GUIDE ON USING INVENTIONS IN THE PUBLIC DOMAIN

World Intellectual Property Organization
Project on the Use of Information in the Public Domain for Economic Development (DA_16_20_03)
Workshop in Velikiy-Novgorod (May 30-31, 2019)
Your Innovation Management & IP Partner

Innovation & IP Consultants

- Patent Search, Drafting, Filing and Prosecution (EU, US, China)
- Patent Valuation, Due Diligence & Monetization
- New Product Development and Re-engineering
- R&D Streamlining and Management
- Technology Transfer
- R&D ROI Maximization
- R&D Integration with HR practices for Sustainable Competitive Advantage

Clients/Projects

- Qualcomm
- PERMA FIRST
- ZBI: PATENTS & TRADEMARKS
- Ulysse
- IRI
- Information Technologies Institute
- COE GROUP
- POWER EAR
- SOUND AMPLIFIER
- cypriusseed
- Enterprise Forum
  - Greece
- MIT
- Intelligent Systems
  - Biology
- acromov
- acromove
- NATIONAL TECHNICAL
  - UNIVERSITY OF ATHENS
- Omilla
- MCOMS
- WIPO
- PAPPAS IP

Vassilios Vlahakis

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Theme 7

Purpose of the Guide

The guide’s purpose is to...

- **Help TISC staff** who assist entrepreneurs and SMEs in developing regions and Least Developed Countries (LDCs) to access and use public domain knowledge & technology.

- **Introduce patent documents and Non-Patent Literature (NPL)** as reliable sources of information on inventions.

- Explore how **subject matter** disclosed in patent documents impart **detailed invention information**.

- Introduce **key steps in product development and marketing processes** that utilize external and internal resources and capabilities such as patent documents.

- Present **relevant case examples** from recent research and practice.
This guide addresses TISC services…

<table>
<thead>
<tr>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong> to patent and non-patent databases</td>
</tr>
<tr>
<td>Increase awareness on IP and <strong>contribute</strong> to economic growth in the country</td>
</tr>
<tr>
<td>Provide quality services on patent <strong>search</strong> and <strong>analysis</strong></td>
</tr>
<tr>
<td>Support to inventors in patent <strong>filing</strong> and IP <strong>commercialization</strong></td>
</tr>
<tr>
<td><strong>Training</strong> on access to and use of patent information</td>
</tr>
</tbody>
</table>

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TISC Services in the Philippines

Source: WIPO on TISC (www.wipo.int/tisc/en/)
The Guide in a Nutshell

<table>
<thead>
<tr>
<th>Who</th>
<th>TISC staff in developing and least developed countries (LDCs) who can assist clients with inventive ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>When</td>
<td>The guide can be used when a client comes with a new idea for a product/service and wants to commercialize it. Guide on identifying inventions in the public domain is the prerequisite guide for this.</td>
</tr>
<tr>
<td>Where</td>
<td>To be used in TISCs in developing and LDCs</td>
</tr>
<tr>
<td>How</td>
<td>To be used to explore public domain knowledge for improvement of invention of new products/services</td>
</tr>
</tbody>
</table>
Framework for the Guide: 2 Approaches to using public domain knowledge

Public Domain Knowledge from Inventions

- Public domain knowledge in patents to conceptualize product/service features and functionality
- Public domain knowledge in patent and non-patent literature used in the new product development process
<table>
<thead>
<tr>
<th>Limitations of the Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanations in the Guide are…</strong></td>
</tr>
<tr>
<td>NOT a formal introduction to the product development process</td>
</tr>
<tr>
<td>NOT to be used as a legal guide in any way</td>
</tr>
<tr>
<td>NOT a comprehensive guide on public domain</td>
</tr>
<tr>
<td>Aware of the lack of access to resources discussed in the Guide in many regions in the world</td>
</tr>
</tbody>
</table>
What is Public Domain?

