



Five methods of innovation

박우진

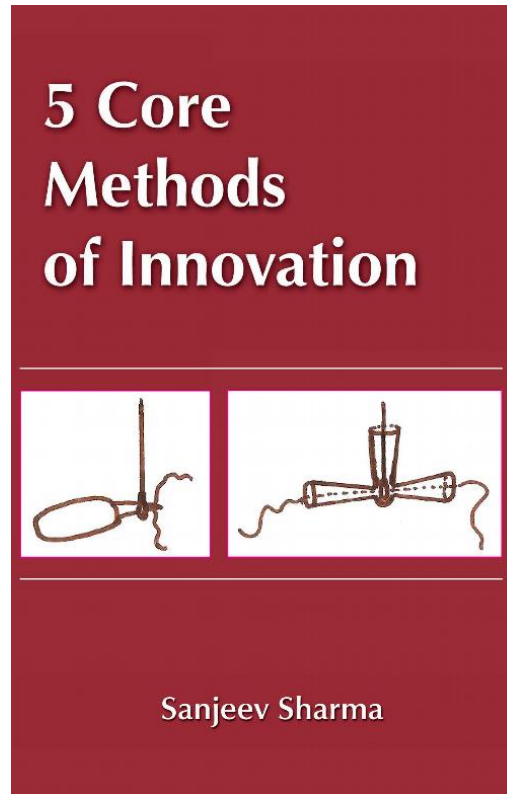
삶향상기술연구실

서울대학교 산업공학과



Questions

- What are the major ways of doing innovation?
- What innovations would sell?



What are the major ways of doing innovation?

Five frameworks (innovation methods)

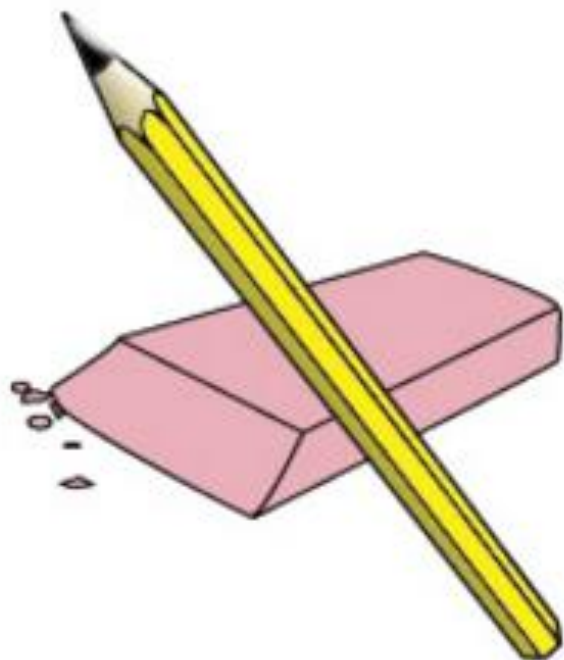
- Addition framework
- Subtraction framework
- Alternate means framework
- Combination framework
- Transposition framework

Addition framework

- “Modify an existing product by adding a feature to it”
- Faster than creating a totally new product

Addition framework

- Addition for utility



Addition framework

- Addition for utility

What is ALLDA?

[올다 카다로그 보기](#)

올다(ALLDA)는 메뉴의 선택으로 부터 재료의 계량, 준비, 조리, 반죽, 찜까지
음식 조리에 필요한 모든 기능을 완벽하게 지원해 주는
One-Stop Cooking System 입니다.

계량 믹서반죽 가열조리 찜

*올다(ALLDA)는 '모두'라는 의미의 영문자 'ALL'과 한글 '모두 다'의 'DA'를 합성한 조어로서
다기능 복합조리기로 어떤 요리든 조리가 가능한 특징을 상징합니다.

Addition framework

- Addition for aesthetics



Addition framework

- Addition for ergonomics



Addition framework

- Addition for ergonomics



Bottle net

Addition framework

- Addition for safety



Addition framework

- Addition for safety



Subtraction framework

- "Reduce the number of technical features and the amount of material used in the product."
- Many of add-on features are barely used by the customers.
- Many customers find a product too complex to use.

Subtraction framework

- Create a simple product

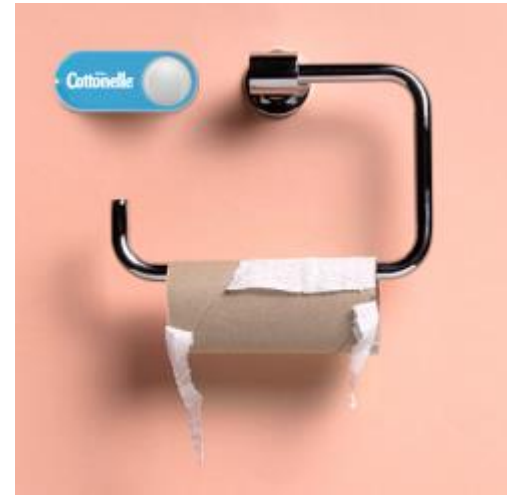
GIZMOPAL WEARABLE DEVICE FOR KIDS PUTS PARENTS JUST ONE BUTTON AWAY AND GIVES PEACE OF MIND

