Food Science behind Food Product Development (Re-run)

4 JULY 2017

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- Introduction
- The Product Development Process
- Idea Generation and Screening
- Sensory Evaluation
- Food Safety and labelling
- Verification and Validation
- Conclusion

Definition

Product Development: The overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product.

The Product Development and Management Association

The PDMA Hand Book 1st Edition.

Definitions

New Food Products:

1. A product not previously manufactured by a company and introduced by that company into its marketplace or into a new marketplace, or
2. The presentation or rebranding by a company of an established product in a new form, a new package or under a new label into a market not previously explored by that company

New Food Product Development:
From concept to marketplace

Gordon W. Fuller

Definition

- *Innovation is the specific instrument of entrepreneurship... the act that endows resources with a new capacity to create wealth.*

  Peter Drucker

- INNOVATION
  - 1: the introduction of something new
  - 2: a new idea, method, or device : novelty

  Merriam-Webster dictionary

http://www.businessweek.com/innovate/content/jan2006/id20060131_916627.htm
http://www.realinnovation.com/content/what_is_innovation.asp

Understanding The Definitions

- Discuss what this means in the Food Industry

  - Nature of product – new, extension or improvement
  - New technology – ingredient, process and/or machinery
  - Packaging
  - Labeling and regulatory controls
  - Market segment

Consider the case of no-name labels or supermarket brand products….

- The products are purchased from a food manufacturer
- Can be a retailer or even a discount or fusion line by the manufacturer.
- All the cost, technical know-how, market research and risks are borne by the food manufacturer.

➢ Suggest examples of a no-name/supermarket brand, a retailer and a possible product

Line Extensions

- Little time or research
- No major manufacturing changes in processing lines or major equipment purchases
- Relatively little change in marketing strategy
- No new purchasing skills [commodity trading] or raw material sources
- No new storage or handling techniques for either the raw ingredients or the final product i.e. regular distribution systems can be used.

➢ Suggest examples of line extensions?

New Form or size of existing product

- Highly variable impact on research and development
- Highly variable impact on physical plant and manufacturing capabilities. Major equipment purchases may be required if manufacturing to be done in-house.
- Marketing and sales resources will require extensive reprogramming

➢ Suggest a new form or size of existing product.

Reformulation of existing product

- Moderate research and development required consistent with reformulation goal
- Little impact on physical facilities
- Little impact on marketing and sales resources unless reformulation leads to repositioning of product

➢ Suggest examples where this case may occur

Repackaging of existing product

- The novelty of the repackaging will dictate the amount and degree of research and development required
- Slight impact on physical facilities. New packaging equipment will be required.
- Little impact on marketing, sales and distribution resources

➢ Suggest examples

Innovative products

- Amount of research and development dependent on the nature of the innovation
- Highly variable impact on manufacturing capabilities
- Possible heavy impact on marketing and sales resources

- Technically difficult requiring familiarity of science, product nature and target market.

Creative products

- Heavy need for extensive research and development i.e. costly
- Extensive development time required
- May require entirely new plant and equipment. Degree of creativity may require development of unique or specialised equipment
- Will require total revision of marketing and sales forces. Creation of a new company or brand may be required.
- **Risk of failure high**

Innovation in the food industry includes

- Controlled atmosphere packaging
- Tetrapacks
- Fish based gelatin
- Microencapsulation technology: flavours, colours, neutraceuticals
- Genetic Modification; enriching foods, production yields, resistance
- Food extrusion -pasta, cereals, baby food, snacks, pet treats
- Nutritional value
  - Omega 3,6, DHA, prebiotics (oligosaccharides), probiotics (LAB,bifidobacteria)
- Natural sweeteners, colours, antioxidants and preservatives
- Biodegradable packaging, edible packaging

What makes a good Idea?

- Understanding your product category
- Does it appeal to your target market?
- Will it be cost prohibitive to manufacture, promote and sell?
- Knowledge:
  - Does your company understand the need for this product
  - How to package this product
  - How to promote or market this product
  - Does your target market want this product?
- Timing is key

Timing

- Timing is incredibly important.
- Your product may be seasonal, it may be on trend or it may be too early to be introduced to the market
- Your staff may need time to familiarise themselves with the product or further training
- Your marketing plan may need to be extended to introduce the product or to promote the right message
- The General public may not be ready for your product.

Sources of Product Ideas – do you think this is a complete list?

General Source	Specific Impetus Providing Inspiration
The Marketplace	Market research to identify customer and consumer needs; customer profiling Retail data of buying habits of customers Distributors expressing their requirements for products and problems they encounter when interacting with in-store customers Customer and consumer communication through complaints, letters, calls etc
Within the Company	Sales force's interaction with retail buyers, individual customers in store and from observations of competitive products and placement within stores Government pressure or incentives to innovate Ideas generated from employees
Environment outside the marketplace	National and international trade exhibitions where new machinery, food products and ingredients are displayed Competitive intelligence gathering Competitors' new products requiring marketplace retaliation Food and cooking literature providing ideas on ethnic cuisine and new recipes Technical, trade and scientific literature opening new horizons for development

Adapted from fig 3.1 New Food Product Development 3rd Ed. G.W. Fuller

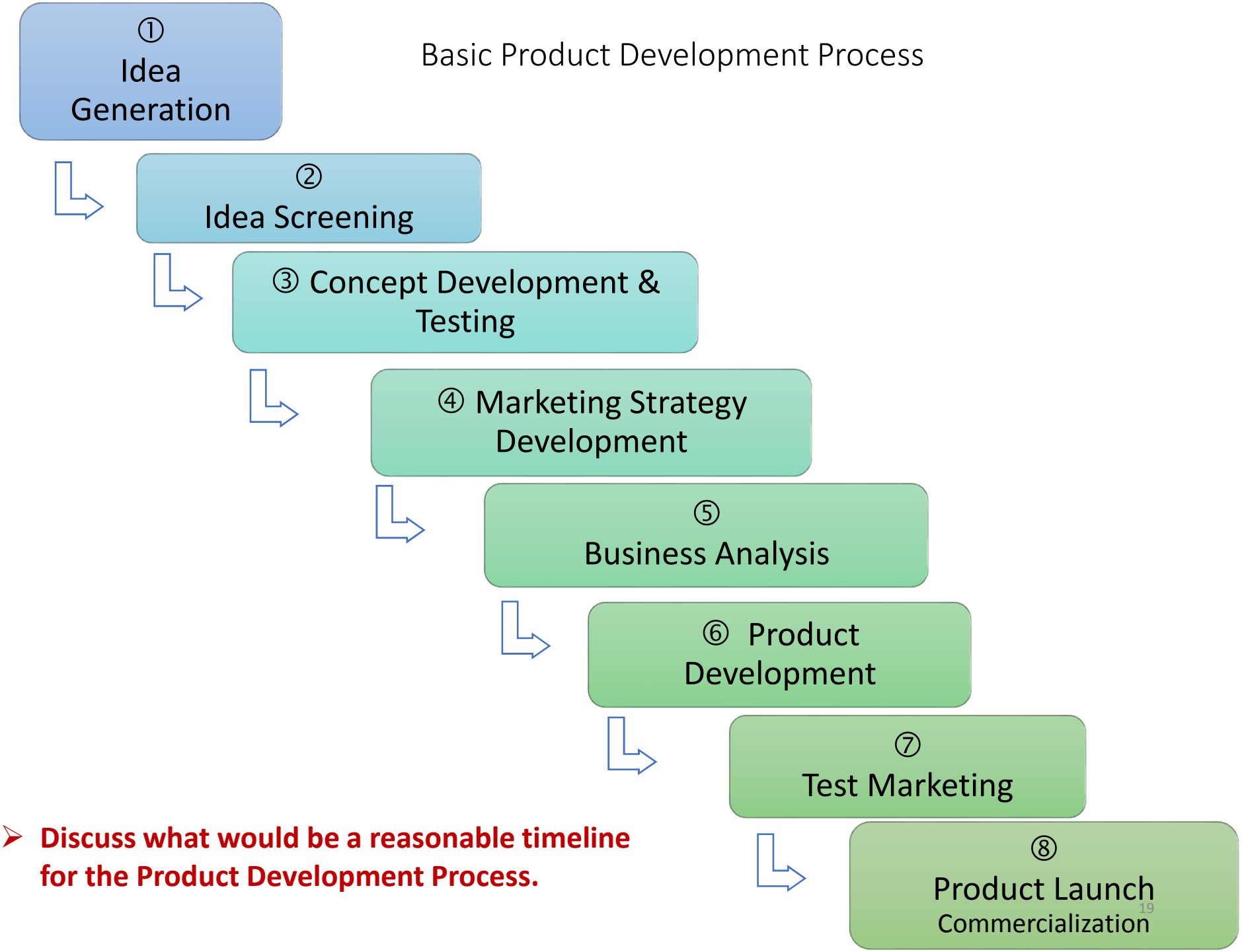
Companies do not need the “perfect idea” but a “Good idea”

Why? Because good ideas will :

- ✓Satisfy the needs and desires of a company’s target consumers and therefore attract customers.
- ✓Ideally, come from those who will need and use the product
- ✓Satisfy the goals for new product success set by senior management
- ✓Lead to profitable products according to criteria set by management.
- ✓Respect certain financial impositions set by management i.e. be developable within certain budgetary and time constraints
- ✓Be within the marketability and sales skills of the company

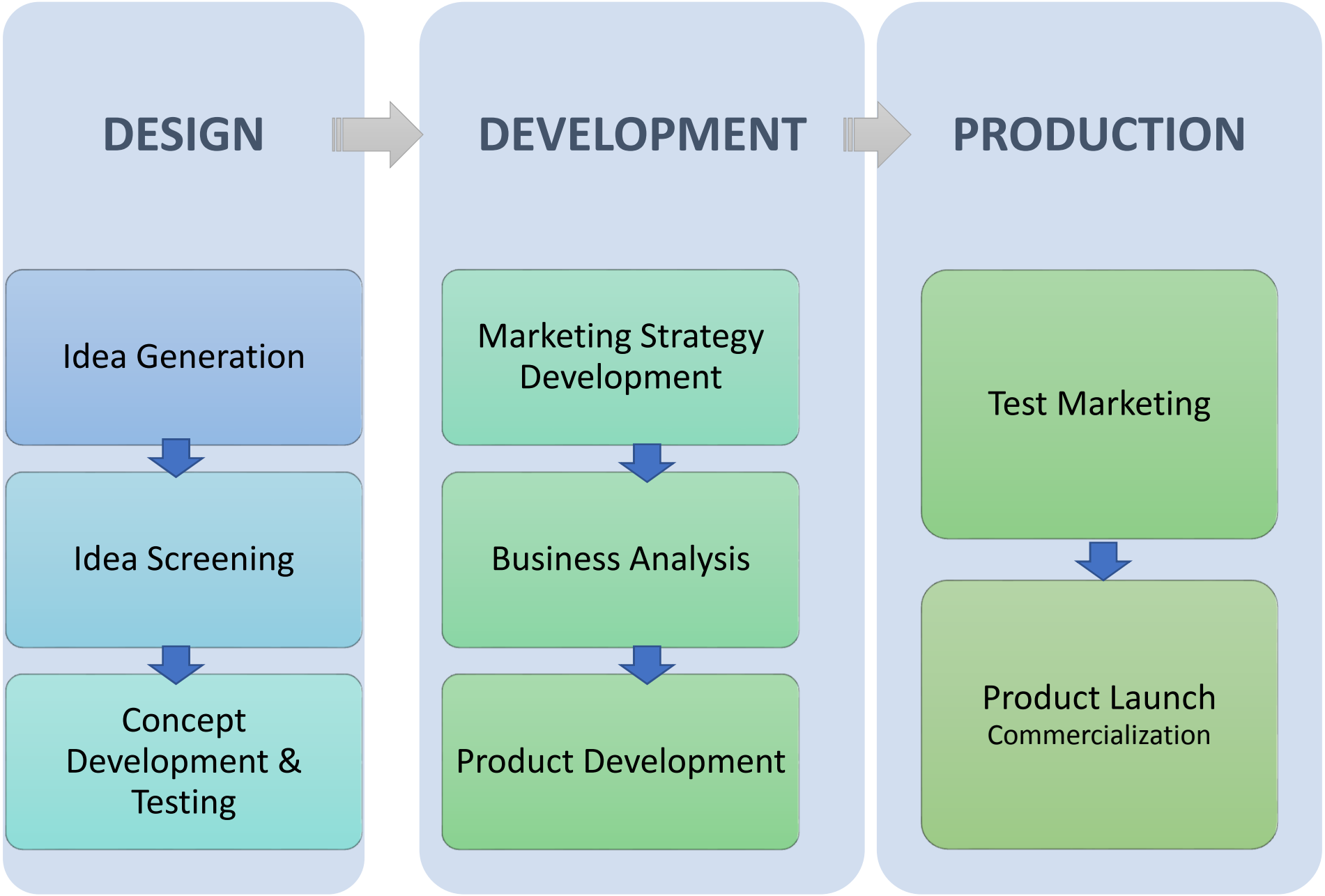
- To summarise, the ideas can be developed within the skill level, technical capabilities, and managerial and financial resources of the company i.e. **the core competencies of the company are considered to be good ideas**

Basic Product Development Process



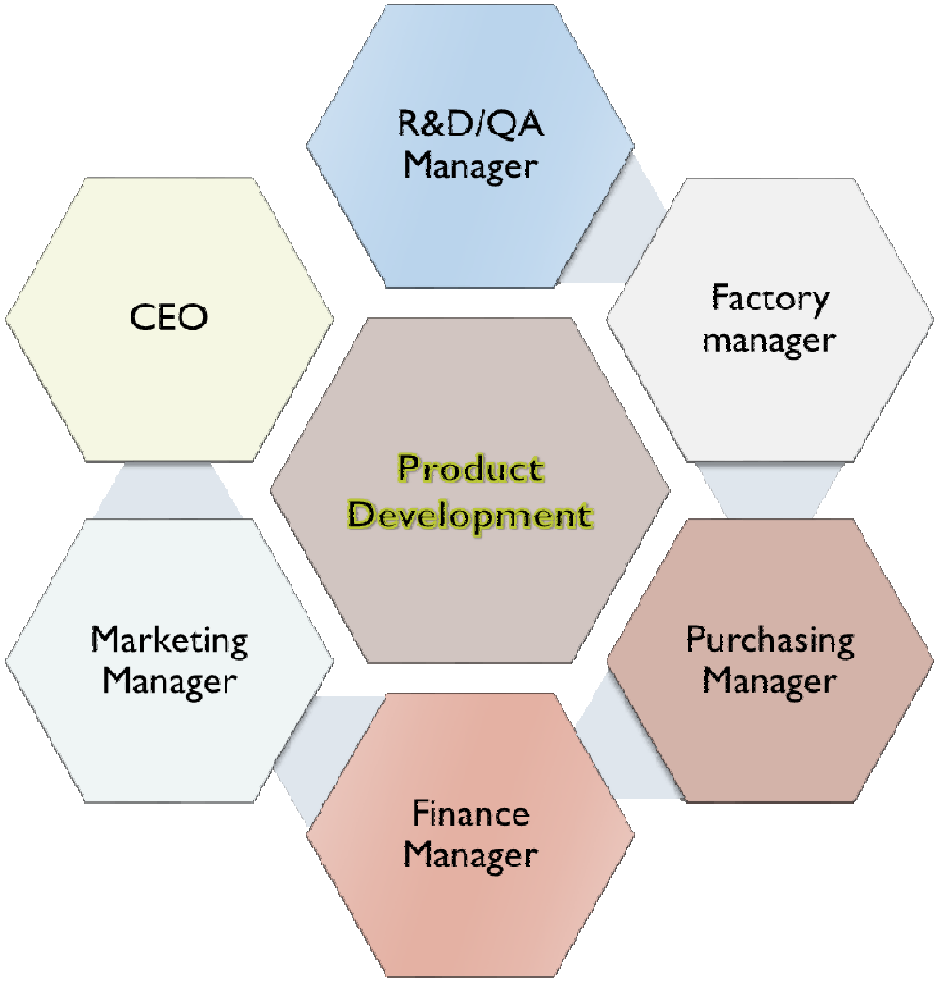
- **Discuss what would be a reasonable timeline for the Product Development Process.**