Public domain as a function of Geography and Time

Patents in Public Domain:
- Abandoned applications
- Abandoned previously granted patents
- Cancelled patents
- Successfully opposed patents
- Expired patents

Source: Conley J., et al. (2013). Study on patents and public domain (CDIP/12/INF/2 REV)
| Developed countries are leading applicants of patents. | Patents need economic reason to be filed in developing and LDCs. In practice few patents from developed countries are filed in LDCs. Hence most inventions from developed countries are part of public domain in LDCs. | Freedom to Operate (FTO search) is important regardless. |

Patent knowledge in most cases could be part of public domain in developing and Least Developed Countries (LDCs).
Top 20 Patent Offices with Active Patents in 2015

Based on the data provided in World Intellectual Property Indicators 2016. WIPO.
# Focus is on Patent Document Use

<table>
<thead>
<tr>
<th>Icon</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>In the past 120 years, 150 million inventions disclosed in patent documents</td>
</tr>
<tr>
<td>📚</td>
<td>Patent documents contain full disclosure of inventions by the original inventors</td>
</tr>
<tr>
<td>🕵️‍♂️</td>
<td>Patent rights are territorial and typically prosecuted/secured in a limited number of countries</td>
</tr>
<tr>
<td>🔍</td>
<td>Information in a patent document is free-to-use in the countries where the patent right has not been prosecuted</td>
</tr>
<tr>
<td>📊</td>
<td>Patents are good indicators of chronological technology trends</td>
</tr>
</tbody>
</table>

...So what’s more in a patent document that can be useful?
Useful Elements in a Patent Document

Title of invention

Inventors and location of inventors

Assignee

Patent number and Date of issue

Portion of domestic patents cited as references

Portion of foreign patents cited as references
Citation Cloud in a Patent Document

Subsequent patents that cite Apple patent US9715257B2 family include (From ESPACENET):

- US9973231B1 issued to IBM (US) inventors E. Campbell and D. Buvud

- CN105607701 issued to Huizhou TCL Mobile Communication Co LTD. (China) inventors F. Han, Y. Zeng

- CN106131265 (A) issued to Wuhan China Star Optoelectronics Tech Co LTD. (China) inventors Z. Xing an Q. Zuo

- DE202018101276 (U1) issued to Frenzel and Mayer Solutions GbR (Germany)
ESPACENET for Subsequent Art

Apple patent cited by the US patent US973231 (B1) issued to IBM

Apple patent cited by the Chinese patent CN106131265 (A) issued to Wuhan

Apple patent cited by the Chinese patent CN109607701 (A) issued to Huizhou
Technical Know-how from a Patent

(12) United States Patent
Manullang et al.

(33) invention from a Patent

(22) Filed: Apr. 18, 2014

(54) ACTIVE SCREEN PROTECTION FOR
ELECTRONIC DEVICE

(71) Applicant: Apple Inc., Cupertino, CA (US)

(72) Inventors: Tyson R. Manullang, Sunnyvale, CA
(US); Stephen B. Lynch, Portola Valley, CA (US); Larry A. Sanford, San Francisco, CA (US)

(73) Assignee: Apple Inc., Cupertino, CA (US)

(7) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 560 days.

(21) Appl. No.: 14/256,602

(22) Filed: Apr. 18, 2014

(65) Priority Publication Data

(51) Int. Cl.
G09F 1/18 (2006.01)
G06F 1/16 (2006.01)
H04M 1/18 (2006.01)
H04M 1/102 (2006.01)

(52) U.S. Cl.
CPC \(...........\ G00F 1/182 \(2013.01\); G00F 1/167 \(2013.01\); H04M 1/185 \(2013.01\); H04M 1/190 \(2013.01\); H04M 2250/12 \(2013.01\)

(58) Field of Classification Search
CPC \(...........\ G00F 1/167; G00F 1/102; H04M 1/1026; H04M 1/185; H04M 2250/12; H04M 1/10; H04M 2250/06; H04M 1/1388
USPC \(...............\ 3493/11, 5.1
See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS
2,171,800 A 9/1979 Schlippe
2,569,869 A 6/1951 Picazo
3,666,296 A 9/1972 Chauvete
3,715,973 A 10/1973 Hetl
3,919,573 A 10/1975 Yabu et al.
4,278,736 A 7/1981 Wisse
4,288,051 A 9/1985 Glosch
4,314,735 A 2/1982 Follansbee et al.
4,578,664 A 2/1986 Masson
(Continued)

