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B-4 打造綠色國際大學

綠色知識經濟創新成果轉化報告書

議題 B1：電子商務智慧化送禮服務

--以艾蘭哥爾咖啡為例

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摘要

在許多節慶下，多數人都會因選擇禮物而傷透腦筋，也會忘記以往送過的商品，因此本專案將電子商務網頁結合送禮服務及智慧化推薦系統，讓顧客能夠透過本系統提供的個人化送禮清單，來選擇以往送過的商品組合，並加上精美禮盒、明信片、包裝紙及祝賀詞的服務，讓禮物能夠更有溫度、更貼近人心。除此，本專案融入兩家微型企業之商品，讓顧客在購買時，商品不侷限於各家微型企業之產品，例如利用咖啡搭配鳳梨酥的組合，以提升顧客消費意願，與企業攜手共榮。本專案初期透過線上消費者們所購買之商品組合資訊，來綜合協同過濾與經驗法則，建立關聯規則，資料收集足夠後，將改用禮盒分析，運用資料探勘的關聯規則建立一套智慧推薦，讓顧客在挑選商品時能夠減輕煩惱，而這樣的電子商務系統就將不再是單單的商品線上銷售了，而是一套更加聰明及貼近顧客的電子商務系統。

最後，本專案引入科技接受模式來評估本系統對於電子商務網站之效益，根據 TAM Model 模型內的知覺有用性與知覺易用性等問項來設計問卷，調查使用者對於推薦送禮系統的接受度，根據其接受度判斷是否會提升顧客的購買意願。

關鍵詞：電子商務、智慧推薦、送禮服務、TAM Model

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第一章、前言

1.1 研究背景與動機

在這市場迅速變化的情況下，商家電子化與創造企業價值已然是現在所形成的趨勢，企業不僅需要不斷創新、更要能即時的去掌握消費者的資訊(包括消費者喜好、消費習慣等)，並能善加運用搜集來的資訊與我們所利用的概念去進行整合及推薦，來針對消費者的需求來解決消費者挑選商品的困難藉此提升消費者的忠誠度。

參與「樂活產業創新成果轉化」經驗分享後，我們發現艾蘭哥爾、銘泉生態農場等微型企業，雖已在國立臺東大學-樂活產業創新平台架設虛擬商店，卻只侷限於在各商店購買商品，因此我們以專題的送禮模式及智慧化推薦系統為雛形，共同參與創立 ByLOHAS - 電子商城，透過增加收入及減少成本的方式來達成商業規模經濟，加以轉化後，提供更貼近人心的送禮服務及智慧推薦。

再藉由科技接受模式 TAM Model 來幫助我們了解使用者對於新的資訊科技使用的接受度，以知覺有用性、知覺易用性、行為意圖及滿意度設計問卷，來評估推薦系統對於消費者所帶來的效益，並且 TAM Model 模型還可分析影響使用者接受的各項因素，透過所得知的數據來了解到推薦送禮系統對消費者的購買意願提升程度及影響，藉此讓使用的商家來做出適當的調整及改變來提升其訂單與服務。

1.2 研究目的

藉由這次的機會與臺東大學樂活產業平台合作，希望可以透過在課程中所學的資訊技術、行銷觀念與管理的能力，達成幾項研究目的：

1. 送禮推薦系統是否符合消費者需求：藉由 TAM Model 模型設計使用性評估問卷，讓消費者針對此系統進行評估及意見回饋。
2. 商業模式與服務模式是否符合可行性：藉由專家問卷，針對本系統所提出的方法論、商業模式與服務模式，進行評估並提出建議及意見回饋。

第二章、文獻探討

2.1 科技接受模式

Venkatesh and Bala (2008) 綜合了 TAM2 與 Venkatesh (2000) 所針對知覺易用性變數所做的影響性探討，包含了電腦自我效能 (Computer Self-efficacy)、知覺外部控制 (Perceptions of External Control)、電腦焦慮 (Computer Anxiety)、電腦玩興 (Computer Playfulness)、知覺娛樂性 (Perceived Enjoyment)、客觀使用性 (Objective Usability) 等六個外部變項加強說明知覺易用性，進而提出了科技接受模型 3 (TAM3)，如圖 2.1。

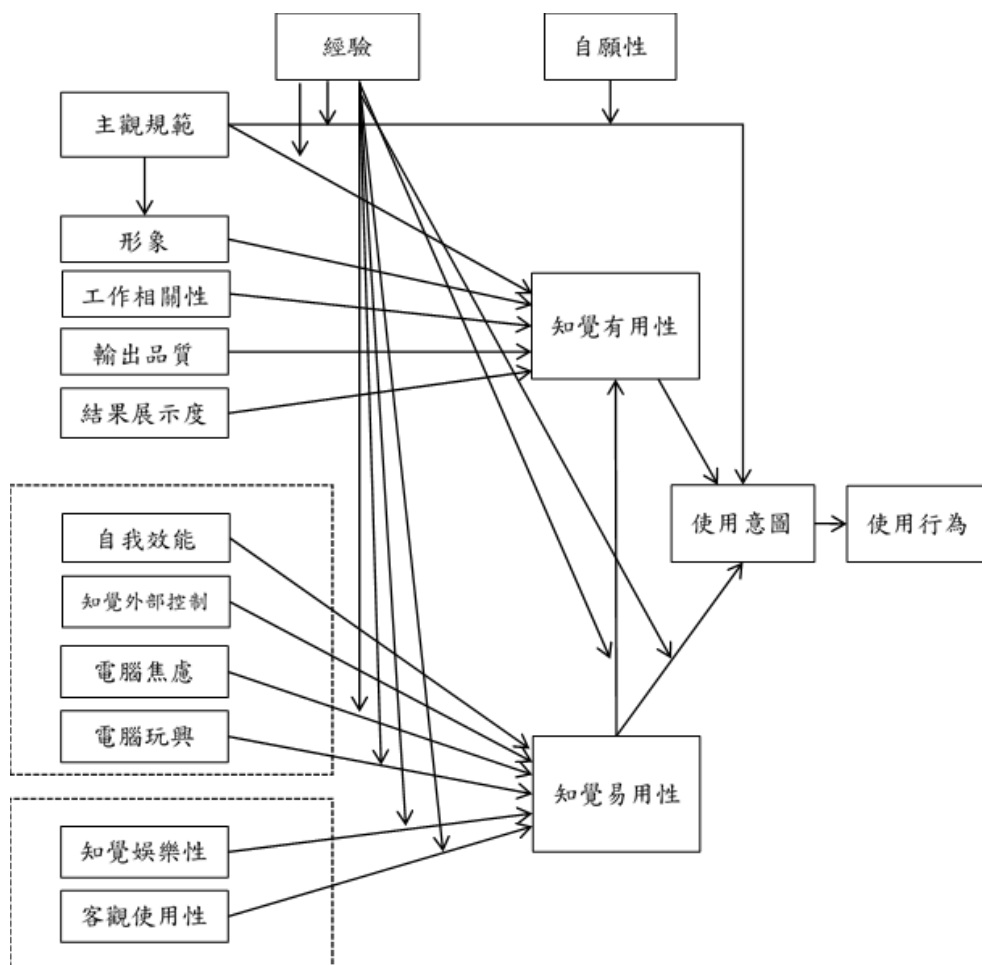


圖 2.1 科技接受模型 3 (TAM3) (資料來源：Venkatesh & Bala, 2008)

2.2 電子商務

電子商務(electronic commerce, EC)是指透過網路進行產品、服務與資訊的購買、銷售或交換產品、服務及資訊的過程。(網路行銷:電子商務實務 榮泰生, 民 96)

電子商務泛指企業與企業間、企業與消費者間、消費者與消費者間、透過網路進行商業行為所形成的虛擬交易社群。(張瑞芬, 民 97)

Zwass (1996) 指出電子商務並不在侷限於購買及銷售產品上, 而是應包含各種不同的過程以支持組織的目標, 其定義電子商務為: 企業訊息、企業關係維護、企業交易的導引, 以網際網路通訊的方式彼此分享。

Kalakota and Whinston (1997) 指出電子商務, 功能在降低成本、縮短產品的生命週期、加快速度得到顧客的反應, 及增加服務的品質。

透過網路利用電腦、手機等, 將產品準確的送到需求者手中, 不但可以降低成本、提升效率, 也較容易滿足消費者的需求, 而在這些銷售轉換過程中產生出的流程技術、營運模式、創新格式以及提供消費者有價值的各種行為, 都可以稱為「電子商務」。

2.3 區塊鏈

區塊鏈概念最早是由比特幣之父: 中本聰(Satoshi Nakamoto)在 2008 年發表論文時, 首次提及「比特幣: 一種點對點的電子現金系統(Bitcoin: A Peer-to-Peer Electronic Cash System)」。比特幣的技術核心是用於記錄和儲存交易記錄的分佈式系統, 此系統即為「區塊鏈」。在區塊鏈系統中, 沒有所謂的中央權威; 相反的, 記錄被儲存於所有的網絡參與者中(何沛馨, 2017)。

相較於傳統以銀行為金融中介的交易模式, 區塊鏈技術提供了「去中心化」、

「匿名性」、「不可竄改性」、「可追蹤性」以及「加密安全性」等特色，可以讓各參與者在互不相識的情況下建立信任機制，並較以金融機構為媒介的中心化交易模式降低成本，並讓資訊真實透明可追溯，以及能保護客戶的穩私權，同時按照時間順序來紀錄交易資料。區塊鏈的基本運作原理如下（江碩軒，2017）：

(一) 密碼學、演算法、數學聯合機制

透過雜湊演算法(Hash)將交易資料加密完整的傳送到下一個節點，是區塊鏈的核心工作，當交易產生時，配合著公鑰與私鑰來進行資料的安全簽章核准，接著透過雜湊加密且記錄在區塊中，提升資料遭篡改的難度，進而提升區塊的安全，透過這套聯合機制確保交易的可信任度。

(二) 點對點傳輸技術(Peer-to-Peer,P2P)

點對點技術可讓交易雙方直接進行交易，不用經過任何中介單位來輔助，因此達成了去中心化。在此技術下第三方公正單位的運作已經成為多餘且耗時耗成本，且點對點技術可讓網路中的用戶都能提供資源，包含著運算功能、儲存功能，所以當越多的節點加入，整個網路效能就會加強，當資料分散到各節點中，資料遺失的風險也大為降低。

(三) 信賴機器(The trust machine)

經濟學人比喻區塊鏈為信賴機器，基於它是一個共享且互相受信任的公共分散式帳本，任何參與區塊鏈的使用者皆能檢查，但區塊鏈不受任何一個用戶所控制，因為其運作機制完全是靠著密碼學代碼在運作，在系統中的參與者共同維護區塊鏈，將其分散式帳本保持在最新的狀態中，任何修改都需要在嚴格的規則和協議中進行，且能夠有效預防雙重支付的情況發生，並且持續追蹤交易紀錄，而這是極有可能取代中央銀行貨幣的強大技術。共享分散式帳本的概念或許不是革命性的創舉，但是區塊鏈是一個有可能改變人與人或是企業之間如何運作的技術，其真正的創新不是數位貨幣本身，而是信任機器的產生(The Economist,2015)。

(四) 分散式帳本技術(Distributed ledger)

分散式帳本也有人稱為分布式帳本以及共享帳本，其主要概念是讓每一位使用者都可以有一份帳本，讓所有的使用者與大家的帳本都是同步更新的。實際上，就是能在網路中分享資產資料庫，而所有更動都會在帳本中被反映出來，反應時間快速可能在幾分鐘或是幾秒鐘內。

為了讓帳本內輸入的資訊是正確的，須透過公鑰以及私鑰的方式來進行把關，預防資料遭到冒名輸入，透過演算法可以確保資料不會遭到竄改。分散式帳本因為沒有單一的資料庫來做資料的儲存，因此不太會有遭到駭客入侵的問題，加上每個節點或是區塊內都有副本，因此駭客若不能同時間攻擊眾多的副本，則無法成功。這也阻止了未經授權或是惡意修改的行為，若是有意圖想更改資料，區塊的其他使用者將會馬上察覺。

2.4 循環經濟

2015 年聯合國在「永續發展目標」中，「永續農業」列為第二項重要目標。循環農業意指一種將資源利用效率發揮至極大化，並結合物質再生技術，達到廢棄物減量的生產模式，

