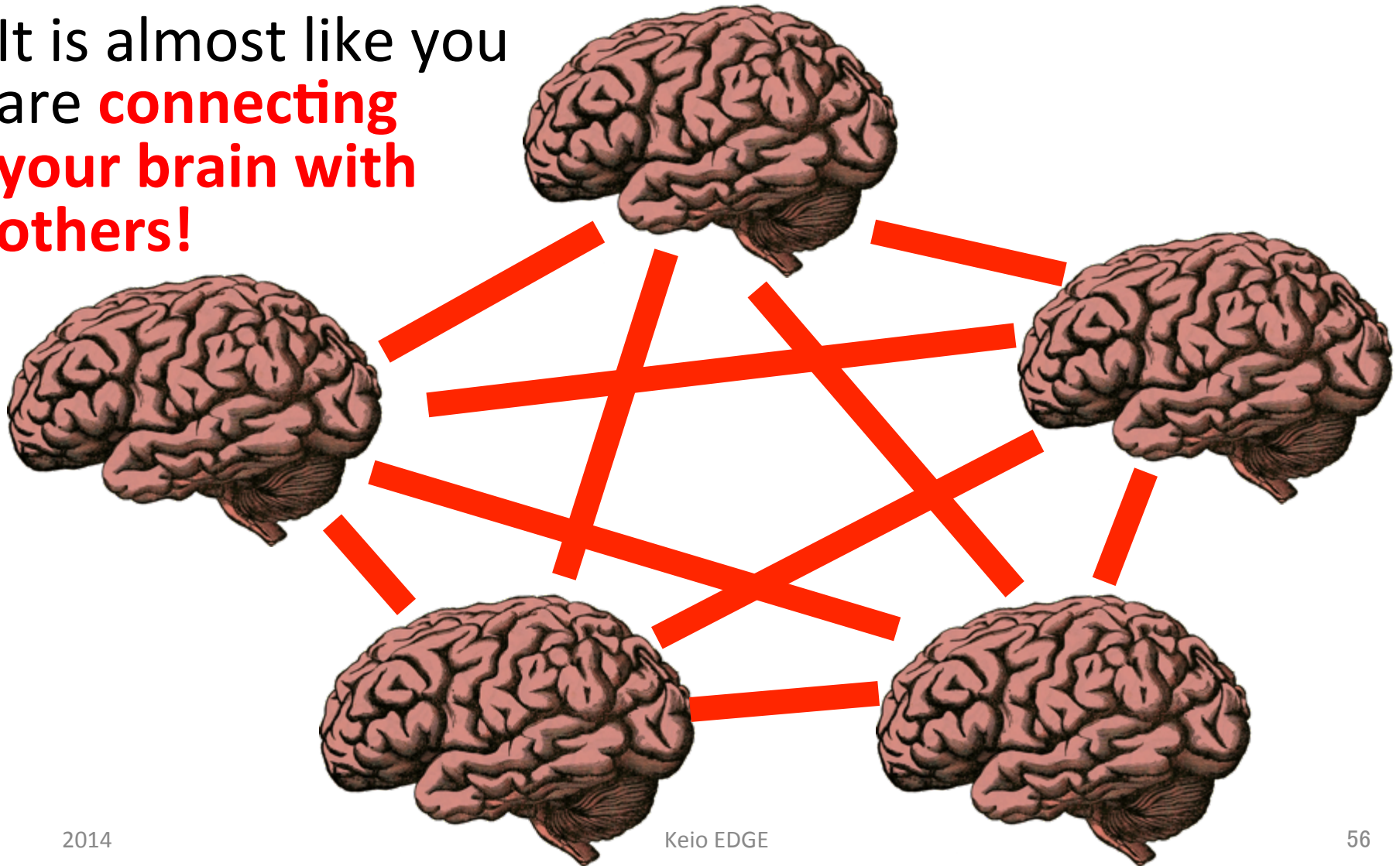


Brainstorming as a **Free Association** Measure



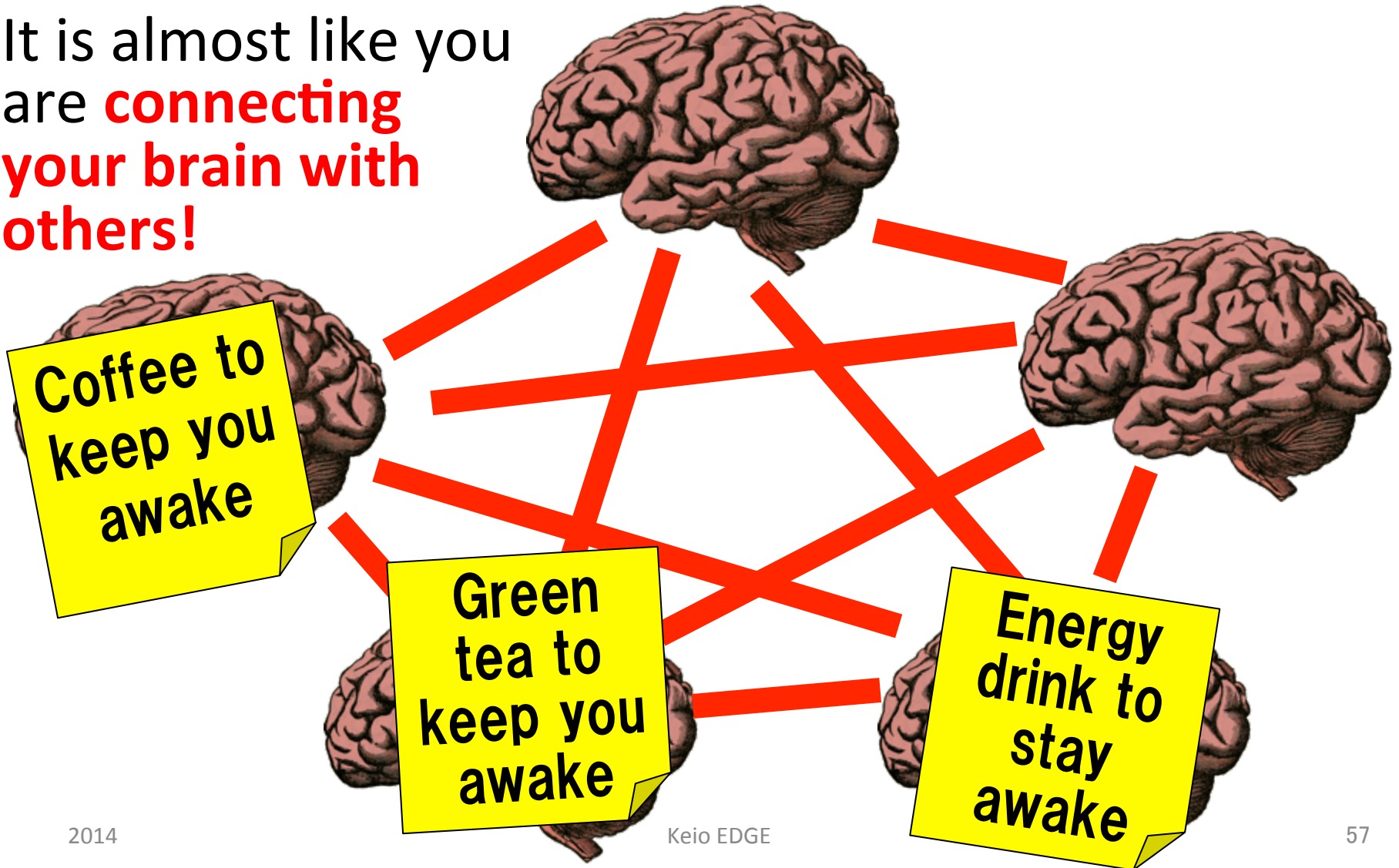
Brainstorming as a **Free Association** Measure

It is almost like you
are **connecting**
your brain with
others!



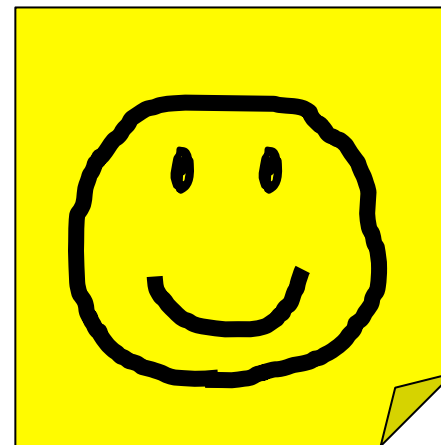
Brainstorming as a **Free Association** Measure

It is almost like you
are **connecting**
your brain with
others!



Brainstorming as a **Free Association** Measure

Increase the chance to build on the ideas.



You can
draw, too!

Verbally share your idea every time you put it down
on the post-it note!



Go for **quantity!**

- Build on other ideas
- Encourage wild ideas
- Defer judgment and do NOT block the others

Go for **quantity!**

Brainstorming mode:

welcome wild/crazy ideas!

give every post-it note a short positive feedback!

XYZ!

Nice!

**That's
cool!**



Brainstorming



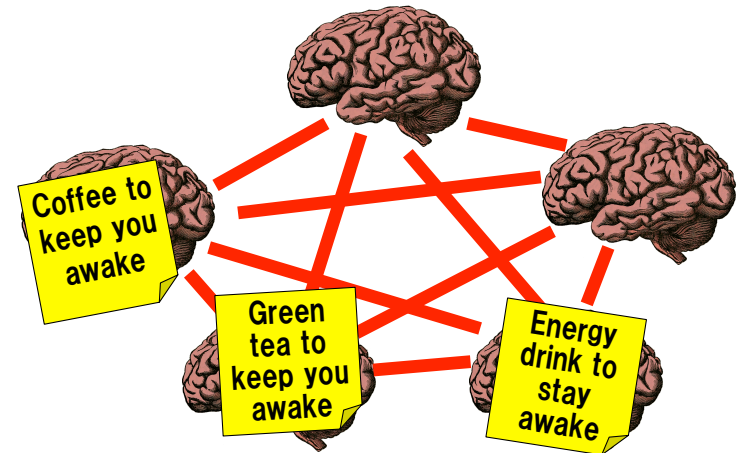
Go for quantity!



Easy to understand!



Brainstorming mode!



Build on the ideas!

Strategic Brainstorming Tips

- **Clarify** what you are brainstorming.
 - Solution? Definition? Recognition? ...
 - You can brainstorm many different things
- Ask the **question that is suitable for brainstorming**.
 - Questions that diversity might help to answer
 - Questions that are interesting to expand the solution space
 - Questions that logical or critical thinking would not provide an innovative solution
 - “How might we” questions
 - “Ill defined” questions
 - ...
- Stay in **innovative thinking mode**
 - You do NOT want “in the box” solution as output
 - You also do NOT want ordinary “Sci-Fi* movie solution” as output (*Science Fiction)

Brainstorming



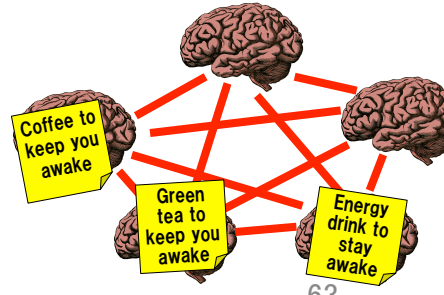
2014
Go for quantity!