FOREIGN PATENT DOCUMENTS
CN 1498193B 1-14/300
CN 2760238 7-2/305
(Continued)

Primary Examiner — Brian Wilson
(74) Attorney, Agent, or Firm — Kendall W. Abbas;
David K. Cole

(57) ABSTRACT
An electronic device includes one or more screens, multiple screen protectors movably located between a retracted position and extended position where they extend above the screen to create a gap, and one or more sensors. When the sensor detects a drop event, the screen protectors move from the retracted to extended positions, functioning as a shock absorber and preventing the screen from connecting with a surface that is likely to damage the electronic device. In some implementations, the screen protectors may be multiple tabs that may be moved between the retracted and extended positions by one or more motors and/or other actuators provided to one or more motors. Such tabs may be formed of various flexible and/or rigid materials such as plastic, plastic film, polyethylene terephthalate or other polymers, metal, thin film metal, combinations thereof, and/or other such materials.

20 Claims, 8 Drawing Sheets
Additional Useful Information Disclosed in Patent Records

Explanations in the Guide are...

- Vital information, often, **may not be deliberately disclosed** by an inventor in a patent document
- Patent families and patent **prosecution history** related to a patent of your interest widen your scope of research
- **Litigation records** of a patented invention (private databases, court records)
- Select **licensing records** of a patented invention
Other Major IP Rights Regimes

- Trademarks
- Trade dress
- Copyrights
- Trade Secrets
Multiple Regimes of IP protection … a Portfolio of Intangible Assets, Rights and Management Options

<table>
<thead>
<tr>
<th>RELATIONSHIPS AMONG TRADE SECRETS, PATENTS, TRADENAMES, TRADEMARKS, AND COPYRIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade Secret</strong></td>
</tr>
<tr>
<td><strong>Utility Patent</strong></td>
</tr>
<tr>
<td><strong>Design Patent</strong></td>
</tr>
<tr>
<td><strong>Copyright</strong></td>
</tr>
<tr>
<td><strong>Tradename, Trademark, Service Mark</strong></td>
</tr>
</tbody>
</table>
IP Regimes Reconciled

![Diagram showing Brand, Expression, Function, Mark, Dress, Copyright, Patent, TS]
What is the Unique Selling Proposition of Each Product?
UBER and the Unique Selling Proposition

https://brand.uber.com/
Tabasco and a Timeless USP
Theme 8

From Idea to Market: Tools and Approaches for Extracting Valuable Business Information from Public Domain Knowledge to Validate Ideas and Product Concepts
New Product Development Process

Idea → Screen → Design → Test → Launch → Post-Launch

CONCEPTS → PROJECTS → PROTOTYPES → REVISIONS → PRODUCTS

Time
New Product Development Process

Idea → Screen → Design → Test → Launch → Post-Launch

CONCEPTS
PROJECTS
PROTOTYPES
REVISIONS
PRODUCTS

Time
It All Begins with an “Idea”

Aha!

Socializing

Expert Advice

Market Search

Initial Funding

Business Partner / Funder

Business Reports

Embodying

IN

Your Idea

OUT

Invention Black Box
Your team with a set vision should be encouraged to be innovative by the start. You can do so by:

- Stating the intention to be innovative
- Mobilizing with respect and recognition to the people of the firm
- Implementing related and concrete projects focused on the reality of the firm
- Identifying and explicitly stating the potential of the firm
- Disseminating and promoting the firm's innovation scheme
- Using tools to outsource the knowledge
A rhetorical question...

what is innovation?
From CRTI Research:

A Definition of Innovation:

“The creation of substantial new value for customers and the firm by creatively changing one or more dimensions of the business system”

MIT Sloan Management Review

Mohanbir Sawhney, Robert C. Wolcott and Inigo Arroniz

The 12 Different Ways for Companies to Innovate
 Kellogg CRTI Research Views Innovation as Systemic

The Innovation Radar - Overview

Offering (What)