循環經濟打破了以往線性經濟的模式，並創造了新的獲利方式及就業機會，對整體的經濟產生顯著的效益，最重要的是可以達到零污染、零排放、零廢棄物。農業循環經濟所帶來的效益有；經濟效益、環境效益及社會效益，其中經濟效益包括降低廢棄物處理成本、減少栽種肥料成本；環境效益包括土壤改良、微生物多樣性、減少溫室氣體排放；而社會效益包括創新循環經濟、提升產業競爭力。

從城市到農村，都市型態的循環農業

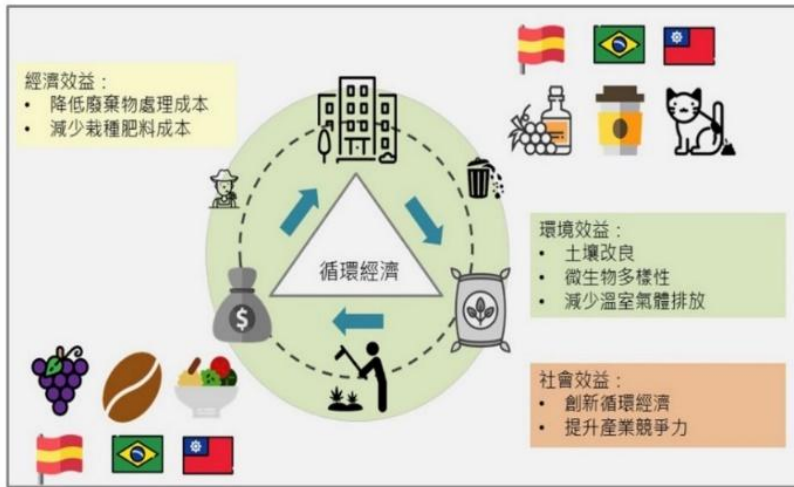


圖 2.2 循環農業

圖 2.3 為我們將弘宇自然農場所推廣之循環農業多層次自然農法栽培技術整理。



圖 2.3 循環經濟

圖 2.4，為我們將弘宇自然農場所推廣之循環農業多層次自然農法栽培技術與樂活平台、實體店面循環經濟之整理。

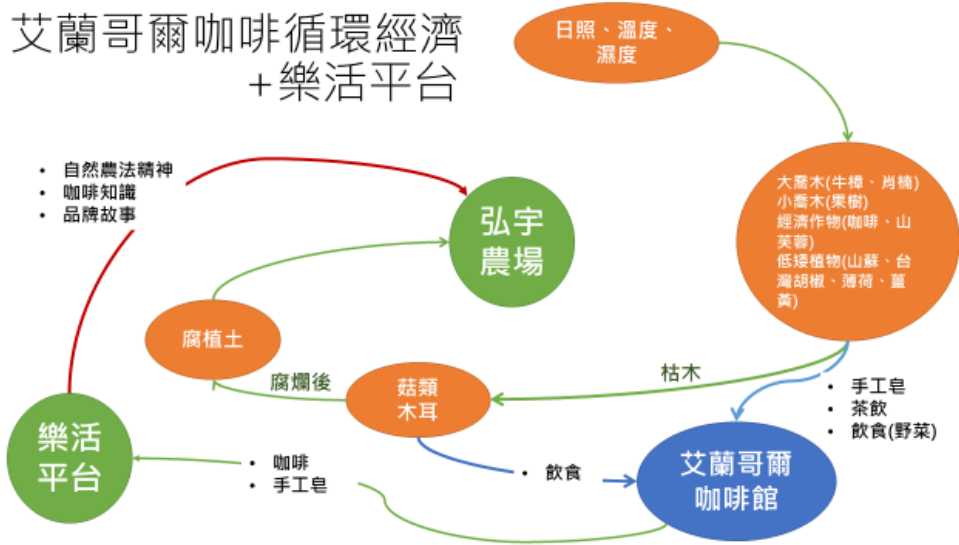


圖 2.4 艾蘭哥爾咖啡循環經濟

2.5 樂活產業

最初這個名詞是在美國社會學者 Paul H. Ray 和 Sherry Ruth Anderson 共同撰寫的《文化創造：5000 萬人如何改變世界》(The Cultural Creatives: How 50 Million People are Changing the World) 一書中出現。LOHAS 是英語 Lifestyles of Health and Sustainability 的縮寫，意謂以健康及永續發展的型態過生活。對樂活族做一個定義：「一群人在做消費決策的同時，也會考慮到自己與家人的健康以及對於環境的責任。」(LOHAS stands for Lifestyles of Health and Sustainability)。 (Paul H. Ray Ph.D., Sherry Ruth Anderson, 2001)。

康健雜誌網頁，也對樂活族定義出：「不只是愛地球，也不只是愛自己和家人的健康，而是兩者都愛的生活方式，跨越地理、種族、年齡的限制，滲透全球和台灣，這就是『樂活』。」並訂定了 10 大宣言 (康健雜誌網頁, 2006):

關於平衡身心：

1. 我會注意吃什麼、如何吃，不吃高鹽、高油、高糖的食品。
2. 我會經常運動、適度休息、均衡飲食，不把健康的責任丟給醫生。

關於分享關懷：

3. 我會注重自我成長、終身學習、靈性修養、並關懷別人。

關於珍愛環境：

4. 我會盡量搭乘大眾運輸工具，減少廢氣污染。

5. 我不抽菸、拒吸二手菸，支持無菸環境的政策。

6. 我會減少製造垃圾，也實行垃圾分類與回收。

7. 我會試著使用對環境友善的化學產品，例如使用環保清潔劑。

8. 我支持有機（無毒）農產品，並盡量優先選用。

9. 我會向家人、朋友推薦對環境友善的產品，例如環保汽車。

10. 我會隨身攜帶環保筷，貢獻己力，少砍一棵樹。

第三章、系統規劃與分析

3.1 研究方法

(1) 研究步驟

如圖 3.1，首先，確認要研究的主題、動機及目的為何並開始設計研究與方法，收集相關文獻資料和設計使用性評估問卷，把收集到的資料彙整起來利用這些資料開始規劃網站相關架構之設計，測試完成後對網站進行修改與調整及最後的測試，最後就進行網頁營運及維護。藉由線上消費者填答問卷來收集資料，透過回傳所收集的資料，可以了解到其送禮推薦系統對於使用者的接受或使用意願，並利用科技接受模式來探討使用性評估。

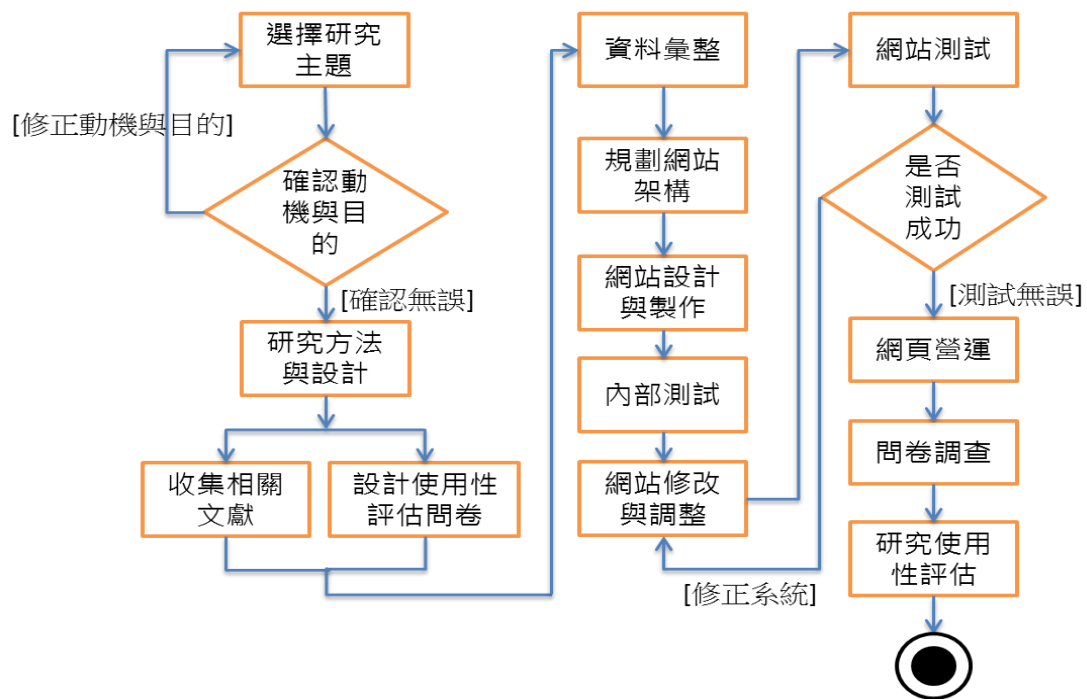


圖 3.1 研究步驟

(2) 方法論

如圖 3.2 為本研究所設計的方法論，以本系統為中心，首先先辨別是否為會員，登入後即可開始進行選購，並將商品加入購物車，將要組合為禮盒之商品切割，隨後進行結帳的動作，且輸入訂單資料。

前期，本系統所提供的推薦模式以經驗法則與協同過濾作為推薦規則；後期，當資料移轉至資料倉儲並累積到一定的數量，將使用資料探採中的關聯規則，作為推薦規則。

本研究將會進行使用性評估以及專家問卷的評估方式。前者，以使用者作為對象，以 TAM Model 架構針對系統所設計之問卷；後者，以專家為對象，採用開放性問答方式，針對本系統的方法論、商業模式及送禮模式所設計。

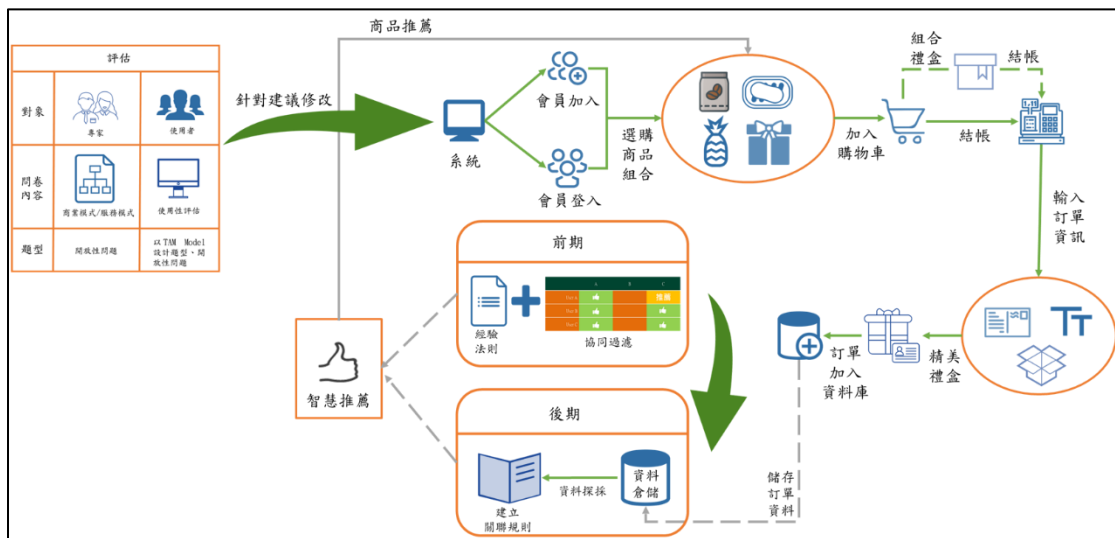


圖 3.2 方法論

(3) 測試評估受測者

本研究透過線上電子商務平台，藉由線上購物消費者填答問卷來收集資料，透過回傳問卷所收集的資料，可以了解到其送禮推薦系統對於使用者的接受或使用意願，並利用科技接受模式來探討使用性評估。

3.2 研究架構

(1) 送禮組合服務模式

如圖 3.3，顧客可以選購艾蘭哥爾和銘泉農場共同販售的商品進行商品組合，透過送禮系統，選擇要寄給送禮對象的明信片、祝賀詞或是精美禮盒，達成我們網站的個人化送禮服務。