Basic Product Development Process

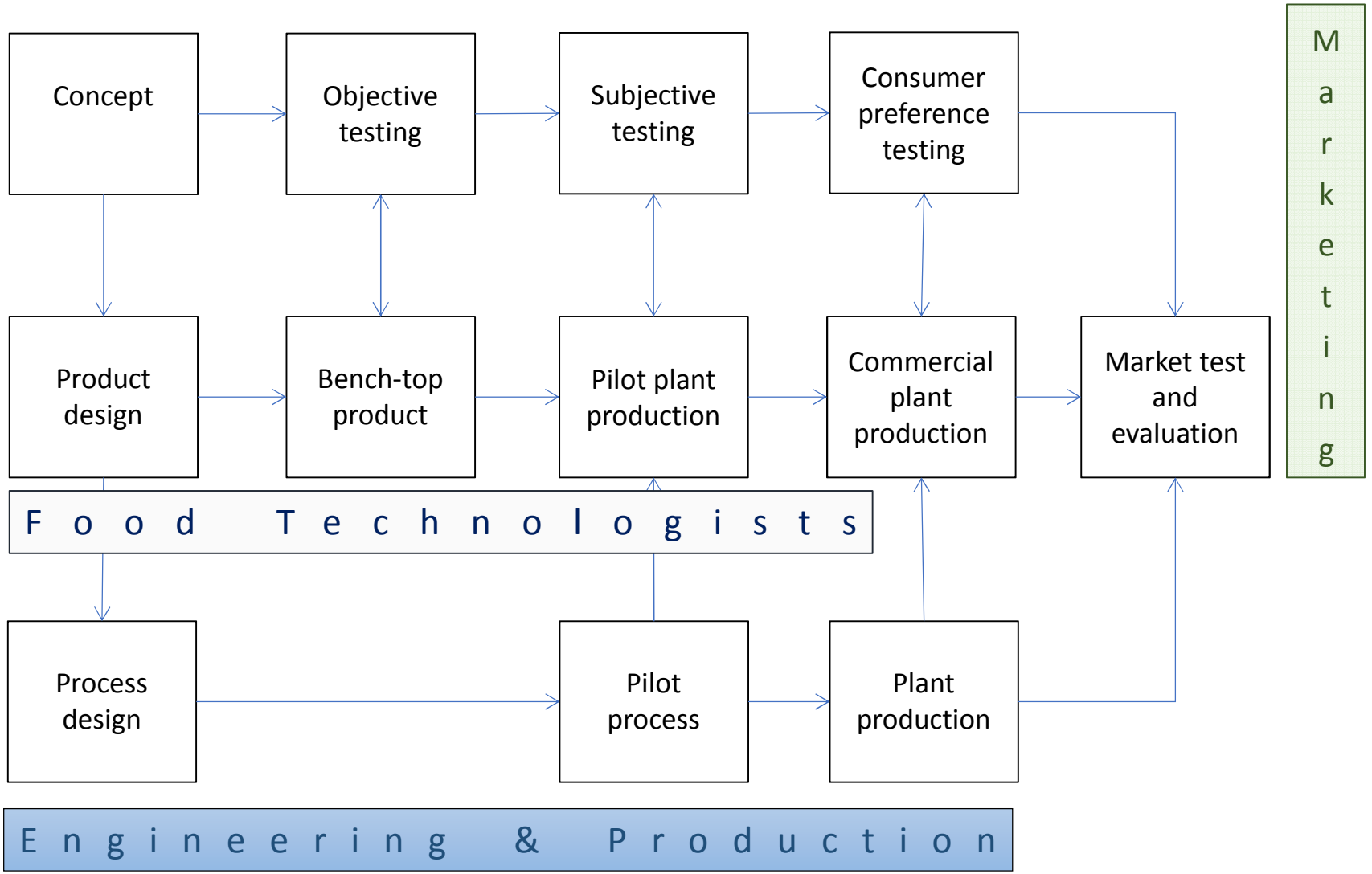


Your role in Product Development

- Everyone has a part to play in Product Development

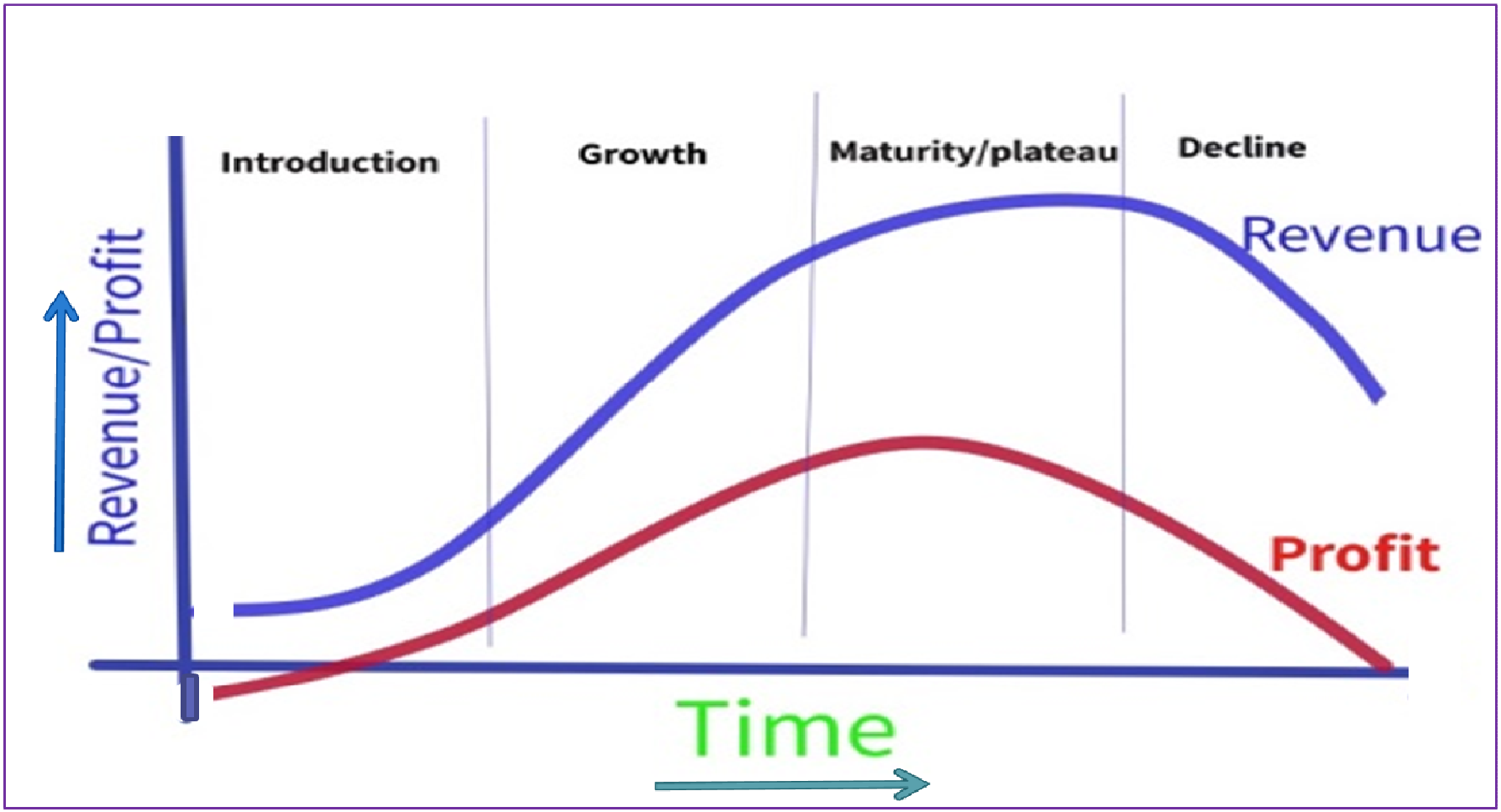


Idealised representation of activities flow in product development



Adapted from fig 2.2 New Food Product Development 3rd Ed. G.W. Fuller

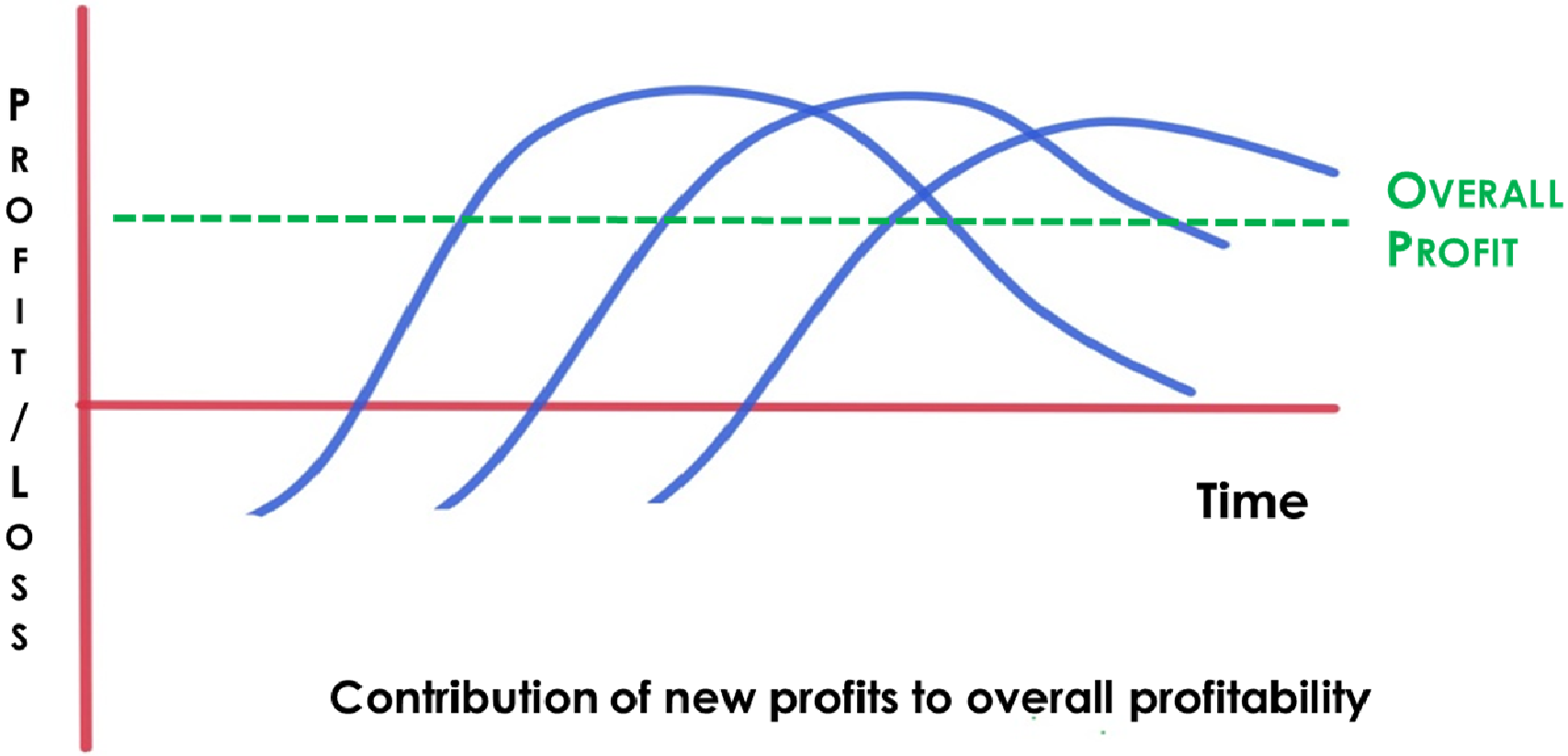
Typical Product Life Cycle



Profit Picture

- Introductory phases have minimal net profit due to R&D, promotion costs etc. Often start at a LOSS
- Net profits are greater than expenses towards the end of the growth phase
- Profits improve during maturity but start to decrease towards the end of this phase.
- Profits steadily decrease during decline phase
- To keep profits flowing and maintain viability of the company, replacement products must be ready for launching.
  i.e. the company should always have products ready to launch , in consumer testing or being screened

Preferred Product Life Cycle



Success is not guaranteed

- Differing estimates on the success rate of new products from 1 in 6 to 1 in 20
  - Skarra (1998): 1 in 58 product ideas is developed into a successful new product

[Leslie Skarra CEO Merlin Foods provides R&D Services]

- Difficult to assess failures:
  - At what stage of the process is the product determined to be a failure?
  - After launch when market share criteria are not met?
  - What is a 'satisfactory market share'?

So why develop new products?

☒ when its difficult, costly and lacking assurance for success

☒The failure rate is so high that Product Development is considered a commercial gamble.

☑The rewards, however, can mean the **continued profitability of the company**

➢Food companies cannot ignore new product development as a means to grow and survive.

General Criteria for screening New Product Development

To Summarise:

- Marketability
- Technical feasibility
- Manufacturing capability
- Financial capability

➢ **Discuss what areas are weakest if you're making a copy-cat product i.e. following your competitors**

Definition

"Sensory evaluation comprises a set of techniques for accurate measurement of human responses to foods and minimises the potentially biasing effects of brand identity and other information influences on consumer perception"

Sensory Evaluation of Food: principles and practices. 2nd Ed.
H.T. Lawless, H. Heymann 2010

Definition

"A scientific discipline used to evoke, measure, analyze and interpret those responses to products that are perceived by the senses of sight, smell, touch, taste and hearing."

Sensory Evaluation Practices. 2nd ed.
Stone, H and Sidel, JL. 1993.

What are your Five Senses?

- Sight
- Smell
- Touch
- Taste
- Hearing

➢How do you we use them when eating?

How is Sensory Evaluation Used?

- In a food company, sensory scientists work closely with product developer's to understand:
  - What consumers like and why
  - If consumers can tell a difference when they change a product (e.g. substitute an ingredient)
- In academia, sensory scientists:
  - Try to understand how our senses work and how our senses respond to stimuli (both from food and chemicals)
  - Improve testing methodology

Why use Sensory Evaluation?

- Scientific evaluation and analysis to
  - Reduce uncertainty
  - Reduce risks in decision making
  - Ensures a cost-efficient delivery of new products with high consumer acceptability [meeting consumer demands]
- Humans vs Machines
  - Humans can be more sensitive than machines to odours, taste
  - Machines cannot measure preference or liking

Location, location, location!!!

- How do you feel when studying in a quiet library or a noisy common room?
- Why do airplanes now have complicated mood lighting patterns on long-haul flights?
- Does the ambience of a restaurant affect how you feel about the food?
  - Lighting
  - Music
  - Smells/odours

Colour association

- Name a red food
  - Yellow?
  - Green?
  - Brown?
  - Blue?
- What flavour is it?

Colour perception - taste

- Stronger colours equal stronger flavours and/or more fruitiness

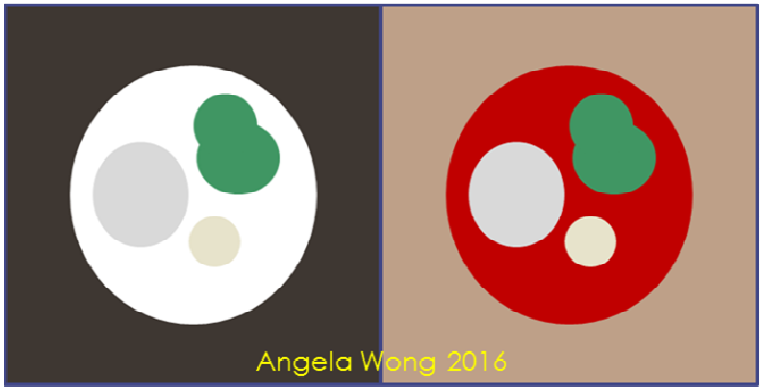
What flavour is this Vegetable?

- Will the purple cauliflower taste different to the regular cauliflower?
- What if it lost its colour on cooking?

Colour perception - portions

The Delboeuf illusion,

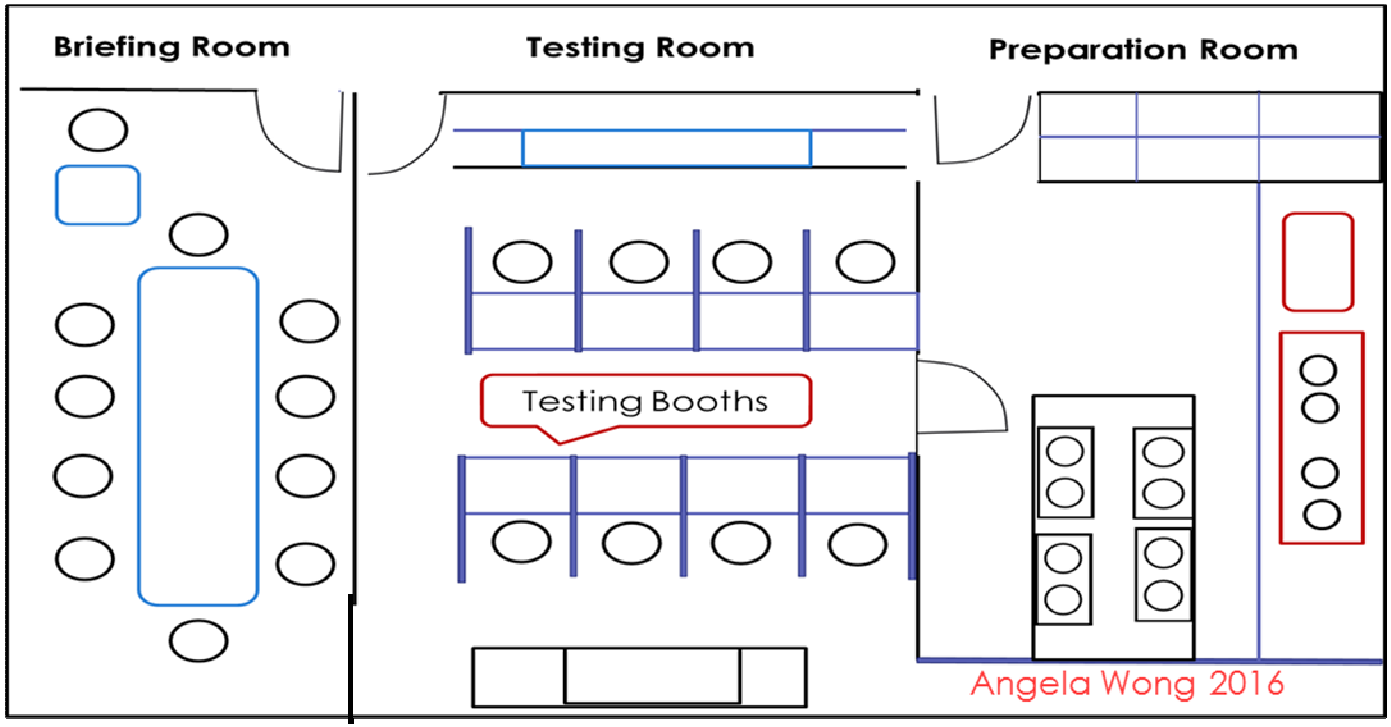
- Named after the Belgian scientist who discovered it in 1865
- Weak colour contrast between the plate and your food induces you to take a larger serving
- If your goal is to eat less, select plates that have high contrast with what you plan to serve for dinner.
- Want to eat more greens? Try serving them on a green plate!

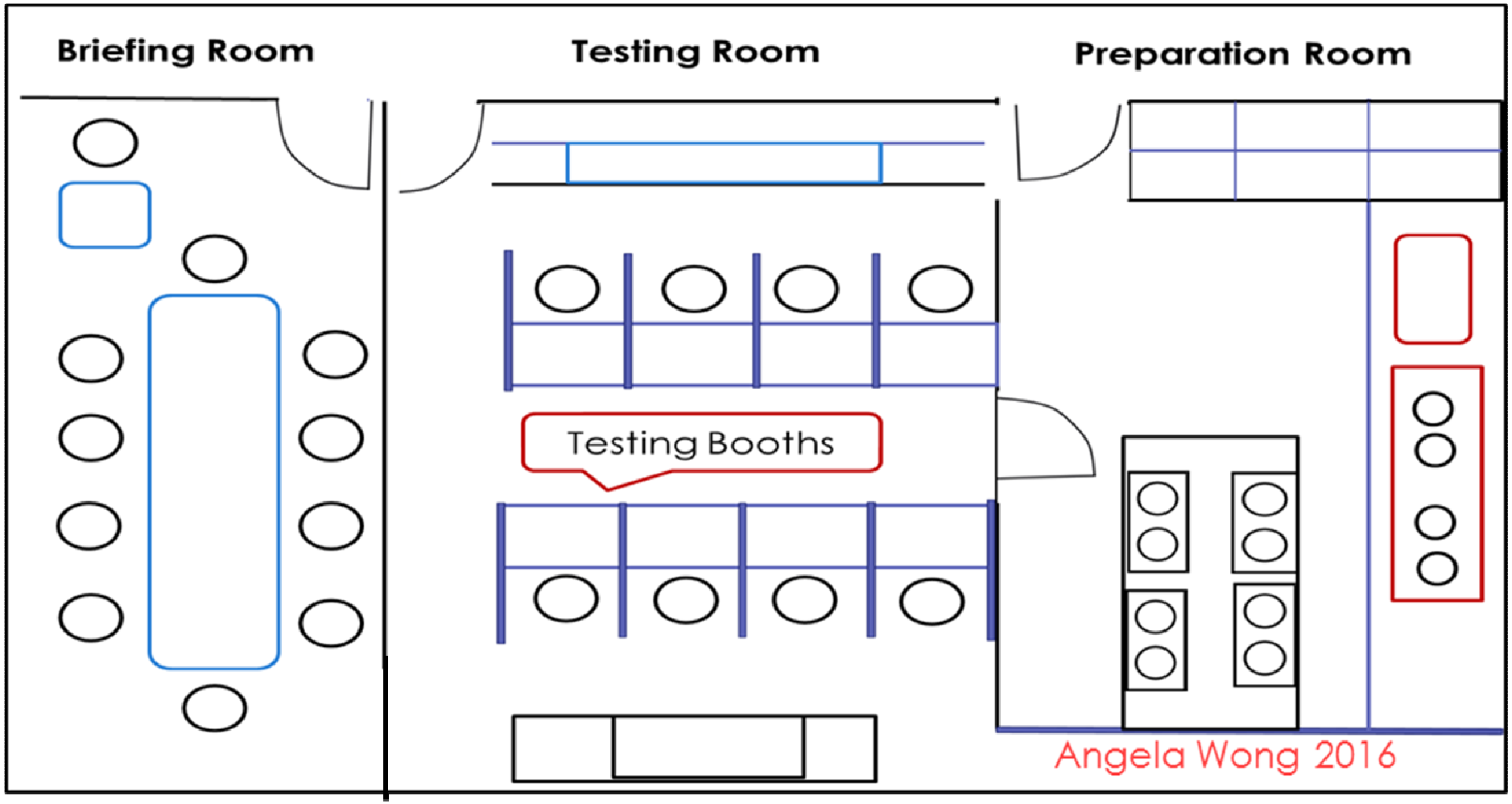


What's With the Color of Your Plate?
Van Ittersum, Koert, & Wansink, B. (2012). Plate size and color suggestibility: The Delboeuf illusion's bias on serving and eating behavior. Journal of Consumer Research, 39(2), 215-228

Principles of Good Practice

- Facilities should be well designed
  - White or off-white colour
  - Lighting should be controlled
  - There should be good ventilation




Briefing Room
Testing Room
Preparation Room
Testing Booths
Angela Wong 2016

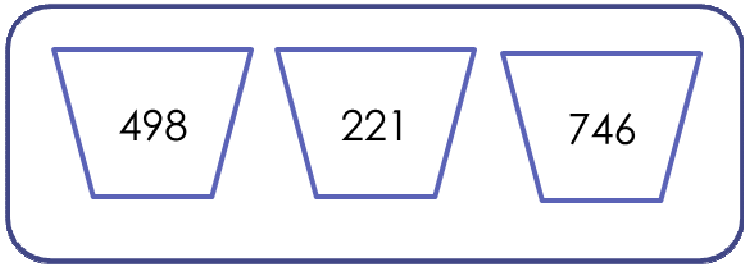
Principles of Good Practice

- Samples should be prepared properly
  - Temperature should be controlled and the same for all samples
  - Volume served should be equal for all samples
  - Samples should be served at equivalent shelf-life or time since cooking/preparation