Customers (Who)

Process (How)

Presence (Where)

Value Capture

Platform

Solution

Management

Network

Supply Chain

Organization

Brand

Customer Experience

Adopted from Sawhney et al Sloan Mgmt Review Spring 2006
### 12 Dimensions of Innovation Radar

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offerings</td>
<td>New and innovative products or services</td>
</tr>
<tr>
<td>Platform</td>
<td>Common components to create derivative offerings</td>
</tr>
<tr>
<td>Solutions</td>
<td>Integrated offerings that solve end-to-end customer problems</td>
</tr>
<tr>
<td>Customers</td>
<td>Offerings that satisfy unmet customer needs</td>
</tr>
<tr>
<td>Customer Experience</td>
<td>Redesign customer interactions in all moments of contact</td>
</tr>
<tr>
<td>Value Capture</td>
<td>Create innovative new revenue streams</td>
</tr>
<tr>
<td>Processes</td>
<td>Redesign operational processes to improve efficiency</td>
</tr>
<tr>
<td>Organization</td>
<td>Change form, function or activity scope of the firm</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>Improvement in sourcing and fulfillment</td>
</tr>
<tr>
<td>Presence</td>
<td>Create new distribution channels</td>
</tr>
<tr>
<td>Networking</td>
<td>Create network-centric intelligent and integrated offerings</td>
</tr>
<tr>
<td>Brand</td>
<td>Leverage a brand into new domains</td>
</tr>
</tbody>
</table>
Customers (Who)

Offering (What)

Presence (Where)

Process (How)

Value Capture

Solution

Organization

Supply Chain

Networking

Brand

Platform

Customer Experience

The Innovation Radar

Adopted from Sawhney et al Sloan Mgmt Review Spring 2006

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Cooperative Process of Innovation
Cooperative Process of Innovation

1. Clarify your goals of establishing cooperative relationship

2. Determine your ability and cost to deliver to cooperating parties

3. Explain your limitations to cooperating parties

4. Agree on a method of conflict resolution and ownership of new knowledge generated

5. Formalize any confidential agreement between collaborating parties
Identification and Evaluation of Resources
Identify and Evaluate the Available Resources

Evaluation of available resources (internal and external):

Step 1: Make a strategic diagnosis of your project in development
- Collect and evaluate all information that exists
- Identify ones that are relevant to you
- Design a research strategy

Step 2: Describe the needs with focus on technological area
- Define your technical know-how
- Monitor what’s new technology in the market
- Identify opportunities presented in the market
- Identify and collaborate with experts in areas of interest
Steps to Review Internal Resources
Identifying External Resources

Direct external resources

- Customers
- Suppliers
- 3rd party subcontractors
- Competitors
- Public events
- Direct contacts (friends, colleagues)

Indirect external resources

- Non-patent literature
- Patents
- Academic resources
- Business, trade organizations
- Internet databases

External Resources of a SME
Patent Intelligence
Patent Intelligence: Supplement your invention with information available in patent databases
Ask questions like…

What technology of interest is free-to-use?

What is the scope of patent search?

Do the target markets for your client’s product/service also limit your client’s use of certain technology?
3 Types of Patent Searches

**Novelty**

Is the technology new or has it been patented already?

**Infringement**

Will your new product infringe on a certain patent (or a set of patents) claims?

**Freedom-To-Operate (FTO)**

Is it risk-free to proceed with implementing and selling a product/service using a specific technology (or set of technologies)?
Example of Patent Information in Use

(12) United States Patent
Maniilang et al.

(10) Patent No.: US 9,715,257 B2
(45) Date of Patent: Jul. 25, 2017

(34) ACTIVE SCREEN PROTECTION FOR ELECTRONIC DEVICE

(71) Applicant: Apple Inc., Cupertino, CA (US)
(72) Inventors: Tyson B. Maniilang, Sunnyvale, CA (US); Stephen B. Lynch, Portal
Valley, CA (US); Emery A. Sanford, San Francisco, CA (US)
(73) Assignee: Apple Inc., Cupertino, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 560 days.