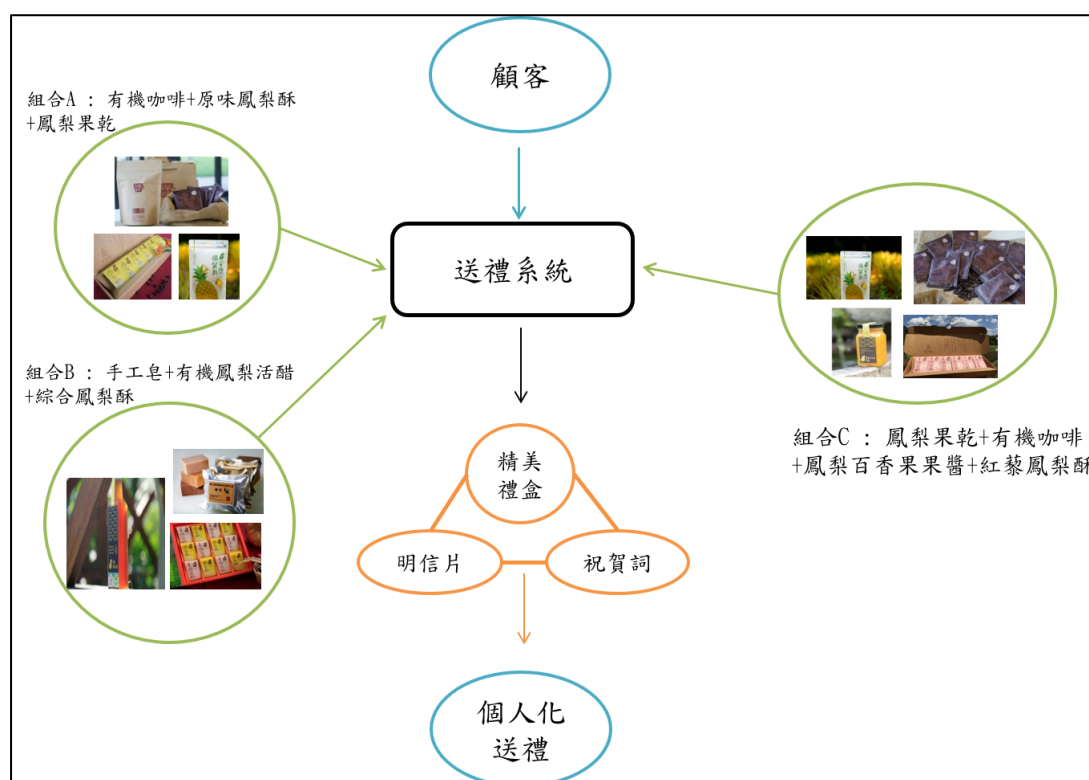


圖 3.3 送禮組合服務模式

(1) 商業模式

如圖 3.4，所謂商業模式，就是描述一個組織如何創造、傳遞及獲取價值的手段與方法。」(尤傳莉譯，2012)

從整個商業模式來看分為四大分之價值主張、價值網絡、價值結構及價值財務，在價值主張主要描述針對目標客戶可提出的產品及服務所能帶來的好處；價值網絡則是價值主張與商家間的關係；價值結構所指整個商業模式運作時所會有的核心能力、關鍵價值；最後財物價值則是評估當使用商業模

式時所會產生的收益流、成本及獲益的相關項目。

收益流是營運一個商業模式必會有的現金產生來源，像是購買網頁商品其中包含讓原單方顧客可變成雙方的顧客此無形的價值也是收益流的一部分。

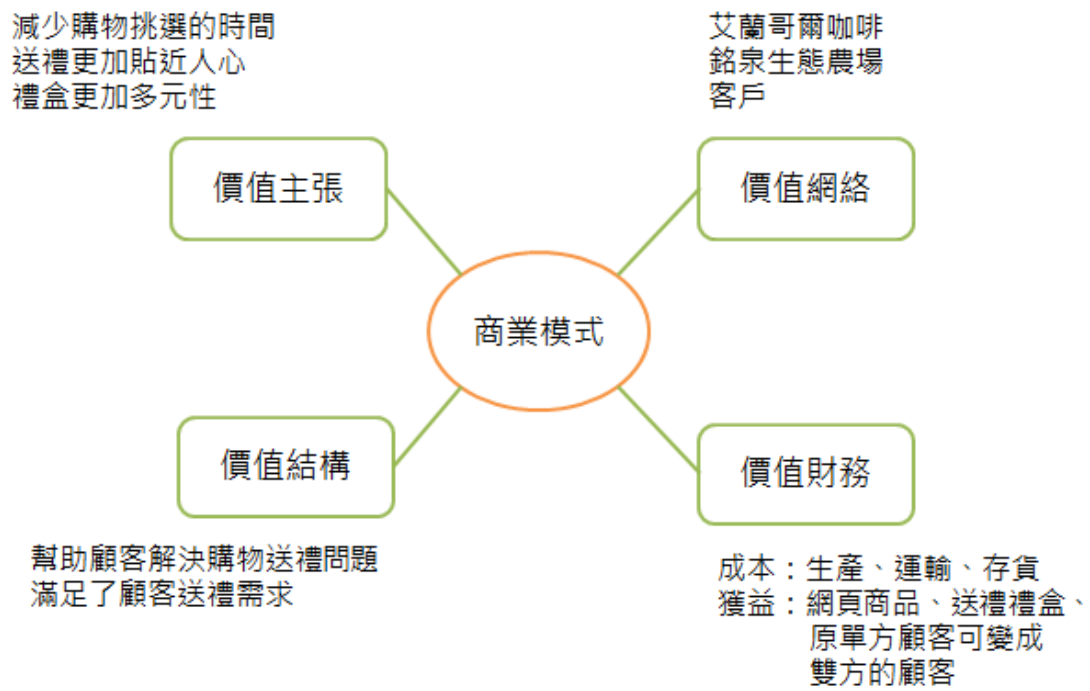


圖 3.4 商業模式畫布

第四章、系統設計與實作

4.1 介面藍圖

圖 4.1 為本系統之首頁藍圖設計。



圖 4.1 智慧化送禮推薦系統首頁

圖 4.2 是會員登入後，所會看見的會員中心之藍圖。

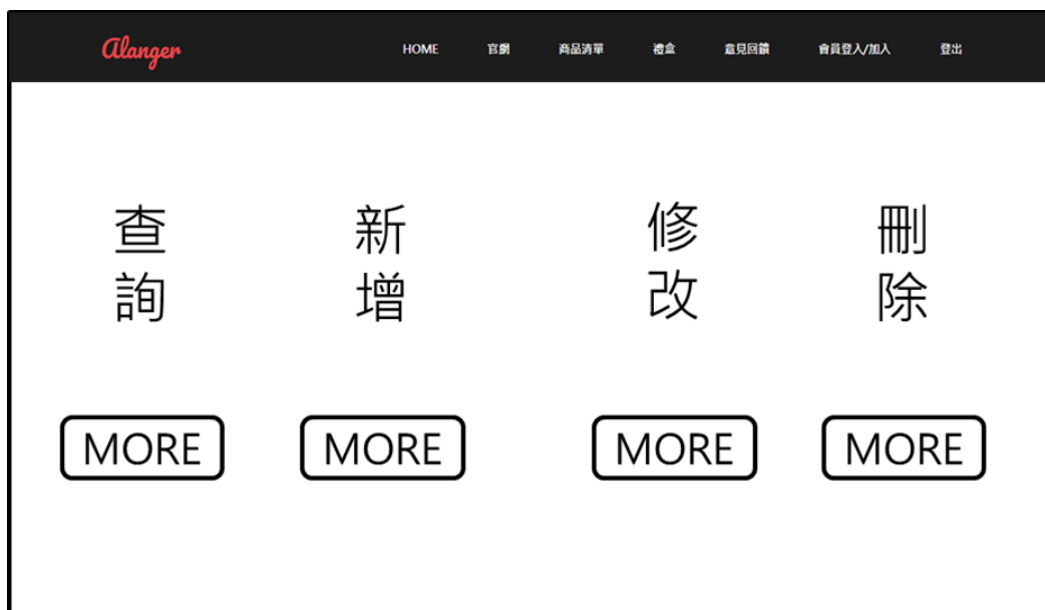


圖 4.2 使用者會員中心

圖 4.3 使用者在商品清單中點擊每項商品後所會出現的商品詳細資料之藍圖。

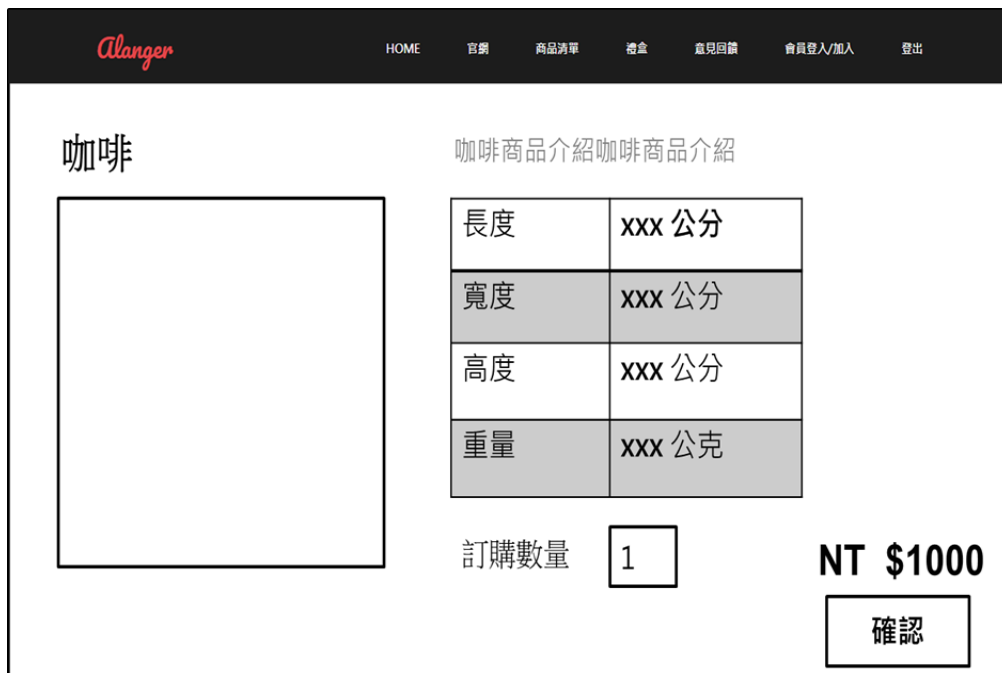


圖 4.3 商品詳細資料

圖 4.4 為使用者進入商品清單中所會看見的所有商品排列方式之藍圖。

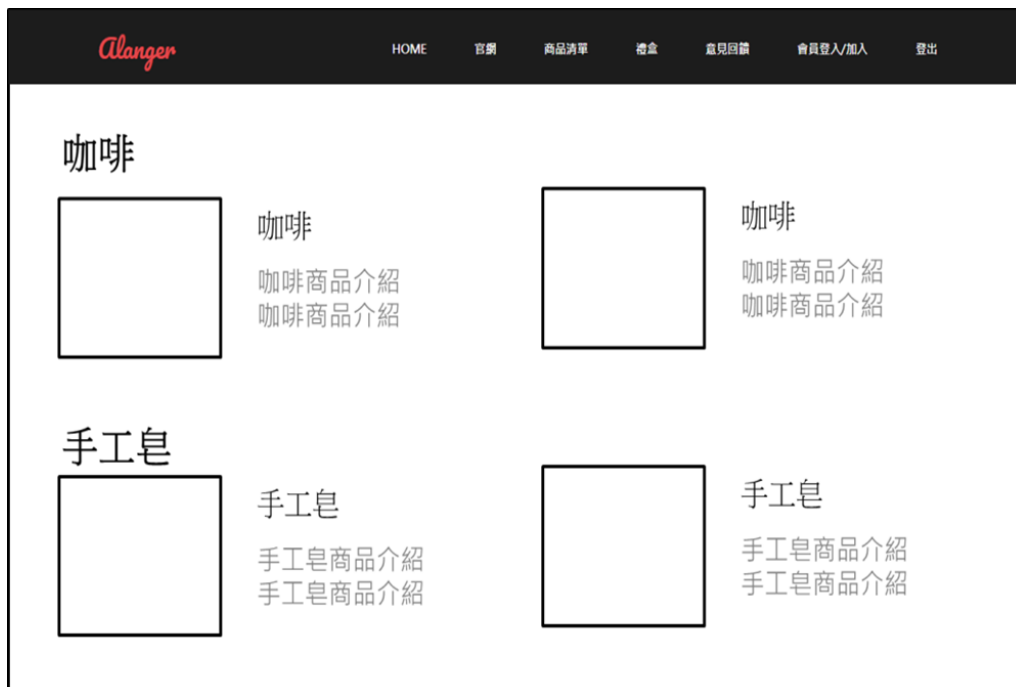


圖 4.4 商品清單

圖 4.5 為商品加入購物車後所會呈現的方式，在購物車可以看見購買各項商品的單價、數量及所有商品所加總起來的總計金額，也可進行刪除商品的動作。



圖 4.5 購物車

圖 4.6 為使用者確定購買禮盒後所需填寫的相關資訊。

圖 4.6 結帳資訊 1

圖 4.7 為使用者確定購買禮盒後所需填寫的結帳相關資訊。

祝賀詞

祝子孫滿堂-

範例
祝子孫滿堂-
新年快樂!