Easy to understand!



Keio EDGE
Brainstorming mode!



63
Build on the ideas!

Brainstorming

How might we
communicate face-to-face
without a common language?



Go for quantity!

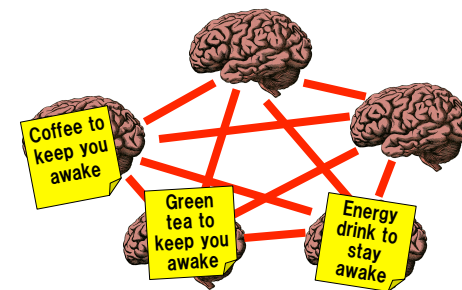


Easy to understand!



Keio EDGE

Brainstorming mode!



64

Build on the ideas!

Example

Brainstorming

- How might we communicate face-to-face without a common language?

hand
gestures

body
gestures

facial
expressions

dance moves

leg/feet
gestures

mimicking
animal
motions and
sounds

mimicking
insect
motions and
sounds

drawing
pictures

drawing
diagrams

Brainstorming

あなたが
思わず、ついつい
触っちゃった、手が出ちゃった
時に「**口にしてそうな一言**」って？



2014
Go for quantity!

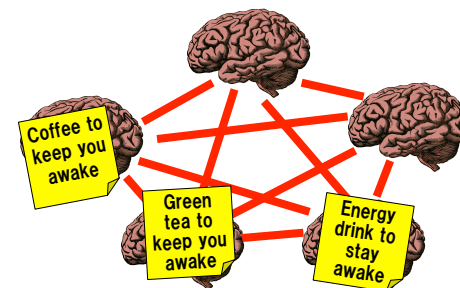


Easy to understand!



Keio EDGE

Brainstorming mode!



Build on the ideas!

Brainstorming

「あなたが思わず、ついつい触っちゃった、手が出ちゃった時に『口にしてそうな一言』って？」

ふっかふ
か！

うわ、つ
めた～い

ああ、意
外とそう
でもない

お、生き
てる！

なんだ、
良かった
あ

○○××

Brainstorming Exercise 1

- Discuss and write down clearly what you are brainstorming.
- Conduct the brainstorming.
- Did you expand the solution space?
- How can you change your brainstorming question to improve the *divergent thinking* process?

Example

• How might we communicate face-to-face without a common language?

hand gestures

body gestures

facial expressions

dance moves

leg/feet gestures

mimicking animal

mimicking insect

drawing pictures

drawing diagrams

*Note

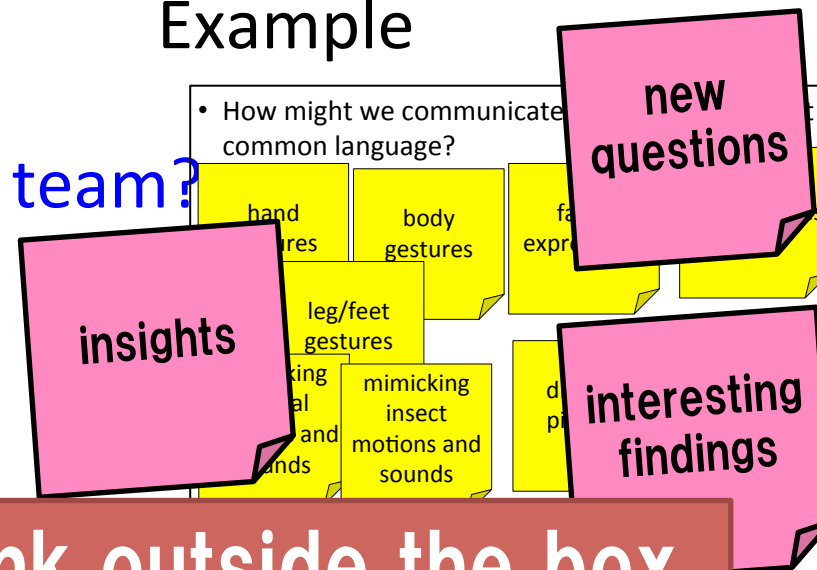
It is a good habit to clearly state your brainstorming question.

Spend some time to think what is the right question to ask to expand your solution space

Brainstorming Exercise 2

- Discuss about your brainstorming session. Both process and output.
 - Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.
- ❑ Why did you have to change brainstorming question? What does it implicate?
 - ❑ Any bias or trend in output?
 - ❑ Any unnoticed assumption of the team?
 - ❑ Possibility of new perspective?
 - ❑ Any out of the box idea?

Example



2014 Looking for insights to think outside the box

Brainstorming Exercise 1

- テーマと課題について議論しながら、**ブレインストーミングの設問を考えて下さい。**
- 考えた設問でブレインストーミングを**実施。**
- 思考は**発散**したか？
- どの様な設問であれば**多様性を活かし、より効果的な発散**が出来るか？

【例】

「あなたが思わず、ついつい触っちゃった、手が出ちゃった時に『口にしてそうな一言』って？」

ふっかふか！

うわ、つめた～い

ああ、意外とそうでもない

お、生きてる！

なんだ、良かったあ

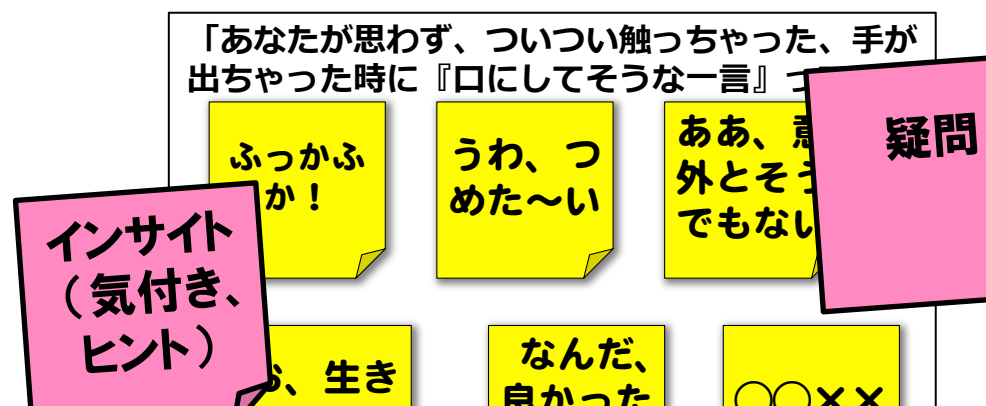
〇〇××

※ブレインストーミングの設問を明確に示して実施すると良い。

意図的に思考の発散を行う工夫をする

Brainstorming Exercise 2

- 実施したブレインストーミングについてディスカッションして下さい。
- **インサイト（気付き、ヒント）** をポストイットに書き出して貼る。
 - 設問を何度か作り直してみてものインサイト？
 - 出てくるポストイットの傾向からのインサイト？
- 【例】
 - 自分たちの思い込み？
 - 自分たちの当たり前？
 - 意外な方向性？
 - 常識のうまい外し方？



2014 新しい解や解空間を生み出す可能性を探す

Affinity Diagram

[Activity]

- Make groups from your post-it notes and give them unique names.

[What you gain]

- **Bird's-eye view** of your ideas.
 - trends, bias, ...
- **Higher abstraction level information** of your ideas.

Affinity Diagram as a **Discussion Process** with in a group

- You will be discussing not about the individual ideas but **one notch higher in abstraction level**.
- You will be **accommodating the interpretation** of ideas and groups.
- Stay in **innovative thinking mode**
 - You need to strategically choose **what type of grouping** you want:
 - *logical and critical* thinking grouping
 - *creative* thinking grouping
 - You are looking for insights (IOW hints, crews) to **think outside of the box**.

Example

currently it's
some what
universally
understood

Affinity Diagram

highly
dependent
on one's
skills

drawing
pictures

dance moves

hand
gestures

facial
expressions

should probably
conform some
kind of rule or
framework

mimicking

body

gestur

anima
motions
sound

mimic
inse
motion
sounds

savanna
hunters may
actually do
this kind of
things

leg/feet
gestures

drawing
diagrams

Example

currently it's
some what
universally
understood

Affinity Diagram

highly
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hunters may
actually do
this kind of