(21) Appl. No.: 14/255,002
(22) Filed: Apr. 18, 2014

(65) Prior Publication Data

(51) Int. Cl.
G09G 1/18 (2006.01)
G09F 1/16 (2006.01)
H03M 1/18 (2006.01)
H03M 1/02 (2006.01)

(52) U.S. Cl.
CPC: G09F 1/18 (2013.01); G09F 1/16 (2013.01); H03M 1/18 (2013.01); H03M 1/02 (2013.01)

(58) Field of Classification Search
CPC: G09F 1/16; G09F 1/18; H03M 1/02; H03M 1/00; H03M 1/16; H03M 22/00; H03M 1/38
USPC: 700/933

See application file for complete search history.

(56) References Cited
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2,980,869 A 6/1961 Huggen
3,608,286 A 9/1971 Chiangiou
3,772,927 A 11/1973 Burt
4,276,726 A 7/1981 Wiane
4,288,851 A 9/1981 Godesl
4,314,730 A 2/1982 Tschiker et al.
4,370,994 A 2/1983 Sonnen

FOREIGN PATENT DOCUMENTS
CN 1439031 A 11/2001
CN 2709228 A 7/2005

Primary Examiner — Brian Wilson
Attorney, Agent, or Firm — Kendall W. Abbs
David K. Cole

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20 Claims, 8 Drawing Sheets
Does this look familiar?

Source: YouTube at https://www.youtube.com/watch?v=FF_1IH9NHpo
And…Frenzel Filed his Patent in Germany

Cited Patent Literature
- US 7059182 B1 [0004]
So...is it time to shape your IP strategy?
IP Strategy is Necessary from Early Stage in NPD

Make sure your invention is protected against infringement

Determine what kind of IP protection would be the best
- Patent protection
- Trademark filing

Seek an expert to draft your IP strategy
- Lack of resources often discourage legal help but may prove worthwhile in the long run
Screening Product Concepts

Idea 2

Idea 1

Best Idea
Competitive intelligence comprises of gathering of information based on commercial strategy, business development as well as information based on technological, social, and market activities.

Technology intelligence includes monitoring, search and detection of specific technology or trends.
Examples of Competitive Intelligence and Technology Intelligence

**Competitive Intelligence**
- Corporate publications (annual reports)
- Patent & Trademark filings
- Market study reports
- Trade analyst reports
- White papers

**Technology intelligence**
- Patent citations in published patents
- Scientific journals
- Trade press
- Blogs
- Social media e.g. LinkedIn
- Publications from institutions
IP Strategy in the NPD under Design Stage

- File for patent protection in the markets of interest
- Make sure to search for non-patent information in the public domain
- Pursue design patent to protect ornamental/aesthetic features
- Copyright protection for original works
IP Strategy Example
“It all started with a pair of pantyhose, some scissors and a bright idea.”
Theme 9

Product Design and Development Process: Tools and Business Constructs for Using Public Domain Knowledge to Develop Marketable Products and/or Services
Tools To Be Discussed

- Balanced Scorecard
- Porter’s Value Chain Analysis
- Technology Trends and Market Data
- Business Model Canvas
- SWOT Analysis
- TRIZ Methodology
- The 5 Ps of Marketing
- Technology Risk Management
Balanced Scorecard
Product Idea Scoring through Balanced Scorecard

4 steps that go into Balanced Scorecard that does Product Idea Scoring:

- Translation of a firm’s vision into a set of performance measures
- Conveying the firm’s vision to the team
- Planning, setting targets and aligning strategic initiatives
- Capturing feedback and adapting it into internal learning process
# Example of the Balanced Scorecard