寄件方式

無障礙急便 重量 15KG以下 運費 150

付款方式

匯款 帳號 1646329 1784521

取貨付款

| 編號 | 產品名稱 | 單價 | 數量 | 小計 | |
|----|-----------|-----|----|---------|------|
| 1 | 艾翠咖啡手磨咖啡豆 | 300 | 3 | 900 | |
| | | | | 總計 | 900 |
| | | | | 運費 | 150 |
| | | | | 產品含運費總計 | 1050 |

繼續>>

總家數人數：12311，本頁家數人數：12
艾翠咖啡(明) Alanger Coffee
地址：台東縣台東市勝利路109號
電話：(089)318855
Copyright © 艾翠咖啡(明) Alanger Coffee 2016

圖 4.7 結帳資訊 2

圖 4.8 為使用者填寫完結帳資訊後進行資訊確認之頁面藍圖。

Alanger

HOME 首頁 商品清單 禮盒 意見回饋 會員登入/加入 登出

購買人

姓名 小王 電話 0917385699

地址 台東縣大學路二段369號

信箱 ntu123@ntu.edu.tw

收貨人

姓名 老王

手機 0938165942 郵遞區號 604

地址 台東市中正路2段369號

希望送禮時間 早上 10:10

禮品

中 小

祝賀詞

祝子孫滿堂-

寄件方式

無障礙急便 重量 15KG以下 運費 150

付款方式

匯款 帳號 1646329 1784521

取貨付款

明信片

可愛的小花

投投熊

商品確認

| 編號 | 產品名稱 | 單價 | 數量 | 小計 | |
|----|-----------|-----|----|---------|------|
| 1 | 艾翠咖啡手磨咖啡豆 | 300 | 3 | 900 | |
| | | | | 總計 | 900 |
| | | | | 運費 | 150 |
| | | | | 產品含運費總計 | 1050 |

繼續>>

圖 4.8 資料確認

圖 4.9 為使用者可以線上填寫意見、建議來回饋給店家，讓店家了解問題並去改進。

The screenshot shows the Alanger website's feedback form. At the top, there is a navigation bar with the Alanger logo and links for HOME, 首頁, 商品清單, 禮盒, 意見回饋, 會員登入/加入, and 登出. The main content area contains a form with the following elements: an 'EMAIL' label above a text input field, a '姓名' (Name) label above another text input field, a '內容' (Content) label above a larger text area, and a '送出' (Submit) button at the bottom left.

圖 4.9 意見回饋

圖 4.10 為網頁管理者登入後，可以進行相關的網頁、訂單管理之介面藍圖。

The screenshot shows the Alanger website's administrator management interface. At the top, there is a navigation bar with the Alanger logo and links for HOME, 首頁, 登入, and 登出. The main content area is a grid of management options, each with a 'MORE' button below it: '商品資訊管理' (Product Information Management), '禮盒資訊查詢' (Gift Box Information Query), '訂單管理' (Order Management), '歷史訂單' (Historical Orders), '意見回饋' (Feedback), and '統計圖表' (Statistical Charts).

圖 4.10 管理者管理介面

圖 4.11 為管理新增電子商務網頁上商品之操作頁面，裡會有商品名稱、簡介、規格及價錢等資訊。

The screenshot shows a web interface for adding a new product. At the top, there is a navigation bar with the logo 'Alanger' and links for 'HOME', '首頁', '登入', and '登出'. The main heading is '新增商品'. Below this, there are several input fields: '商品名稱' (Product Name) with the value '咖啡豆', '上架日期' (Shelf Date) with '15/11/2017', '商品簡介' (Product Introduction) which is an empty text area, and '價錢' (Price) with '666'. At the bottom, there are three specification fields: '商品規格' (Product Specifications) with '長 50 CM', '寬 50 CM', and '重 50'. Finally, there are two buttons: '刪除' (Delete) and '送出' (Submit).

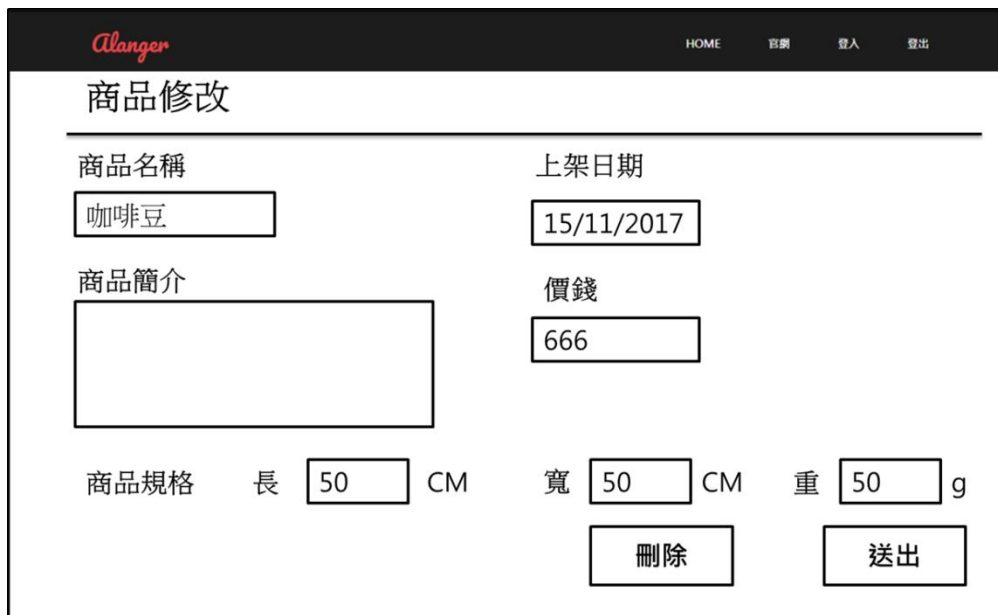
圖 4.11 商品新增

圖 4.12 為管理者新增封面或是商品照片之介面藍圖。

The screenshot shows a web interface for adding new images. At the top, there is a navigation bar with the logo 'Alanger' and links for 'HOME', '首頁', '登入', and '登出'. The main heading is '新增圖片'. Below this, there are two columns: '封面照片' (Cover Photo) and '商品照片' (Product Photo). Each column has a button labeled '選擇檔案' (Select File). At the bottom, there are two buttons: '刪除' (Delete) and '送出' (Submit).

圖 4.12 新增圖片

圖 4.13 為管理修改商品內容之操作介面藍圖。



Alanger HOME 首頁 登入 登出

商品修改

商品名稱 上架日期

商品簡介

價錢

商品規格 長 CM 寬 CM 重 g

圖 4.13 商品修改

圖 4.14 為使用者在將商品家務購物車後所會看見的推薦清單介面藍圖。



Alanger HOME 首頁 商品清單 禮盒 意見回饋 會員登入/加入 登出

購物清單

| 商品 | 價格 | 數量 | 操作 |
|---------------------------------|--------|----|-----------------------------------|
| <input type="text" value="咖啡"/> | \$1000 | 1 | <input type="button" value="刪除"/> |

總計 >> \$1000

推薦清單

圖 4.14 商品推薦

第五章、系統展示與評估

5.1 系統展示

5.1.1 系統介面展示

1. 商城

如圖 5.1.1，雜型網頁上方有商品清單，顧客可以在此流覽所有商品，讓顧客進行選購，但只有侷限於一家的商品。

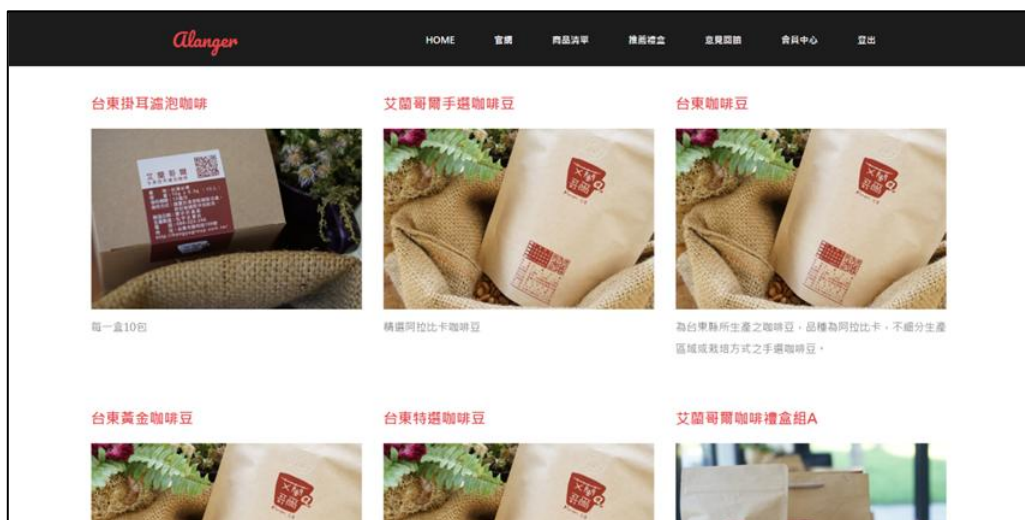


圖 5.1.1 商城商品

如圖 5.1.2，改版後增加另一家的商品並且多了熱銷商品的呈現讓顧客更容易挑選。

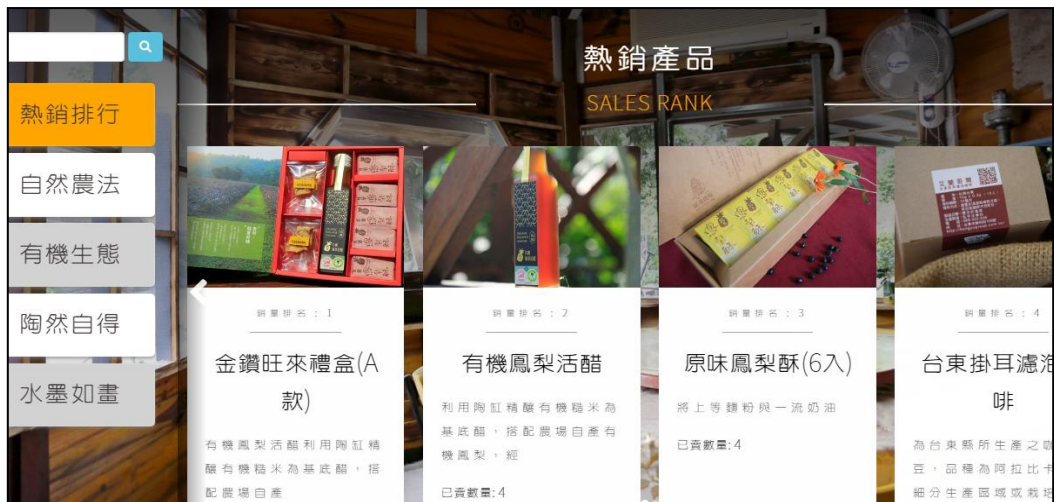


圖 5.1.2 改版後商城

2. 購物車

雛形系統之購物車如圖 5.2.1，如果顧客改變心意不想購買某種商品，可以將該購物車裡的商品進行刪除。若不需繼續選購，想完成此次商品訂單，就可以點選「立即結帳」按鈕，進行結帳資料的填寫。