May 10, 2015 by Maria Adcock — 2 Comments



Subtraction framework

- Create a simple process



Subtraction framework

- Create a simple and cheap product

World Cheapest Car at \$2000



Subtraction framework

- Create a minimal size product



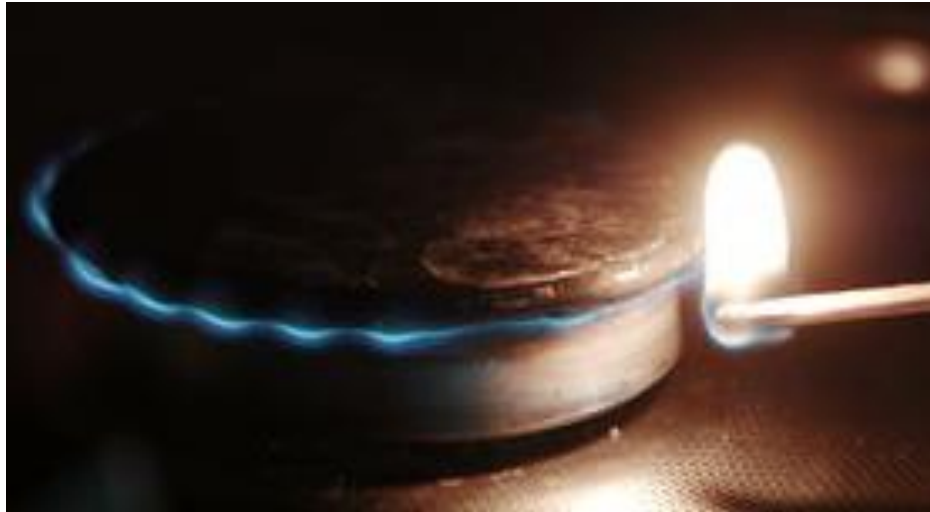
Subtraction framework

Creating a separate product using a Subtraction Framework?

Sometimes, a product has an important add-on feature but it is rarely used by the customer due to the complexity of using this feature. Many customers are interested only in the main product and do not need this add-on feature. In such a case, the extra features can be removed from the main product to create it as a separate product. This separate product can become popular with a different customer segment due to the ease of using this product.

Alternate means framework

- "Utilize an alternate means of attaining the goal."



Alternate means framework



Alternate means framework

TYPE OF FIXTURE	TYPICALLY USES	REPLACE WITH	LASTS	SAVE
 table lamp	 60W Incandescent Bulb	 12.5W AmbientLED	16x longer	\$194 over the 22 yr life of the bulb
 chandelier	 25W Incandescent Candle	 3.5W DecoLED Candle	16x longer	\$59 over the 22 yr life of the bulb
 ceiling can	 50W Par20 Halogen Bulb	 7W AmbientLED Par20	8x longer	\$118 over the 20 yr life of the bulb

Alternate means framework

An Abridged History of Writing Instruments



FINGER
(IN SAND
OR CLAY)