<table>
<thead>
<tr>
<th>Strategic Priorities</th>
<th>Objectives</th>
<th>Measures</th>
<th>Target</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Become Financially Strong</td>
<td>– Profitability growth</td>
<td>– Cash flow</td>
<td>– $200K</td>
<td>– Secure clients who pay on time</td>
</tr>
<tr>
<td></td>
<td>– Cost reduction</td>
<td>– Profits</td>
<td>– $23K</td>
<td>– Reduce costs and use marketing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Cost of R&amp;E/Sales</td>
<td>– $80K/$45K</td>
<td>– Streamline processes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Cost of financing</td>
<td>– 5%</td>
<td>– Use collaterals to reduce cost of financing (e.g. use patent and IP)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop Competitive IoT Technologies</td>
<td>– Develop technologies to sell to other manufacturers</td>
<td>– Number of technologies licensed to other or components sold to others</td>
<td>– 2 per year</td>
<td>– Invest in R&amp;D</td>
</tr>
<tr>
<td></td>
<td>– Develop technologies for use only in company’s products</td>
<td>– Number of technologies used in own branded products</td>
<td>– 3 per year</td>
<td>– Invest in staff training</td>
</tr>
<tr>
<td></td>
<td>– Protect IP</td>
<td>– File for international patents</td>
<td>– 4 per year</td>
<td>– Put emphasis on IP and incorporate it in company culture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Customer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep Customers Happy</td>
<td>– Build win-win relationship with customers</td>
<td>– Returning customers</td>
<td>– 60%</td>
<td>– More efficient product marketing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Spending per returning customer increases</td>
<td>– 15% increase per month</td>
<td>– Offer incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>– Work with client in new product development</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Excellence</td>
<td>– Build innovative products</td>
<td>– Number of innovative products per year</td>
<td>– 2</td>
<td>– Train staff for continuous innovation</td>
</tr>
<tr>
<td></td>
<td>– Streamline product development and manufacturing to reduce cost, increase quality, reduce time to market</td>
<td>– ROI and R&amp;D</td>
<td>– 50%</td>
<td>– Give incentives to staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Number of defective products</td>
<td>– 0.001%</td>
<td>– Adopt quality management principles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Time to market</td>
<td>– 6 months</td>
<td>– Streamline R&amp;E, manufacturing and testing processes</td>
</tr>
</tbody>
</table>

Source: www.businessideageneration.com
Porter’s Value Chain Analysis
Porter’s Value Chain Analysis
Technology Trends & Market Data
Identify Technology Trends and Market Segments

- Market Opportunities: who will buy your product/service?

- Market Data: what information do you have of the market you want to enter in?

- Reviewing what technologies are already in the market

- Finding if there are available technologies you can exploit to identify market opportunities

- Patent intelligence based on patent database searches, patent statistics and reports
Giants that Failed
Market Opportunities Example: Gwatamatic

- An automated sadza maker by William Gwata

- Sadza – staple meal in Africa but too labor intensive

- Gwata pursued domestic buyers for his sadza maker

- Gwata finally realized the market opportunity for his invention – for commercial use
Gwatamatic in Operation

Source: William Gwata via YouTube at https://www.youtube.com/watch?v=7k0Dyi6UwuQ
Existing Technology to Develop New Product Example: BIODOME

- BIODOME by Fatima Zahra of Morocco

- An alternate composter that harnessed renewable biogas

- Ms. Zahra studied existing composters in the market

- Target customers who could use a composter and biogas as a source of fuel
Business Model Canvas
Business Model Canvas

- Key partners
- Key activities
- Key resources
- Value propositions
- Customer relationships
- Channels of distribution
- Customer segments
- Cost structure
- Revenue streams

Source: www.businessideageneration.com
Business Model Canvas Example: Hatua Charger

- Pressure based mobile phone charger
- Device installed inside a shoe’s inner sole
- Walking motion exerts pressure on the piezoelectric crystal

Mr. Mutua with a finished market ready piezoelectric shoe phone charger.
US20060021261A1 by Bradbury Face of 02-02-2006 was one of the patents which provided Mutua with information on the circuitry and control components.