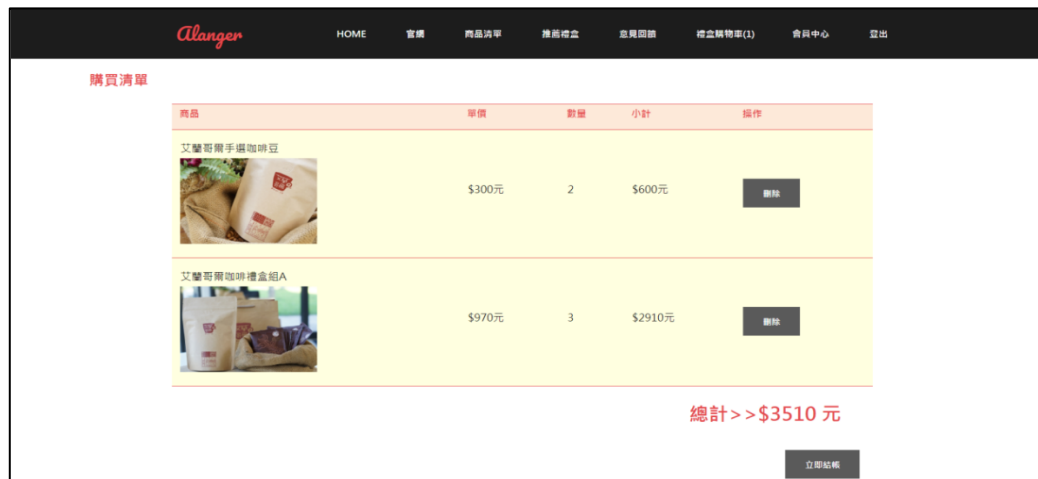


圖 5.2.1 購物車

如圖 5.2.2，改版後增加了讓顧客可以直接從購物車挑選商品進不同禮盒的功能。



圖 5.2.2 購物車挑選禮盒

3. 推薦

如圖 5.3.1，在系統雛型中，商品詳細說明的頁面中，只有單純介紹商品的詳細資訊。



圖 5.3.1 商品介紹

如圖 5.3.2，在系統雛型中，推薦列表只出現與商品清單頁面。



圖 5.3.2 商品清單之推薦列表

如圖 5.3.3，改版後增加另一家的商品並且多了熱銷商品的呈現讓顧客更容易挑選。

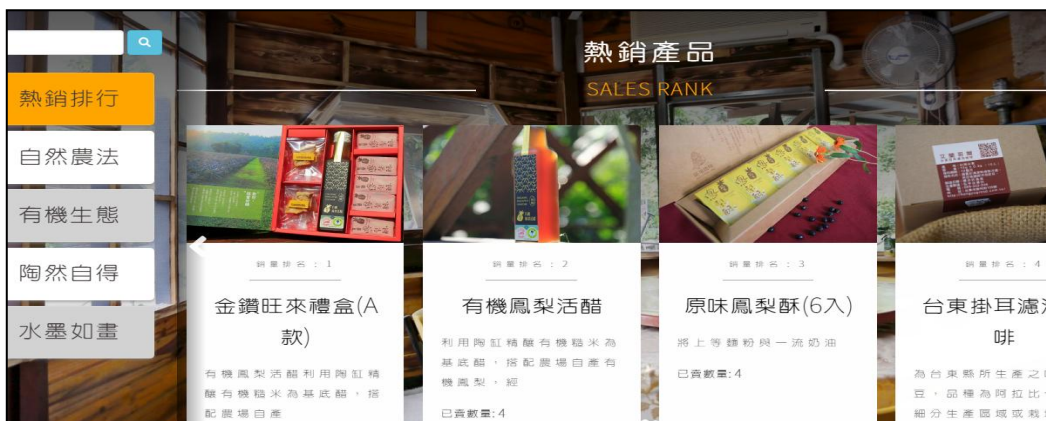
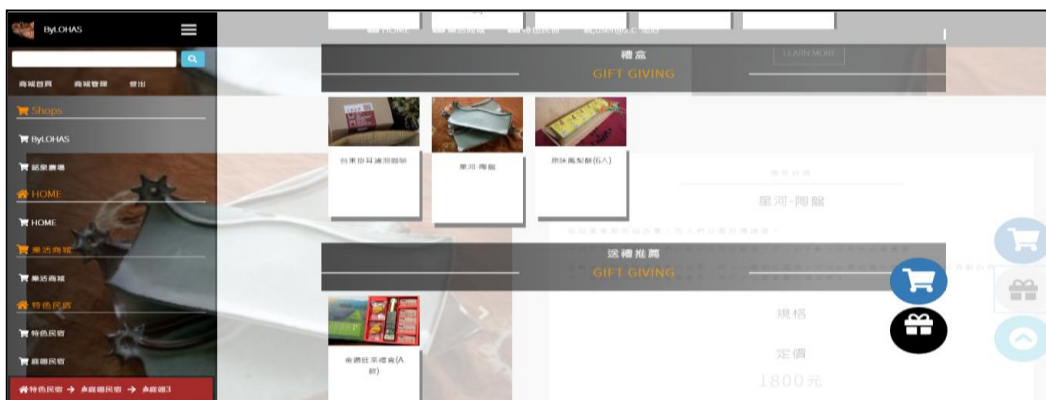


圖 5.3.3 改版後商品介紹

如圖 5.3，改版前並無禮盒商品推薦，改版後則增加了此功能。



5.1.2. 情境展示

個案 1：

某天一位林美好想要買咖啡送給喜歡咖啡媽媽，她看見了艾蘭哥爾的電子商務網站，於是就進到商品清單的頁面開始逛了起來，因為對於咖啡不怎麼了解的她，她也就隨便挑了幾項較常見的黃金咖啡豆和咖啡手工皂，在將商品放入購物車後，她發現購買過黃金咖啡豆的其他消費者，還選了台東特選咖啡豆，購買過咖啡手工皂的還買了山芙蓉手工皂，於是她就再多買了幾包特選咖啡豆和山芙蓉手工皂。

在結帳的時候，她發現可以將咖啡跟手工皂裝進禮盒裡，並選擇包裝紙包起來，看起來更加精緻，還可以選擇明信片對各別對媽媽說了幾句問候的話，購買完成付款完後，她發現有一個意見回饋的頁面，她因為剛剛為選擇困難時跑出來的推薦商品而感到滿意，解救了她不會因為選擇的困難而亂買，所以她留了幾句感謝的話給商家，並跟他們加油且以後還會再次來購買該家的咖啡跟手工皂。

影片請參考附錄網址

個案 2：

小明今天來到銘泉農場參觀，藉由老闆的介紹，發現與銘泉相關的ByLOHAS 商城，發現裡面有和艾蘭哥爾合作。有許多商品分類和禮品組合，小明決定挑選一些兩家企業的商品送給幫助過他的同事小愛，也挑了一些要寄給家人。

小明先從小愛喜歡的咖啡開始挑選，也從商城中選擇了山芙蓉手工皂想要送給媽媽，小明發現到商城會將相關商品推薦給他，於是小明決定挑選了推薦的鳳梨酥一起加入購買，小明也利用商城提供的送禮服務。

他好奇的點選視窗上的禮盒圖案，發現可以針對不同禮盒進行商品的分配，於是小明決定將咖啡和鳳梨酥一起送給同事小愛，手工皂則另外送給媽媽，接著小明就將禮盒拿去結帳，發現商城有提供明信片，可以填上祝賀詞和選擇精美的禮盒包裝，於是他寫了一些感謝語準備送給小愛。

5.2 評估－問卷

(1) 使用性評估

之後放入評估結果。

(2) 專家問卷

之後放入評估結果。

第六章、 結論與未來發展

6.1 結論

本團隊現階段已完成於 ByLOHAS - 電子商城之送禮推薦系統架設。希望透過此系統能提升顧客對送禮的服務，且讓更多樂活的愛好者或共同理念的消費者、微型企業們可以一起共創未來。

給測試者所填寫的問卷是藉 TAM Model 模式的問項所來設計而成，裡面包含了知覺有用性、知覺易用性、行為意圖及滿意度等構面，問卷最後採用開放式的填答問項，透過測試者的回饋讓我們更加容易去發掘到在開發時的盲點，與隱含的顧客需求，使整個系統更加成功及更貼近使用者的需求。

給專家所填寫的問卷是針對本團隊所提出的商業模式及送禮模式，採用問答方式讓專家能夠提供建議與意見回饋，讓我們可了解到，在真實環境中會遇到的問題，使我們能夠更加清楚市場環境。

6.2 未來發展

1. 與更多微型企業合作，推出更多元化的送禮模式。
2. 使用關聯規則建置推薦規則。
3. 使用區塊鏈技術解決送禮集貨、發貨問題。
4. 結合金融科技。

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附件

個案影片

個案 1：<https://youtu.be/qhAeIMDEb1M>

問卷

1. 使用性評估問卷

| | | | | | |
|--|-----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 基本資料 | | | | | |
| 1. 性別 <input type="checkbox"/> 男 <input type="checkbox"/> 女 | | | | | |
| 2. 年齡 <input type="checkbox"/> 20 歲以下 <input type="checkbox"/> 21~30 歲 <input type="checkbox"/> 31~40 歲 <input type="checkbox"/> 41~50 歲 <input type="checkbox"/> 51~60 歲 <input type="checkbox"/> 61 歲以上 | | | | | |
| 3. 職業 <input type="checkbox"/> 服務業 <input type="checkbox"/> 軍公教 <input type="checkbox"/> 金融業 <input type="checkbox"/> 營造業 <input type="checkbox"/> 電子業 <input type="checkbox"/> 大眾傳播業 <input type="checkbox"/> 製造業 <input type="checkbox"/> 運輸業 <input type="checkbox"/> 通信業 <input type="checkbox"/> 商業 <input type="checkbox"/> 自由業 <input type="checkbox"/> 家庭主婦 <input type="checkbox"/> 學生 <input type="checkbox"/> 待業中 <input type="checkbox"/> 退休 | | | | | |
| 4. 每月收入/零用錢(新台幣：元) <input type="checkbox"/> 3,000 以下 <input type="checkbox"/> 3,001~5,000 <input type="checkbox"/> 5,000~10,000 <input type="checkbox"/> 10,001~30,000 <input type="checkbox"/> 30,001~50,000 <input type="checkbox"/> 50,001~70,000 <input type="checkbox"/> 70,001 以上 | | | | | |
| 5. 是否有使用過網路購物 <input type="checkbox"/> 有 <input type="checkbox"/> 沒有 | | | | | |
| | | 非常同意 | 同意 | 不同意 | 非常不同意 |
| 知 | 1. 使用此智慧化送禮推薦系統，可以改善我的購買效率。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | |
|-----------------------|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 覺 有 用 性 | 2. 使用此智慧化送禮推薦系統，可以增進我在進行送禮購物的選擇性，減少思考的時間。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 3. 我發現智慧化送禮推薦系統幫助我滿足送禮購物的目標。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 知 覺 易 用 性 | 4. 智慧化送禮推薦系統的操作互動，對我而言是清楚可以理解的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 5. 智慧化送禮推薦系統的操作互動上，不需花費我許多心力。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 6. 我發現使用智慧化送禮推薦系統完成我在購物時想要做到送禮服務，是容易的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 滿 意 度 | 7. 我對智慧化送禮推薦系統的整體使用經驗，感到非常滿足。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 8. 我對智慧化送禮推薦系統的整體使用經驗，感到非常滿意。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 9. 智慧化送禮推薦系統的送禮購物能力，比我使用之前的預期還要好很多。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 行 為 意 圖 | 10. 我會推薦朋友使用此智慧化送禮推薦系統 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 11. 我會繼續使用此智慧化送禮推薦系統來購物 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 12. 我會推薦其他人去使用智慧化送禮推薦系統。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. 其他建議 | | | | | |

2. 專家問卷

| 專家問卷 | |
|---------|---|
| 操作 性 | 1. 智慧化送禮推薦系統整體操作性、功能是否比使用之前的預期還要好很多，與其他網頁相比有何優缺？ |
| | 2. 針對智慧化送禮推薦系統想呈現商品的呈現清楚明瞭，多樣選擇性分類完整是否有看見或是有其他建議？ |
| 滿意 度 | 3. 對此智慧化送禮推薦系統所使用到的方法論與送禮模式是否同意？不同意原因為何？ |

| | |
|--|--|
| | <p>4. 在智慧化送禮推薦系統所使用到的方法論與送禮模式是否有其他建議可以提供研究小組努力朝向的地方？</p> |
| | <p>5. 對於此智慧化送禮推薦系統，所要表達的創新理念是否認同？那麼不同意原因為何？是否有其他建議？</p> |

國立臺東大學執行教育部 107 年高教深耕計畫

B-4 打造綠色國際大學

綠色知識經濟創新成果轉化報告書

議題 B3 : 樂活產業創新以智慧商品推薦服務之研製與評估

主持人: 國立中山大學吳仁和教授

共同主持人: 國立臺東大學謝明哲副教授

參與學生: 國立臺東大學 資管四 陳富鴻

中 華 民 國 1 0 7 年 1 2

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壹、前言

一、 研究背景

臺東是一塊發展較為緩慢但自然風光好景色優美的淨土，臺東有著許多以農業、農產品加工、觀光旅宿業等類型的微型企業。與西半部城市相較臺東實屬偏鄉，而隨著科技器物的革新、政經環境的消長，面對著種種衝擊，臺東微型企業的發展更加風雨飄緲。