➢ **Need to minimize discrepancies which may give false results**

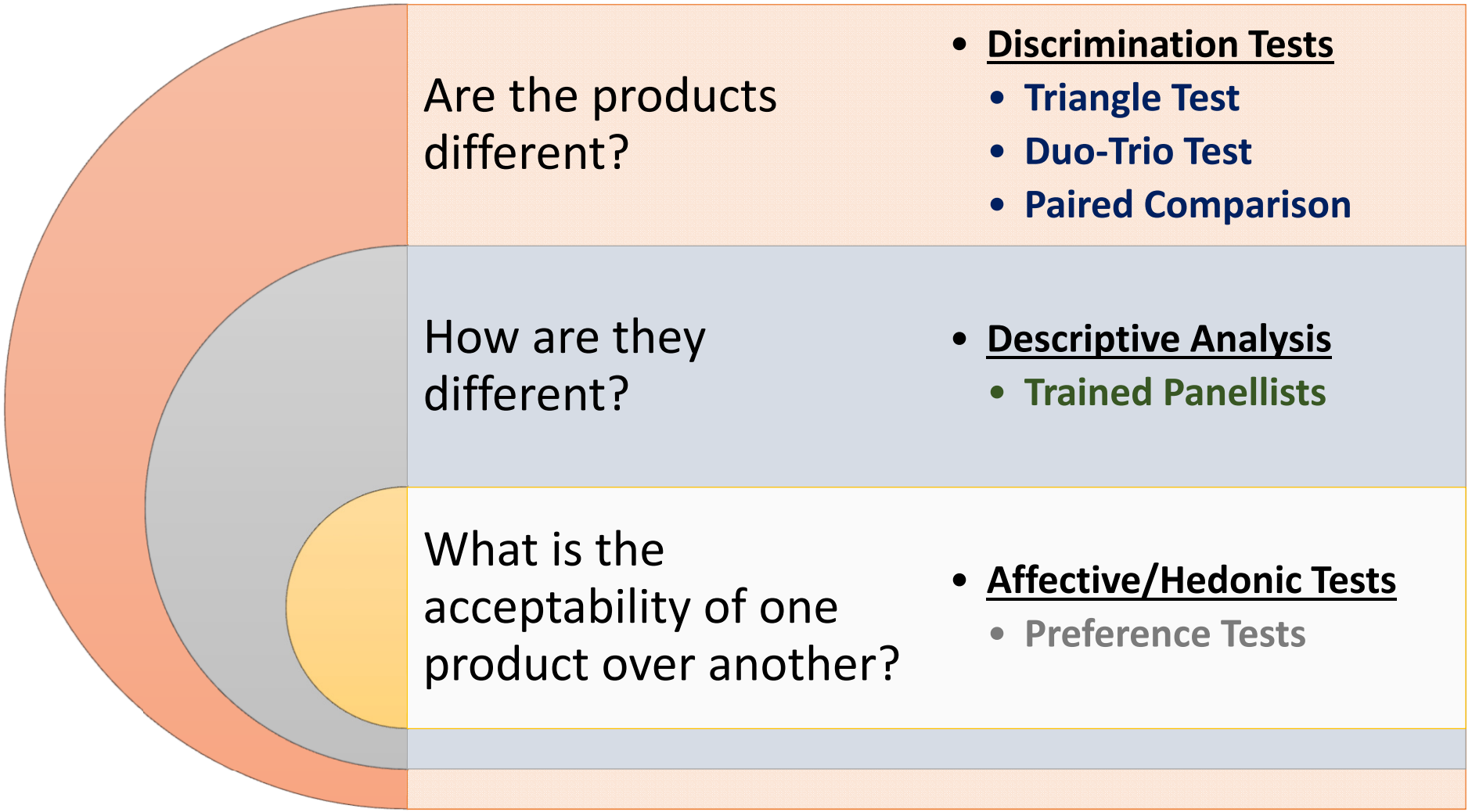
Principles of Good Practice

- Experimental Design Considerations
  - Samples should be labeled with random 3-digit codes to avoid bias
  - Samples should be served in random or counterbalanced order
    - Counterbalanced order means that if 2 samples are served, half of the subjects receive one sample first and the other half receive the other sample first
    - Counterbalancing takes into account order effects



Sensory Evaluation Methods

- The goal is to match the right test with the right question

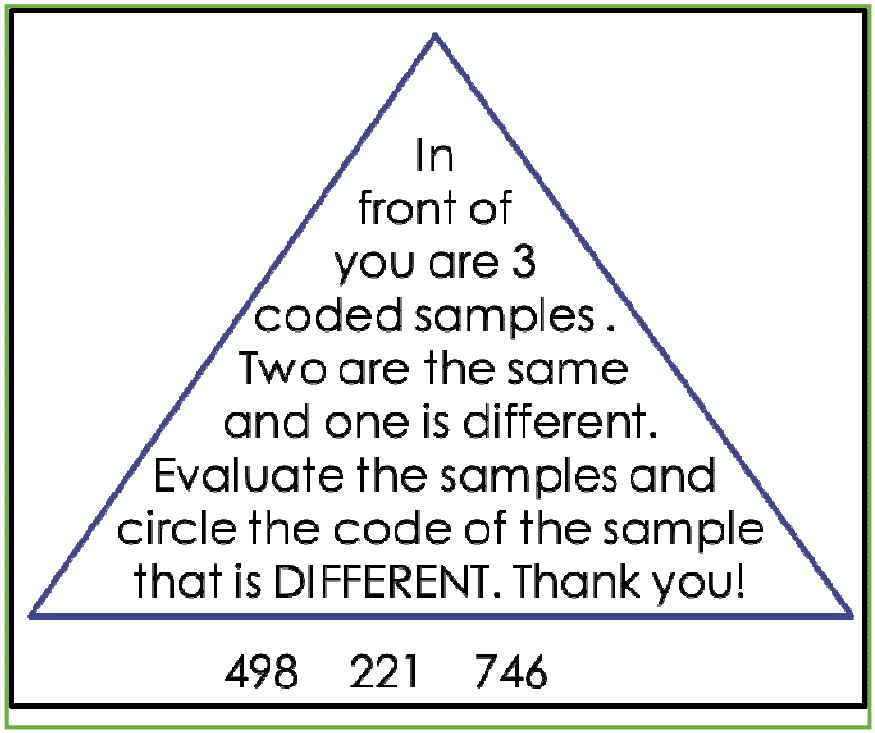


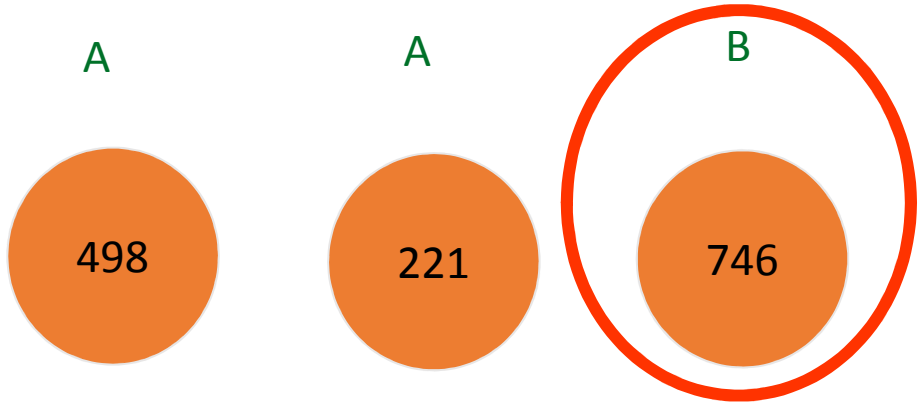
Discrimination Tests

- **Basic Question: Are two products different from one another?**
- **Basic Setup**
  - **25-50 panelists**
  - **Screened for acuity**
    (keenness or sharpness of perception, i.e. can they smell and taste well?)
  - **Given triangle, duo-trio or paired comparison tests**
  - **Analysis is done using tables which compare results to chance – this analysis ensures that the difference was real and not because people chose the correct sample by luck/chance**
- **Advantage**
  - **Quick and simple**
- **Limitations**
  - **Limited results – only yes they are different or no they are not**

Discrimination Tests

- Question: Are two products different from one another?
- **Triangle Test:** Choose the sample that is most different





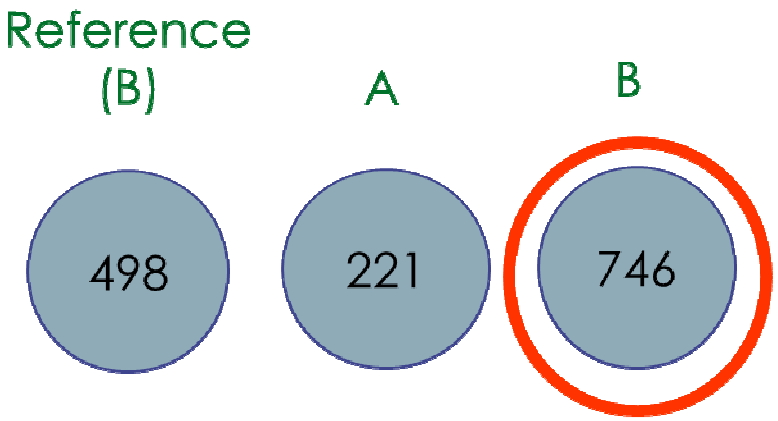
Discrimination Tests

- Question: Are two products different from one another?
- **Duo-trio Test**: Choose the sample that matches the reference sample

Duo –Trio

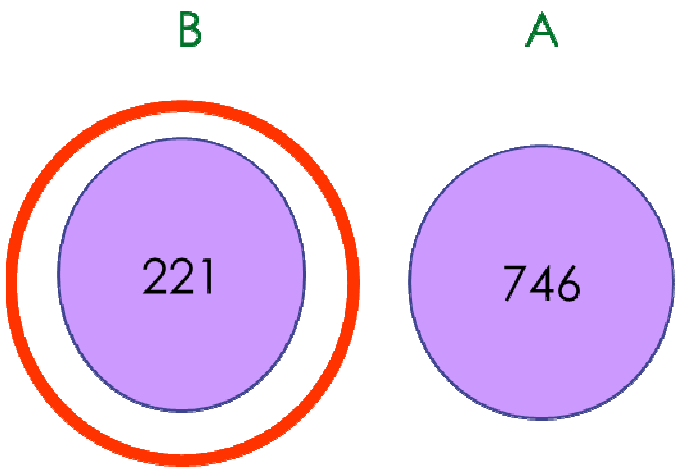
In front of you are two coded samples and a reference sample B. One of the coded samples is identical to the reference B. Evaluate the samples and circle the code of the sample that is IDENTICAL to the reference B. Thank you!

B 221 986



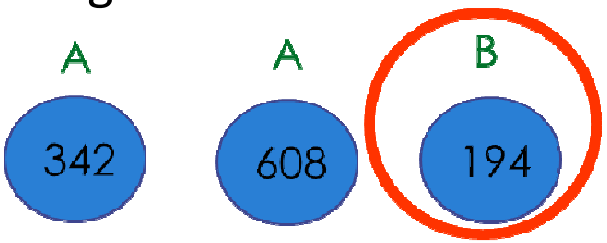
Discrimination Tests

- Question: Are two products different from one another?
- Paired Comparison Test: Which sample is sweeter?



Discrimination Tests

- Triangle Test: Choose the sample that is most different



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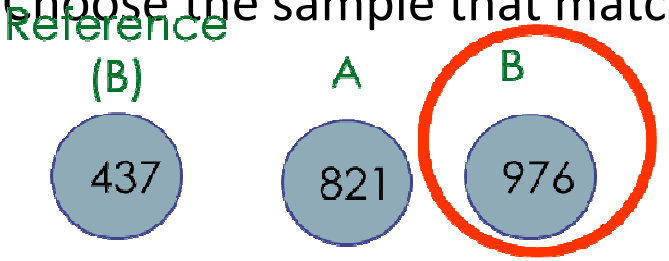

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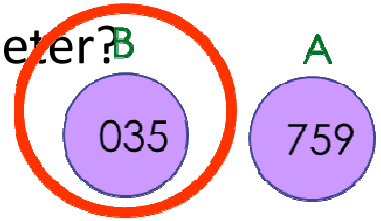


Descriptive Tests

- **Basic Question: How do products differ in all sensory attributes?**
- **Basic Setup**
  - **8-12 panelists**
  - **Screened for acuity**
  - **Trained**
  - **Asked to rate intensity for all sensory attributes**
  - **Analysis is done using a t-test to determine if means are statistically different**
- **Advantages**
  - **Detailed quantitative information**
- **Limitations**
  - **Time consuming**

Descriptive Tests

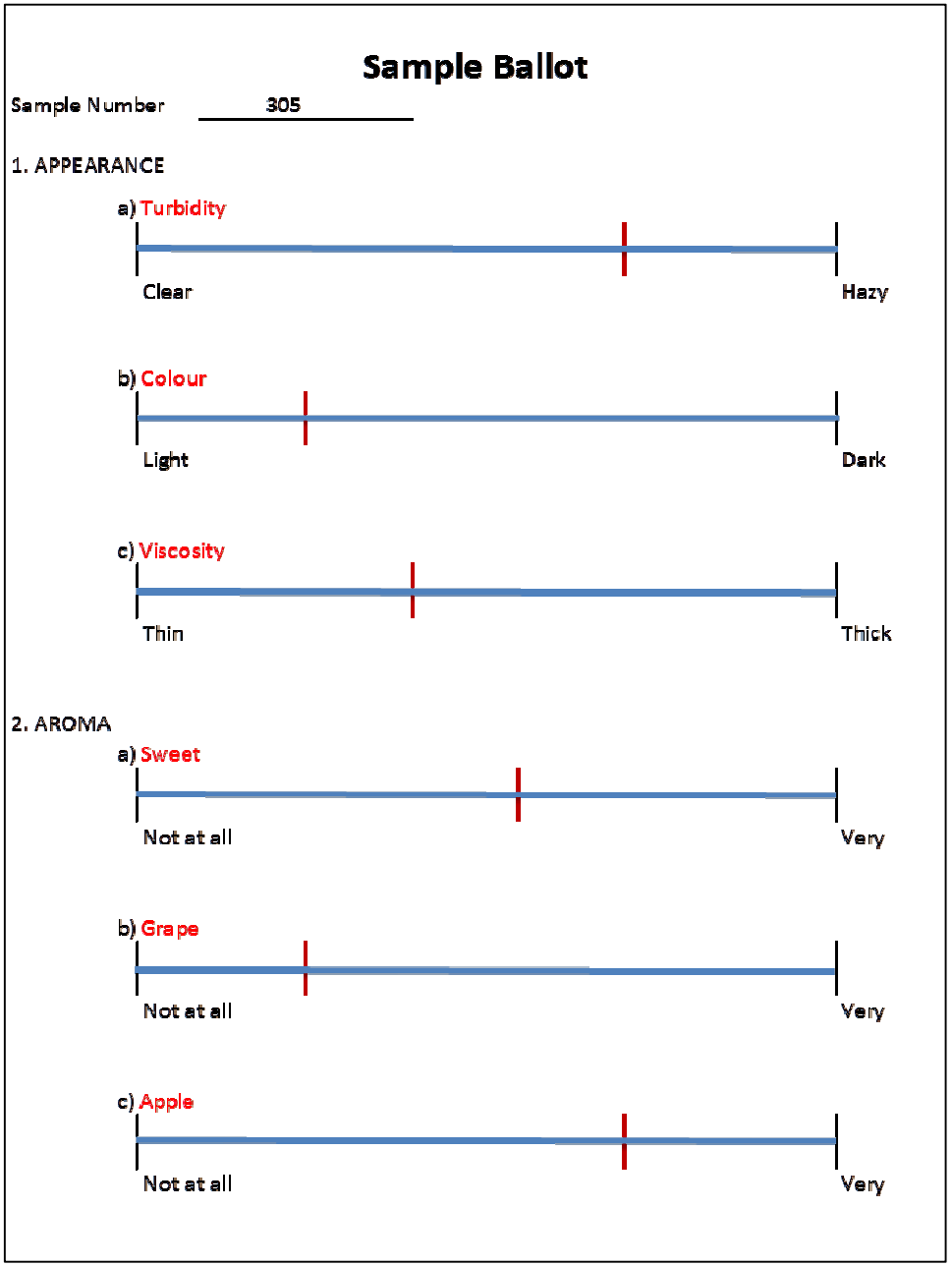
- **Most food companies have a panel that is trained on each of their products**
- **To train a panel takes several weeks to months**
- **There are several different methods of training**

Quantitative Descriptive Analysis

- **Sensory Spectrum**
- **Flavor Profile**

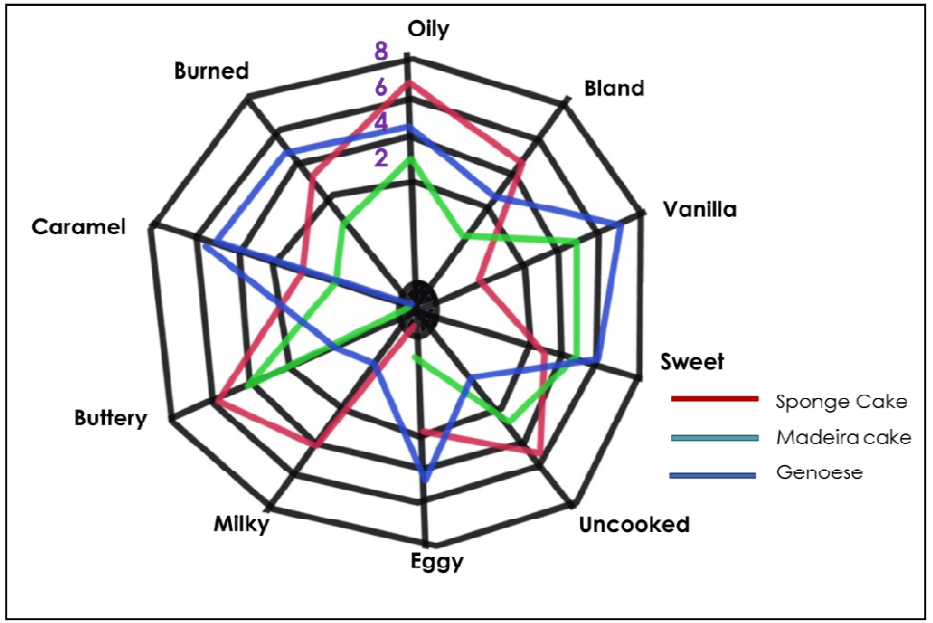
Descriptive Tests

- **What does trained mean?**
- **It means that the panelists are trained to evaluate products similar to how any instrument would give a reading**
- **In essence, the panelists are calibrated so that they have an understanding of each attribute and the range of intensity**
- **For example, a trained panel would be a given a sample of grape juice and would be able to rate the level of turbidity, color, viscosity, etc..**



Descriptive Tests

- Mean attribute ratings are calculated, statistics is used to determine if the means are significantly different
- The data can be plotted onto graphs – such as the spider plot – to easily compare samples



Consumer Acceptance Tests

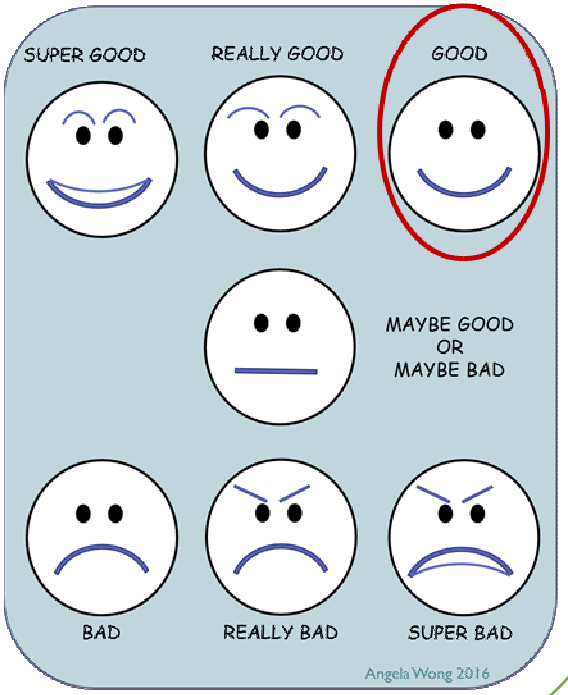
- **Basic Question: Are the products liked?**
- **Basic Setup**
  - **75-150 consumers per test**
  - **Screened for product use**
    (Do they buy the product? And how often?)
  - **Asked degree of liking**
    (how much do they like it) and/or preference questions
- **Advantages**
  - **Provides essential information – Do they like it or not?**
- **Disadvantages**
  - **May be difficult to get a representative sample of consumers**

Consumer Acceptance Tests

- Used to measure how much people like a product
- There are several types of scales that can be used

Sample Ballot

Taste each product in the order listed. Circle how much you like the product.



Consumer Acceptance Tests

- Preference Tests
  - The “Pepsi Challenge” type of test that is widely used in marketing research
  - Used to determine which product is preferred, although people have the option to choose “no preference”

Sample Ballot

Taste each product in the order that they are listed.
Circle the number of the product that you prefer, all things considered.

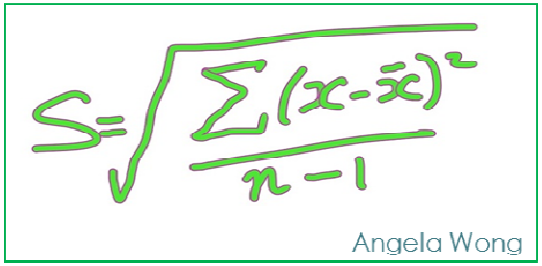
470 **193** **no preference**

Statistical Analysis

- The more information you have, the more you know – right?
- The science of sensory evaluation uses statistics to eliminate the likelihood of false results
  i.e.. accurate interpretation of the data
- Sample group size, incorrect/misleading/invalid answers, comparable to the market population, margins of error
- We now use T-tables or pc programmes to calculate the margin of error, standard deviation etc.

- What does this mean?