QUILL



PENCIL



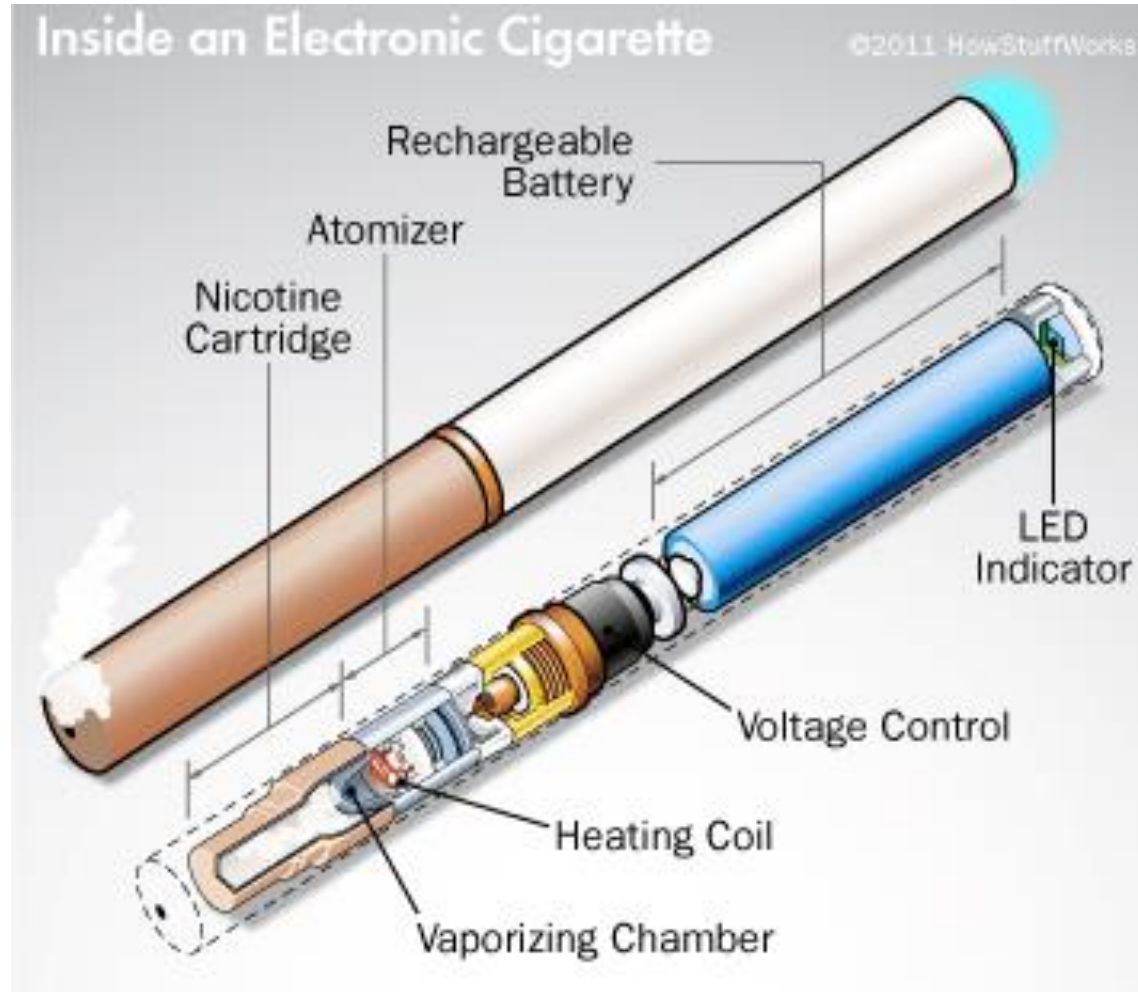
BALL POINT
PEN



FINGER
(ON TOUCHSCREEN)