body

gestur

anima
motions
sound

mimic
inse

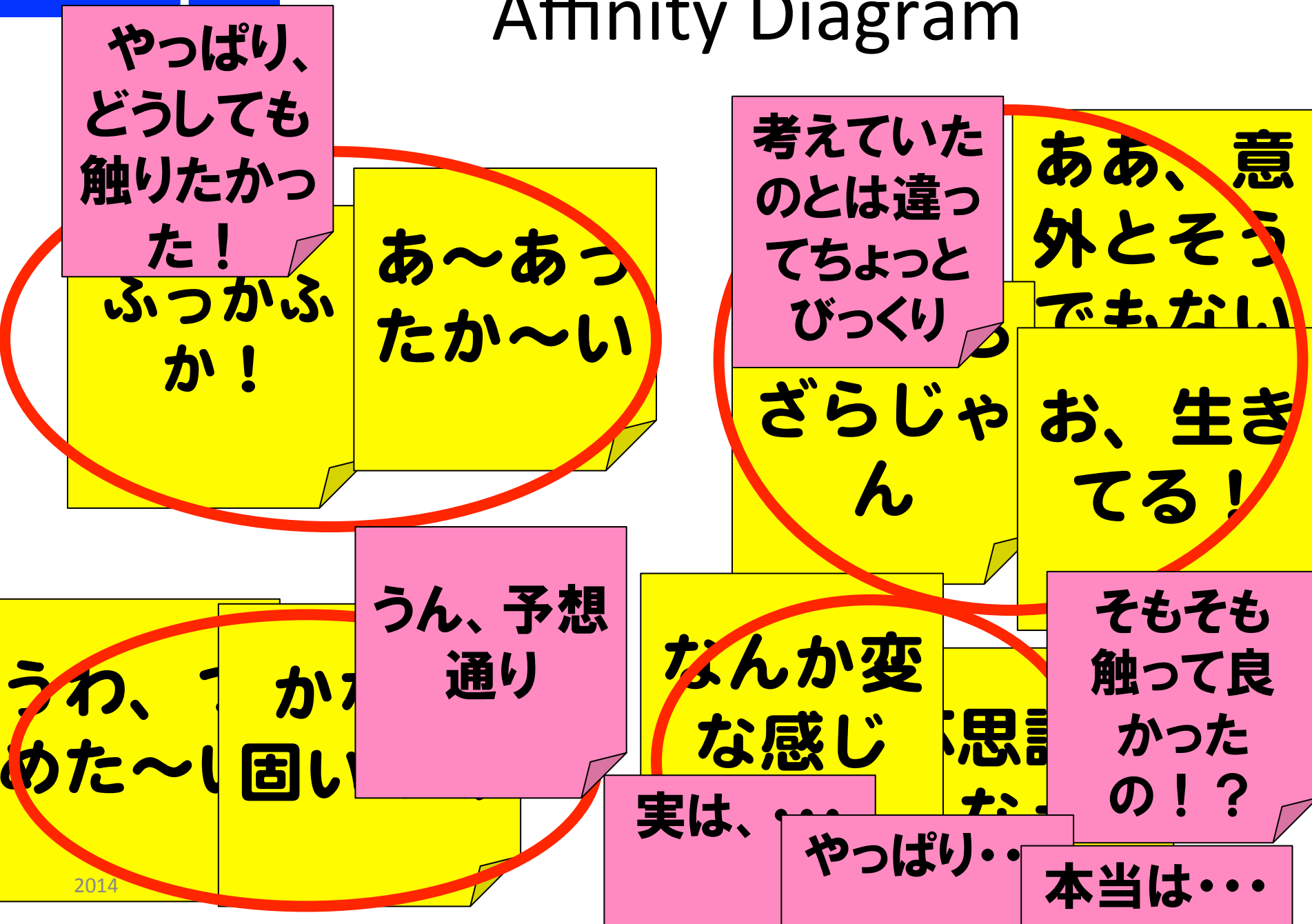
leg/feet

drawing
grams

**Discuss and find interesting
perspective to group**

Example

Affinity Diagram



Example

Affinity Diagram

やっぱり、
どうしても
触りたかつ
た！

ふっかふ
か！

あ～あつ
たか～い

考えていた
のとは違っ
てちょっと
びっくり

ああ、意
外とそう
でもない

和博さ
ざらし
ん

お、生き
てる！

うん、予想
通り

なんか変
な感じ

そもそも
触って良

グルーピングしたポストイットが共有するエッセンスを創造的に見つけ出し、グループ名に反映

Example

Example of Logical vs Creative Grouping

More *logical and critical thinking* type grouping

create visual aid to communicate

hand gestures

facial expressions

leg/feet gestures

body gestures

dance moves

use human body parts to communicate

2014

drawing pictures

drawing diagrams

mimicking insect motions and sounds

mimicking animal motions and sounds

mimic other life form that communicates

Example

Example of Logical vs Creative Grouping

More *creative thinking* type grouping

currently it's some what universally understood

hand gestures

facial expressions