- To eliminate errors and obtain the most probable interpretation of the data.
- To prevent us from concluding that a treatment had an effect when none was really present and our differences were merely due to chance or experimental error variation



The Consumer's role

Sensory tests versus product concept tests

Test Characteristic	Sensory Test	Product Concept Test
Conducted by	Sensory Evaluation Dept.	Marketing Research Dept.
Primary end user of information	Research and Development	Marketing
Product Labelling	Blind-minimal concept	Full-conceptual presentation
Participant selection	Users of product category	Positive response to concept

Qualitative Consumer Research

- Consumer Research Agencies
- Interviews
- Focus Groups
- Market Research surveys

➢The task is to provide the simplest format to the consumer in order for you to gain the relevant information

➢Common mistakes include:

- Confusing questions; need brevity, plain language,
- Avoid vague questions; do not lead the respondent, be aware of wording, ambiguity and open-ended questions

Advantages and Disadvantages of Test Markets

Advantages	Disadvantages
Information about the effectiveness of product, pricing, packaging and marketing strategies is obtained	They can be very costly ventures
	They are time-consuming
Information about retail reaction is obtained	Sales force is diverted to new product launch possible to the detriment of regular products
Information about competitive counter action is seen, and protocols can be developed to thwart the competition	Test markets warn competition of company activity
Development protocols are justified	A successful test market does not foretell a successful full-scale launch
	Loss of face occurs if the test fails. This could result in possible poor trade reaction for other products.

Adapted form New Food Product Development: From Concept to Marketplace 3rd Ed. G.W. Fuller

Let’s change what???

- Ingredients
  - Availability, supplier problems, quality problems,
- Packaging material
  - Permitted chemicals, specifications, supplier problems
- Product Specification
  - Trials, testing and focus groups should the need to change, redefine the target market,
- Labelling
  - New regulations and restrictions,
- Launch date
  - Circumstances dictate a change in launch date, revised marketing plan, Corporate decision not to launch or to accelerate the marketing/launch date.

Are you keeping relevant records?

- What formulations have you tried?
- What was the result?
- What did you decide to change?
- Did you keep a record of changes in
  - Taste
  - Appearance
  - Size
  - Texture
  - Aroma
- Was the product improved?
- What next?

- To prevent repetition and mistakes, its essential to keep good documentation
- What if your development deviates from the original request?
- Good documentation is all inclusive

Formulation

Product		**Date:**	**Trial #:**
Ingredients		Method	
Cooking/Baking/Equipment Instructions: Expected Quantity:			
Result			

Trial Record

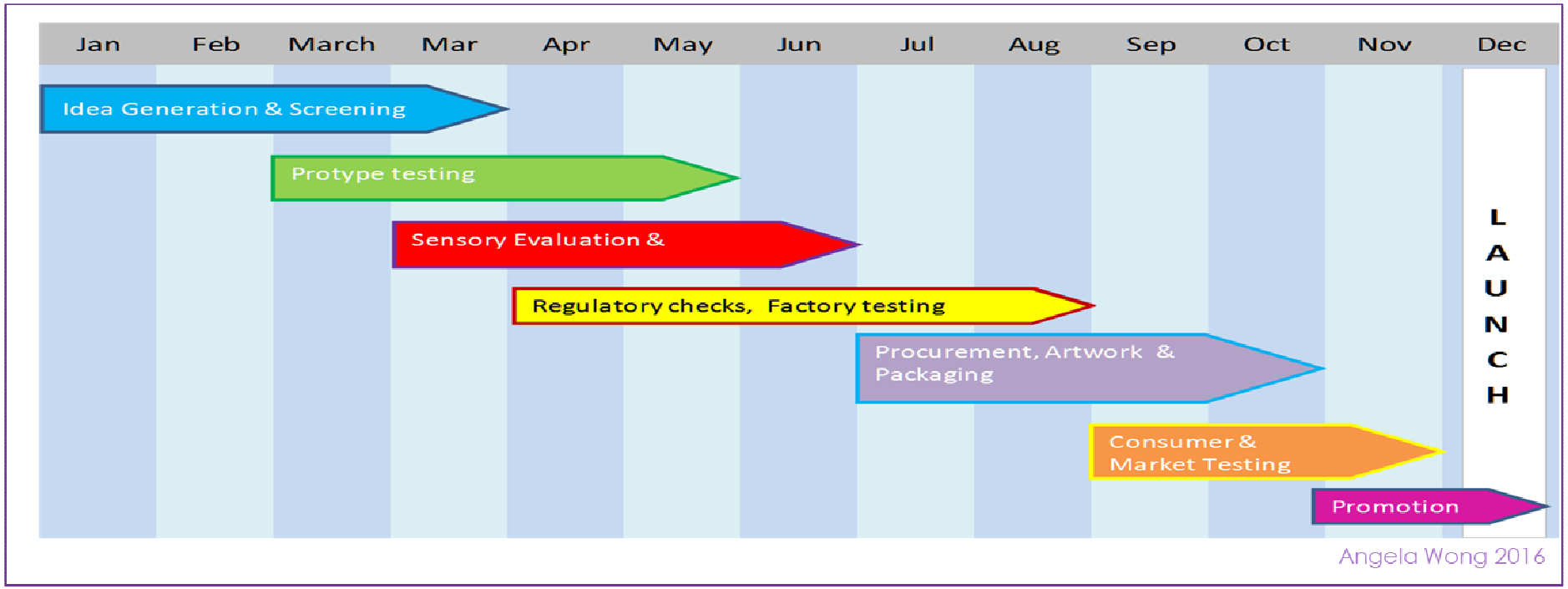
Product Name		**Date:**	**Trial #:**
Ingredients	Quantity	Ingredient	
Method			
Results & Comments	Quantity Produced:		
Action	Proposed Changes: Proposed trials: Deadline:		

Information required about your product before planning a timeline

Item	Departments	Reason
Ingredients Formulation Product	R&D /QA Purchasing /Procurement Factory, Finance Marketing	Certification, supplier audit, specification Quality and shelf-life, labelling, Nutrition Facts, Specifications; size, weight, height, volume, taste, texture, flavour, aroma, special characteristics e.g. high fibre, low fat etc.
Packaging	Purchasing, Engineering, Marketing – Art dept. R&D, Finance & Legal Factory	Dimensions, packaging material specifications and quality, packaging layout Artwork, Quality and certification Labelling, bar codes, regulations Packaging trials- safe to use in factory
Cost	All departments	

Project Timelines

- Timelines samples are available online
- Various timeline styles from simple to complex and detailed depending on the degree of development
- Can use simple Excel spreadsheet to complex Gantt timelines



Recommended format for Nutrition labelling

Nutrition Information 營養資料	
	Per 100g or Per 100ml/ 每 100 克或每 100 毫升
Energy /能量	kcal or kJ /千卡或千焦
Protein /蛋白質	g /克
Total fat /總脂肪	g /克
- Saturated fat /飽和脂肪	g /克
- Trans fat / 反式脂肪	g /克
Carbohydrates /碳水化合物	g /克
- Sugars /糖	g /克
Sodium /鈉	mg /毫克
Insert nutrient(s) involved in claim(s) / 填入涉及聲稱的營養素	g, mg or µg 克、毫克或微克
Insert other nutrient(s) to be declared / 填入其他標示的營養素	g, mg or µg 克、毫克或微克

Nutrition Information 營養資料

Servings Per Package/每包裝所含食用分量數目: 3
Serving Size/食用分量: 5 pieces (50g) /5 塊 (50 克)

	Per Serving 每食用分量	Per 100g 每 100 克	% Chinese NRV Per 100g 每 100 克的中國營養參考值
Energy /熱量	220 kcal/千卡 924 kJ/千焦	440 kcal/千卡 1848 kJ/千焦	22%
Protein /蛋白質	5.5 g/克	11 g/克	18%
Fat, total /脂肪總量	8 g/克	16 g/克	27%
- Saturated fat /飽和脂肪	3.5 g/克	7 g/克	35%
- Trans fat /反式脂肪	0 g/克	0 g/克	
Carbohydrates /碳水化合物	31 g/克	62 g/克	23%
- Sugars /糖	1 g/克	2 g/克	
Sodium /鈉	365 mg/毫克	730 mg/毫克	37%

Nutrition information 營養資料 Per 100g/ 克
Energy/ 能量 440 kcal/ 千卡 (1848 kJ/ 千焦)， Protein/ 蛋白質 11g/ 克，
Total fat/ 總脂肪 16g/ 克， Saturated fat/ 飽和脂肪 7g/ 克，
Trans fat/ 反式脂肪 0 g/ 克， Carbohydrates/ 碳水化合物 62 g/ 克，
Sugars/ 糖 2 g/ 克， Sodium/ 鈉 730mg/ 毫克

Nutrient Reference Value (NRV) is derived for nutrition labelling purposes making reference to the recommended intake levels of various nutrients.

It is based on a 2000-kcal diet.

The set of Chinese NRVs are more applicable for people in Hong Kong and the Mainland because they are derived for Chinese.

e.g. the Chinese NRV of saturated fat is 20g,which means based on a 2000-kcal diet, we should aim at eating not more than 20g of saturated fat per day.

Criteria to assess Shelf life

Criteria	Changes
Microbial change	Total plate counts, Colony forming units. Counts of specific microorganisms of public health or economic significance. e.g. E.coli, Salmonella spp,
Nutritional change	The loss of a nutrient might be chosen. This nutrient should one for which the food products is a significant source e.g. Calcium in milk, Vitamin C in orange juice
Loss or change in colour	Loss or change of colour or the production of breakdown colour compounds. Exudation or drip loss, moisture transfer, shrinkage, malodour production
Change in functional property	Loss of functional property e.g. ability to whip, to colour, to flavour, to foam, to leaven or to set
Undesirable textural change:	Hardening, softening, staling, loss of crispness, development of graininess, viscosity etc

Curiale 1991

Conditions of shelf life testing?

What conditions should shelf life testing be held? Ideal or abusive conditions

- Temperature & light
- Physical abuse
- Environmental abuse
- Travel tests
- Microbial load; tests GMP and HACCP effectiveness.

Types of Test

- **Static Test**
  The product is stored for a given period of time under a given set of environmental conditions selected as most representative of the conditions to which with product will be subjected
- **Accelerated Test**
  The product is stored under a range of some environmental variables e.g. temperature
- **Use/Abuse Test**
  The product is cycled through some environmental variables.

Certification

- The need for 3rd party or an internationally recognized certification applies whether you're a local food supplier or a multinational

- Today, food safety/quality is a major concern of governments, food suppliers and the consumer

- Who can you trust?

Which certification?

- ISO – International Organization of Standardization
- BRC – British Retail Consortium
- GFSI – Global Food Safety Initiative
- SQF – Safe Quality Food
- IFS – International Food Safety
- FSSC – Food Safety System Certification 22000
- Global GAP – Good Agricultural Practices
- HACCP
  Hazard Analysis of Critical Control Points

At this point:

- ✓Basic idea for a new product
- ✓Initial test sample to test viability
- ✓Assessment/Review of your test sample
- ✓Decision to revise or fine-tune your sample
- ✓Decision to revise your new product idea

- ✓Ask yourself: Is your product
  - ? Exciting? Boring and Safe?
  - ? Something new or special to the market [USP?]
  - ? Something wanted or needed by the market
  - ? Something with the potential to develop into a long term success?
  - ? Just a gimmick/short term idea?
  - ? Can it be easily replicated, replaced or improved by a competitor?

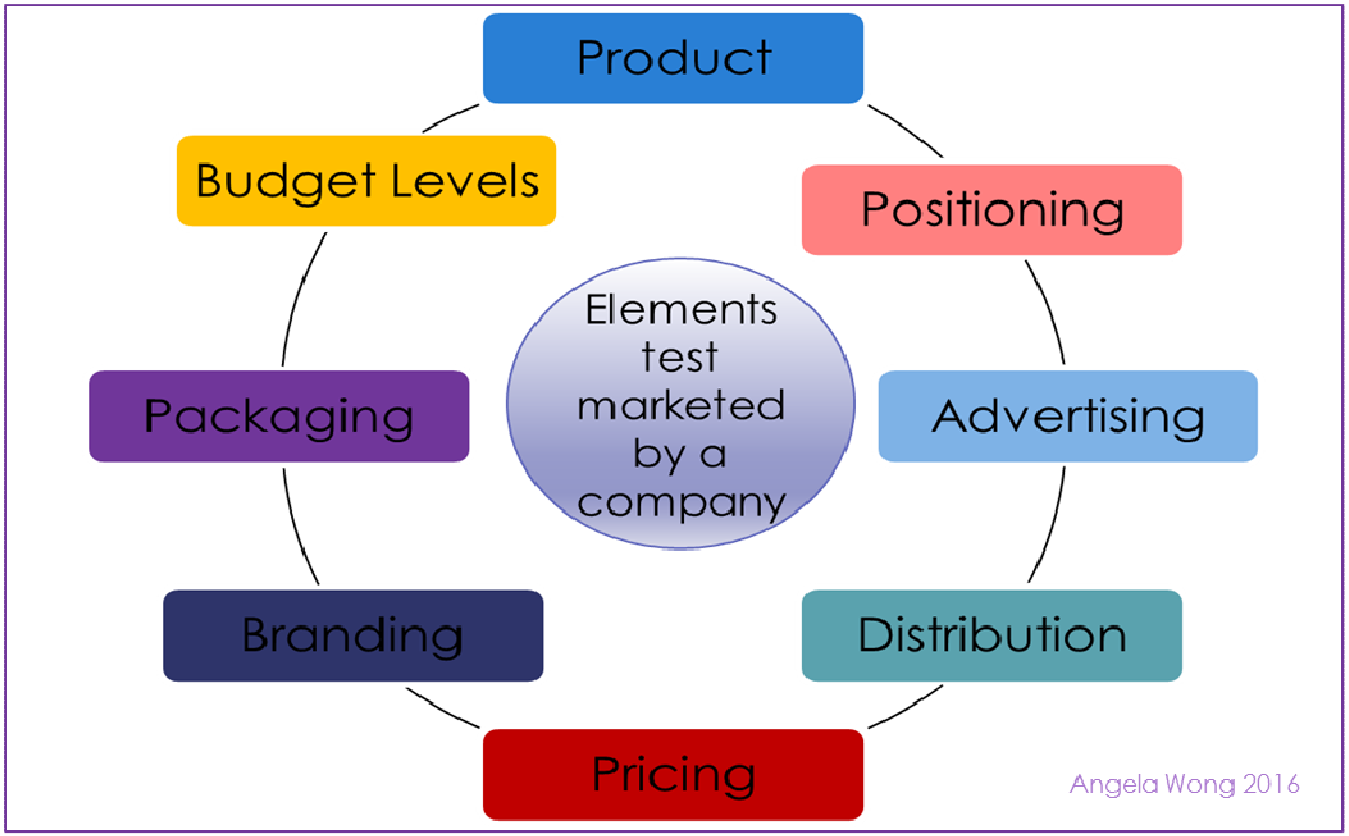
10 Legal requirement s for labelling food packaging

1. Product Name
2. Product Description
3. Manufacturer’s name and address
4. Weight or Volume of product
5. Allergy advice
6. Country of Origin
7. List of Ingredients
8. Date Marking
9. Instructions for use
10. Storage Instructions

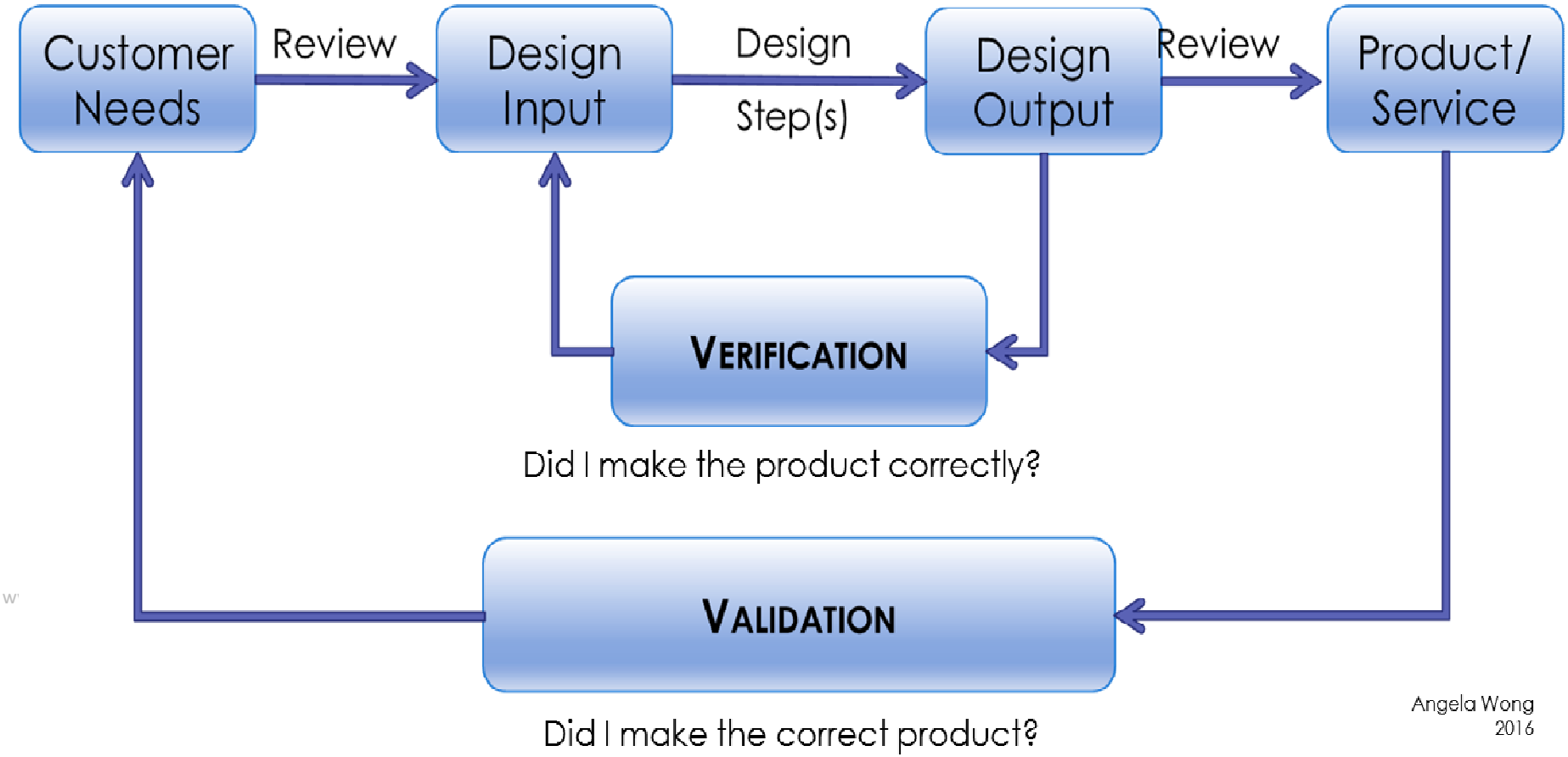
* Refer to the HK Govt. website for HK Labelling laws

Test Marketing

- The Product and Marketing programmes are introduced into a more realistic market setting



Verification & Validation



Angela Wong
2016

How well do you know your product?

Design Verification;
before product launch

- Specifications:
- Size, taste, texture, colour, appearance
- Quality documentation

Design Validation;
after product launch

- Sales volumes,
- Customer feedback

- Product Specifications
- Product Quality Assurance
- Process parameters
- Product Knowledge
- Pricing
- Marketing

Any questions?

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- http://www.iit.edu/ifsh/resources_and_tools/pdfs/preventive_controls_white_paper.pdf
- http://www.foodprocessing.com.au/content/business-solutions/article/verification-and-validation-1335816537
- http://www.foodqualityandsafety.com/article/verification-validation-key-to-helping-food-companies-comply-with-gfsi-standards/?singlepage=1
- http://www.iit.edu/ifsh/resources_and_tools/pdfs/preventive_controls_white_paper.pdf
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- www.particlesciences.com
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- www.biochemia-medica.com

食品研究與開發背後的食品科學原理 (重辦)

4 JULY 2017

Presented by Ivy Ng, HKU SPACE

課題

- 引言
- 產品研發過程
- 意念衍生和篩選
- 感官評估
- 食品安全和標籤
- 驗證與確認
- 結論

定義

Product Development: The overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product.

The Product Development and Management Association

The PDMA Hand Book 1st Edition.

翻譯

產品研發：策略，組織，概念衍生，產品和市場營銷計劃的創作和評估，及新產品商業化的整個過程。

定義

New Food Products:

1. A product not previously manufactured by a company and introduced by that company into its marketplace or into a new marketplace, or
2. The presentation or rebranding by a company of an established product in a new form, a new package or under a new label into a market not previously explored by that company

New Food Product Development:
From concept to marketplace

Gordon W. Fuller

翻譯

新食品：

1. 以往未曾生產過的產品，由該公司引入其市場或新市場，或
2. 公司以新形式，新包裝或新標籤展示或重新品牌塑造現有產品到該公司未曾探索過的市場

定義

- *Innovation is the specific instrument of entrepreneurship... the act that endows resources with a new capacity to create wealth.*

Peter Drucker

翻譯

- *創新是創業的具體工具.....賦予資源新的能力來創造財富。*

- INNOVATION
  - 1: the introduction of something new
  - 2: a new idea, method, or device : novelty

Merriam-Webster dictionary

翻譯

- *創新*
  - *1: 引進一些新的東西*
  - *2:一種新的思路，方法或設備：新穎*

http://www.businessweek.com/innovate/content/jan2006/id20060131_916627.htm
http://www.realinnovation.com/content/what_is_innovation.asp

了解定義

- 討論在食品工業的含義
  - 產品性質 - 新，延伸或改進
  - 新技術 - 材料，過程和/或機械
  - 包裝
  - 標籤和監管控制
  - 市場細分

考慮無名品牌或超市品牌產品的情況...