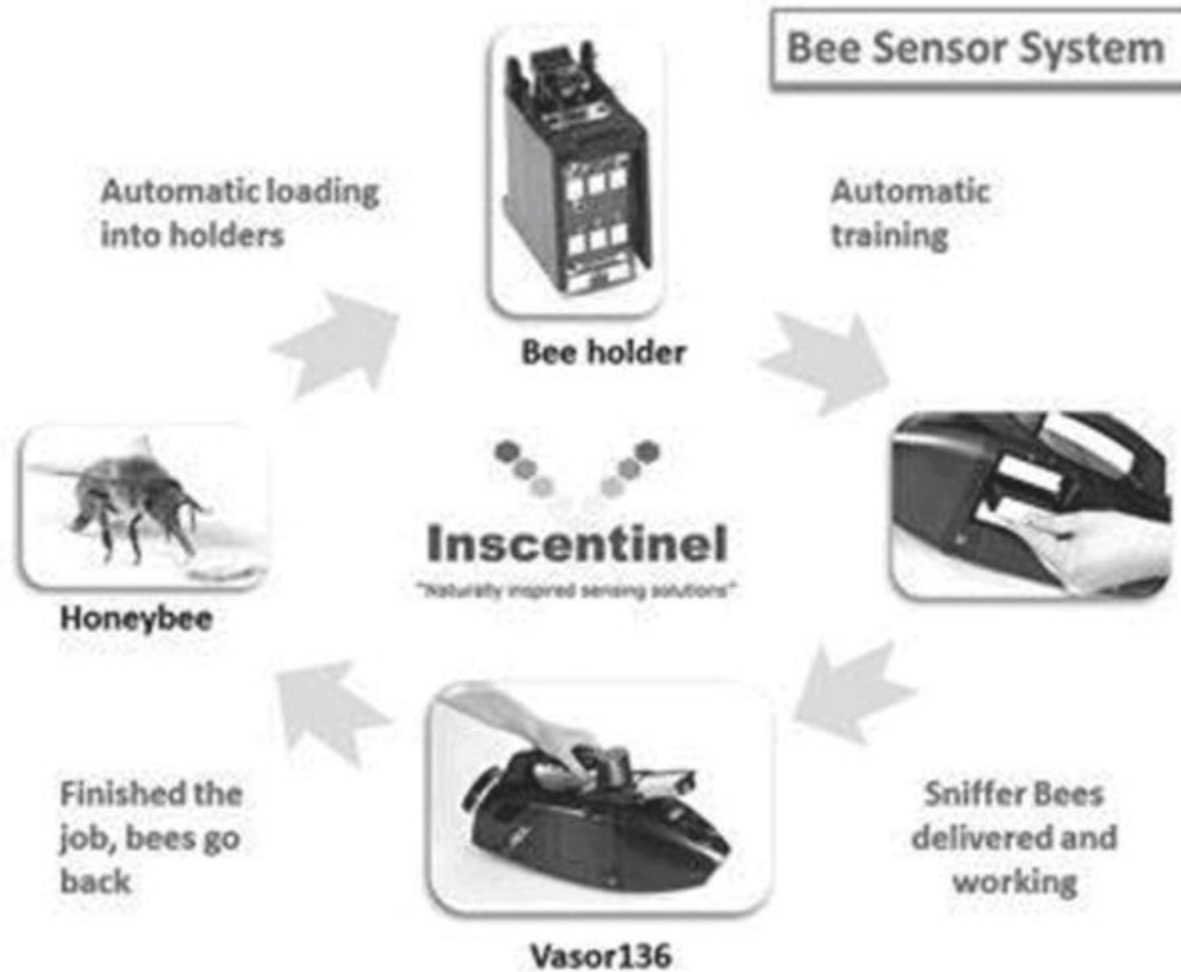
Alternate means framework



Combination framework

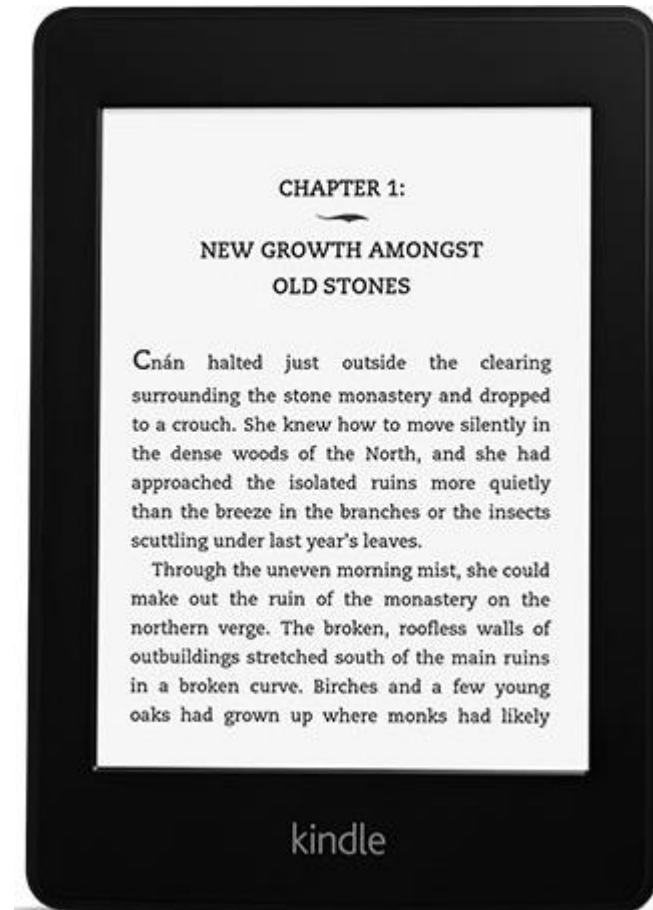
- "Identify a need first, then combine different technologies to create a new product that satisfies the need."
- This framework requires scanning a large number of available technologies.

Combination framework



Combination framework

Kindle = magnetic writing pad + electronics based storage



Combination framework

- Automated soap dispenser = soap dispenser + sensor technology



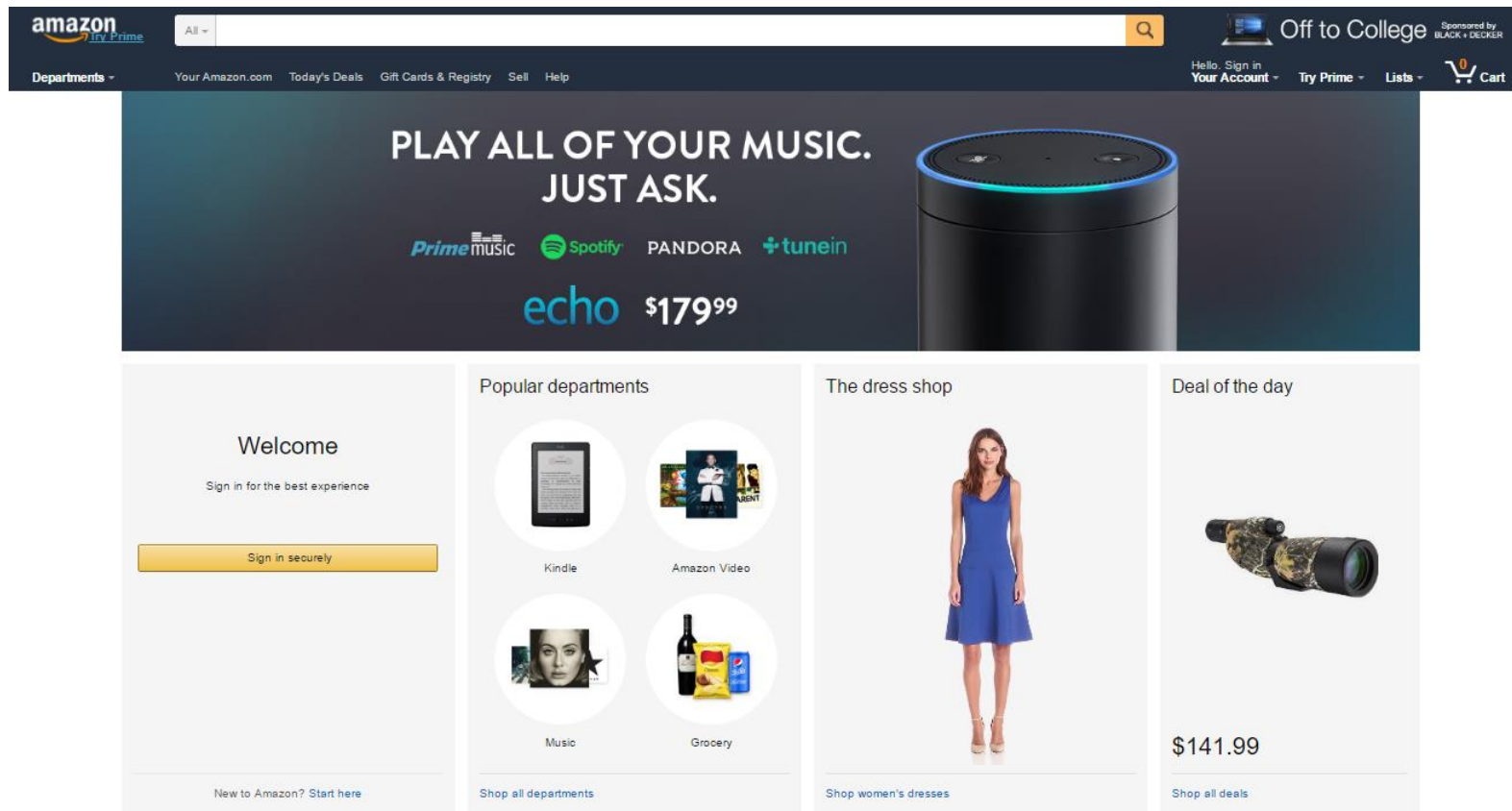
Combination framework

On-line auction = traditional auction process + internet



Combination framework

- All-under-one-dot-com strategy



Transposition framework

- “Understand attributes of one product and apply them to another product.”
- This method requires understanding which of the many attributes in a product are appreciated by the customer and can be applied to another product to create the same effect.
- This method requires the innovator to go deeper into the customer psychology.