highly dependent on one's skills

drawing pictures

dance moves

mimicking animal motions and sounds

mimicking insect motions and sounds

savanna hunters may actually do this kind of things

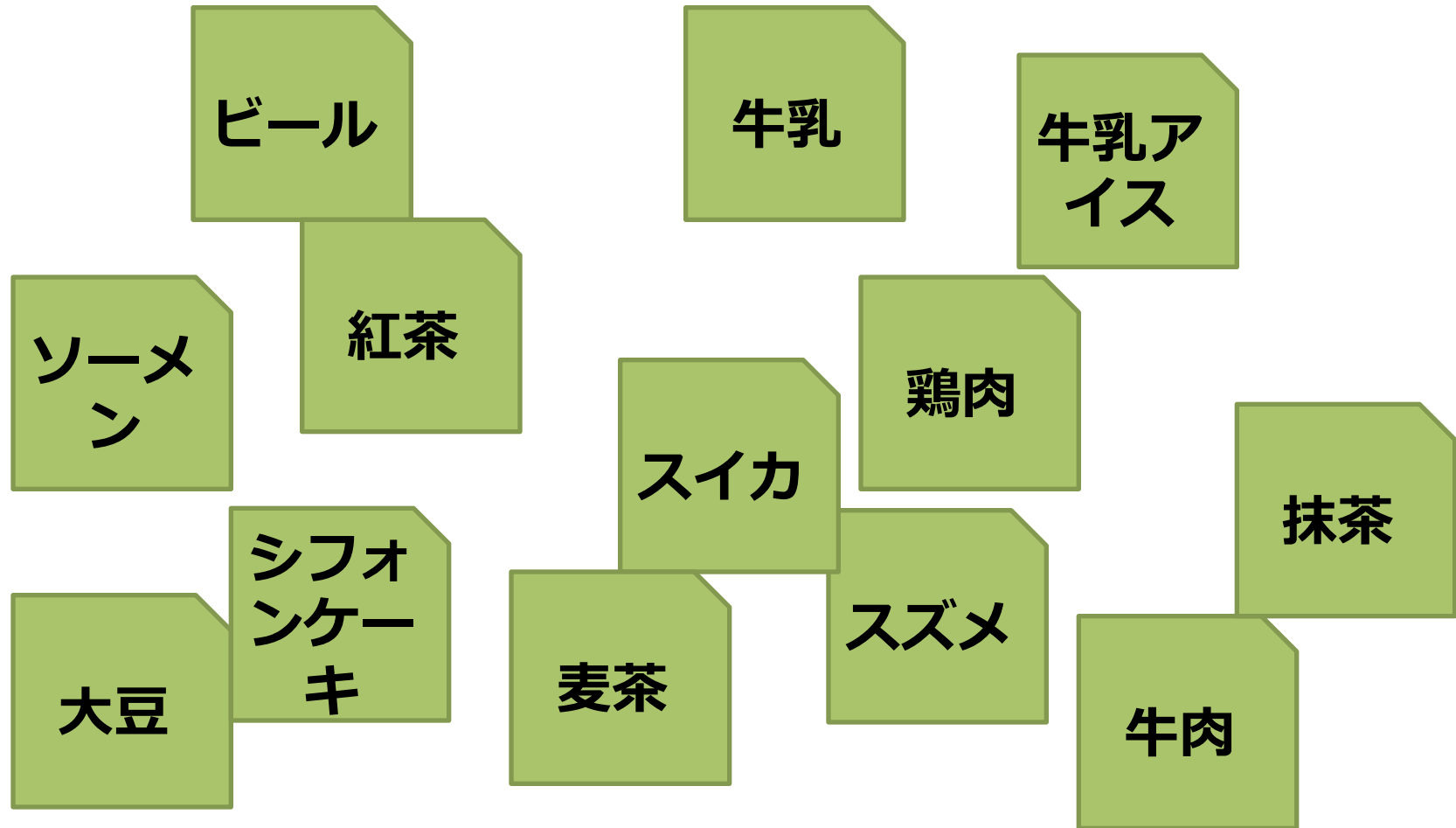
body gestures

should probably conform some kind of rule or framework

leg/feet gestures

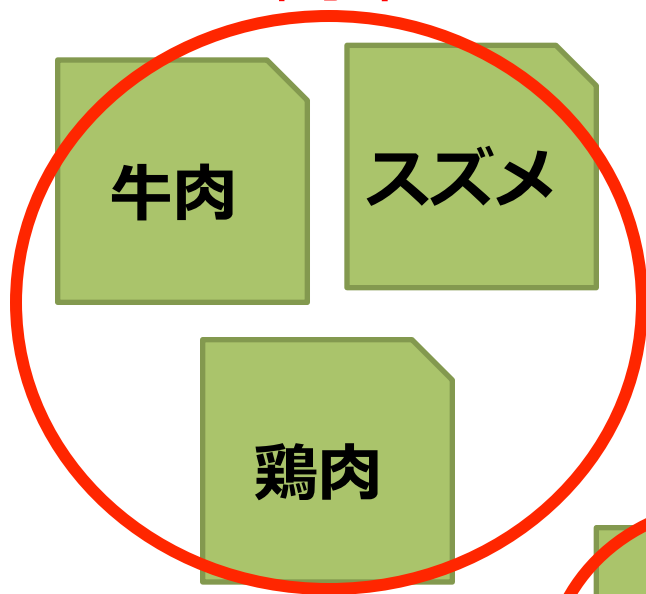
drawing diagrams

「好きな食べ物」から親和図を作成

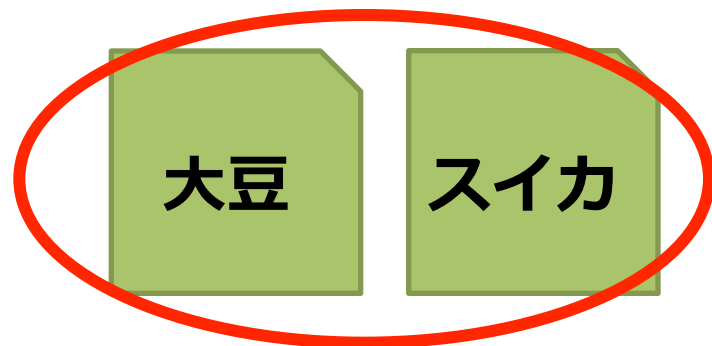


「好きな食べ物」から親和図を作成

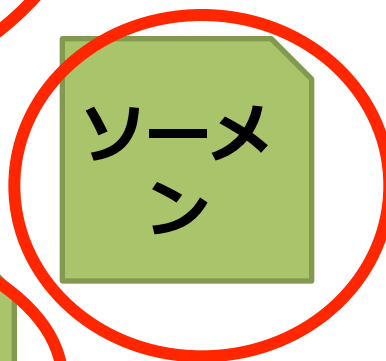
肉系



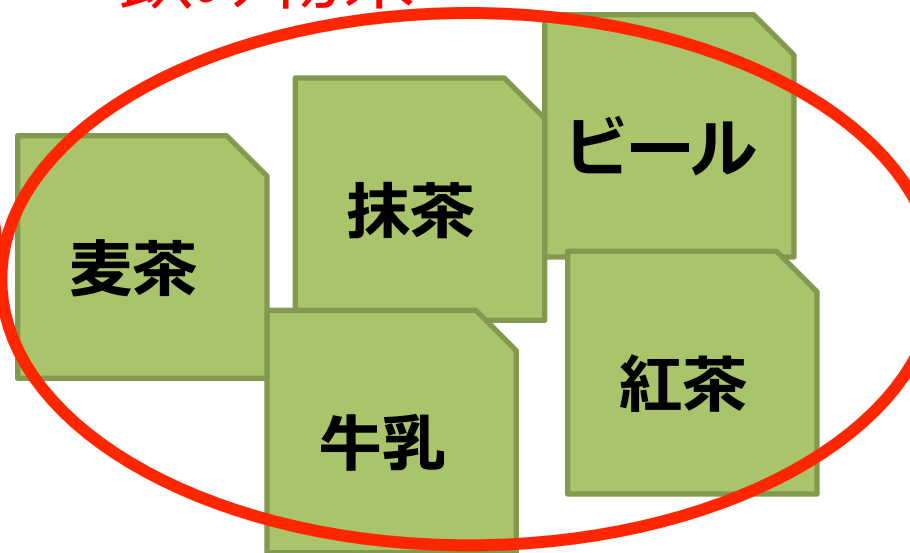
野菜系



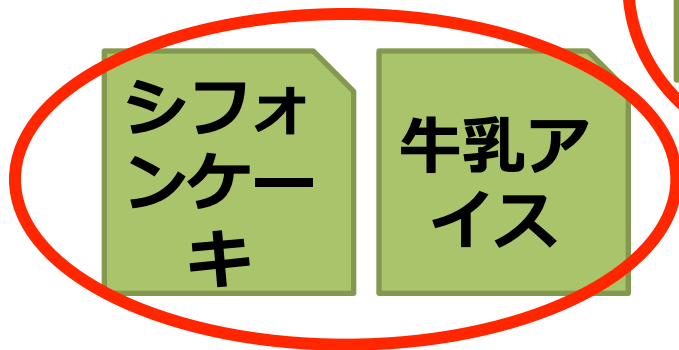
麺系



飲み物系



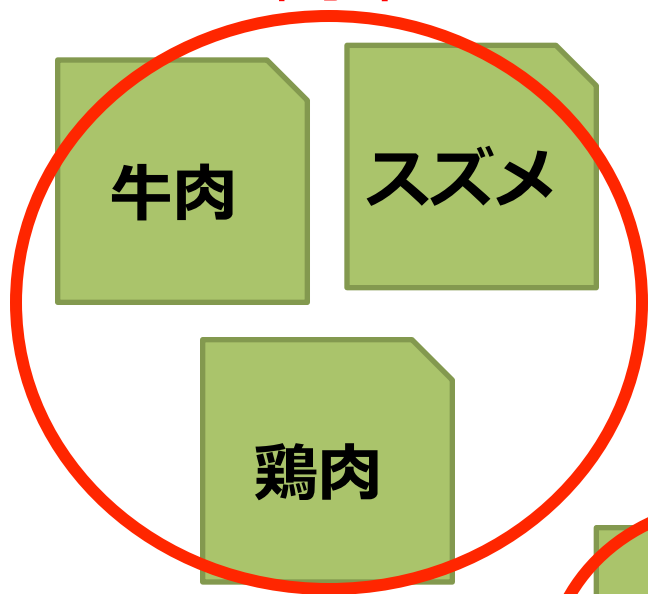
おやつ系



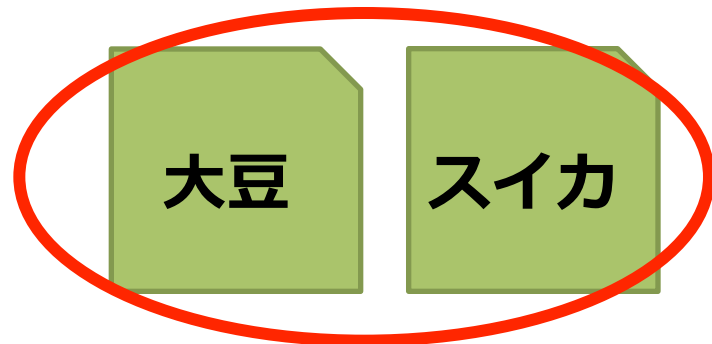
※一般的分類で親和図を作成

「好きな食べ物」から親和図を作成

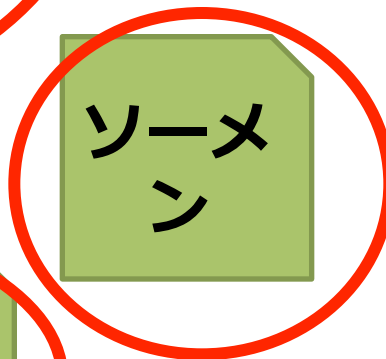
肉系



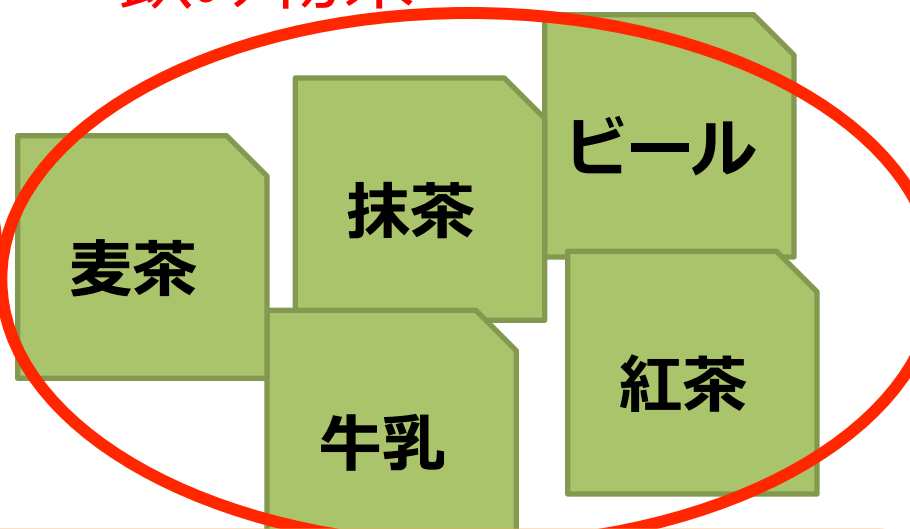
野菜系



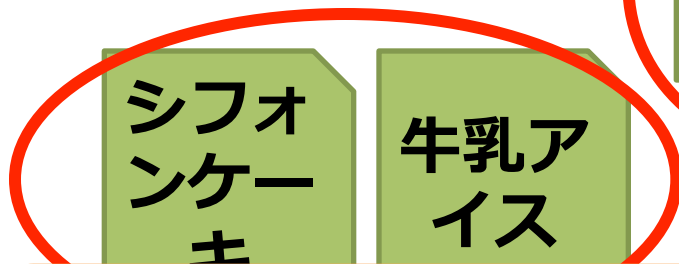
麺系



飲み物系

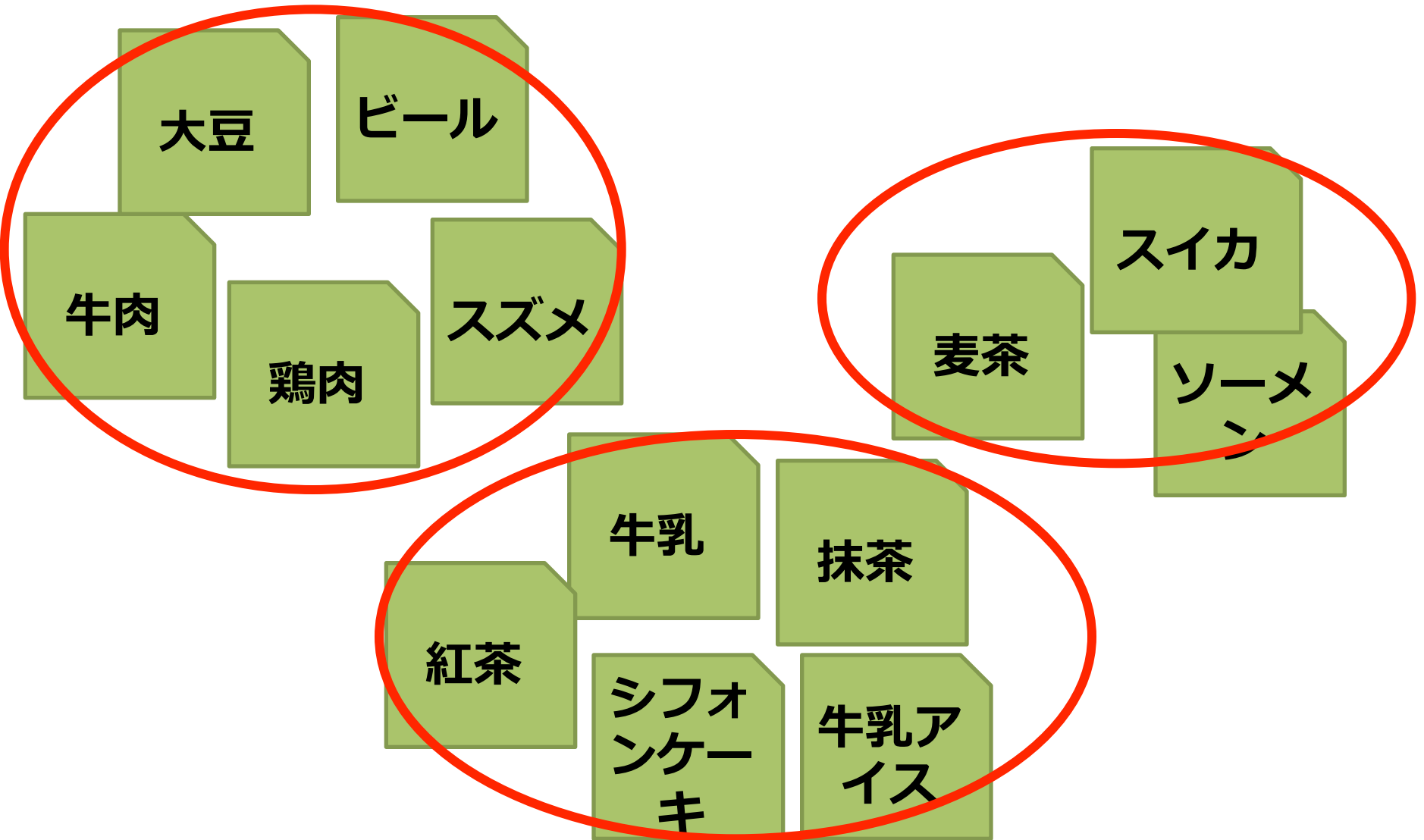


おやつ系

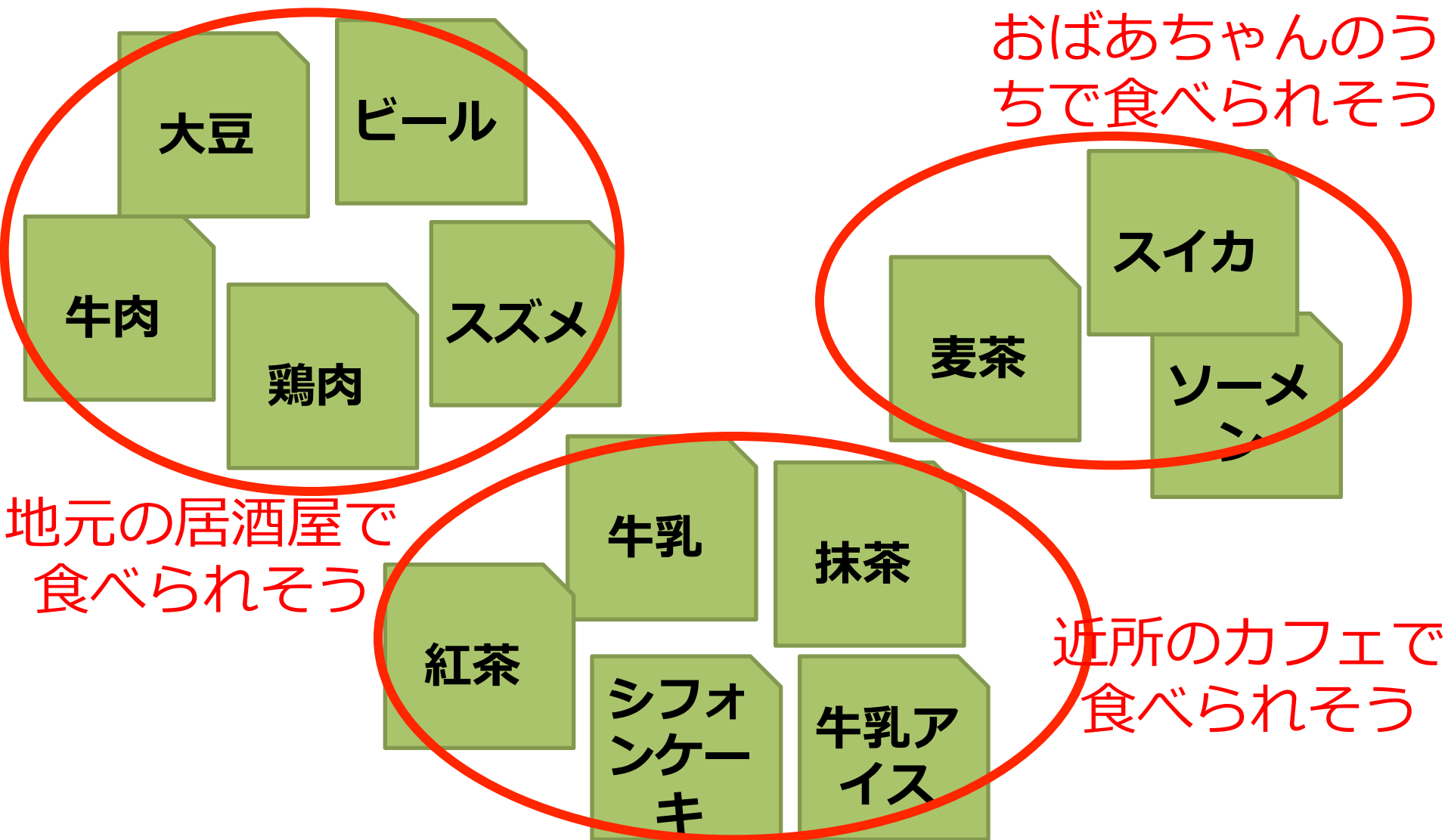