A schematic illustration of Mr. Mutua’s shoe phone charger.
Example of Business Model Canvas

**Key Partners**
- Innovation lab at TUM
- Kenyan Patent Office for patent research on existing technology
- Investors
- Shoemakers
- Piezoelectric crystal chip and other parts suppliers

**Key Activities**
- Assemble parts to be put in shoes
- Retrofit shoes with the chargers
- Provide solutions/feedback to complaints/suggestions

**Value Proposition**
- Alternative solution to lack of electricity for charging phones
- No change in the original design of the shoes after retrofitting
- Low maintenance after retrofitting the shoes
- Quick turnaround for installing the phone chargers
- Low costs to the business
- Affordable pricing model for customers

**Customer Relationships**
- Cost effective
- Ease of use
- Safe to use

**Customer Segments**
- People-on-the-go who walk frequently
- People who live in areas where electricity is unreliable or unavailable
- Moderate to frequent users of mobile phones

**Key Resources**
- Research partners at TUM
- Investors
- Skilled workers in assembly
- Shoemakers with technical know-how

**Channels**
- Servicing:
  - Licensed outlets for retrofitting
  - Accessible retrofitting locations for customers
- Marketing
- Social media channels
- Word-of-mouth

**Cost Structure**
- Cost of labor to assemble the chargers and to retrofit them in the shoes
- Cost of training staff and partner shoemakers
- Technical support for defective chargers
- Initial costs of the charger parts
- Research & Development (R&D)
- Marketing and sales cost

**Revenue Streams**
- Paid partnerships with shoemakers selling retrofitted shoes
- Revenue model: Price of retrofitted shoes paid by customers
- Future licensing fees from the patented technology

Source: www.businessideageneration.com
SWOT Analysis
SWOT Analysis

- Methodological assessment of one’s Strengths, Weaknesses, Opportunities and Threats

- SWOT Analysis can help you build your strategy at a higher level and at a focused level.

- Use SWOT Analysis to match strength with opportunities to achieve sustainable competitive advantage

- Use SWOT Analysis to evaluate your options
<table>
<thead>
<tr>
<th>Internal Factors</th>
<th>Good Factors</th>
<th>Bad Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STRENGTHS</td>
<td>WEAKNESSES</td>
</tr>
<tr>
<td>External Factors</td>
<td>OPPORTUNITIES</td>
<td>THREATS</td>
</tr>
</tbody>
</table>
**SWOT Analysis Matrix**

<table>
<thead>
<tr>
<th>Good Factors</th>
<th>Bad Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td><strong>WEAKNESSES</strong></td>
</tr>
<tr>
<td>List the factors that add to your client’s competitive advantage</td>
<td>List the things that your client needs to improve upon</td>
</tr>
<tr>
<td><strong>OPPORTUNITIES</strong></td>
<td><strong>THREATS</strong></td>
</tr>
<tr>
<td>List the market trends that can lead to greater profit margin</td>
<td>List the competitive advantages of other firms that can decrease your client’s profit margin</td>
</tr>
<tr>
<td><strong>Example SWOT Analysis Matrix</strong></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>STRENGTHS</strong></td>
<td></td>
</tr>
<tr>
<td>• Food &amp; Drinks Inc. has flexibility to implement new business strategies</td>
<td></td>
</tr>
<tr>
<td>• The company has seen a 10% boost in sales in the last 5 years</td>
<td></td>
</tr>
<tr>
<td><strong>WEAKNESSES</strong></td>
<td></td>
</tr>
<tr>
<td>• Small portfolio of products concentrated in a few categories of food products</td>
<td></td>
</tr>
<tr>
<td>• Limited and only local distribution network</td>
<td></td>
</tr>
<tr>
<td>• Limited budget for advertising and marketing</td>
<td></td>
</tr>
<tr>
<td><strong>OPPORTUNITIES</strong></td>
<td></td>
</tr>
<tr>
<td>• The edible oils category is expected to growth at 6% annually until 2021 in developing countries. Other categories performing well within the packaged food are: Snacks, Baby Food, Breakfast</td>
<td></td>
</tr>
<tr>
<td>• Consumers in both developed and emerging countries are increasing their internet purchases; reach core consumers by creating an omni-channel distribution strategy</td>
<td></td>
</tr>
<tr>
<td><strong>THREATS</strong></td>
<td></td>
</tr>
<tr>
<td>• Slow global growth in the packaged food market: smaller gains means smaller room for outside companies to win market share as most well established brands use their market dominance to diversify their portfolio</td>
<td></td>
</tr>
<tr>
<td>• Increasing uncertainty keeps impacting developed markets: many scenarios and variables could impact the market, making it difficult to have a clear path for the future</td>
<td></td>
</tr>
</tbody>
</table>