- 產品從食品製造商購買。
- 可以是零售商，甚至是製造商的折扣或混合線。
- 所有的成本，技術知識，市場研究和風險都由食品製造商承擔。

➢舉出一些無名品牌/超市品牌的零售商和產品例子

產品線延伸

- 時間或研究不足
- 生產時，在加工線或主要設備採購方面沒有重大變化
- 市場營銷策略的變化相對較小
- 沒有新的採購技能[商品貿易]或原材料來源
- 沒有為原材料或最終產品使用新的儲存或處理技術，例如:使用常規分配系統。

➢舉出一些產品線延伸的例子。

現有產品的新形狀或尺寸

- 對研究及發展有大量可變的影響。
- 對廠房設備和生產能力有大量可變的影響。 如果要自行製造，可能需要採購新的主要設備。
- 將需要大規模地重新編排市場營銷和銷售資源。

➢舉出一些現有產品的新形式或尺寸的例子。

重組現有的產品

- 適度的研究及開發需要和新目標相符
- 對廠房設備影響不大
- 對市場營銷和銷售資源的影響不大，除非重組令產品需要重新定位

➢舉出一些可能發生這種情況的例子。

重新包裝現有產品

- 重新包裝的新穎性將決定所需的研究及開發的數量和程度
- 對廠房設備的影響輕微。可能需要新的包裝設備。
- 對市場營銷，市場銷售和分銷資源的影響不大

➢舉出一些例子。

創新產品

- 研究及開發的數量取決於創新的性質
- 對製造能力有大量可變的影響
- 可能對市場營銷和銷售資源造成重大的影響

- 對科學，產品性質和目標市場的熟悉能幫助解決技術上困難。

創意產品

- 需要深入的研究及開發，成本將會是昂貴的
- 需要大量的開發時間
- 可能需要全新的工廠和設備。 創意的程度可能需要開發獨特或專門的設備
- 將需要對市場營銷和銷售力進行全面修訂。 有可能需要建立新公司或品牌。
- **高失敗的風險**

食品工業的創新包括

- 控氣包裝
- 利樂包
- 魚類明膠
- 微囊化技術：香料，色素，保健品
- 基因改造; 豐富食品，生產產量，抗性
- 擠壓食品 - 麵食，穀物，嬰兒食品，小吃，寵物食品
- 營養價值 - Omega 3,6，DHA，益生元（低聚醣），益生菌（LAB，雙歧桿菌）
- 天然甜味劑，色素，抗氧化劑和防腐劑
- 生物可降解包裝，可食用包裝

什麼因素能做出一個好概念?

- 了解您的產品類別
- 產品對你的目標市場有吸引力嗎？
- 製造，促銷和銷售的成本是否過高？
- 知識：
  - 您的公司是否了解此產品的需求
  - 如何包裝此產品?
  - 如何推廣或推銷此產品?
  - 您的目標市場是否需要此產品？
- 時間是關鍵

時機

- 時機是非常重要。
- 您的產品可能是季節性的，可能是迎合潮流或可能太早推出市場 。
- 您的員工可能需要時間熟悉產品或接受進一步培訓。
- 您的市場營銷計劃可能需要擴展至介紹產品或宣傳正確訊息。
- 公眾可能沒有準備好接受你的產品。

產品創意的來源– 你覺得這是一個完整的列表嗎?

一般來源	具體行動力提供的啟示
市場	市場研究，以確定客戶和消費者的需求;客戶分析 顧客購買習慣的零售數據 分銷商表達他們對產品的要求，以及與店內消費者接觸時的問題 通過投訴，信件，電話等途徑與客戶和消費者溝通
公司內部	通過銷售部與零售買家和店中個人客戶的互動，以及觀察店中具競爭性的產品和其佈置 政府的壓力或創新的動力 員工的構思
市場外的環境	國家和國際貿易展覽會展示的新機械，食品和材料 收集具競爭性的情報 對競爭對手的新產品需要作出的市場回應 食品和烹飪文獻提供有關民族美食和新食譜的構思 技術，貿易和科學文獻為發展開闢新的視野

Adapted from fig 3.1 New Food Product Development 3rd Ed. G.W. Fuller

公司不需要“完美的意念”，只要好的意念

為什麼？ 因為好的意念會：

✓滿足公司目標消費者的需求和願望，從而吸引客戶。

✓理想情況下，是來自那些需要和使用產品的人

✓滿足高級管理層設定的新產品成功目標

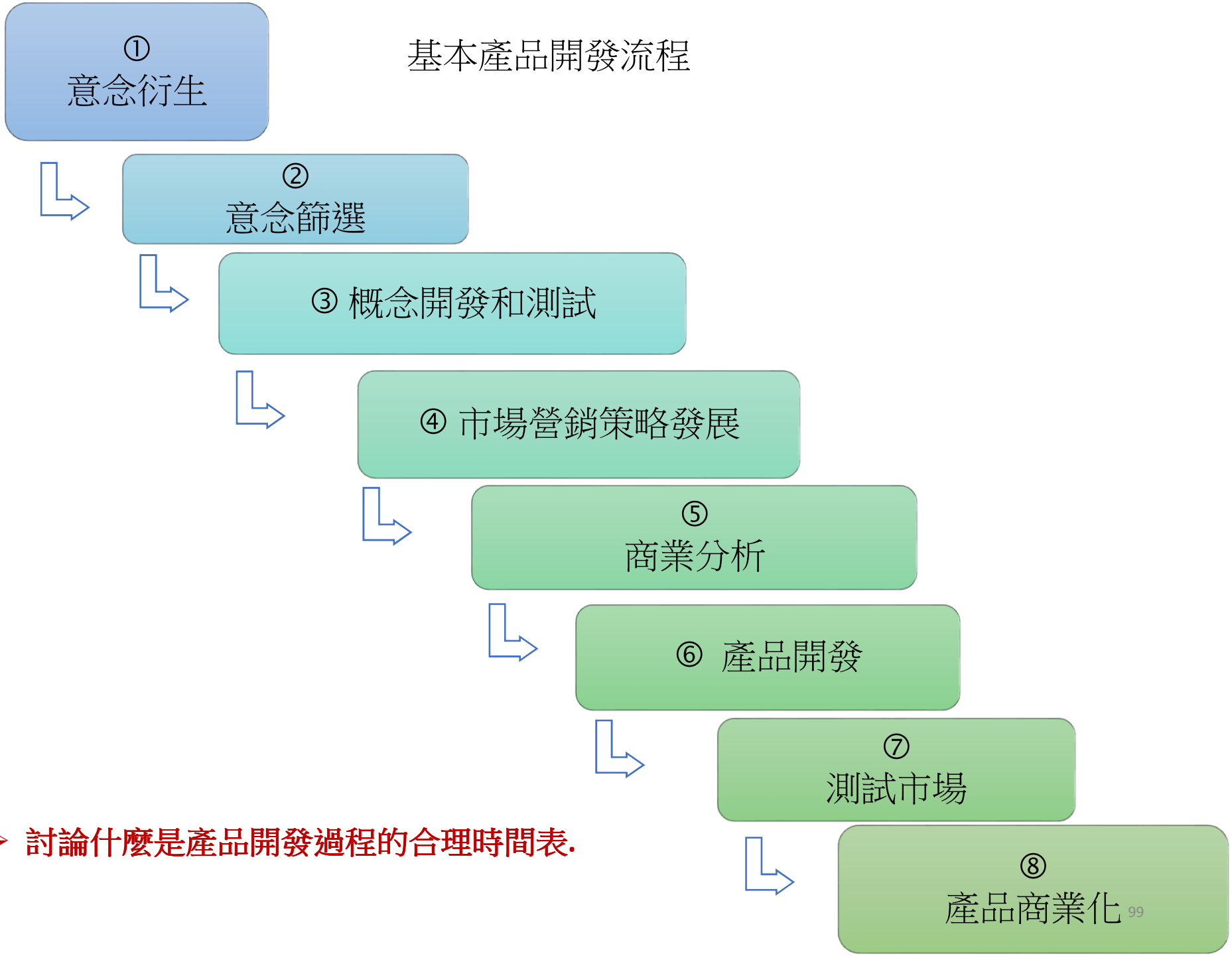
✓根據管理層所設定的標準製造出有盈利的產品。

✓尊重管理層設定的某些財務責任，即可以在某些預算和時間限制內發展

✓在公司的銷售能力和技術範圍內

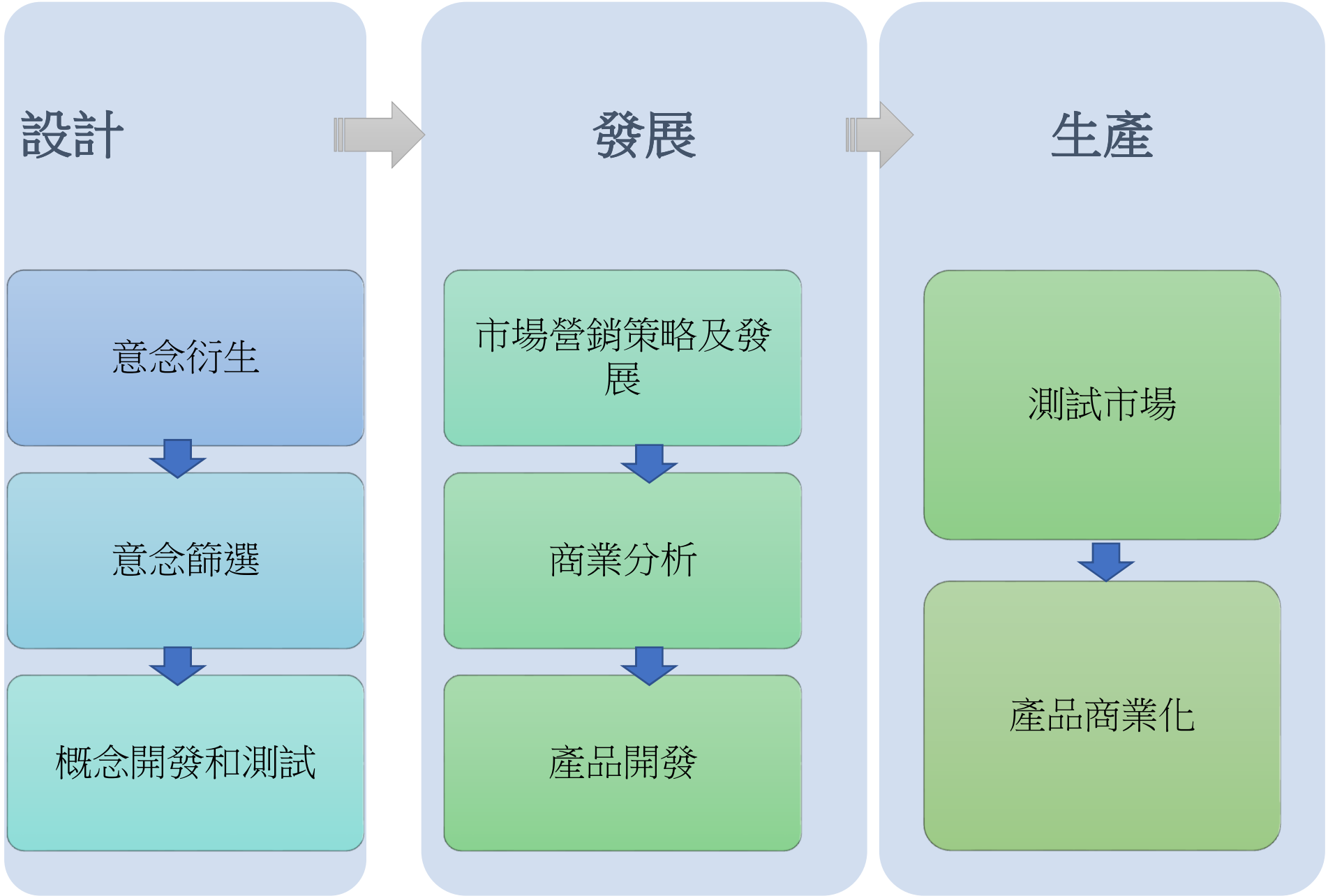
- 總的可說，可以在公司的技術水平，技術能力，管理和財務資源(即公司的核心能力)內發展的就是好的意念