インサイト：粉ものが好きな人がいないという事は、ひょっとして関西出身者がいないのでは？

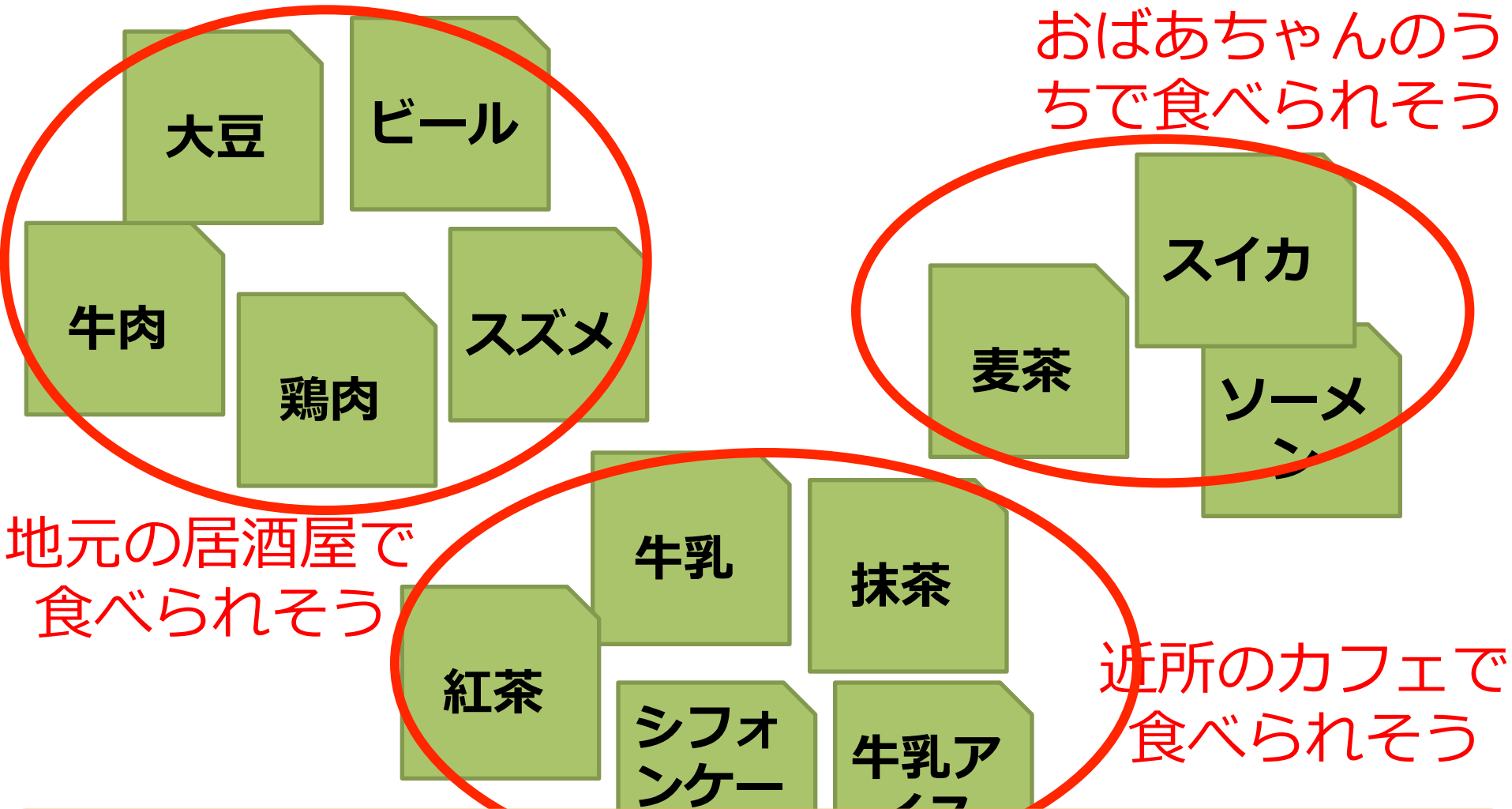
「好きな食べ物」から親和図を作成



「好きな食べ物」から親和図を作成

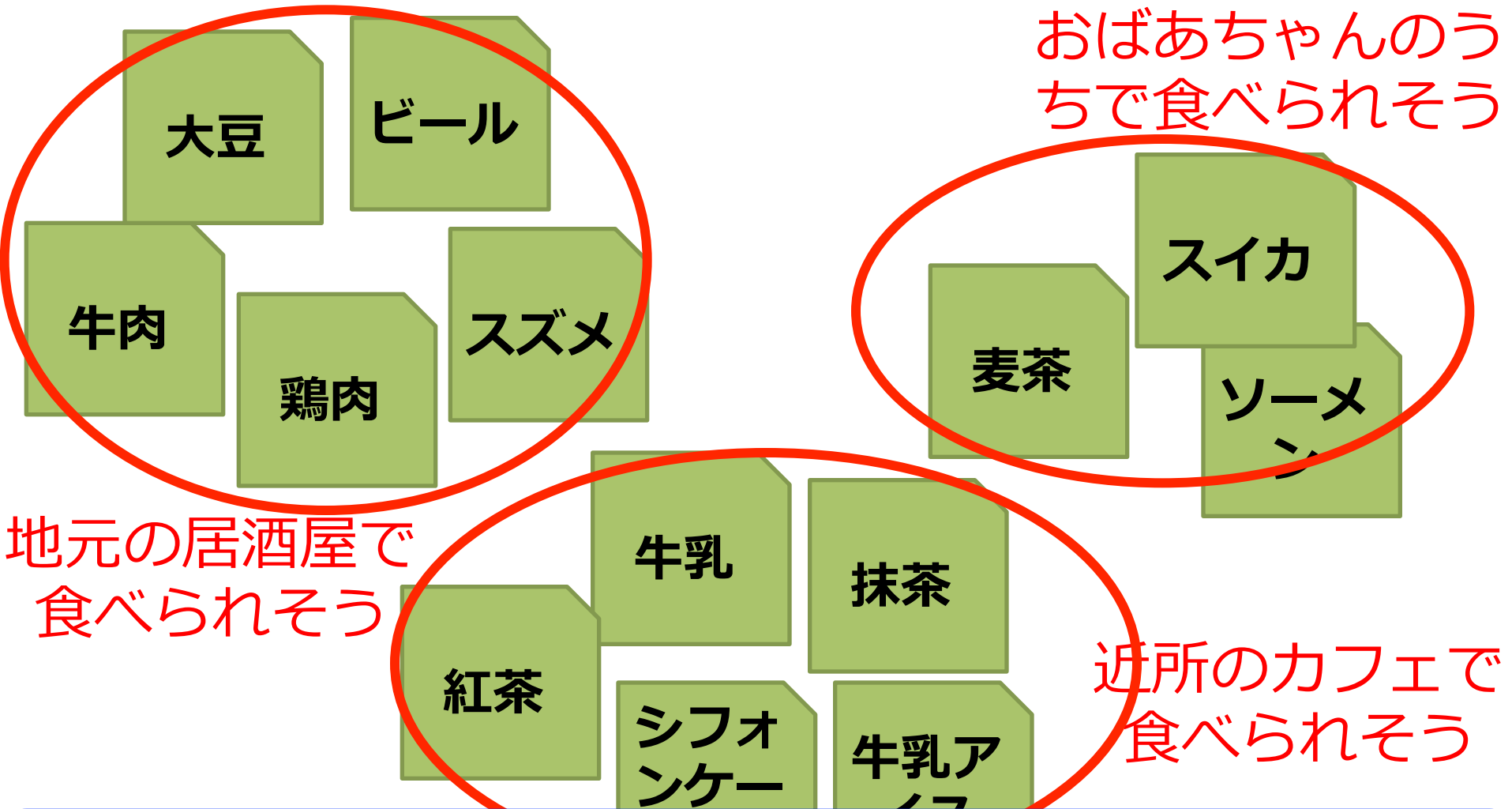


「好きな食べ物」から親和図を作成



インサイト：おしゃれなレストランに行くより、身近なスポットで好きな物を食べるタイプの人が多い様だ。

「好きな食べ物」から親和図を作成



更なるブレストのきっかけ：今出ていない「身近」に感じる食事をする場所は他にどこがあるだろう？

Affinity Diagram Exercise 1

- **Discuss and create Affinity Diagram** from the brainstorming result.
- Try creating Affinity Diagram multiple times with different perspective and affinity definition. (Take a picture once you create one.)
- ❑ When you are making groups and giving them names, try to find insights that may lead the design process to innovative outcome.
- ❑ Do you now see something you did not see when you are brainstorming?

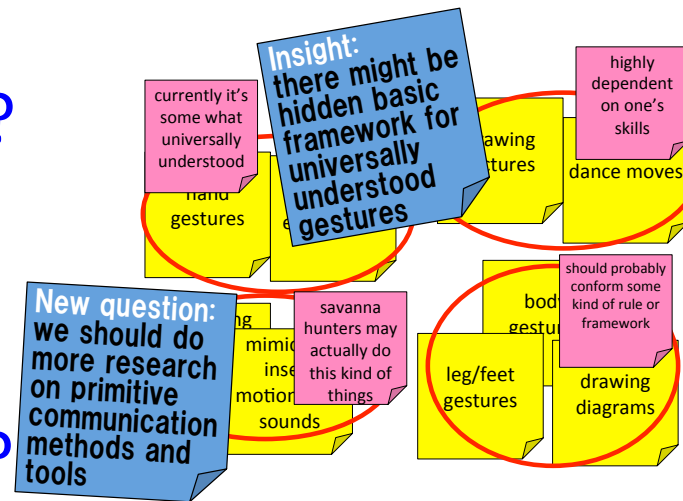
Organize and structure to interpret ideation result

Exercise

Affinity Diagram Exercise 2

- Discuss about your Affinity Diagram session. Both process and output.
- Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.