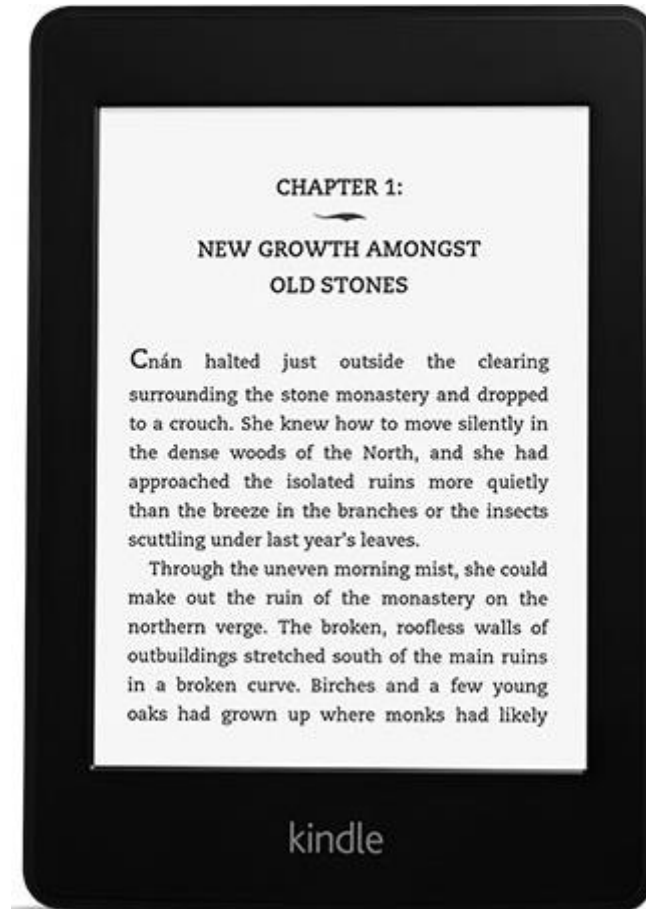
Transposition framework

- Using internet based games for teaching marketing strategy



Transposition framework

- Kindle: transposition of paper book reading to a computer screen



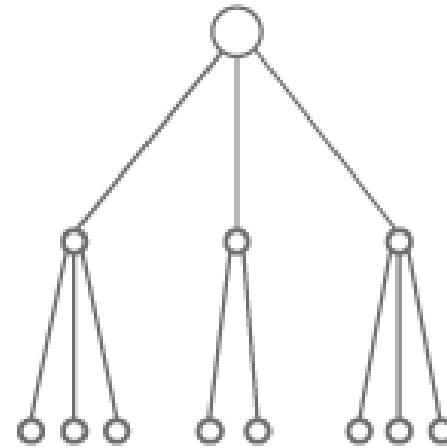
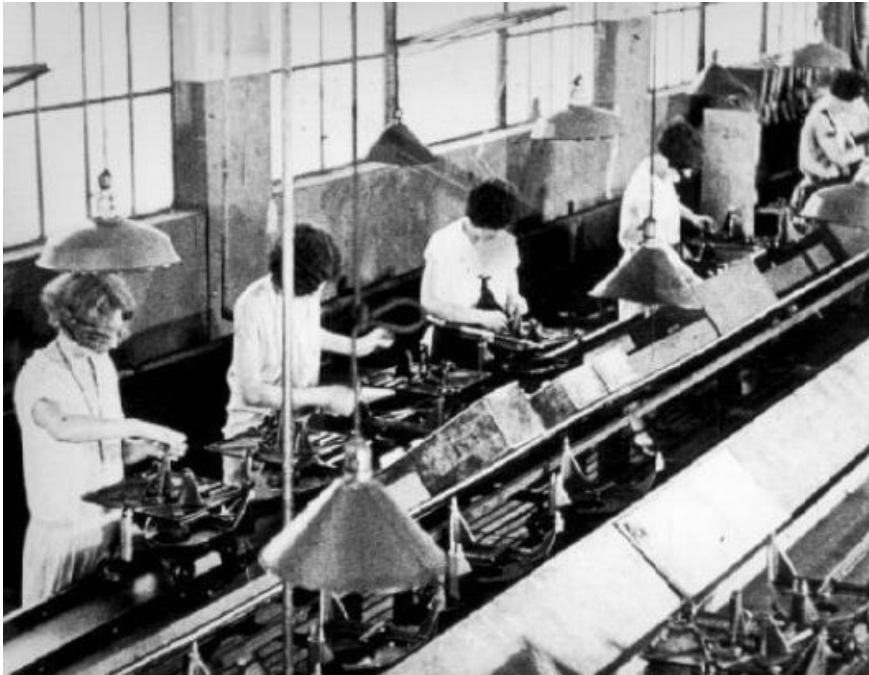
Transposition framework