學生有幸能夠持續參與國立臺東大學資管系謝明哲副教授執行教育部 107 年高教深耕計畫，延續上年度樂活產業與綠色知識經濟創新成果轉化工作坊，一路走來了解到地方大學對於地方為型產業的願景與使命。

透過產學合作，將科技與綠色專業知識導入到微型企業中，系上有許多的人力投入計畫中。老師輔導學生們透過所學，針對個別微型企業的產業分析與輔導，更發展出個別化的數位行銷計畫，盼能使這些微型企業共榮共好，因此透過網路平臺發展電子商務與整合這些眾多的微型企業是務實的方法，特色虛擬商城是不可或缺的。

以下將探如何討透過個別特色商店與智慧推薦系統在商城有效地達成保留個別特色且串聯眾多的微型企業形成規模經濟。

貳、文獻探討

一、 內部外部矩陣(Internal-External Matrix, IE 矩陣)[1]

IE 矩陣 (Internal-External Matrix, 內部-外部矩陣) 是在原來由 GE 公司提出的多因素業務經營組合矩陣基礎上發展起來的。多因素業務經營組合矩陣又稱市場吸引力-經營實力矩陣(GE 矩陣), 經營實力表明企業的競爭能力(內部因素), 而市場吸引力表明企業所處行業的發展狀況與發展趨勢(外部因素)。

在 GE 矩陣基礎上發展起來的 IE 矩陣即用內部因素與外部因素取代該矩陣中的競爭能力和行業吸引力。

表 1 IE 矩陣

| | | IEF加權評分 | | |
|-----------------|----------------|------------|------------|------------|
| | | 強(4.0~3.0) | 中(3.0~2.0) | 弱(2.0~1.0) |
| EFE 加權 評分 | 高 (4.0~3.0) | I | II | III |
| | 中 (3.0~2.0) | IV | V | VI |
| | 低 (2.0~1.0) | VII | VIII | IX |

在 IE 矩陣的橫坐標中，IFE 加權評分數為 1.0~1.99 代表企業內部的劣勢地位,2.0~2.99 代表企業內部的中等地位,而 3.0~4.0 代表企業內部的優勢地位。相應地，在縱坐標上，EFE 加權分為 1.0~1.99 代表企業面臨著較嚴重的外部威脅,而 2.0~2.99 代表企業面臨中等的外部威脅,3.0~3.99 代表企業能較好地把外部威脅的不利影響減少到最小程度。

可以把 IE 矩陣分成具有不同戰略意義的三個區間。第一，IE 矩陣對角線第 III、V、VII 格；第二，IE 矩陣對角線左上方的第 I、II、IV 格；第三，IE 矩陣對角線右下方的第 VI、VIII、IX 格。

對落在 IE 矩陣不同區間的不同業務或產品，企業應採取不同的戰略：

(1) 落入 I、II、IV 象限的業務應被視為增長型和建立型 (grow and build) 業務。所以應採取加強型戰略 (市場滲透、市場開發和產品開發) 或一體化戰略 (前向一體化、後向一體化和橫向一體化) 或投資／擴展戰略。

(2) 落入 III、V、VII 象限的業務適合採用堅持和保持型 (hold and maintain) 戰略,或選擇／盈利戰略。如市場滲透和產品開發戰略等。

(3) 落入 VI、VIII、IX 象限的業務應採取收穫型和剝離型 (harvest and divest) 戰略或收穫／放棄戰略。

[1] mbalib 內部外部矩陣

<https://wiki.mbalib.com/zh-tw/%E5%86%85%E9%83%A8%E5%A4%96%E9%83%A8%E7%9F%A9%E9%98%B5>

二、 GE 分析矩陣 [2]

GE 矩陣法又稱通用電器公司法、麥肯錫矩陣、九盒矩陣法、行業吸引力矩

陣是美國通用電氣公司（GE）於 70 年代開發了新的投資組合分析方法。對企業進行業務選擇和定位具有重要的價值和意義。GE 矩陣可以用來根據事業單位在市場上的實力和所在市場的吸引力對這些事業單位進行評估，也可以表述一個公司的事業單位組合判斷其強項和弱點。在需要對產業吸引力和業務實力作廣義而靈活的定義時，可以以 GE 矩陣為基礎進行戰略規劃。按市場吸引力和業務自身實力兩個維度評估現有業務（或事業單位），每個維度分三級，分成九個格以表示兩個維度上不同級別的組合。兩個維度上可以根據不同情況確定評價指標。

[2] mbalib 百科 GE 分析矩陣

<https://wiki.mbalib.com/zh-tw/GE%E7%9F%A9%E9%98%B5>

三、 SWOT 分析[3]

強弱危機分析（英語：SWOT Analysis），又稱優劣分析法、SWOT 分析法或道斯矩陣，是一種企業競爭態勢分析方法，是市場行銷的基礎分析方法之一，透過評價自身的優勢（Strengths）、劣勢（Weaknesses）、外部競爭上的機會（Opportunities）和威脅（Threats），用以在制定發展戰略前對自身進行深入全面的分析以及競爭優勢的定位。而此方法是 Albert Humphrey 所提。

SWOT 分析在最理想的狀態下，是由專屬的團隊來達成的，一個 SWOT 分析團隊，最好由一個會計相關人員，一位銷售人員，一位經理級主管，一位工程師和一位專案管理師組成。

[3] 維基百科 SWOT 分析

<https://zh.wikipedia.org/wiki/%E5%BC%B7%E5%BC%B1%E5%8D%B1%E6%A9>

%9F%E5%88%86%E6%9E%90#cite_note-1

協同過濾[5]

「協同過濾（英語：Collaborative Filtering），簡單來說是利用某興趣相投、擁有共同經驗之群體的喜好來推薦使用者感興趣的資訊，個人透過合作的機制給予資訊相當程度的回應（如評分）並記錄下來以達到過濾的目的進而幫助別人篩選資訊，回應不一定侷限於特別感興趣的，特別不感興趣資訊的紀錄也相當重要。協同過濾又可分為評比（rating）或者群體過濾（social filtering）。其後成為電子商務當中很重要的一環，即根據某顧客以往的購買行為以及從具有相似購買行為的顧客群的購買行為去推薦這個顧客其「可能喜歡的品項」，也就是藉由社群的喜好提供個人化的資訊、商品等的推薦服務。除了推薦之外，近年來也發展出數學運算讓系統自動計算喜好的強弱進而去蕪存菁使得過濾的內容更有依據，也許不是百分之百完全準確，但由於加入了強弱的評比讓這個概念的應用更為廣泛，除了電子商務之外尚有資訊檢索領域、網路個人影音櫃、個人書架等的應用等。」

[5]維基百科協同過濾

<https://zh.wikipedia.org/wiki/%E5%8D%94%E5%90%8C%E9%81%8E%E6%BF%BE>

四、 關聯規則[6]

「關聯規則學習（英語：Association rule learning）是一種在大型資料庫中發現變數之間的有趣性關係的方法。它的目的是利用一些有趣性的量度來辨識資料庫中發現的強規則。[1] 基於強規則的概念，Rakesh Agrawal 等人[2]引入了關聯規則以發現由超市的POS系統記錄的大批交易資料中產品之間的規律性。例如，從銷售資料中發現的規則 {洋蔥, 土豆}→{漢堡} 會表明如果顧客一起買洋蔥

和土豆，他們也有可能買漢堡的肉。此類資訊可以作為做出促銷定價或產品置入等行銷活動決定的

[6]維基百科協同過濾 https://en.wikipedia.org/wiki/Association_rule_learning

五、 Slope One [7]

Slope One 是一系列應用於協同過濾的算法的統稱。由 Daniel Lemire 和 Anna Maclachlan 於 2005 年發表的論文中提出。有爭議的是，該算法堪稱基於項目評價的 non-trivial 協同過濾算法最簡潔的形式。該系列算法的簡潔特性使它們的實現簡單而高效，而且其精確度與其它複雜費時的算法相比也不相上下。該系列算法也被用來改進其它算法。

[7]維基百科 slope one https://zh.wikipedia.org/wiki/Slope_one

參、解決方案設計

參與樂活平臺之微型企業有許多。例如，有機農法施作的艾蘭哥爾咖啡、客家風情的庭翊民宿、水墨瓷器的墨仙堂等等。這些微型企業都有著相似的特性，他們都有著各自的不同的特色與優勢但卻也有類似的劣勢與問題，因此在設計如以虛擬商城方式串接解決方案之前，我將挑選其中一家深入了解的微企-以庭翊民宿為例，透徹分析微型企業目前現況與面臨之問題，以釐清虛擬商城平臺所需要的功能與方向。

一、 微型企業目前現況分析-以庭翊民宿為例

庭翊民宿起源於曾記梁先生為了完成父親(心願)放棄北部 30 幾年建立的安定生活、夫妻倆帶著老父親回到他建立且熟悉的地方、將這 10 幾年沒人住幾乎荒廢的地方整理一番要陪老父親安享晚年，而當老闆父親過世後，老闆便把古色古香的客家三合院變成民宿。

我在親自訪談後，進行其商業模式分析後，大致了解到民宿目前的營收來源主要為來自付費刊登在booking.com上的年輕族群。目前顧客約 3 天左右一組，外國客並不太多，以年輕人透過網路媒介接觸訂房為大宗。而又以寒暑假及春節為旺季，但因地緣偏僻，附近觀光景點少，除了台東大學圖資館外，景點有待開發，固當東大有活動時，民宿多少會受惠於一些來面試，或洽公的旅客。

老闆除了在booking.com上刊登民宿外，也多方嘗試與附近業者合作諸如台東車站之汽車租賃業，與提供綠島觀光之船票代售。而民宿附近的社區發展不盡理想，故老闆目前積極尋求與東大合作盼能引入地方大學資源，改變原本缺乏社區地方創生與再造的建和里，為地方提供一些活力。

二、 微型企業面臨問題-以庭翊民宿為例

與老闆進行詳細的討論之後歸納出以下主要問題

1. 住房率偏低
2. 市場規模過度膨脹，同業惡性降價競爭
3. 附近產業型態不同，與社區無利基點，旅宿業如同單打獨鬥。
4. 回頭客少，無有效的顧客關係管理方法。
5. 缺乏顧客數據分析的機制。

三、 現狀明確化

綜觀受輔導業者面臨的問題，由於庭翊民宿老闆有很多想法除了提供單純的住宿服務外，還有大碗公飯，等等的特色商業模式。對於擬定輔導方針前，為了目的明確化，釐清那些現況是能改善與界定出與企業優勢和產業吸引力相關的因素。先針對庭翊民宿做了民宿內部-外部矩陣(Internal-External Matrix,IE矩陣) 再對照GE分析矩陣的策略。

對於庭翊外部因素擷取以下主要幾項做為衡量要項

- 1.市場規模
- 2.市場潛力
- 3.市場成長率
- 4.競爭結構
- 5.環境
- 6.技術
- 7.政治經濟

表 2 外部因素

| | 關鍵外部因素 | 權重 | 評分 | 加權分數 |
|----|------------------------|------|----|------|
| 優勢 | 1.庭翊民宿在台東屬於獨一無二的特色客民宿 | 0.20 | 4 | 0.8 |
| | 2.網路行銷的發展促使能輕易觸及到更多顧客群 | 0.10 | 2 | 0.2 |
| | 3.自由行是趨勢 | 0.10 | 4 | 0.4 |
| | 4.小資旅遊流行 | 0.05 | 3 | 0.15 |
| 劣勢 | 1.市場規模過剩 | 0.15 | 1 | 0.15 |
| | 2.競爭結構中不乏一些資金雄厚的飯店業者 | 0.20 | 2 | 0.4 |
| | 3.鄰近業者互相結盟 | 0.10 | 1 | 0.1 |
| | 4.政經環境不利觀光業發展 | 0.10 | 1 | 0.1 |
| 總計 | | 1.0 | | 2.3 |

由於評分範圍是位於 1~4 之間，對於加權分數落在 2.3 是小於平均分數 2.5，其外部優勢是低於平均水準的，而其主要弱點為地緣與政經環境不利等較無力改變之因素。