- What is interesting about the groups?
- Any surprise or unexpected?
- What was discussed when you changed the group name?
- Any uncommon but essential finding?
- Any indication for further idea exploration?



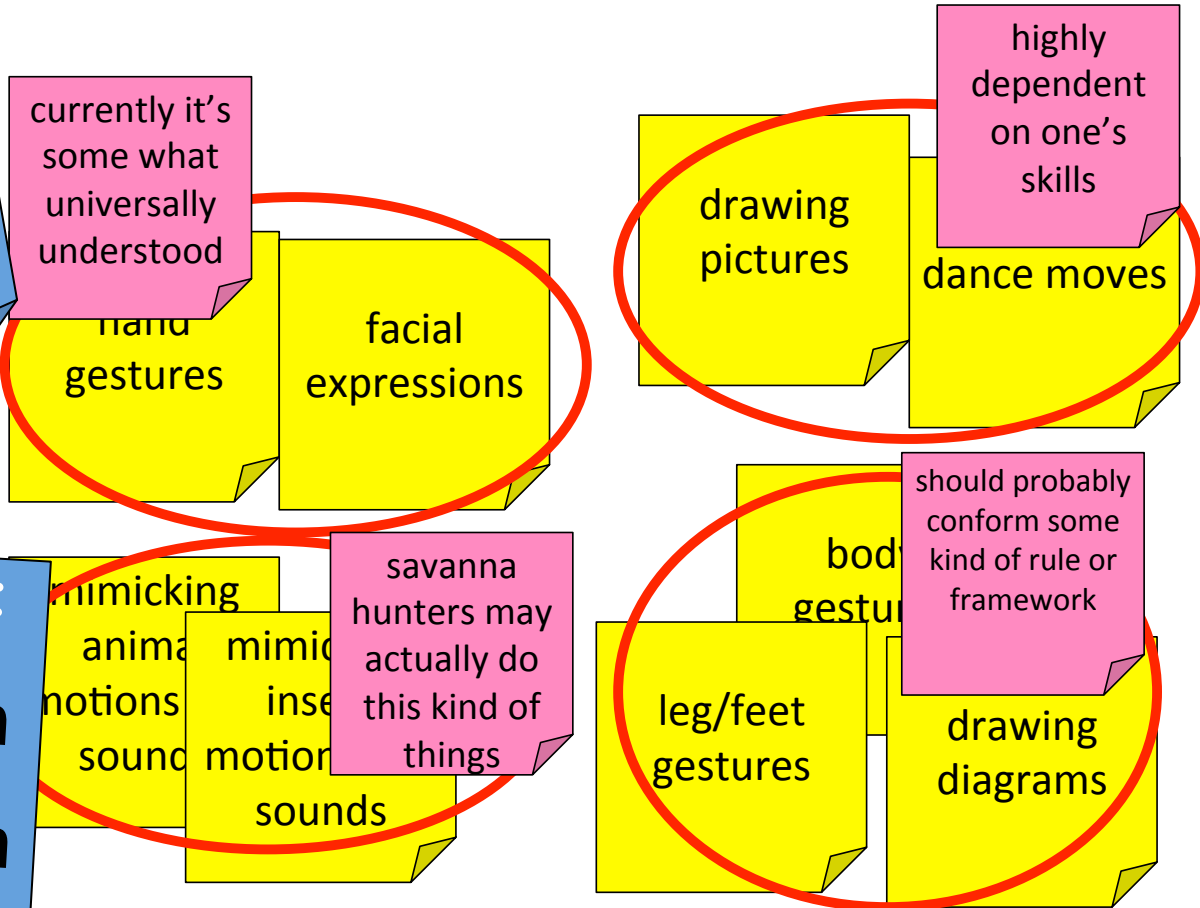
Discuss what is interesting and unfamiliar to find innovative insights

Example

Affinity Diagram

Insight:
there might be implicit basic framework for universally understood gestures

New question:
we should do more research on primitive communication methods and tools



Discuss what is interesting and unfamiliar to find innovative insights

Affinity Diagram Exercise 1

- ブレインストーミングの結果から、**親和図を作成して下さい。**
- 別の親和性などを考えながら複数回**作成しても良い。**（一度作ったら写真撮影）
- ブレインストーミングしている時には**気がつかなかった親和性**はなんだろうか？
- 自分たちの課題の解決へ導いてくれる**ヒント**や**刺激**になりそうな**グループ名**を考える。

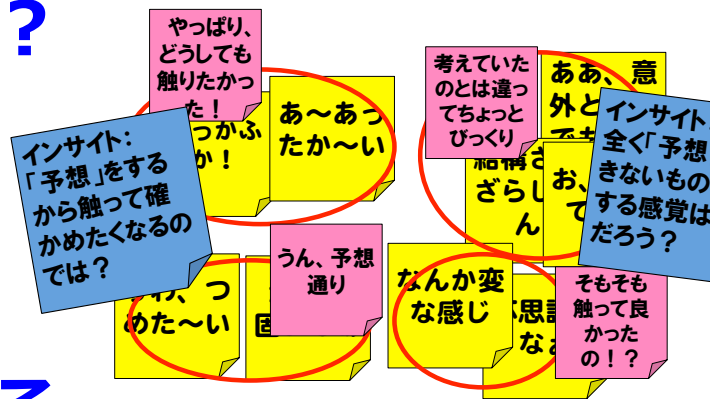
ブレインストーミングの結果を構造化し解釈する

Affinity Diagram Exercise 2

ロテーマや課題についても踏まえながら、作成した親和図についてディスカッションして下さい。

ロインサイトをポストイットに書き出して貼る。

- グループの持つおもしろさは何か？
- 意外性は無いかな？
- なぜグループ名を修正したのかな？
- 常識や当たり前前から外れているが本質的な事は無いかな？
- もっとブレインストーミング出来そうなインサイトは無いかな？



グループの持つイノベーティブな
“おもしろさ”や“本質”を抽出する

Example

Affinity Diagram Exercise 2

やっぱり、
どうしても
触りたかつ
た！

つかふ
か！

あ～あつ
たか～い

考えていた
のとは違っ
てちょっと
びっくり

ああ、意
外と

インサイト：
全く「予想」で
きないものに対
する感覚は何
だろう？

インサイト：
「予想」をする
から触って確
かめたくなるの
では？

めた～い

うん、予想
通り

なんか変
な感じ

お、

そもそも
触って良
かった
の!?

グループの裏側にあるイノベーティブな
“おもしろさ”や“本質”を抽出する

Ideation Methods

- **Free** Association Measure
 - Brainstorming, ...
- **Forced** Association Measure
 - Osborn's Checklist, Matrix Measure, ...

Forced Association

- **Forced Association** Measure
 - It means different variations of idea are generated using a set of conditions or rules.
 - You want to choose the conditions or rules so you can explore the solution space further.
 - It may be effective for those who are not yet familiar with Free Association Measure such as brainstorming.



TEDxTokyo

x = independently
organized TED event



[Example] Bandai: Infinite Bubble Wrap



http://ecx.images-amazon.com/images/I/31Qv2n1GExL._SY300_.jpg

- **Bubble wrap associated with toy** idea.
- Forced random association generated an out of the box idea.
- **Association randomness** was introduced by word-chain game.

【例】バンダイ 無限ぷちぷち



http://ecx.images-amazon.com/images/I/31Qv2n1GExL._SY300_.jpg

- **ぷちぷち (緩衝剤) とおもちゃの強制連想**による発想。
- 全然関係の無い二者を掛け合わせることで**他の人が思いつかなかったアイデア**を創出。
- しりとりによって意図的に連想に**ランダム性**を持たせて強制連想をするという工夫が秀逸。

Forced Association Matrix

- A kind of **Forced Association** Measure
 - *Force associate two items to generate ideas* on a matrix format.
- It is to **explore the solution space!**
 - Remind yourself that you are not looking for the greatest idea to appear on the matrix but you are exploring more options and looking for insights.
 - Stay on “Brainstorming mode”
 - *welcome wild/crazy ideas!*
 - *give every post-it note a short positive feedback!*

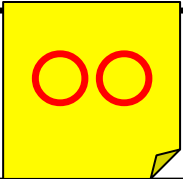
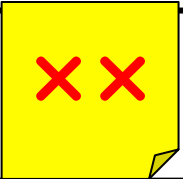
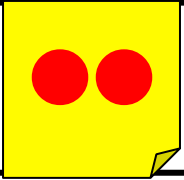
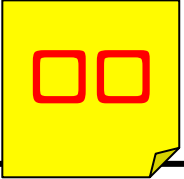
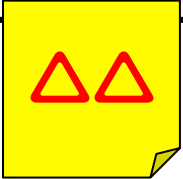
Forced Association Matrix

Ideation question: “How might we ...?”

	Column item 1	Column item 2	...
Row item 1			
Row item 2	ideas generated		
Row item 3			
2014 ...			

Forced Association Matrix

Ideation question: “How might we ...?”

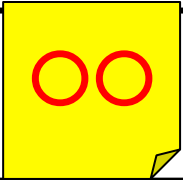
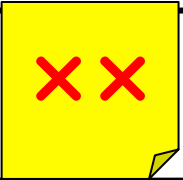
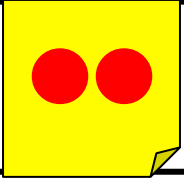
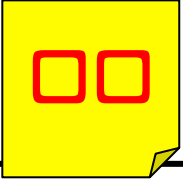
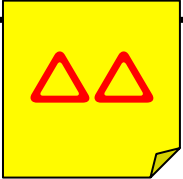
	Column item 1	Column item 2	...
Row item 1	 		
Row item 2			
Row item 3			
2014 ...	Keio EDGE		101

Example

Forced Association Matrix

Ideation question:

“How might we communicate face-to-face without a common language?”

	Within family	Among friends	Neighborhood
Body parts	 		
Device			
Sound			
2014 ...			Keio EDGE 102

Exercise

Forced Association Matrix 1

- Discuss and create Matrix. Decide the ideation question, items in rows, items in columns.
- Conduct **forced association on the matrix**.
- How do you introduce the randomness to the matrix?
- What can you do to find innovative perspective or insight?

You are forcing unusual discussions to generate unusual ideas!

Ideation question: “How might we ...?”

	Column item 1	Column item 2	...
Row item 1	○○ ××		
Row item 2		●●	
Row item 3	□□		
...			△△

Forced Association Matrix 2

- Discuss about your Forced Association Matrix session. Both process and output.
- Jot down **interesting finding** and **new questions found** during the discussion. They may be important insights.
- ❑ Some ideas may have interesting point-of-view or hints.
- ❑ Crazy looking idea may trigger innovative insights.
- ❑ Controversial idea may have a hints to break the bias.
- ❑ You re-interpret the post-it notes to look for insights.

Unusual ideas may give you new and valuable insights!