- Indoor swimming pool

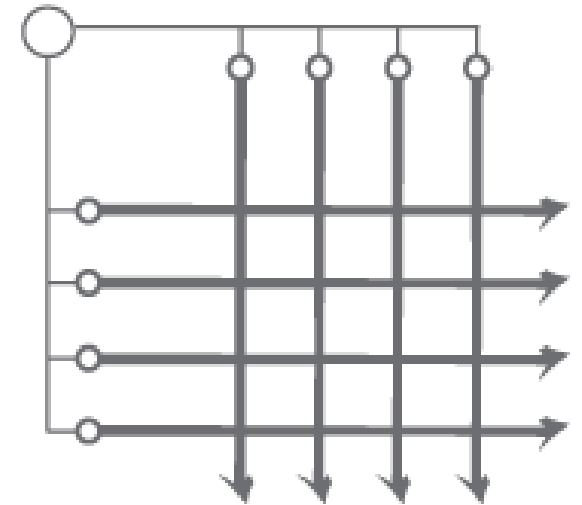


Transposition framework

- Matrix organization structure



traditional hierarchy



two-dimensional matrix

Transposition framework

- QR (Quick Response) code



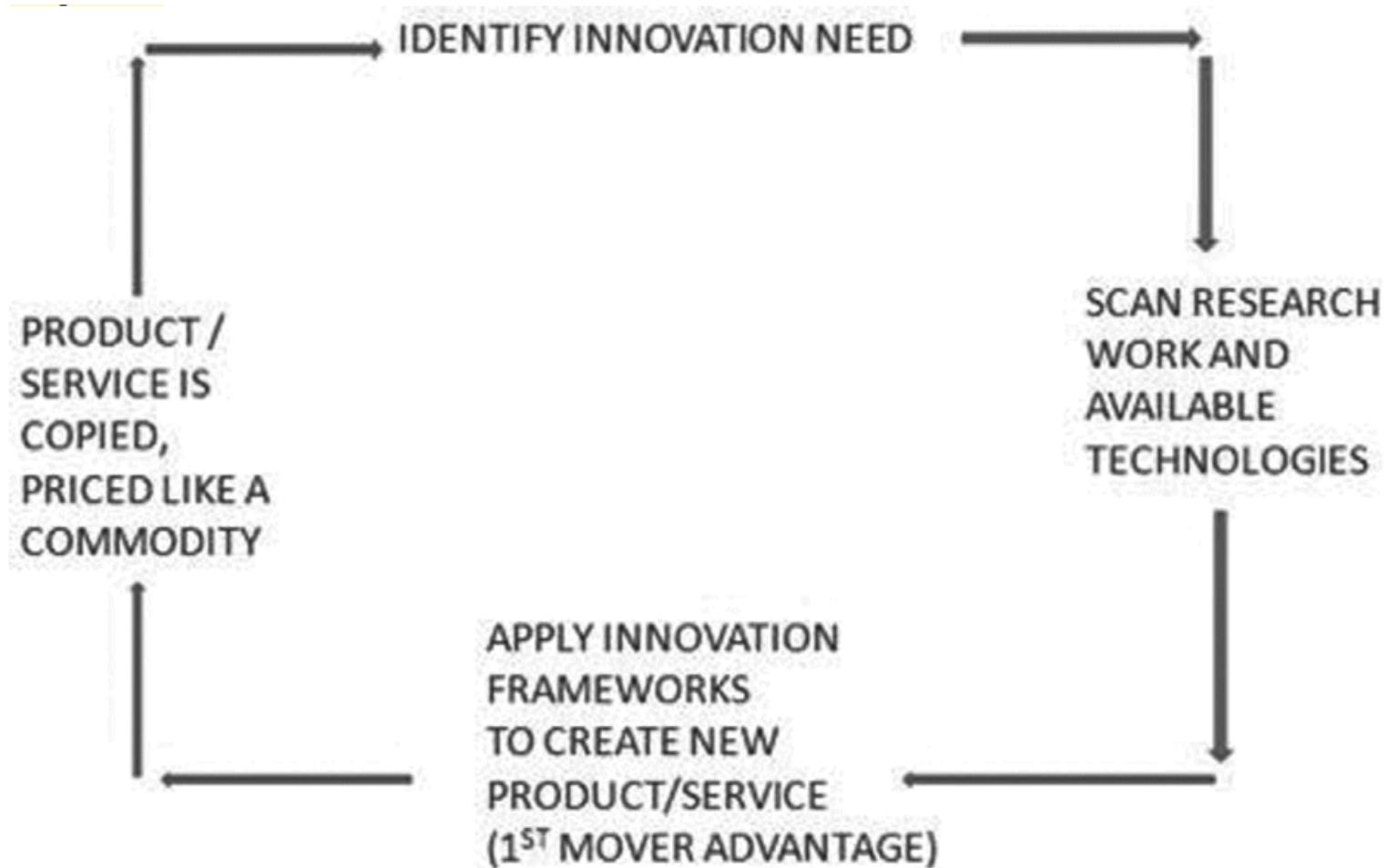
QR code is a two dimensional matrix barcode that was first designed for automotive industry in Japan. With the popularity of smart phones with camera, these QR codes are now being used during advertisements so that people can save the web addresses of companies by just clicking the picture of the barcodes on the hoardings.

Transposition framework

- Shipping container (invented in the 1950s)



Four steps innovation lifecycle



What innovations would sell?
(some important considerations)

Filling in an obvious and everyday need

- Products which help save time, increase efficiency and save costs sell.
- No advertisement is needed.