對於庭翊內部因素擷取以下主要幾項做為衡量要項

- 1.事業單位規模
- 2.相對優勢
- 3.品牌強度
- 4.人力資源
- 5.行銷
- 6.品質

7.學習能力

表 3 內部因素

| | 關鍵內部因素 | 權重 | 評分 | 加權分數 |
|----|------------------------------------|------|----|------|
| 優勢 | 1.提供良好的服務品質，與濃厚的人情味 | 0.10 | 3 | 0.3 |
| | 2.獨特的客家文化，如手作客家花布等手工藝，與古早味的建築，引人入勝 | 0.10 | 3 | 0.3 |
| | 3.獨特優美的田園風光 | 0.05 | 3 | 0.15 |
| | 4.經營多年，網路評價優良 | 0.10 | 3 | 0.3 |
| | 5.老闆對於新事物學習能力與新事物接受度高 | 0.10 | 4 | 0.4 |
| 劣勢 | 1.事業單位規模小 | 0.20 | 1 | 0.2 |
| | 2.外語能力不足 | 0.05 | 1 | 0.05 |
| | 3.缺乏行銷操盤手 | 0.15 | 1 | 0.15 |
| | 4.缺乏資金投入 | 0.15 | 1 | 0.15 |
| 總計 | | 1.0 | | 2.0 |

由於評分範圍是位於 1~4 之間，對於加權分數落在 2.0 是小於平均分數 2.5，其內部優勢是低於平均水準的，而其主要弱點為缺乏資金拓展，缺乏行銷等因素。

分析結果

雖然內外兩項矩陣之評分都是低於平均水準，但對照矩陣庭翊之IEF加權評分為 2.0，EFE加權評分為 2.3，其落點是位在區塊 5，我們以GE分析矩陣各區塊的策略當作此輔導計畫的策略大方向。

表 4 GE 分析矩陣各區塊的策略

| | | 企業優勢 | | |
|-------|---|---|---|---|
| | | 高 | 中 | 低 |
| 產業吸引力 | 高 | <ul style="list-style-type: none"> ● 投資以追求成長 ● 堅守領導地位 ● 多角化 | <ul style="list-style-type: none"> ● 投資以追求成長 ● 重新投入所選擇的區隔 ● 提升市占率 ● 尋找有新吸引力的新市場區隔 | <ul style="list-style-type: none"> ● 保護/重新對焦 ● 選擇性投資以追求盈餘 ● 在有吸引力的區隔重新定位 ● 評估產業重生 |
| | 中 | <ul style="list-style-type: none"> ● 追求成長(投資) ● 建立選擇性優勢 ● 填補弱點 | <ul style="list-style-type: none"> ● 區隔市場 ● 針對弱點擬定應變計畫 | <ul style="list-style-type: none"> ● 收割或撤資 ● 不提出非必要性的承諾 ● 重新定位 |
| | 低 | <ul style="list-style-type: none"> ● 投機:選擇性投資以追求盈餘 ● 跨越市場 ● 尋找利基和專門化 ● 透過收購尋求強化機會 | <ul style="list-style-type: none"> ● 準備收割 ● 採取榨取現金流量之行動 ● 尋找銷售機會 ● 尋找合作機會以提供優勢 | <ul style="list-style-type: none"> ● 收割或撤資 ● 退出市場或縮減 ● 決定能極大化現值的時機 |

四、 方針明確化

(一) SWOT 分析

透過SWOT分析，來使欲改善問題的方針明確化。

表 5 SWOT 分析

| | Strength：優勢 | Weakness：劣勢 |
|----|--|---|
| 內部 | <ul style="list-style-type: none"> ◎ 懷舊風情 ◎ 獨特的客家文化 ◎ 遠離嘈雜都市的優美環境 ◎ 文化內涵 | <ul style="list-style-type: none"> ◎ 不夠精緻化的傳統思維，雖質樸但也略顯粗糙 ◎ 缺乏特點形象的塑造 ◎ 由於地點較偏僻能見度較低 |
| | Opportunity：機會 | Threat：威脅 |
| 外部 | <ul style="list-style-type: none"> ◎ 民宿本身的文化內涵非常充足 ◎ 發展循環經濟模式 ◎ 參與東大樂活平台計畫 <p>1.結合資訊，架設自己的網站，達成虛實整合。</p> <p>2.在平台下使社會企業的理念願景更加提高與落實</p> <p>3.結合更多微型產業的群聚力量互相合作，把真正好的東西推廣出去激發創新，創造新價值。</p> | <ul style="list-style-type: none"> ◎ 缺乏資訊媒體的包裝行銷 ◎ 其他在地民宿走向『合作連鎖』且利用網站及社群建立且『精緻化』他們的形象。 ◎ 傳統文化沒有創新可能無法吸引年輕客群 |

(二) 方針擬定

透過SWOT分析與GE策略定位後，庭翊內部優勢得利於民宿本身的文化內涵非常充足與老闆的擁抱改變，結合外部優勢科技網路的進步、旅遊型態的改變等。

1. 我們的方針針對在地微型產業做客製化網頁設計，除了相較一般套裝模組的網站外，更以RWD網頁呈現。
2. 在系上計劃的平台上串聯其他在地的微型產業。
3. 由於地緣關係，串接附近隱藏景點結合網站規劃觀光地圖補強觀光景點少的弱點。

(三) 實際操作

透過以上方針盼能解決業者的問題

1.住房率偏低:

透過平台建置響應式網站不但能提高搜尋引擎的排名，更對日益龐大的手機平板使用者提供友善美好的瀏覽體驗，並藉由平台的群聚力量互相合作達成共榮共好，吸引人流增加住房率。

2.市場規模過度膨脹，同業惡性降價競爭:

以富有文化內涵的特色客家民宿做為市場區隔，將特色客家手工藝品上架販售，開拓新收入來源，提高競爭力，同時透過平台上的推薦系統與平台定期的數位行銷宣傳擴大觸及瀏覽人群。

3.附近產業型態不同，與社區無利基點，旅宿業如同單打獨鬥:

加入樂活產業創新平台後，善用地方大學資源，未來可以媒合其他專業科系之學生，達成產學合作互惠共好。

4.回頭客少，無有效的顧客關係管理方法:

發展網站會員機制，於節慶時發放折扣優惠訊息等。

5.缺乏顧客數據分析的機制:

(1) 發展網站流量分析

(2) 購物車關聯規則分析

五、 商城系統需求明確化

透過分析微型企業們與擬定數位行銷計畫後，不難發覺，虛擬商城平臺除了基礎的電子商務功能外其他特殊功能性與非功能性需求的輪廓明朗許多。

- (一) 這些微型企業都是以樂活產業微企業願景，因此商城的視覺形象將是以傳達 LOHAS 精神的設計主軸。
- (二) 這些微型企業需要建立品牌形象，故需要一個能保留微型企業讀特特色的形象網站。
- (三) 平台的群聚力量互相合作達成共榮共好，除了聯合商城外，一個實際有效的推薦系統是串聯微型企業商品與服務的要角。
- (四) 在商城上建立會員機制累積顧客數據以利發展改善推薦系統，與後續數位行銷執行與成效評估

肆、個性化推薦系統開發方法

一、 協同過濾演算法[4]

協同過濾主要分為基於商品或是基於用戶。但兩者差異只是在於計算所採用的角度不同，實作方法是相同的。實作方面主要分為三大步驟 1.收集用戶偏好 2. 找到相似的用戶或物品 3. 計算推薦。

收集用戶偏好：偏好的蒐集方式有多種。例如：評分(顯性)、點擊率(隱性)。

找到相似的用戶或物品：

1. 皮爾遜相關係數

用於測量 X, Y 之間的相關，兩個變數的位置和尺度的變化並不會引起該相關係數的改變，因此每個用戶對同商品評分的高低值不會影響相關係數，有影響的是每個用戶的評分分數趨勢，最後公式計算出來後，其值介於-1~1 之間，越接近 1 代表兩個變數越相關，如方程式(4.1)所示。

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2} \sqrt{\sum_{i=1}^n (Y_i - \bar{Y})^2}}$$

2. 餘弦相似性(COS)

將兩個商品的所有評分轉換成向量，未評分的地方寫上 0 畫成座標，通過測量兩個向量的夾角的餘弦值來評估它們的相似性，夾角越趨近於 0 度代表兩向

量越相似，餘弦值也越趨近於 1；夾角越趨近於 90 度代表兩向量完全不相似，餘弦值也越趨近於 0，而夾角越趨近於 180 度代表兩向量完全相反，餘弦值也越趨近於 -1，如方程式(4.4)所示。

$$similarity = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|} = \frac{\sum_{i=1}^n A_i \times B_i}{\sqrt{\sum_{i=1}^n (A_i)^2} \times \sqrt{\sum_{i=1}^n (B_i)^2}}$$

二、 Slope one[5]-更簡潔的協同過濾演算法

基於該用戶過去對某些商品的評分和大量其他用戶的評價構成的資料庫，計算其他用戶對兩個商品評分間的平均差值，透過該用戶對某些相似商品評分，來預測該用戶對未評價商品的評分。由於需要大量的資料才能準確的計算，然而通常用戶的數量都會比商品多很多，因此我們用在用戶的預測較為精準，如方程式(4.2)所示。

$$p^{S1}(u)_j = \bar{u} + \frac{1}{\text{card}(R_j)} \sum_{i \in R_j} dev_{j,i}$$

考慮到不同用戶數量得到的平均值可信度不同，例如 1000 人對商品 A、B 的平均評分差值和 50 人對商品 A、C 的平均評分差值的可信度明顯不同，因此透過加權用戶數量多的平均值來增加預測該用戶對於商品 A 的可信度，如方程式(4.3)所示。

$$p^{WS1}(u)_j = \frac{\sum_{i \in S(u)-\{j\}} (dev_{j,i} + u_i) c_{j,i}}{\sum_{i \in S(u)-\{j\}} c_{j,i}}$$

Slope one 實現簡單而計算成本小，而且其精確度與其它複雜費時的算法相比也不相上下。該系列算法也被用來改進其它算法。

三、 關聯規則[10][11]

衡量指標：

支持度(support)：衡量關聯規則的顯著性

信賴度(confidence)：衡量關聯規則的正確性

增益(lift)：衡量關聯規則的資訊價值

支持度(support)

- 衡量前提項目 X 與結果項目 Y 一起出現的機率，表示該
- 規則在全部交易紀錄中出現的比率
- 表示關聯規則相對於全部資料須具有一定的普遍性
- 最小支持度門檻用於控管關聯規則所必須涵蓋的最少資料比率

$$Support\{X \Rightarrow Y\} = P(X \cap Y)$$

信賴度(confidence)

- 表示規則的正確性的信心程度，在前提項目 X 發生的情況下，結果項目 Y 發生的條件機率，可推得結果項目 Y 的規則之正確性的信心程度

- 信賴度要達到一定水準時，關聯規則才會具有意義
- 最小信賴度門檻主要用於去除信心較低的關聯規則

$$Confidence(X \Rightarrow Y) = P(Y | X) = \frac{P(X \cap Y)}{P(X)}$$

增益(lift)

- 用於比較信賴度與結果項目 Y 單獨發生時兩者機率間的大小，為衡量該關聯規則之有效性，也就是判定該規則的條件機率是否比原本發生的機率大
- 增益值>1，代表此關聯規則的信賴度大於原本結果項目 Y 發生機率，表示該關聯規則的預測結果比原本表現好
- 增益值<1，表示透過關聯規則的預測結果比原本預測能力差

$$Lift(X \Rightarrow Y) = \frac{P(Y | X)}{P(Y)} = \frac{P(X \cap Y)}{P(X)P(Y)}$$

四、 演算法選擇與改善

基於用戶的協同過濾以下簡稱 User CF，基於商品則簡稱 Item CF。User CF 屬於較早提出的傳統協同過濾推薦演算法，Item CF 則是在近十年由 Amazon 提

出的另一種計算模式，兩種頗相似，而差別僅在計算相似鄰居時採用商品本身，而不是以用戶的角度，即是基於用戶對商品的偏好找到相似的商品，然後根據用戶的歷史偏好，推薦相似的商品。

根據 G. Linden ; B. Smith ; J. York-Amazon.com recommendations: item-to-item collaborative filtering Item CF[7]論文中提到，Item CF 是計算物品與物品之間的相似程度，對於一個用戶遠大於商品的電子商務網站，商品的數據成長與變化相對用戶是穩定的，計算商品的相似度不但計算量較小，推薦更新的計算頻率與成本也能降低。

以系統面的多樣性方面，Item CF 擁有較好的長尾物品推薦能力，在推薦的結果中，Item CF 會推薦出該用戶偏好類別中的商品，這就有很大的機率推薦出在電子商務非熱門的長尾商品；反觀 User CF，User CF 也是能推薦出長尾商品，但前提是在計算推薦時有與用戶相似高且足夠數量同樣喜好的鄰居。