Forced Association Matrix 1

- テーマと課題について議論しながら、**強制連想のマトリックスの作り方**考えて下さい。
- 作ったマトリックスを使って**強制連想を実施**。
 - 連想の**ランダム性**、**意外性**をどのように持たせるか？
 - テーマと課題に対して**イノベーティブな着想**や切り口を与えるにはどうすれば良いか？

強制連想：マトリクス法

行と列の項目を掛け合わせ、**強制的にアイデア**を創出する方法。

【お題：○○を△△するには？】

	列①	列②	...
行1	○○ ××		
行2		●●	
行3	□□		
...			△△

これまで考えた事も無い事を意図的に考える工夫

Forced Association Matrix 2

- 強制連想を実施したマトリックスの結果について、**テーマや課題を意識しながら**ディスカッションして下さい。
- **インサイト**をポストイットに書き出して貼る。
 - アイディアのもつ着眼や切り口にイノベーティブさが潜んでいるのでは？
 - 一見馬鹿げたアイディアに何か本質的なヒントはないか？
 - 物議を醸す様なアイディアに、常識に囚われずに課題を解決するヒントが隠れていないか？

課題を解決する、思いもよらない着眼、着想、切り口などをインサイトとして抽出

Prototype and Test

- Prototyping is never a goal. It is created to look for the goal.
 - **Prototype without test is merely a visual aid** of your presentation.
 - A buzz concept/word “3D Printer” is just one kind of many prototyping methods and techniques.
 - You need to be able **to look for your right prototyping method and testing method.** Also develop one if there is no suitable one.
- ◆ **Why you prototype and test?**
 - ◆ **What you prototype and test?**
 - ◆ **How you prototype and test?**

Prototyping and Test: Disclaimer

- The explanation used in this material is NOT intended to universally acknowledged. The explanation is mainly targeted to clarify the difference between the concept of prototyping that used in the context of conventional Japanese manufacturing and that of Design Thinking. Some of the terminology used in this material is from Systems Engineering domain.

プロトタイピングとテスト

- プロトタイプを作ることが目的ではない。
- プロトタイプはあくまでも「最終成果物」を生み出すためのきっかけ、踏み台、捨て石、途中経過などである。
- プロトタイプはテストしなければ、ただのvisual aid(賑やかし)でしかない。
- 次のイノベーション創出アクティビティを見出すために、プロトタイプを作り、テストし、新しいインサイトなどを見つけるのである。
- 間違っても、「プロトタイピング＝3Dプリンターを使う」ではない。

プロトタイピングとテスト

- この資料中のプロトタイプおよびプロトタイピングの説明は、従来もの作りのそれとの違いが分かり易くなるような説明の仕方をとっています。普遍的な説明ではない事に注意して下さい。

What is “Prototype”

mockup? engineering model?

The Prototype mode is the iterative generation of artifacts intended to answer questions that get you closer to your final solution.

(d.school An Introduction to Design Thinking
PROCESS GUIDE)



Prototype is built to answer your questions!

Two types of questions prototype can answer: **Verification and Validation**

- **Verification**
 - You *verify* functionality of the design
 - You *verify* performance of the design
 - You *verify* against your intention
 - “Do the **thing right**” confirmation

- **Validation**
 - You *validate* the design
 - You *validate* the concept
 - You *validate* against stakeholders and context
 - “Do the **right thing**” confirmation

Prototype vs Final Solution

- **Prototype** is created to get closer to your final solution.
- **Final Solution** is developed on findings and insights acquired from prototyping and testing.

Prototype vs Final Solution

IRON
MAN



UNI-CUB



HONDA

The Power of Dreams

Prototype vs Final Solution

IRON
MAN



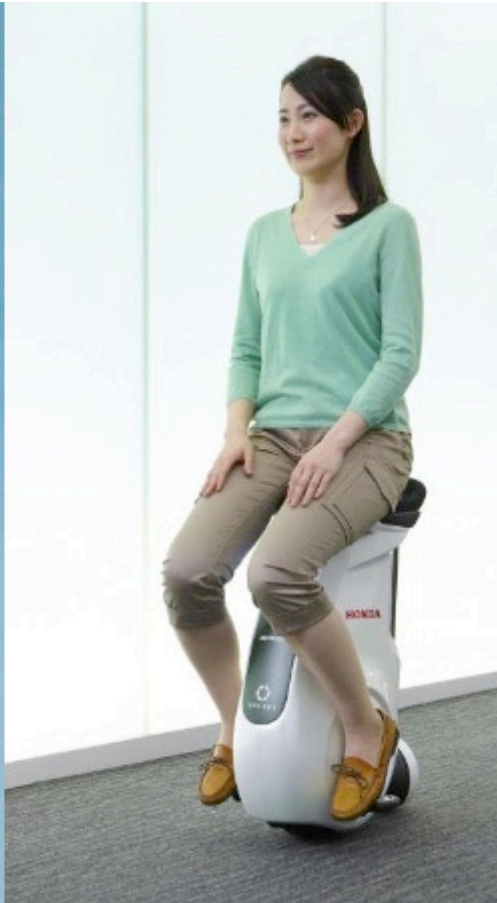
UNI-CUB

HONDA
The Power of Dreams



MARVEL

Prototype vs Final Solution



UNI-CUB is a prototype

UNI-CUB is a **prototype** of near-future personal mobility product. It is currently validating its concept “mobility that blend in human and human environment”.

HONDA
The Power of Dreams

Prototype vs Final Solution

IRON
MAN

IRON MAN suite is the final solution

This IRON MAN suite was designed and built to escape from the villain prison. It served the purpose therefore it is the **final solution.**



HONDA: UNI-CUB



2014

“I Won’t let you down” OK Go (2014)
https://www.youtube.com/watch?v=u1ZB_rGFyeU

Prototype is not about the **look**

~~Prototype looks re
The first solution is great.~~



**Prototype is built to answer question(s).
Question is important.**

Good question for prototyping

- **A good question** that you want to find answer by creating prototype helps you to **clarify** the following questions:

Why you prototype and test?

What you prototype and test?

How you prototype and test?

Example of a good question for prototyping:

“do my users appreciate fake nail type watch?”

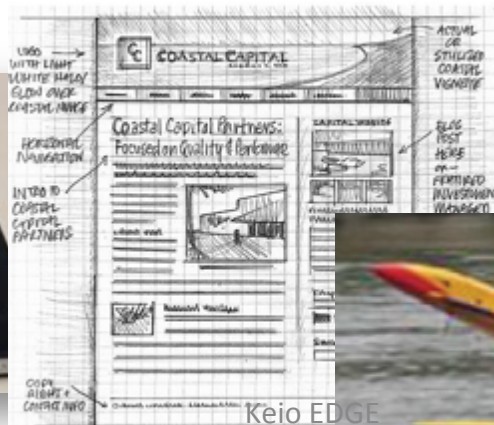
Various **types** of prototyping

- There are so many **different types** of prototyping methods and techniques.
- Every type **have strong and weak** points.
- Choose prototyping type **based on your question.**