Filling an event-driven need

- Products which fulfill the urgent requirement of the consumer due to a particular event



Life style factor: fulfilling a hidden need

- Some products generate demand.
- Creating such “demand-generating” products requires superior skills in **understanding the nonobvious needs of consumers**.
- Such products also require **marketing** efforts.
- Such type of lifestyle products became popular in the beginning primarily due to **the prestige factor** attached to their ownership and later become mass products as their prices fell down and they became affordable to masses.

Life style factor: fulfilling a hidden need



Life style factor: fulfilling a hidden need



Life style factor: fulfilling a hidden need



Market trends

- Market trends can totally change the demand of consumers.



Mid 90s to 2000s



After mid 2000s

Price sensitivity

BUSINESS

How Subway Toasted Quiznos In The Sandwich Wars

🕒 03/14/2014 04:38 pm ET | Updated Mar 14, 2014

**LOBSTER &
SEAFOOD SALAD SUB**

[illegible]

Price sensitivity



Price sensitivity



Price sensitivity

- Customer segmentation, customer surveys and price sensitivity are very important tools required to launch a new innovative product or concept.

Consider established standards

- Personal digital assistant (PDA)

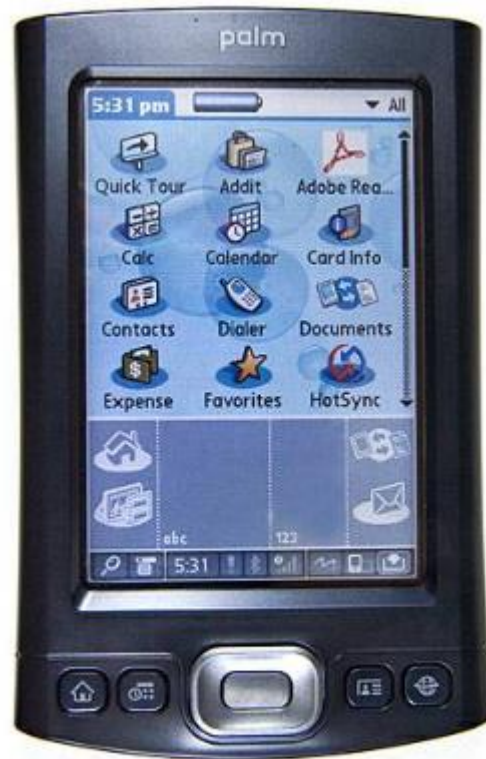


Figure 2: Palm TX (Palm OS)

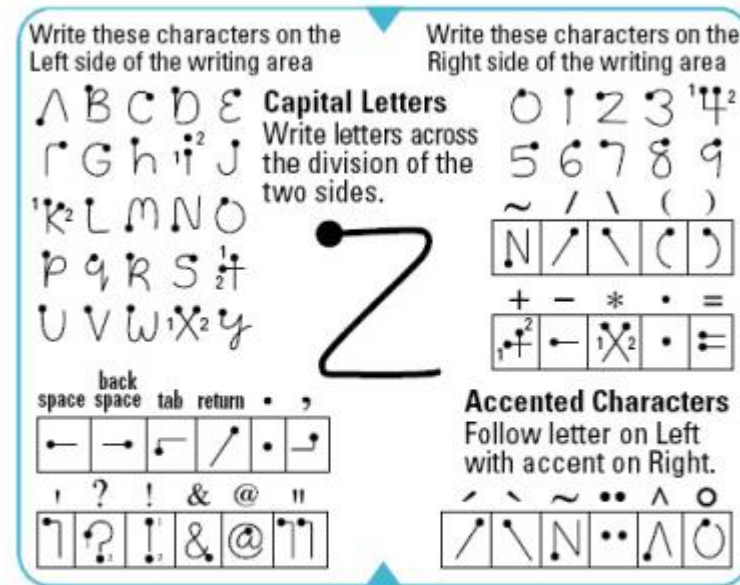
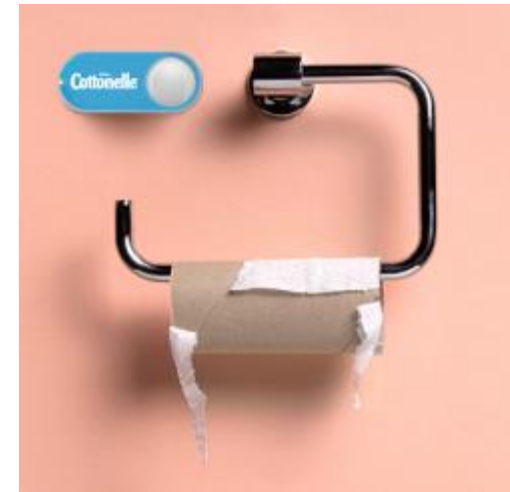


Figure 4: Palm OS Graffiti

Consider established standards

- Going against an established standard is very difficult as customers do not have inclination to learn newer processes and technologies.



Providing ease of use/ergonomics



Providing ease of use/ergonomics



Providing ease of use/ergonomics



Providing ease of use/ergonomics



Disruptive innovation vs. incremental innovation

- Small companies with negligible market share have much higher chances of growing if they come up with disruptive innovations.
- Large companies prefer to ignore disruptive innovation as that would be displacing their own products' market dominance. These companies tend to think of adding functionality to their existing set of products and create complimentary products which serve additional needs of the consumers.
- Many times large companies will buy smaller upcoming companies with disruptive technologies just to kill the competition. Other times, it would try to grow its own revenues utilizing the new technologies.
- Many companies have their own Venture Capital Funds to identify and invest in companies with new technologies which could either add to their product range or disrupt the market.