基本產品開發流程



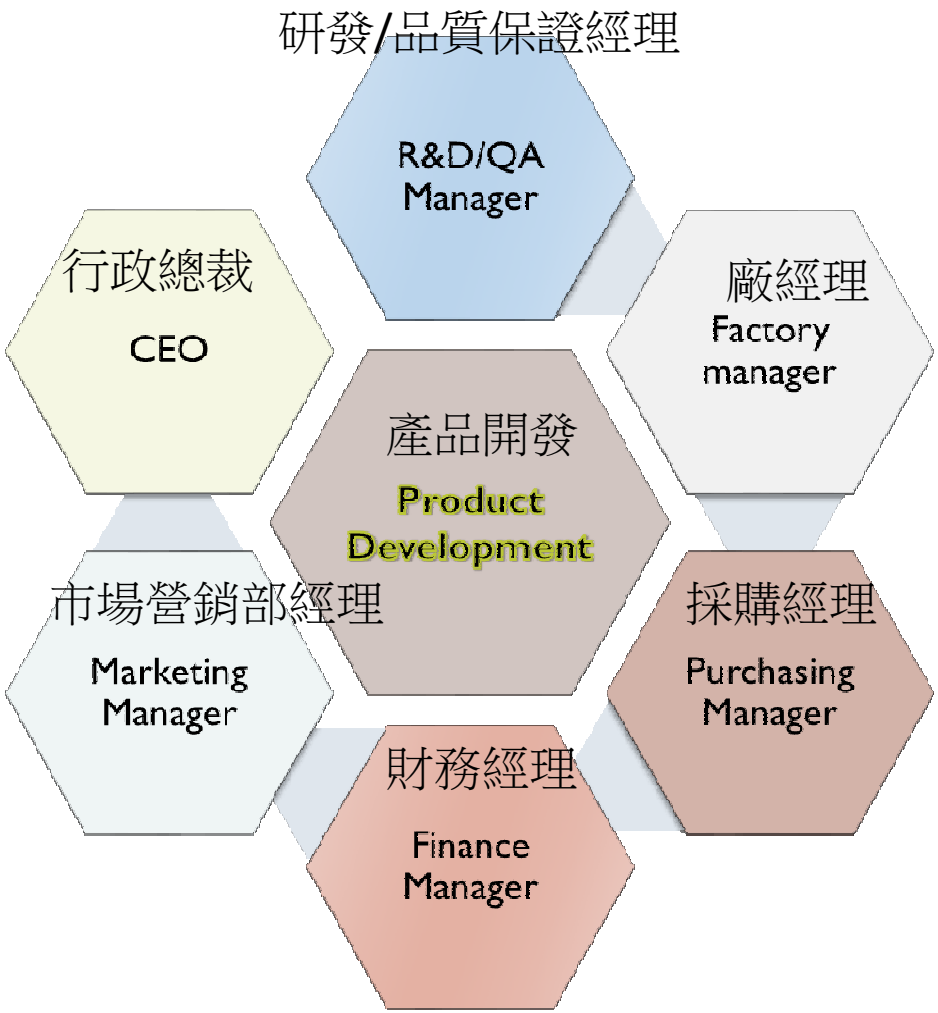
- **討論什麼是產品開發過程的合理時間表.**

基本產品開發流程

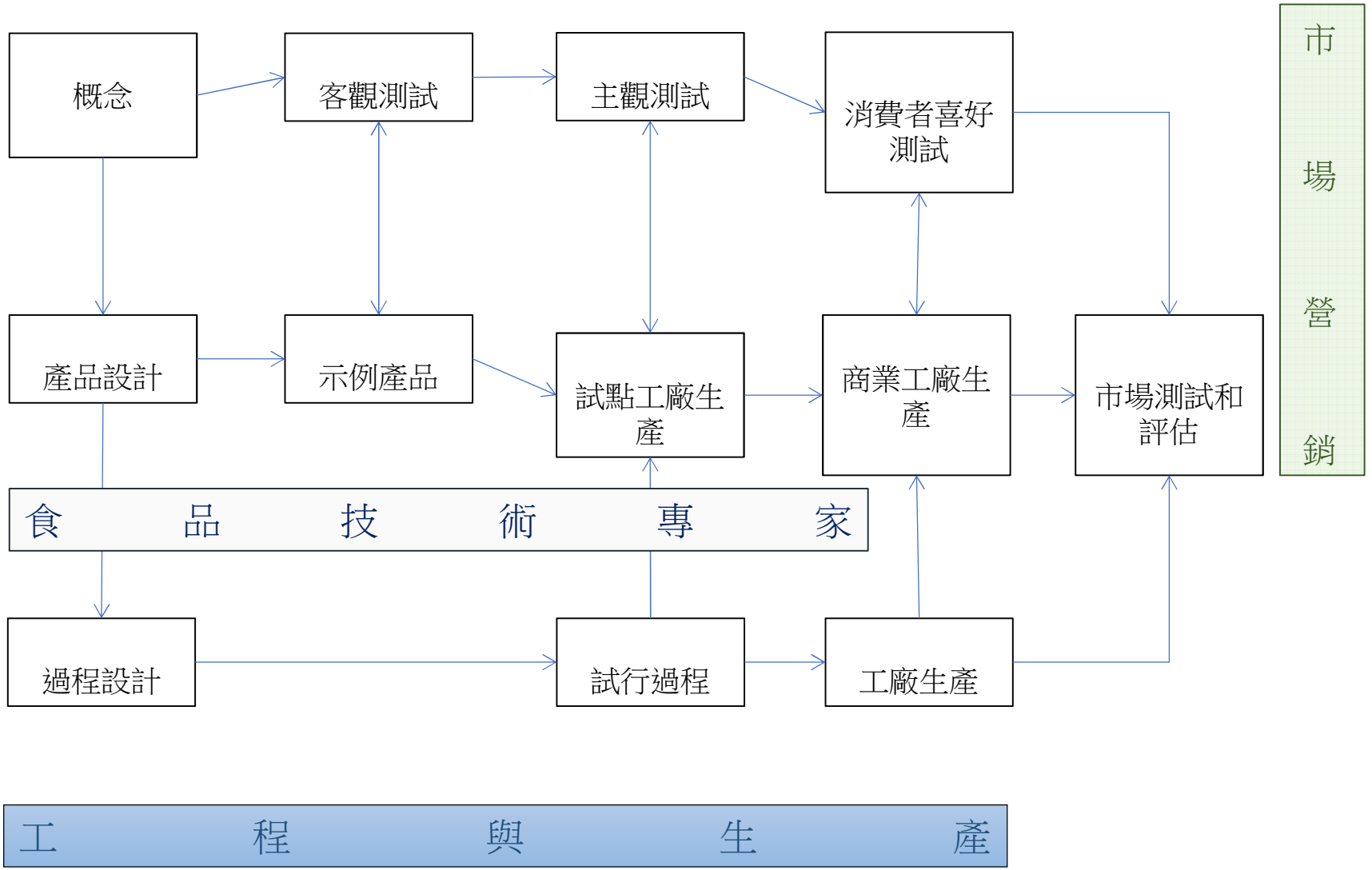


您在產品開發中的角色

- 每個人在產品開發都有一個角色

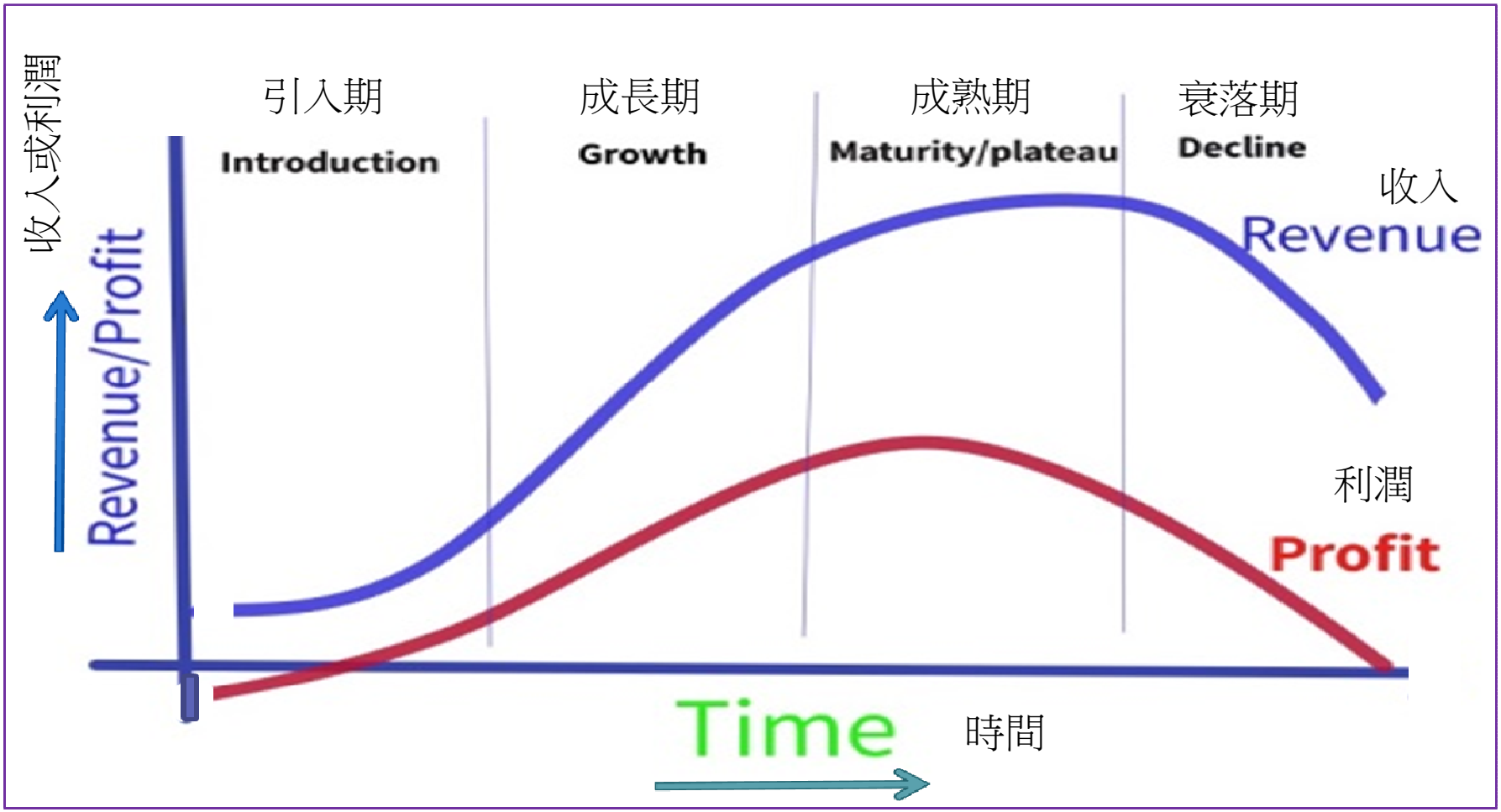


產品開發中活動流程的理想化表示



改編自 fig 2.2 New Food Product Development 3rd Ed.　G.W. Fuller

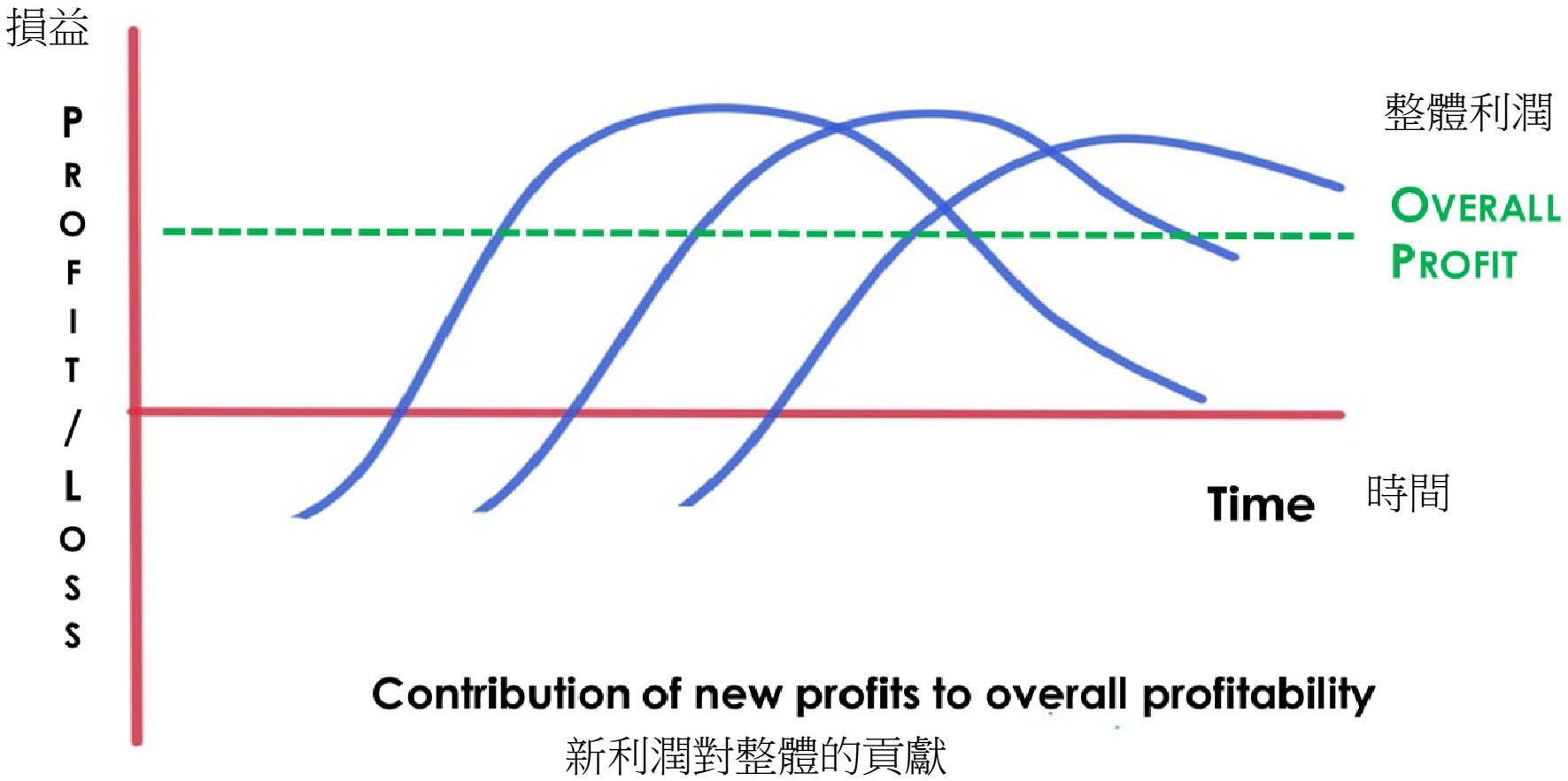
典型產品生命週期


收入或利潤
Revenue/Profit
引入期
Introduction
成長期
Growth
成熟期
Maturity/plateau
衰落期
Decline
收入
Revenue
利潤
Profit
Time
時間

利潤狀況

- 由於研發，推廣等需要投入大量成本，引入期的淨利潤最小，往往一開始會處於虧損狀態
- 淨利潤在成長期結束時會大於支出
- 利潤在成熟期時有改善，但在此階段結束時開始下降。
- 利潤在衰落期穩步下降
- 為了保持利潤流動和維持公司的生存能力，必須準備好替代產品。 該公司應有隨時可推出、進行消費者測試或被篩選的產品

理想的產品生命週期


損益
PROFIT/LOSS
整體利潤
OVERALL PROFIT
Time
時間
Contribution of new profits to overall profitability
新利潤對整體的貢獻

成功是沒有保證

- Differing estimates on the success rate of new products from 1 in 6 to 1 in 20
  - Skarra (1998): 1 in 58 product ideas is developed into a successful new product
    [Leslie Skarra CEO Merlin Foods provides R&D Services]

翻譯

- 新產品的估計成功率由6分1到20分1不等
  - Skarra（1998）：58個產品概念中只有1個被開發成為成功的新產品

- 難以評估失敗：
  - 在過程的哪個階段，產品被確定為失敗？
  - 在推出市場後不符合市場佔有率的標准？
  - 什麼是“滿意的市場佔有率”？

那為什麼要開發新產品呢？

☒開發新產品是困難，昂貴和缺乏成功的保證
☒失敗率非常高，以至產品開發被視為商業賭博。

為什麼要開發新產品呢？

☑但是，回報可能意味著**公司有持續的盈利**。

➢食品公司不能忽視新產品開發是公司增長和生存的手段。

篩選開發新產品的通用標準

總結：

- 可銷售性
- 技術可行性
- 製造能力
- 經濟能力

➢ **如果你要製作一個模仿別人設計的產品，即模仿你的競爭對手，討論哪方面你會是最弱的?**

定義

“Sensory evaluation comprises a set of techniques for accurate measurement of human responses to foods and minimises the potentially biasing effects of brand identity and other information influences on consumer perception”

Sensory Evaluation of Food: principles and practices. 2nd Ed.
H.T. Lawless, H. Heymann 2010

翻譯:

“感官評估是包括一套技術，能準確地測試人們對食物的反應，並將消費者對品牌識別的潛在偏倚效應和其他信息的影響減至最低”

定義

“A scientific discipline used to evoke, measure, analyze and interpret those responses to products that are perceived by the senses of sight, smell, touch, taste and hearing.”

Sensory Evaluation Practices. 2nd ed.
Stone, H and Sidel, JL. 1993.

翻譯:

“是一門科學學科，用於產生，量度，分析和解讀由視覺，嗅覺，觸覺，味覺和聽覺感官對產品所產生的反應。”

什麼是你的五種感官？

- 視覺
- 嗅覺
- 觸覺
- 味覺
- 聽覺

➢我們在吃飯時如何使用它們？

如何使用感官評估？

- 在食品公司，感官科學家與產品開發人員會密切合作，以了解：
  - 消費者喜歡什麼和為什麼
  - 消費者能否分辨出產品改變後的差異（例如更改材料）
- 在學術界，感官科學家：
  - 嘗試了解我們感官如何運作，我們的感官如何對刺激作出反應（食品和化學品）
  - 改善測試方法

為什麼使用感官評估？

- 科學評價和分析
  - 降低不確定性
  - 降低決策風險
  - 確保推出消費者接受度高的新產品[滿足消費者的需求]，以達到高成本效益
- 人類對機器
  - 人類對氣味和味道可以較機器更加敏感
  - 機器無法衡量喜好

環境是重要的考慮

- 你在安靜的圖書館或嘈雜的公共休息室溫習時，會有什麼感覺？
- 為什麼現在長途航班的飛機上有複雜照明模式？
- 餐廳的氛圍會影響你對食物的感覺嗎？
  - 燈光
  - 音樂
  - 氣味

顏色關聯

- 指出一個紅色的食物
  - 黃色？
  - 綠色？
  - 棕色？
  - 藍色？
- 它是什麼味道的？

顏色感覺 - 味道

- 更深的顏色等於更強的味道和/或更多的果味

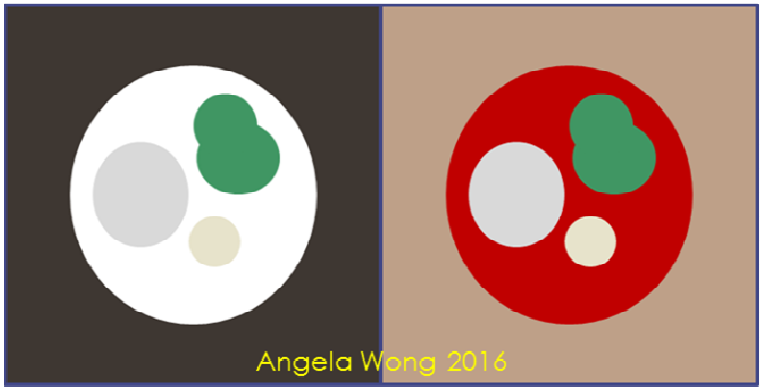
這種蔬菜有什麼味道？？

- 紫色椰菜花的味道會否和一般的椰菜花不同？
- 如果在烹調時脫色，怎麼辦？

顏色感覺 – 份量

德勃夫大小錯覺,

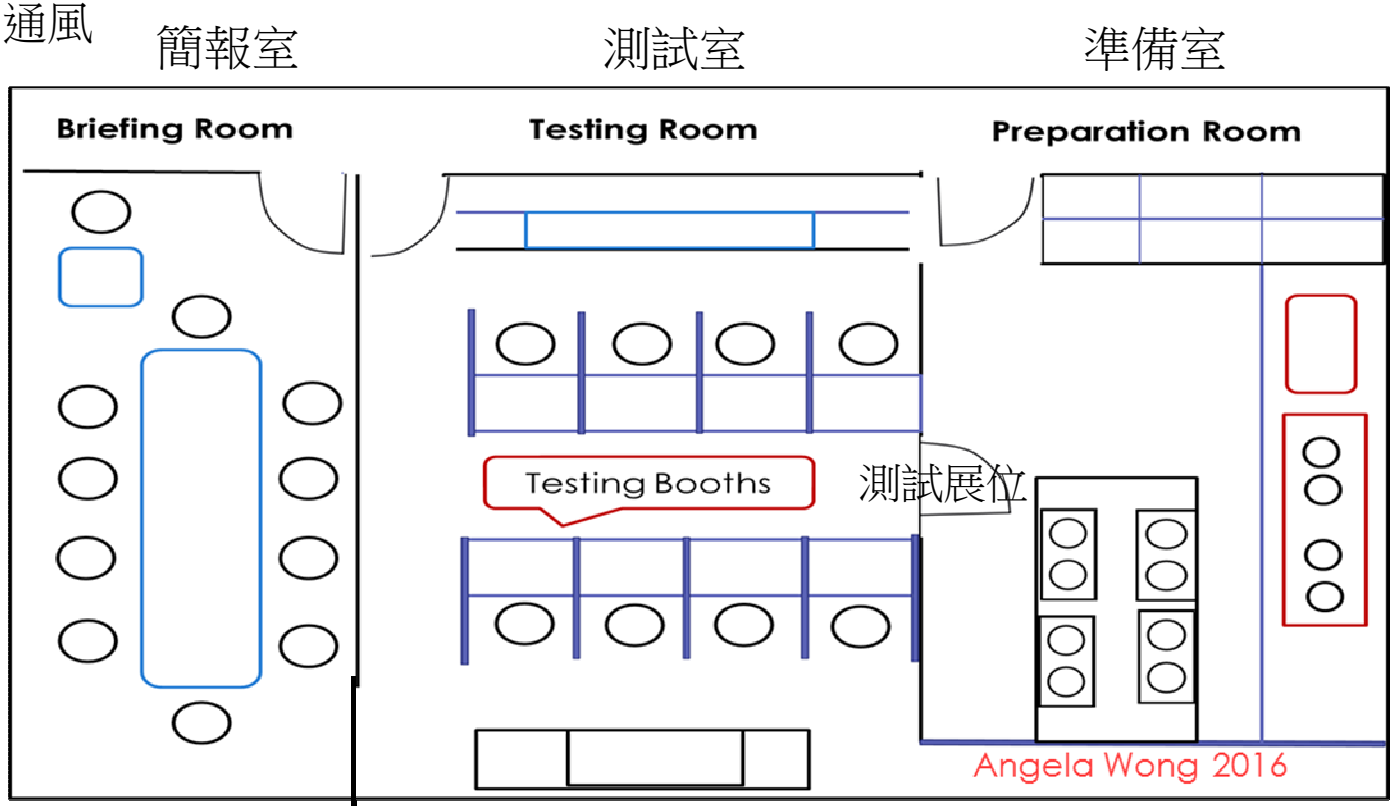
- 以1865年發現它的比利時科學家命名
- 碟和你的食物之間的顏色對比較弱會誘使你吃更大的份量
- 如果你的目標是吃少一點，你應為晚餐的食物選擇與食物具顏色對比強的碟。
- 想吃更多的蔬菜嗎？ 嘗試放在綠色的碟上！



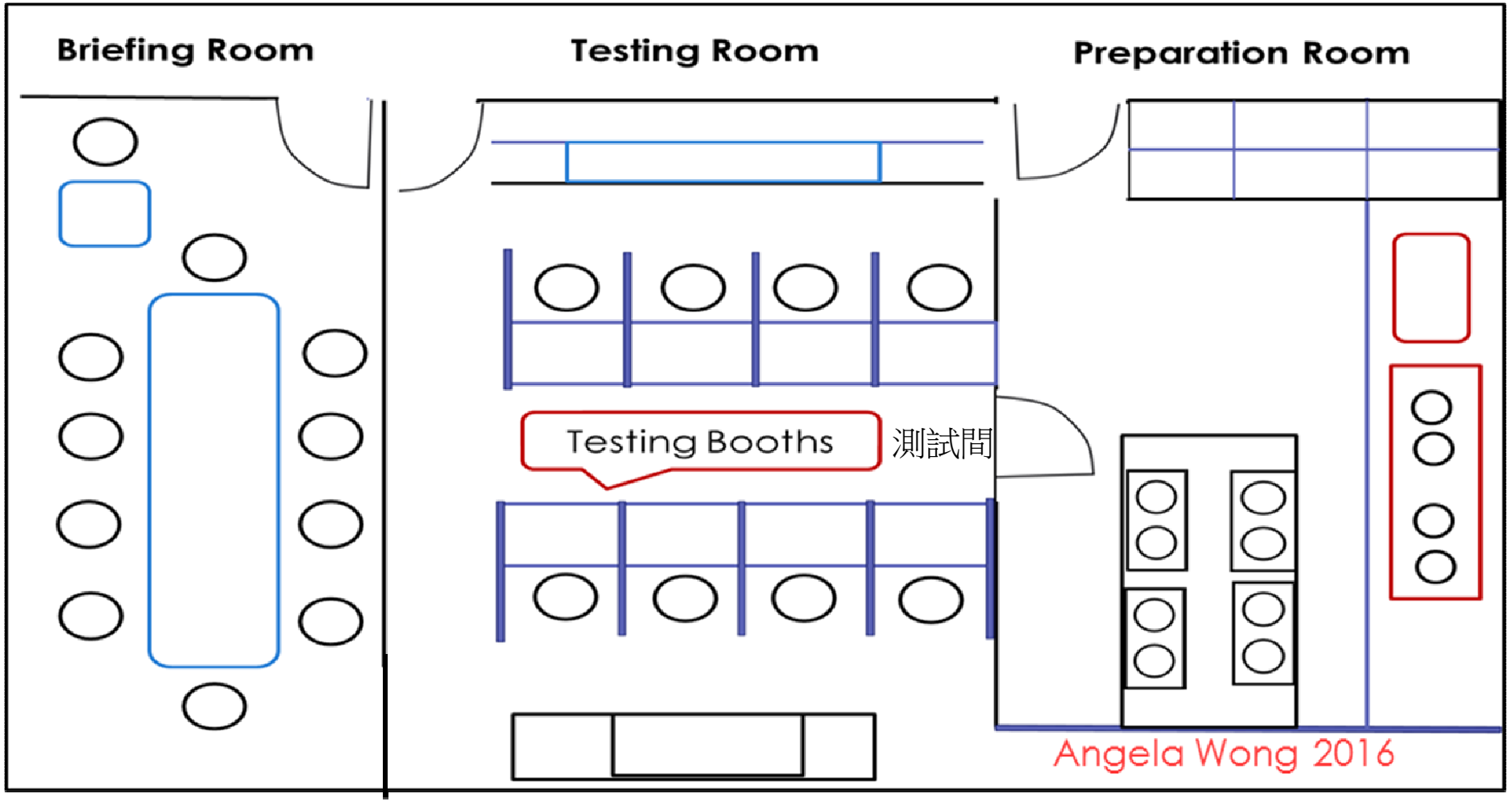
What's With the Color of Your Plate?
Van Ittersum, Koert, & Wansink, B. (2012). Plate size and color suggestibility: The Delboeuf illusion's bias on serving and eating behavior. Journal of Consumer Research, 39(2), 215-228