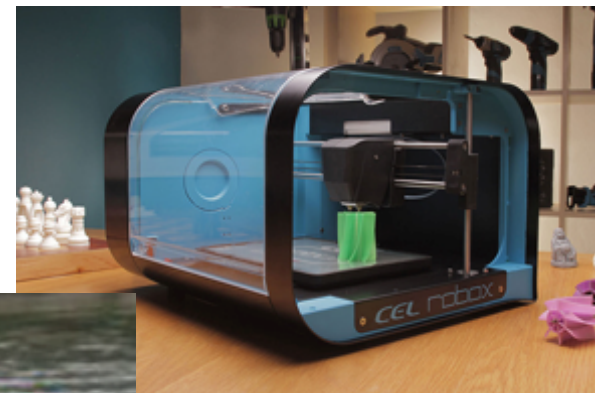
2014

Wireframing and Website Prototyping



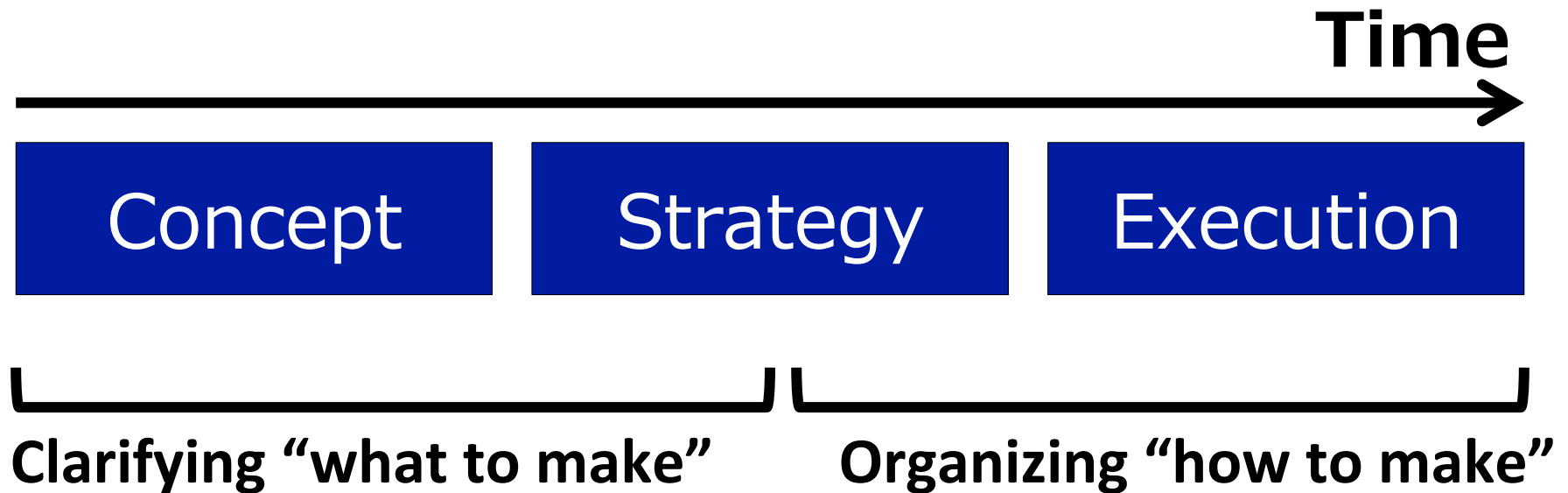
Keio EDGE

Best Free Tools To Design Y

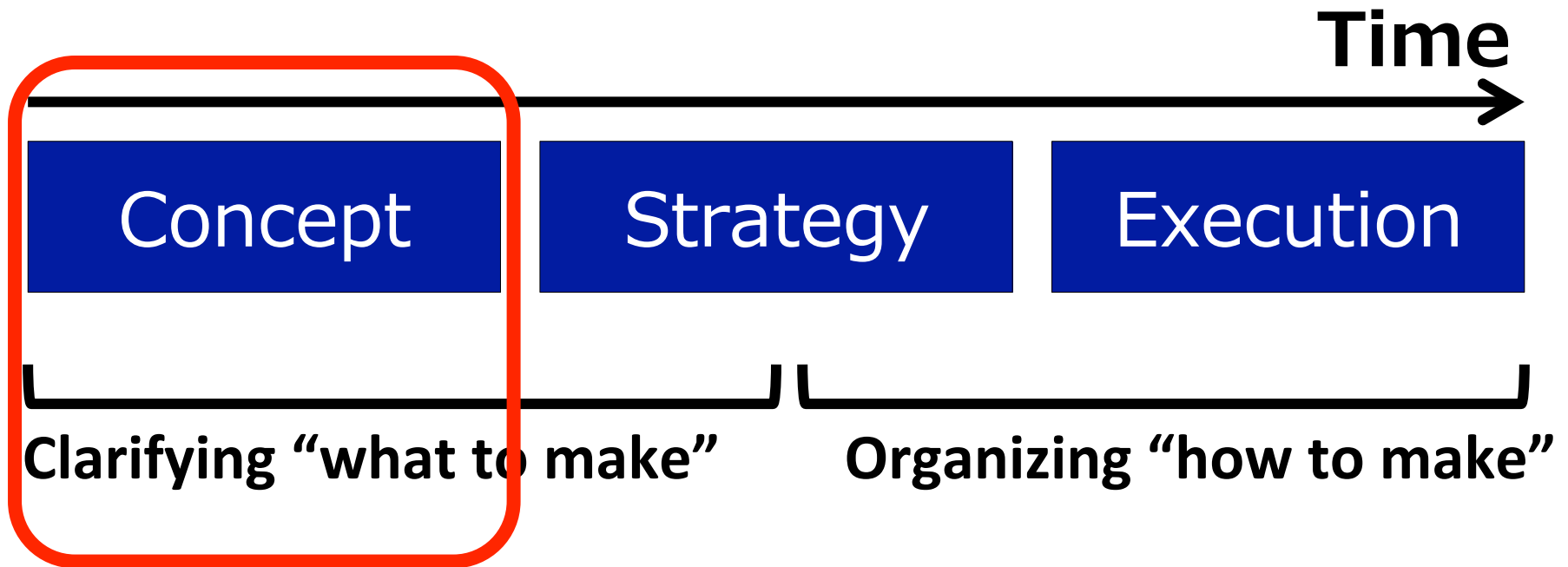


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Prototyping and **project phases**



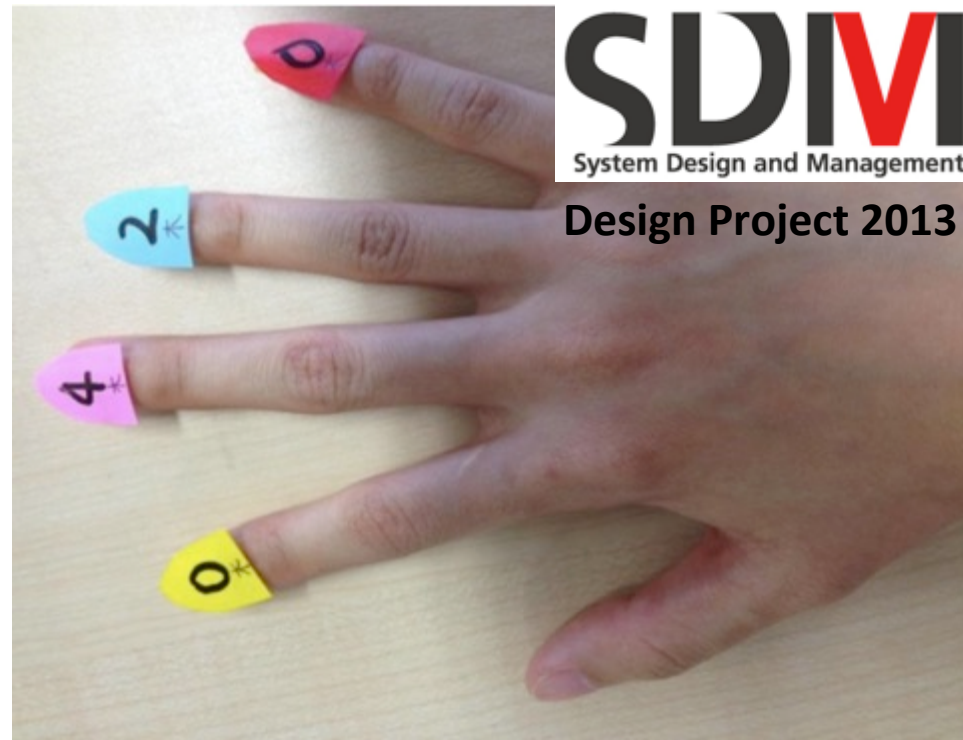
Prototyping and project phases



It is far more important to confirm “do the **right thing**” in early phases of the project.

Early validation mindset is a key for a success.

Wearable time telling device



Tried on several paper-made fake nail type watch for half a day and realized it does not bother much to do things and also no need for the thumb type.

Early validation of the concept

Easy to use surgical instrument



This prototype was built in the first meeting of IDEO and medical doctors. It was built with stuff around the meeting table.

Reference:

“The art of innovation” Tom Kelly, 2002

Helped to communicate the concept in very early phase

Easy to use surgical instrument



Reference:

“The art of innovation” Tom Kelly, 2002



New smartphone App for kids



IDEO wrote not a single line of program to prototype their smartphone App user interface. Very cost and time effective prototype.

Reference: IDEO

Creatively confirmed how App would look and feel like in very early phase



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SESAME STREET

ELMO'S MONSTER MAKER

CREATED
WITH

ID
EO



So, **when** do I prototype and test?

[Before prototype and testing]

- We won't know unless we do it.
- Let's just do it and see what comes out.
- If we find an answer to this that will take us further.

[After prototype and testing]

- **We knew it!!**
- **What!? Why did that happen?**
- **We would never found out if we didn't try it out.**
- **Okay, now we know what to do!**

Keep in mind that “doing” with prototype teaches you more than you imagine!

Exercise

Prototyping question and prototype planning

- You and your team are prototyping and testing your idea or insight **tomorrow**.
- Write an **e-mail** to your team about tomorrow's prototyping and testing plan.
 - ✓ **Where to meet?**
 - ✓ **What to bring?**
 - ✓ **What we build?**
 - ✓ **How to test?**
 - ✓ **What is expected? ... more**

What is a good question to ask?
How can we conduct early validation?

プロトタイピングを考える

- 明日、あなたのインサイト(とアイディア)のプロトタイピングとテストを行うことになりました。
- チームメンバーにプロトタイピングとそれを使ったテストを行うことを**メールで伝えてください**。

- ✓ **どこに集合する？**
- ✓ **何を持ってくる？**
- ✓ **何を作る？**
- ✓ **どんなテストをする？**
- ✓ **何が分かりそうか？**

やってみて確認したい本質は何か？
どうやれば確認できそうか？



Innovative thinking inspiration

2011 Winner
Hövding



■ **INDEX**
■ DESIGN
TO IMPROVE
LIFE®

<http://designtoimprovelife.dk>

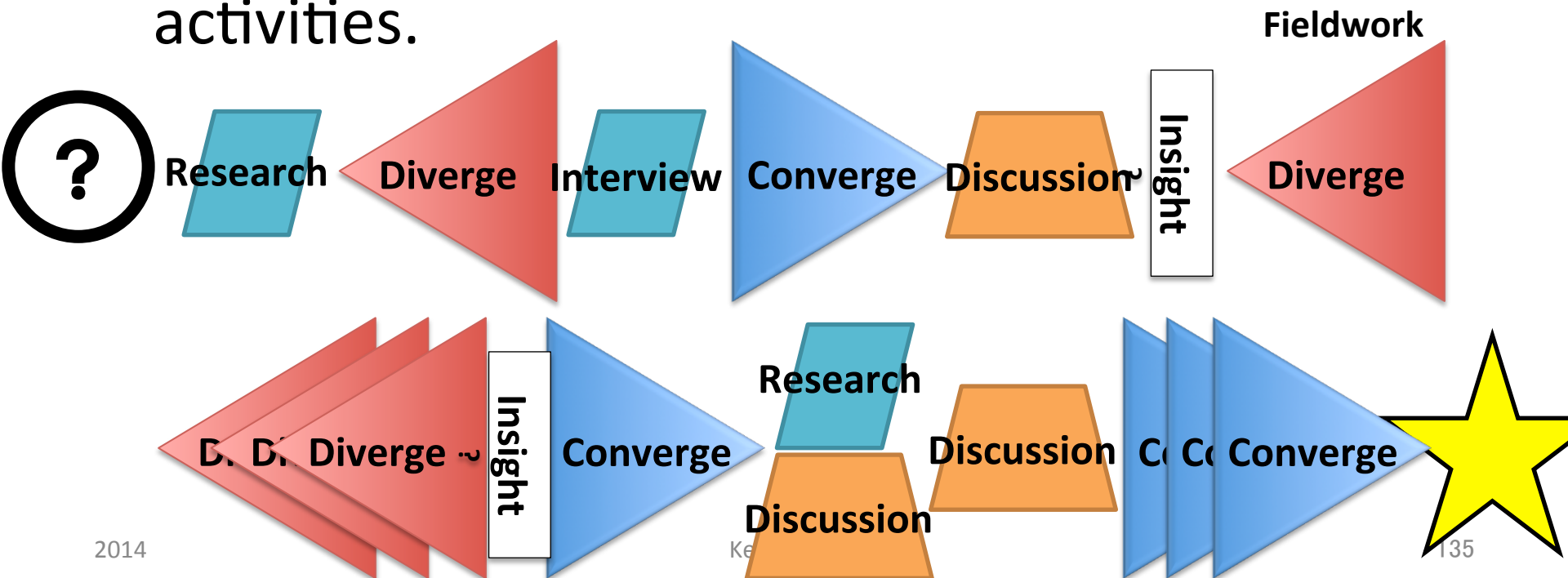


2011 Winner
EMBRACE

- Design award with reward
- Danish NPO “INDEX” is the host
- “Design to improve life” is the keyword

Innovative thinking project progression Example

- Combination of Divergent thinking and Convergent thinking.
- Also combine with conventional project activities.



Keio EDGE Program Mentality

- **I do not want ordinary idea or concept** that some other EDGE program teams may have.
- **I am not aiming for eccentric crazy idea!**
- I want “Wow, I never thought about it!”, “You have a very good perspective!” type **awesome solution!**
- I look for **new and innovative insights!**
- I generate ideas and solutions **based on insights.**
- **Unusual** but **interesting!**
- **Unfamiliar** but **convincing!**

I want to be creative and intelligent at the same time!

Keio EDGE Program Mentality

- 他のEDGE Programのチームが考えつきそうなことでは満足できない！
- ただの奇抜なアイデアを出したいわけではない！
- 「なるほどその手があったか！」「そこに注目するかあ！」と**うなるソリューション**を出したい！
- 探すのはこれまで**気がついていなかったインサイト**！
- **インサイトを起点**にアイデア創出！
- **Unusual but interesting!**
- **Unfamiliar but convincing!**

「知的に面白いこと」をやってやろう！

Homework Assignment

- Find **innovative solution**.
(product, service, policy, strategy or any other type of solutions.)
- Concisely describe **why you think it is innovative**.
- You will be sharing your finding on Nov. 29th.

[Innovative Product Example] P&G: Gel Ball



<http://vip.myrepi.com/gelball/>

- Conventional detergent requires **measuring** but this product completely **omitted this step**.
- Laundry machine that specifically asked for this type of detergent may appear in the market.
- This may become a new “usual”.