Corporate strategy innovation (Examples)

Corporate strategy

- All corporate strategy is nothing but **innovation(s) of business processes** that can lead to **higher profitability** for an organization.
- Corporate strategy is a process innovation of alternate means where various means are employed for the end result of higher profitability.
- These process innovations may lead to product Innovations in some companies. While one type of process innovation works for one type of Industry, another type works for another type of Industry.

Strategy of Apple

- Apple's CEO Steve Jobs had realized that its Macintosh Systems which were being used primarily by the printing and graphics industry at that time, could not displace the Microsoft based personal computers and laptops in homes and offices.
- Apple started identifying the latest technologies and used transposition methodology to apply these technologies to existing products needed by customers to create new products.
- Apple were soon copied by other companies to come up with similar products later, but since Apple had the speed to keep itself ahead of others, the brand image continued to grow.
- Apple utilized combination methodology and transposition methodology to come up with newer products.

Strategy of Apple

- iPod = digital storage technology + “Walkman” + LCD screen
 - Brand image due to the first mover advantage
 - Strong quality



Strategy of Apple

- iPhone = multi-use smartphone + multi-touch screen
- iPhone = previous smartphone's features (camera, portable media device, internet client, email, web browser, Wi-Fi, 3G connectivity) + better ergonomics + application store



Strategy of Apple

- iPad = tablet (Microsoft) + more features + iPhone-like interfaces



Strategy of Amazon

- Creating brand value on internet
- Continuous improvement of user experience
- "Customers could purchase a \$ 199 'Kindle Fire' on Amazon.com in its pre-sales orders without looking or feeling it, as the customers have full faith on Amazon's ability to understand their needs."
- Customers are aware that Amazon.com would ensure that it would take care of the customer. If Amazon.com is not able to deliver a purchased product, it credits the customer without the customer asking for the credit. Providing such a user experience has been difficult to many other internet based services.

M & A as innovation strategy



- Many companies try to utilize their brand images and management skills to grow the acquired businesses. Starbucks Coffee purchased Jamba Juice maker Evolution Fresh in 2011 for \$30 million. The Evolution Fresh company uses a high pressurizing technique of keeping the juice fresh for long period. Starbucks has made the acquisition so that it can utilize its brand image and marketing strength to grow the Jamba Juice business.

M & A as innovation strategy

'소다세' 위기에...코카콜라 '콩 음료회사' 7천억원 인수

2016-06-02 08:22:16 송고
(서울=뉴스1) 황윤정 기자

코카콜라가 남미 최대의 콩음료 브랜드를 갖기로 했다. 비만과 전쟁중인 세계 각국에서 탄산음료에 '소다세'를 부과하는 움직임이 확대되고 있는 가운데, 건강 음료에서 돌파구를 찾으려는 것이다.

비즈니스인사이드는 1일(현지시간) 코카콜라의 남미법인인 코카콜라팸사가 유니레버의 대두 음료 브랜드인 아데스를 5억7500만달러(7000억원)에 인수한다고 보도했다.

아데스는 우유와 과일음료, 콩 기반 음료 등을 판매해 남미 건강 음료 시장에서 높은 입지를 지닌 업체이다. 현재 브라질, 멕시코, 아르헨티나에서 사업을 영위하고 있으며 지난해에는 2억8400만달러(3400억원)의 매출을 달성한 바 있다.

코카콜라팸사의 최고경영자(CEO)인 존 산타마리아는 이날 성명에서 "아데스는 코카콜라의 비탄산음료 부문을 강화시킬 것"이라며 "코카콜라의 소비자들은 더욱 다양한 선택지를 가지게 됐다"고 기대감을 표했다.

코카콜라를 비롯한 탄산음료 제조업체들은 소아비만의 주범이라는 전 세계적인 비난에 직면해 있다. 영국 정부는 올해 초 설탕 함유량이 높은 음료에 대해 세금을 부과할 방침이라고 밝히기도 했다. 이에 코카콜라도 비탄산음료 사업부문을 확대시키기 위한 노력을 지속하고 있는 상황이다.

코카콜라의 최고운영책임자(COO)인 제임스 킨시는 지난 4월 실적 발표 컨퍼런스에서 "지난 15년간 물, 에너지음료, 과일주스 등 비탄산음료 부문의 비중은 한자리 수에서 25%로 크게 확대됐다"고 설명하며 "이 부문이 더 성장할 것으로 기대하며 인수합병을 통해 사업을 더욱 확장시켜 나갈 것"이라는 뜻을 밝힌 바 있다.

코카콜라는 지난 1월 나이지리아의 최대 주스 제조업체인 CHI의 지분을 40% 사들였다. 4월에는 곡물 음료에 특화돼 있는 중국 음료회사 추량왕을 4억50만달러(4800억원)에 인수하기도 했다.

M & A as innovation strategy

ExxonMobil

- The price of gasoline in US retail gas stations has never come down below \$1 per gallon after the merger of Exxon and Mobil in late 1990s. Consumers also get suspicious when they are cited examples of a price increase after a major merger. Many times the government does not allow mergers and acquisition by major companies suspecting that these mergers would lead to monopolies and price increases for average consumers.

Innovation as a tool for marketing