良好規範的原則

- 設施應該要有良好的設計
  - 白色或灰白色
  - 要控制照明
  - 應該要有良好的通風



簡報室 測試室 準備室


Briefing Room
Testing Room
Preparation Room
Testing Booths
測試間
Angela Wong 2016

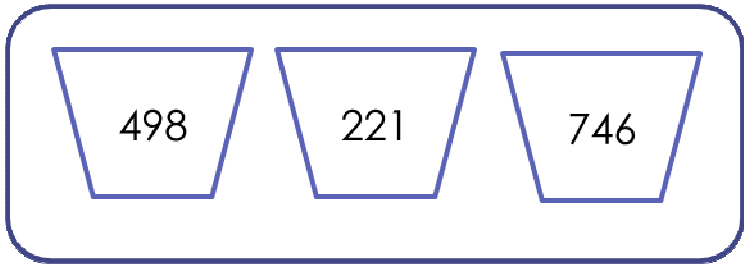
良好規範的原則

- 樣本應準備妥當
  - 要控制溫度而且所有樣本要有相同溫度
  - 所有樣本的體積應相等
  - 應在烹調/製作後相同的保質期或時間內測試樣本

➢**需要將可能會導致錯誤結果的差異減至最低**

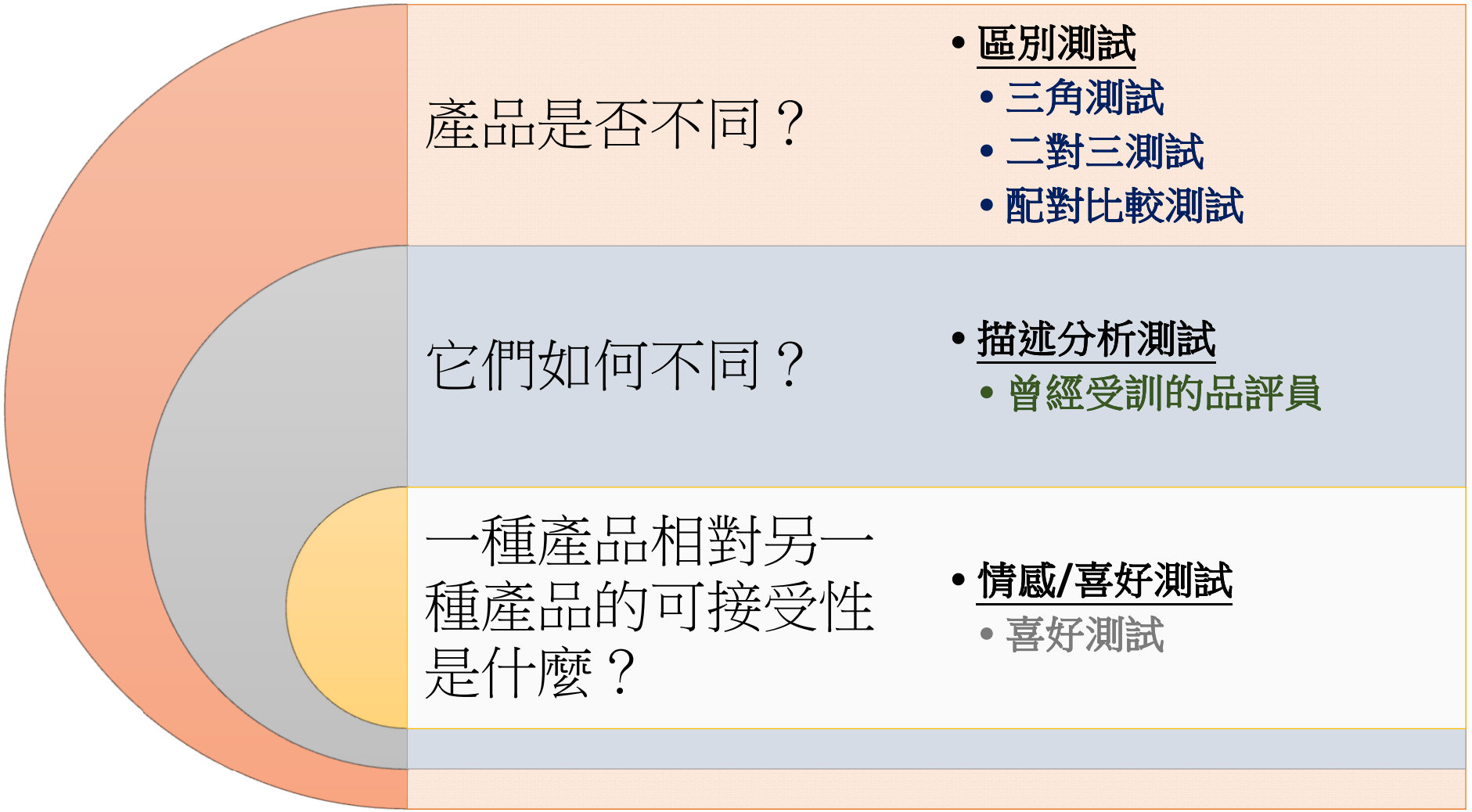
良好規範的原則

- 實驗設計的注意事項
  - 樣本應以隨機3位數代碼標示，以避免偏差
  - 樣本應以隨機或對抗平衡的次序提供
    - 對抗平衡的次序的意思是如果要提供2個樣本，一半參加者首先接受一個樣本，而另一半會先接受另一個樣本
    - 對抗平衡考慮到次序的影響



感官評估方法

- 目標是使正確的測試配合正確的問題

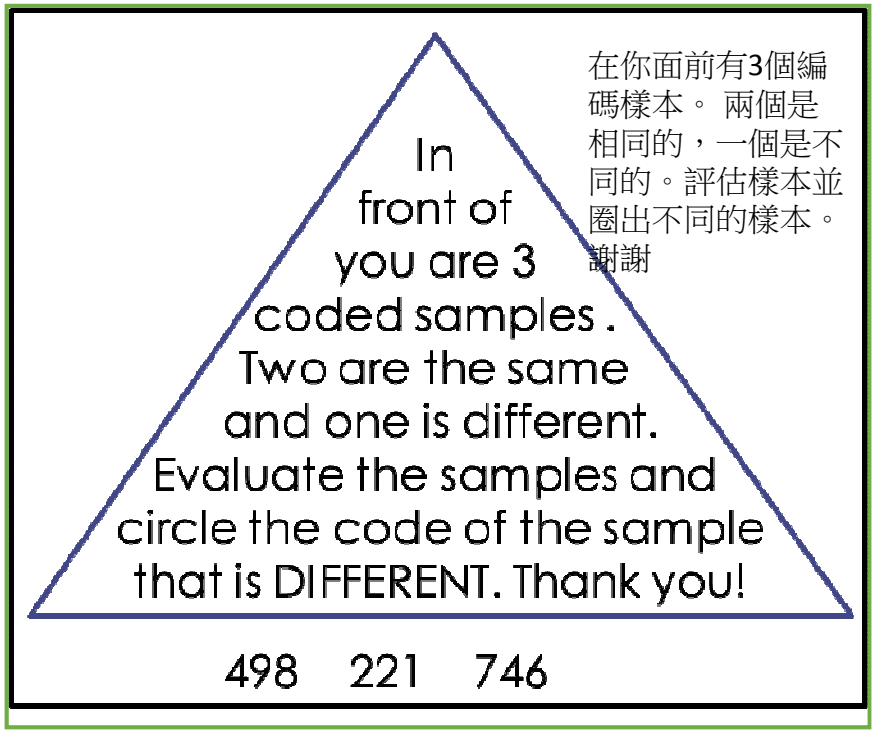


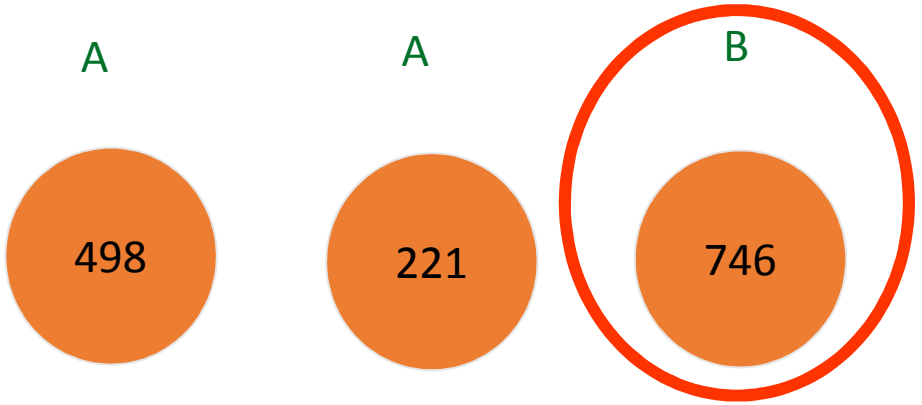
區別測試

- 基本問題：兩個產品是否彼此不同？
- 基本設置
  - 25-50名品評員
  - 篩選敏銳度（敏銳的感知，即有良好的嗅覺和味覺）
  - 提供三角測試，二對三測試或配對比較測試
  - 使用一覽表進行分析，比較結果，運氣/機會- 該分析確保差異是真實的，而不是因為人們通過運氣/機會選擇出正確的樣本
- 優點
  - 快速和簡單
- 限制
  - 結果有限制- 只有是或不是

區別測試

- 問題：兩種產品是否彼此不同？
- **三角測試：** 選擇最不同的樣本



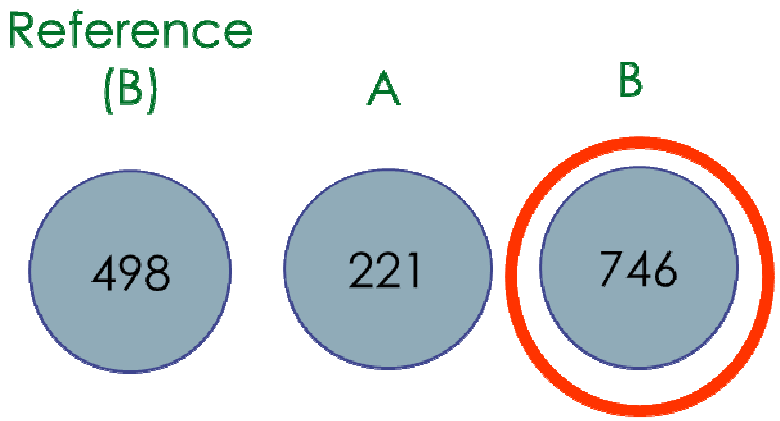


區別測試

- 問題：兩種產品是否彼此不同？
- **二對三測試**: 選擇與參考樣本匹配的樣本

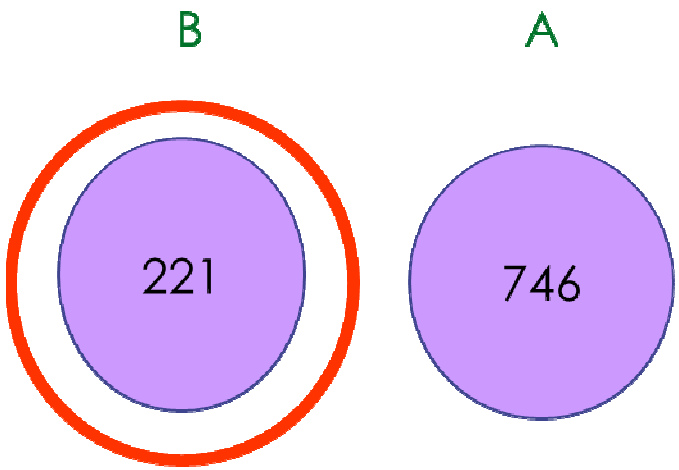
對比測試

在你面前有兩個編碼樣本和一個參考樣本B 。
其中一個編碼的樣本與參考樣本B相同。
評估樣品並圈出與參考樣本B相同的樣本編碼。 謝謝！
B 221 986



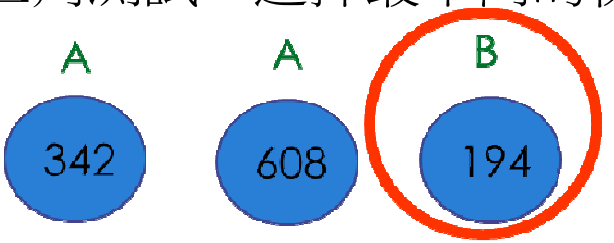
區別測試

- 問題：兩種產品是否彼此不同？
- 配對比較測試: 哪個樣本較甜？

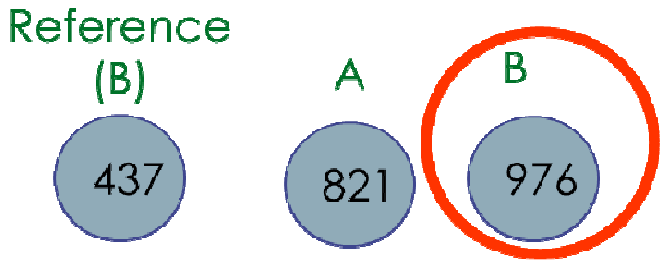


區別測試

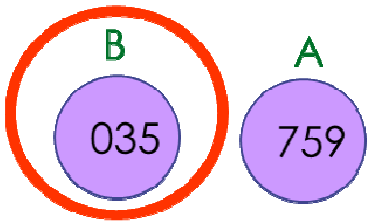
- 三角測試：選擇最不同的樣本



- 二對三測試: 選擇與參考樣本匹配的樣本



- 配對比較測試: 哪個樣本較甜？



描述測試

- 基本問題：產品在所有感官屬性上有何不同？
- 基本設置
  - 8 -12名品評員
  - 篩選敏銳度
  - 受訓練
  - 要求對所有感官屬性的強度進行評級
  - 使用T-檢驗進行分析以確定平均值是否在統計上有顯著分別
- 優點
  - 詳細的定量信息
- 限制
  - 耗時

描述測試

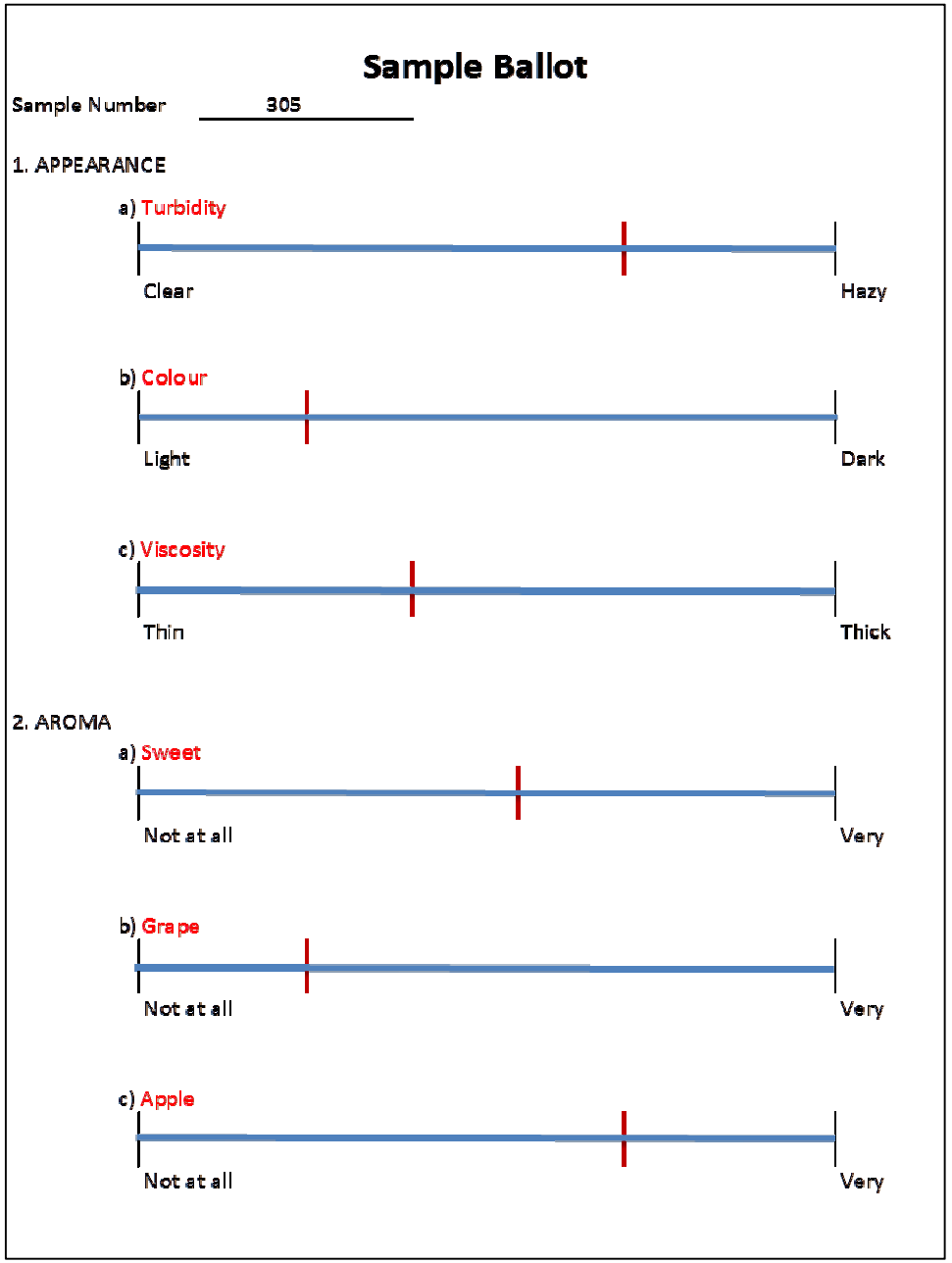
- 大多數食品公司都有一個為每個產品都曾進行培訓的小組
- 要培訓一個小組需要幾個星期到幾個月
- 有幾種不同的訓練方法

定量描述性分析

- 感官光譜
- 風味剖析

描述測試

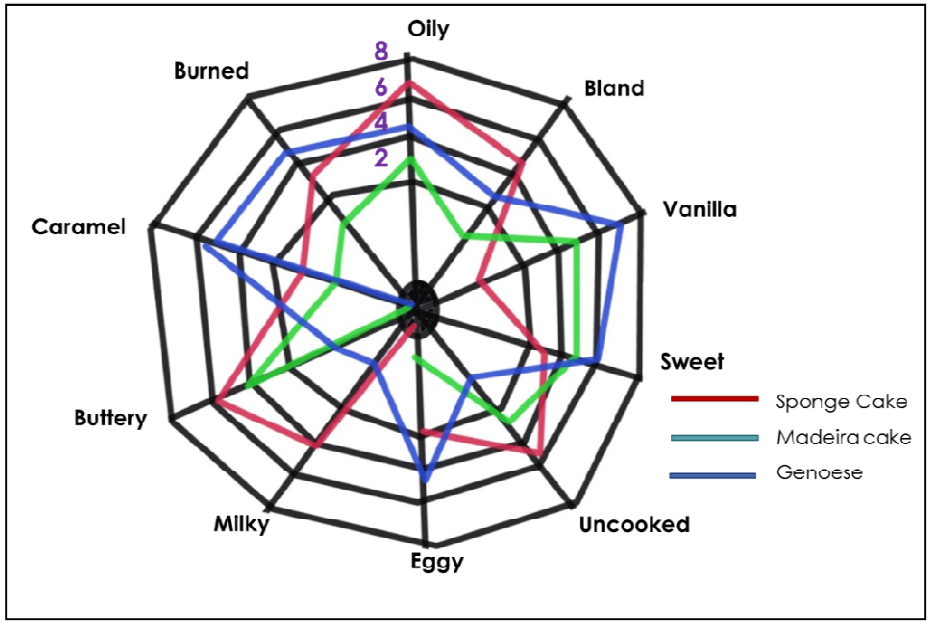
- 訓練的意思是什麼？
- 這意味著專家小組經過培訓，可以以任何儀器一樣為產品進行評估，給予評分。
- 本質上，小組成員被培訓，使他們理解每個屬性和強度的範圍
- 例如，將葡萄汁樣品給予受過訓練的小組，他們能夠評價濁度，顏色，粘度等的水平。



描述測試

- 計算屬性的平均值，用統計學來確定平均值是否有顯著不同

- 數據可以繪製在圖表上（如蜘蛛圖）以便容易比較樣品



消費者接受度測試

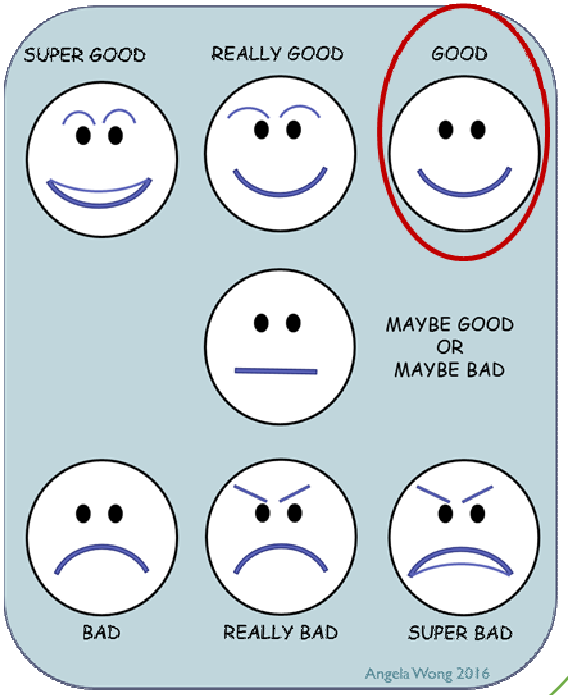
- 基本問題：是否喜歡產品？
- 基本設置
  - 每個測試有75-150名消費者
  - 篩選有否使用產品？（他們購買產品嗎？多久會買一次？）
  - 問及喜好程度（他們有多喜歡這產品?）和/或喜好問題
- 優點
  - 提供必要的信息 - 他們喜歡還是不喜歡這產品？
- 缺點
  - 可能很難找到有代表性的消費者樣本

消費者接受度測試

- 用於衡量人們有多喜歡一個產品
- 有幾種類型的量度可以使用

評分票樣本

按照列出的順序嘗試各種產品。 圈出你有多喜歡產品。



消費者接受度測試

- 喜好測試
  - 在市場營銷研究中廣泛使用的“百事可樂挑戰”類型的測試
  - 用於確定哪個產品是首選，雖然人們可以選擇“無喜好”

Sample Ballot

評分票樣本

按照列出的順序嘗試各種產品。
考慮所有的事情，圈出你喜好的產品。

Taste each product in the order that they are listed.
Circle the number of the product that you prefer, all things considered.