Source: https://blog.euromonitor.com/swot-analysis-template-case-study/
Design

At this stage of the NPD process, you have your…

- Initial idea validated

- Market research done

- Internal capabilities assessed

- Feasible product concept developed

- Patent and/or other IP strategy formalized

- Final product conceptualized
TRIZ Methodology
Strategies to Solve Problems Based on Patent Knowledge

What is TRIZ methodology?
Steps Involved in TRIZ Methodology

1. Identify a Specific Problem
2. Identify a Contradiction to Eliminate
3. Conduct Patent Analysis
4. Identification of a Generic Solution
5. Provide a Specific Solution to the Problem
Levels of Invention in TRIZ with Technological Development
Example of TRIZ Application
The 5 Ps of Marketing
5 P’s of Marketing: Determine your marketing mix

- **Product** – what are you making?
- **Price** – at what price are you selling your product/service?
- **Place** – what platform/market will you be selling your product/service?
- **Promotion** – how will your customers know of your product?
- **People** – who will be helping you with your business?
Example of 5 P’s Implementation: Chai Rum
400 Years in the Making

Introducing the 95 point rated AKAL Chai Rum. Born of over 400 years of nautical history & AKAL family legacy, it’s the world’s most sophisticated, ultra-premium rum.

Chairum.com
instagram.com/chai_rum_guys
The 5 P’s for Chai Rum

- **Product** – Premium rum with unique taste to compete with cognacs
- **Price** – Approx. $65 per unit as other top brands
- **Place** – Sold through select channels and online
- **Promotion** – Upscale events with luxury brands featured
- **People** – Niche customers, tea growers in India, botanical growers in Trinidad, rum processors in Trinidad, etc.
<table>
<thead>
<tr>
<th>What Product Managers Need to Know*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know who will buy the product?</td>
</tr>
<tr>
<td>1. Is your product compelling to these target customers?</td>
</tr>
<tr>
<td>1. Have you made your product simple and easy to use?</td>
</tr>
<tr>
<td>1. Will your product succeed against current and future competition?</td>
</tr>
<tr>
<td>1. Can you explain how your product is differentiated in a <strong>minute</strong>?</td>
</tr>
<tr>
<td>1. Will your product work as promised?</td>
</tr>
<tr>
<td>1. Is your product a whole (complete) product?</td>
</tr>
<tr>
<td>1. Are your product’s strengths aligned with what customers want?</td>
</tr>
<tr>
<td>1. Does the product team agree on the product’s strengths?</td>
</tr>
<tr>
<td>1. Is your product worth the money we plan to charge for it?</td>
</tr>
</tbody>
</table>

Technology Risk Management
Technology Risk Management

At this point, you have done your relevant patent search and FTO. Your options to use protected technologies are:

- **BUY** the rights to use
  - **OR**

- **LICENSE** from the patent holder
  - **OR**

- **USE** alternative technologies that are not protected
IP Strategy in the NPD

- File for patent protection in the markets of interest
- Make sure to search for non patent information in the public domain
- Pursue design patent to protect ornamental/aesthetic features
- Copyright protection for original works
Remaining Stages of the NPD Process
Finalization of Product Development

- Testing
  - Alpha Testing
  - Beta Testing

- Launch
  - Patent Landscape Reports
  - FTO Search

- Post-Launch
  - Iterative process of feedback gathering
Recap

Idea
- Cooperative Process Of Innovation
- Patent Intelligence

Screen
- Internal/External Resources
- IP Strategy

Design

Test

Launch

Post-Launch
- Balanced Scorecard
- Porter’s Value Chain Analysis
- Technology Trends
- Market Data
- Business Model Canvas
- SWOT Analysis
- TRIZ Methodology
- The 5 Ps of Marketing
- Technology Risk Management

Patent Filing
- Patent Portfolio Creation
Thank you!

Questions?

Email: v.vlahakis@kainagora.com