470 **193** **no preference**

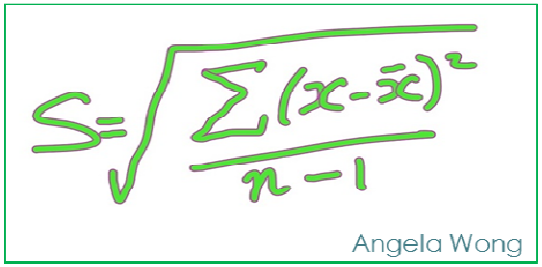
無喜好

統計分析

- 你擁有越多的資訊，你知道的事情就越多 - 對不對？
- 感官評估的科學是使用統計學來消除假結果的可能性，即精確地解釋數據
- 樣本群組大小，不正確/誤導/無效答案，可與市場人群相比，誤差範圍
- 我們現在使用T表或電腦程序來計算誤差範圍，標準偏差等。

- 這是什麼意思？

- 消除錯誤並獲得最可能的數據解釋。
- 為了防止我們得出錯誤結論，把沒有真正治療效用當成有治療效果，結果的差異只是由於機會或實驗誤差變化而成。



消費者的角色

感官測試與產品概念測試

測試特性	感官測試	產品概念測試
進行的部門	感官測試部	市場營銷研究部
信息的主要最終用戶	研究與開發	市場營銷
產品標籤	盲最小化的概念(Blind-minimal concept)	全面概念介紹(Full-conceptual presentation)
參與者篩選	產品類別的用戶	對概念有積極反應

定性消費者研究

- 消費者研究機構
- 採訪
- 專門小組
- 市場研究調查

➢為消費者提供最簡單的格式，以便您獲得相關資訊

➢常見的錯誤包括：

- 令人困惑的問題; 需要簡潔，通俗易明的語言
- 避免模糊的問題; 不要引導被訪者，要注意措辭，模糊和開放式問題

測試市場的優點和缺點

優點	缺點
獲得關於產品的效果，定價，包裝和營銷策略的信息	這可以是非常昂貴的投資
	這是耗時的
獲得關於零售反應的信息	銷售人員被轉移到推出新的產品，可能會損害常規產品
可以看到一些關於競爭性反競爭行為的信息，並且可以定立協議來阻止競爭	市場測試警告公司活動的競爭
合理定立協議	成功的市場測試不能預示全面推出產品的成功
Adapted form New Food Product Development: From Concept to Marketplace 3rd Ed. G.W. Fuller	如果測試失敗，則會丟面子。 這可能會令其他產品貿易有差的反應。

我們可以改變什麼???

- 成分
  - 供貨，供應商問題，質量問題
- 包裝材料
  - 允許的化學品，規格，供應商問題
- 產品規格
  - 試驗，檢驗和重點群組應該需要改變，重新定義目標市場
- 標籤
  - 新的規定和限制
- 發布日期
  - 客觀環境主宰發布日期的改變，修正營銷計劃，公司決定不啟動或加速市場營銷/發布日期

你有沒有保存相關記錄嗎？

- 你有嘗試過什麼配方嗎？
- 結果是什麼？
- 你決定有什麼需要改變？
- 你有沒有保存改變的記錄
  - 味道
  - 外觀
  - 尺寸
  - 質感
  - 香氣
- 產品是否有改進？
- 接下來下一步是什麼？

❁為了避免重複和錯誤，必須保持良好的歸檔？

❁如果你的開發產品偏離原本要求，怎麼辦？

❁良好的歸檔是包含所有東西

配方

產品		**日期：**	**試驗＃：**
材料		方法	
烹調/焗/使用工具說明： 預計數量：			
結果			

試驗記錄

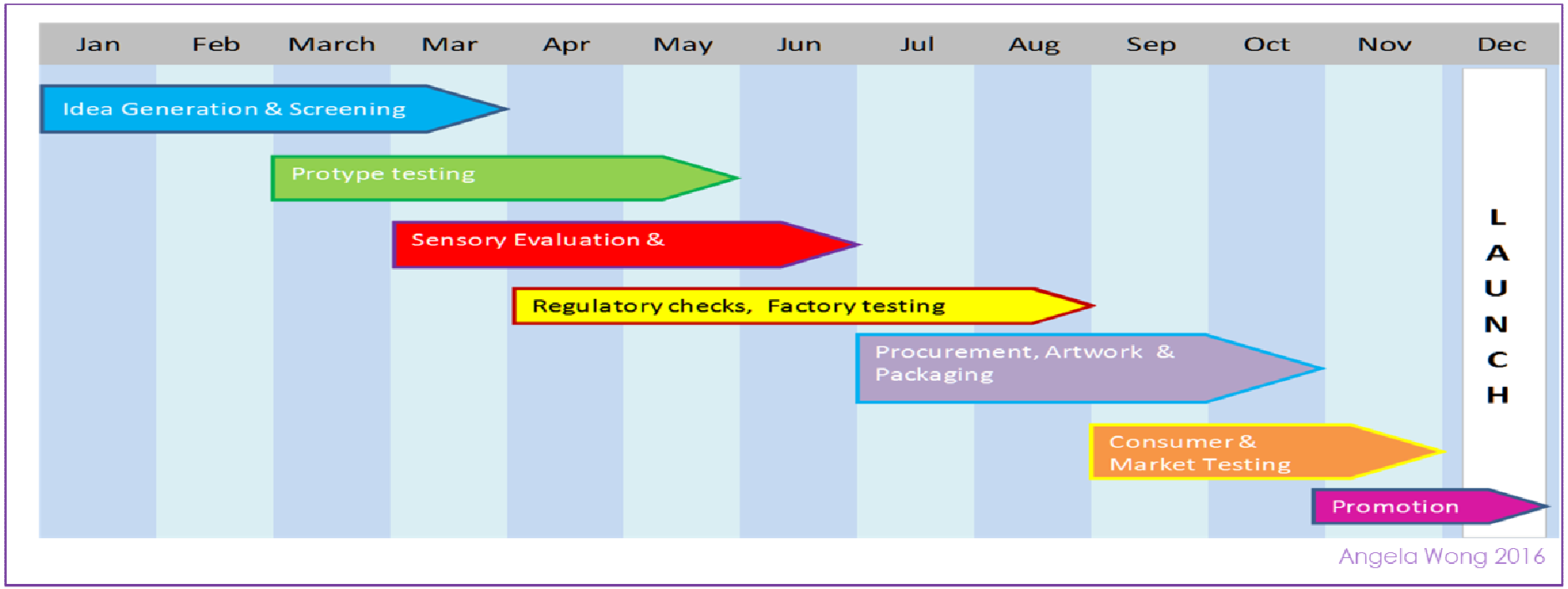
產品名稱		**日期：**	**試驗＃：**
材料	數量	成分	
方法			
結果和意見	產量：		
行動	建議更改： 建議試驗： 截止日期：		

在計劃時間表之前，需要提供有關產品的資訊

項目	部門	原因
材料 配方 產品	研發/質量保證 採購工廠 財務 市場營銷	認證，供應商審核，規格 質量和保質期，標籤，營養成分 規格; 尺寸，重量，高度，體積，味道，質感，風味，香味，特別特性如高纖維，低脂等。
包裝	採購， 工程， 市場營銷 – 美術部 研發， 財務與法律 工廠	尺寸，包裝材料規格和質量， 包裝設計，美術 質量和認證 標籤，條形碼，法規 包裝試驗 - 在工廠安全使用
成本	所有部門	

項目時間表

- 網上提供時間表樣本
- 有各種時間表的模式，從簡單到詳細及複雜，取決於開發的程度
- 可以使用簡單的Excel電子表格以至複雜Gantt時間表



營養標籤的推薦格式

Nutrition Information 營養資料	
	Per 100g or Per 100ml/ 每 100 克或每 100 毫升
Energy /能量	kcal or kJ /千卡或千焦
Protein /蛋白質	g /克
Total fat /總脂肪	g /克
- Saturated fat /飽和脂肪	g /克
- Trans fat / 反式脂肪	g /克
Carbohydrates /碳水化合物	g /克
- Sugars /糖	g /克
Sodium /鈉	mg /毫克
Insert nutrient(s) involved in claim(s) / 填入涉及聲稱的營養素	g, mg or µg 克、毫克或微克
Insert other nutrient(s) to be declared / 填入其他標示的營養素	g, mg or µg 克、毫克或微克

Nutrition Information 營養資料

Servings Per Package/每包裝所含食用分量數目: 3
Serving Size/食用分量: 5 pieces (50g) /5 塊 (50 克)

	Per Serving 每食用分量	Per 100g 每 100 克	% Chinese NRV Per 100g 每 100 克的中國營養參考值
Energy /熱量	220 kcal/千卡 924 kJ/千焦	440 kcal/千卡 1848 kJ/千焦	22%
Protein /蛋白質	5.5 g/克	11 g/克	18%
Fat, total /脂肪總量	8 g/克	16 g/克	27%
- Saturated fat /飽和脂肪	3.5 g/克	7 g/克	35%
- Trans fat /反式脂肪	0 g/克	0 g/克	
Carbohydrates /碳水化合物	31 g/克	62 g/克	23%
- Sugars /糖	1 g/克	2 g/克	
Sodium /鈉	365 mg/毫克	730 mg/毫克	37%

Nutrition information 營養資料 Per 100g/ 克
Energy/ 能量 440 kcal/ 千卡 (1848 kJ/ 千焦) ， Protein/ 蛋白質 11g/ 克，
Total fat/ 總脂肪 16g/ 克， Saturated fat/ 飽和脂肪 7g/ 克，
Trans fat/ 反式脂肪 0 g/ 克， Carbohydrates/ 碳水化合物 62 g/ 克，
Sugars/ 糖 2 g/ 克， Sodium/ 鈉 730mg/ 毫克

營養標籤中的營養參考值（NRV）是參考各種營養素的建議攝入量而定立。

它是基於2000卡路里飲食而定立。中國營養參考值更適用於香港和內地人，因為參考值是為中國人而設。

例如，飽和脂肪的中國營養參考值是20克，這意味著基於2000卡路里飲食，我們每天目標應該吃不超過20克的飽和脂肪。

評估保質期的準則

標準	變化
微生物變化	總平板計數，菌落形成單位。 具有公共衛生或經濟意義的特定微生物的計數。 例如 大腸桿菌，沙門氏菌
營養變化	可選擇損失的營養素。 該食品應當是這種營養素的重要來源，例如牛奶的鈣質，橙汁的維生素C
脫色或顏色的變化	脫色或顏色的變化或破壞顏色化合物的產生。 滲出或滴水損失，水分轉移，收縮，產生異味
功能屬性的變化	功能屬性的損失例如攪打，著色，調味，發泡，膨鬆或凝固的能力
不良質地的變化：	硬化，軟化，保鮮，脆性減低，顆粒性的發展，粘度等

Curiale 1991

保質期測試的環境？

保質期測試的環境應該是什麼？ 理想或濫用環境

- 溫度和光
- 物理因素的濫用
- 環境的濫用
- 旅行測試
- 微生物負荷; 測試GMP和HACCP有效性。

測試類型

- **靜態測試 (Static test)**

  將產品儲在一組已定的環境條件下存放一段特定的時間，所定的環境條件是產品將會最常被存放的環境

- **加速測試(Accelerated Tested test)**

  產品儲存在一些環境變數的範圍內，例如：溫度

- **使用/濫用測試 (Use/abuse test)**

  產品循環地通過一些環境變量

認證

- 無論您是本地食品供應商還是跨國公司，都需要第三方或國際認可的認證
- 現今，食品安全/質量是政府，食品供應商和消費者的主要關注點
- 誰是你可以信任的人？

哪一個認證？

- ISO - 國際標準化組織
- BRC - 英國零售聯盟
- GFSI - 全球食品安全倡議
- SQF - 安全質量食品
- IFS - 國際食品安全
- FSSC - 食品安全系統認證22000
- GLOBAL GAP - 良好的農業規範
- HACCP - 關鍵控制點的危害分析

此刻

- ✓新產品的基本概念
- ✓最初測試樣本可行性的測試
- ✓評估/審查您的測試樣本
- ✓決定修改或調整你的樣本
- ✓決定修改你的新產品概念

- ✓問自己：你的產品
  - ? 令人興奮？ 沉悶但安全？
  - ? 市場上新的或特別的東西[USP？]
  - ? 市場需要的東西
  - ? 有潛力發展成長期成功的產品嗎?
  - ? 只是一個”噱頭” /短期的產品？
  - ? 產品會容易地被競爭對手複製，替換或改進嗎？

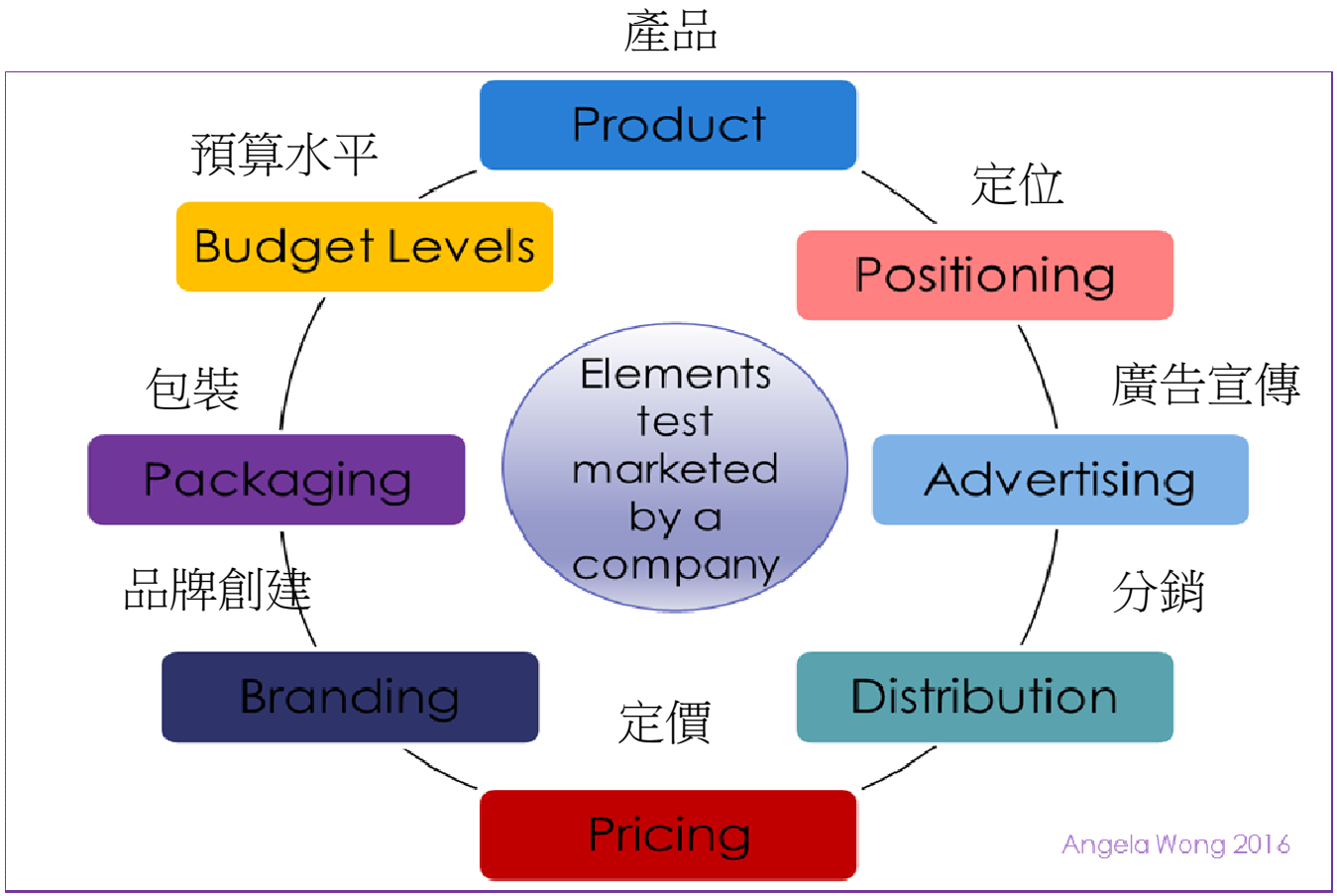
10條食品包裝標籤的法律要求

1. 產品名稱
2. 產品描述
3. 製造商名稱和地址
4. 產品重量或體積
5. 過敏建議
6. 原產地
7. 成分列表
8. 日期標記
9. 使用說明
10. 存儲說明

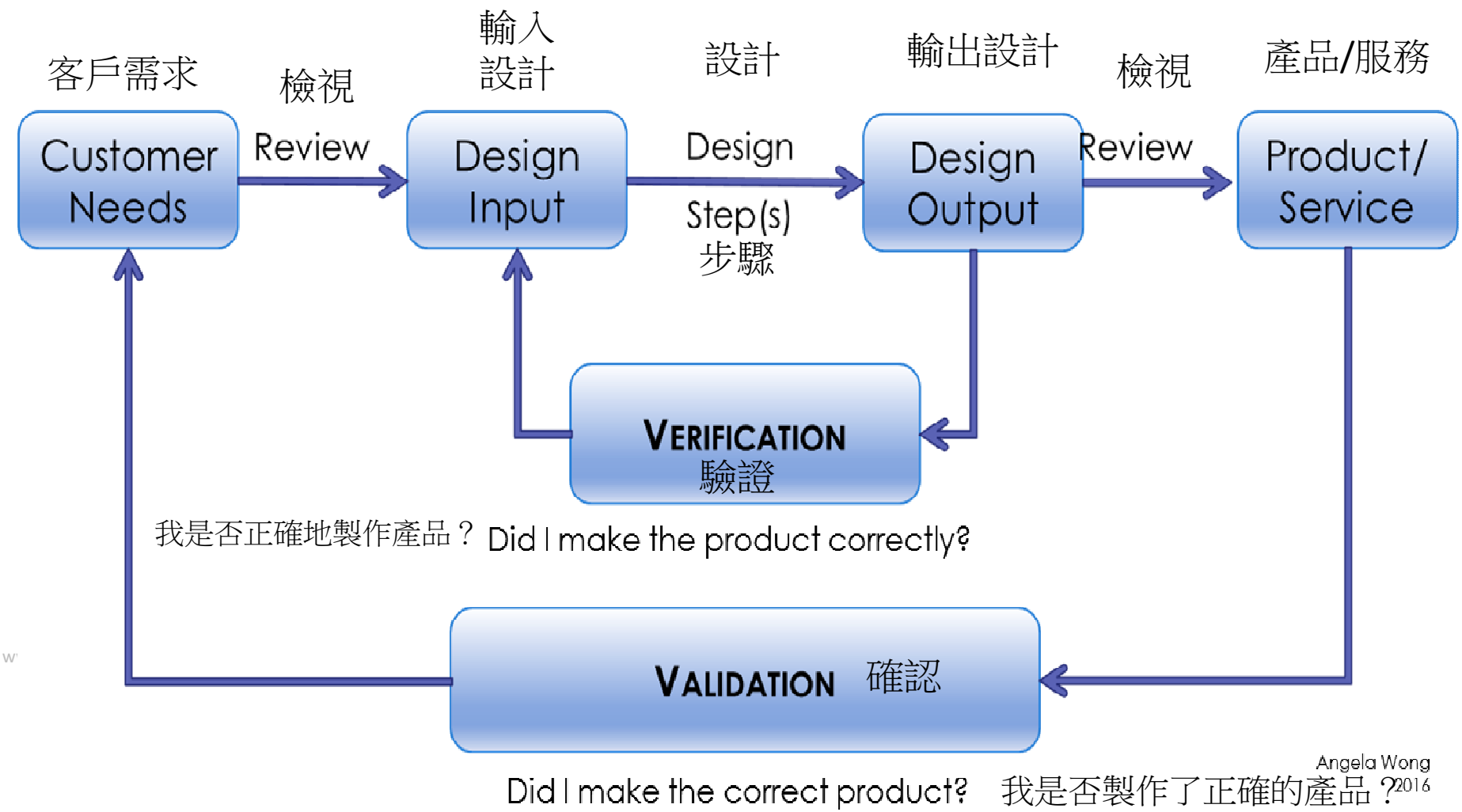
* Refer to the HK Govt. website for HK Labelling laws

市場營銷測試

- 將產品和市場營銷計劃引入一個更現實的市場環境



驗證與確認



你有多了解你的產品？

- 產品規格
- 產品品質保證
- 過程參數
- 產品知識
- 價錢
- 市場營銷

設計確認; 產品推出前

- 產品規格：
- 尺寸，味道，質感，顏色，外觀
- 品質的歸檔

設計確認; 產品推出後

- 銷售量，
- 客戶的反饋意見

有沒有問題？

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