以用戶面的多樣性則相反，Item CF 只會推薦用戶過去偏好的商品。而反觀 User CF 會推薦出鄰居偏好的商品，鄰居偏好的商品中就有很大的機率推薦出該用戶沒嘗試過的新穎類別商品。

考慮 G. Linden ; B. Smith ; J. York[7]提到數據過大時即時整表查詢的效率問題。以商城商品變動遠小於會員的情況來看，在個性化推薦採用協同過濾方便離線計算的基於商品的協同過濾為主，並導入加權平均 slope one 演算法 [8][9]、關聯規則，多種演算法的相互組合使推薦系統能在付商城資料庫與不同瀏覽者等多種交互情況下作出相對完善的推薦商品呈現。

五、 推薦系統架構與實作

(一) 服務流程規劃與情境分析

推薦服務流程，如下圖

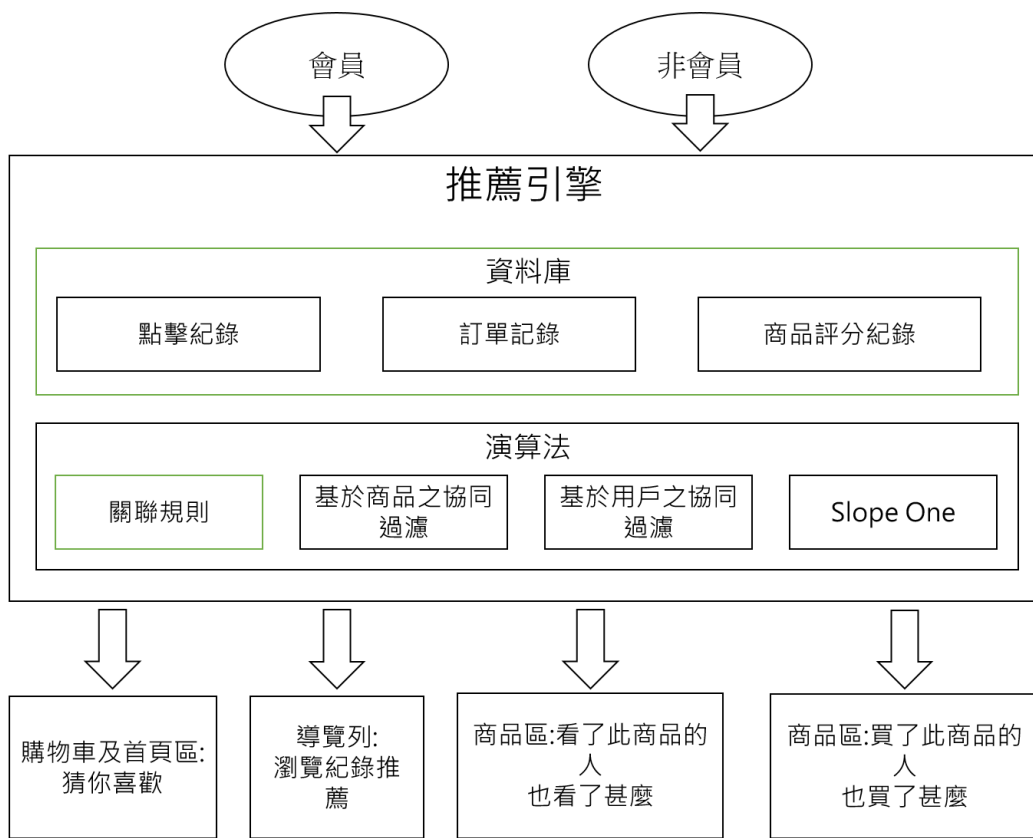


圖 1 推薦

目前商城規劃出四個不同的區塊需要呈現推薦，分別為：

- (1)、 首頁的個性化綜合推薦區塊
- (2)、 導覽列的瀏覽歷史紀錄相關商品推薦

(3)、 商品頁以訂單關聯規則的推薦區塊

(4)、 商品頁以點擊關聯規則的推薦區塊

表 6

| | 資料庫整體用戶評分資料少(A) | 資料庫整體用戶評分資料多(B) |
|--|---|---|
| <p>瀏覽者無評分資料(0)</p> <p>瀏覽者無點擊行為(0)</p> <p><u>瀏覽者為路人或新會員</u></p> | <p><u>(A)(0)(0)路人及新進會員推薦</u></p> <p>瀏覽者喜好判定依據:無法得知，待瀏覽者開始瀏覽</p> <p><u>推薦模式:熱門”點擊”商品</u></p> | <p><u>(B)(0)(0)路人及新進會員推薦</u></p> <p>瀏覽者喜好判定依據:無法得知，待瀏覽者開始瀏覽</p> <p><u>推薦模式:熱門”訂單銷售(評分)”商品</u></p> |
| <p>瀏覽者無評分資料(0)</p> <p>瀏覽者有點擊行為(1)</p> <p><u>瀏覽者為路人或新會員</u></p> | <p><u>(A)(0)(1)路人及新進會員推薦</u></p> <p>瀏覽者喜好判定依據:通過統計瀏覽者的本次登入瀏覽紀錄，取前3多，判定成瀏覽者喜好商品，並以這些商品去進行<u>點擊</u>關聯規則推薦。</p> <p><u>推薦模式:”點擊”的關聯規則</u></p> | <p><u>(B)(0)(1)路人及新進會員推薦</u></p> <p>瀏覽者喜好判定依據:通過統計瀏覽者的本次登入瀏覽紀錄，取前3多，判定成瀏覽者喜好商品，並以這些商品去進行<u>訂單</u>關聯規則推薦。</p> <p><u>推薦模式:”訂單”的關聯規則</u></p> |
| <p>瀏覽者有評分資料(1)</p> <p>瀏覽者無點擊行為(0)</p> <p><u>瀏覽者為會員</u></p> | <p><u>(A)(1)(0)會員推薦</u></p> <p>瀏覽者喜好判定依據:1.通過歷史評分，從還未購買過之商品，預測出可能喜歡的商品。</p> <p><u>推薦模式:</u></p> <p><u>1.評分協同過濾(ITEMBASE)或</u></p> | <p><u>(B)(1)(0)會員推薦</u></p> <p>瀏覽者喜好判定依據:1.通過歷史評分，從還未購買過之商品，預測出可能喜歡的商品。</p> <p><u>推薦模式:</u></p> <p><u>評分協同過濾(ITEMBASE)或</u></p> |

| | | |
|--|---|---|
| | <u>Slope one 後再 ->”點擊”關聯規則。</u> | <u>Slope one 後再->”訂單”關聯規則。</u> |
| <p>瀏覽者有評分資料(1)</p> <p>瀏覽者有點擊行為(1)</p> <p><u>瀏覽者為會員</u></p> | <p>(A)(1)(1)會員推薦</p> <p>瀏覽者喜好判定依據:1.通過歷史評分，從還未購買過之商品，預測出可能喜歡的商品。</p> <p>2.通過統計瀏覽者的本次登入瀏覽紀錄，取前3多</p> <p>推薦模式:</p> <p><u>1.評分協同過濾(ITEMBASE)或 Slope one 後再->”點擊”關聯規則。</u></p> <p><u>2.依瀏覽紀錄->”點擊”關聯規則。</u></p> | <p>(B)(1)(1)會員推薦</p> <p>瀏覽者喜好判定依據:1.通過歷史評分，從還未購買過之商品，預測出可能喜歡的商品。</p> <p>2.通過統計瀏覽者的本次登入瀏覽紀錄，取前3多</p> <p>推薦模式:</p> <p><u>1.評分協同過濾(ITEMBASE)或 Slope one 後再->”訂單”關聯規則。</u></p> <p><u>2.依瀏覽紀錄->”訂單”關聯規則。</u></p> |

(二) 推薦情境相應解決方案

以下對於主要四種，瀏覽者情境，擬出相對的薦組合。

1. 瀏覽者情境(0)(0)

- 瀏覽者無評分資料(0)
- 瀏覽者無點擊行為(0)

- 瀏覽者為路人或新會員

(A) 資料庫整體用戶評分資料少

由於瀏覽者無評分資料，瀏覽者可能為路人或新會員，而瀏覽者又無點擊行為，故其喜好推薦系統是無法得知的，待瀏覽者開始瀏覽後方能開始推薦。資料庫整體用戶評分資料少，以動態點擊率的資料累積速度是較評分與訂單多，故以點擊紀錄當作計算來源。所以在此情況下推薦系統的推薦模式為：

首頁的綜合推薦區塊：

呈現熱門” 點擊” 商品

導覽列的瀏覽歷史紀錄相關商品推薦：

呈現瀏覽歷史紀錄的高關聯規則商品，這裡以容易收集的點擊規則進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊：

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊：

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

(B) 資料庫整體用戶評分資料多

資料庫整體用戶評分資料多，就能以較為準確的熱銷紀錄當作計算來源。所以在此情況下推薦系統的推薦模式為：

首頁的綜合推薦區塊：

呈現熱門”銷售”商品

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品，這裡以訂單規則進行計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

2. 瀏覽者情境(0)(1)

- 瀏覽者無評分資料(0)
- 瀏覽者有點擊行為(1)
- 瀏覽者為路人或新會員

(A)資料庫整體用戶評分資料少

由於瀏覽者無評分資料，瀏覽者可能為路人或新會員，但瀏覽者有了點擊行為，其喜好推薦系統將統計瀏覽者的本次登入瀏覽紀錄，以前3多，認定成瀏覽者喜好商品，並以這些商品去進行點擊關聯規則推薦(以動態點擊率的資料累積速度是較評分與訂單多，故以點擊紀錄當作計算來源)。所以在此情況下推薦系統的推薦模式為:

首頁的綜合推薦區塊:

呈現瀏覽者的本次登入瀏覽紀錄，瀏覽前 3 多商品之“點擊”的關聯規則。

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品，以容易收集的點擊規則進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

(B)資料庫整體用戶評分資料多

由於瀏覽者無評分資料，瀏覽者可能為路人或新會員，但瀏覽者有了點擊行為，其喜好推薦系統將統計瀏覽者的本次登入瀏覽紀錄，以前 3 多，認定成瀏覽者喜好商品，並以這些商品去進行銷售關聯規則推薦(資料庫整體用戶評分資料多，就能以較為準確的熱銷紀錄)。所以在此情況下推薦系統的推薦模式為:

首頁的綜合推薦區塊:

呈現瀏覽者的本次登入瀏覽紀錄，瀏覽前 3 多商品之“點擊”的關聯規則。

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品，以訂單進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

3. 瀏覽者情境(1)(0)

- 瀏覽者有評分資料(1)
- 瀏覽者無點擊行為(0)
- 瀏覽者為會員

(A)資料庫整體用戶評分資料少

由於瀏覽者有評分資料，瀏覽者為會員，但瀏覽者無點擊行為，其喜好推薦系統將找出過去的評分喜好，並以這些商品去進行基於商品的協同過濾預測與點擊關聯規則推薦(以動態點擊率的資料累積速度是較評分與訂單多，故以點擊紀錄當作計算來源)。所以在此情況下推薦系統的推薦模式為:

首頁的綜合推薦區塊:

推薦系統將找出過去的評分喜好，並以這些商品去進行基於商品的協同過濾預測與點擊關聯規則推薦

1. 點擊關聯規則:

呈現與喜好商品一定支持度下高置信度的**點擊關聯規則**商品

2. 評分協同過濾:

評分的標準可分為五個級距:

- 力推:五分
- 推薦:四分
- 普通:三分
- 不喜歡:二分
- 極度討厭:一分

若會員已評價數量至少兩個,且有至少一項評分大於等於評分三分(普通)

基於商品的協同過濾:從歷史評分找出其最高前兩者,分別從還未購買過之商品比對商品間的相似度,相似度高則推薦。

若會員評價數量只有一個:

則分別從還未購買過之商品以 SLOPE ONE 計算預測值,預測評分大於三分,則將其推薦出去。

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品,以容易收集的點擊規則進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的**訂單關聯規則**商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的**點擊關聯規則**商品。

(B) 資料庫整體用戶評分資料多

資料庫整體用戶評分資料多，就能以較為準確的熱銷紀錄當作計算來源。
所以在此情況下推薦系統的推薦模式為：

首頁的綜合推薦區塊：

1. 訂單關聯規則：

呈現與喜好商品一定支持度下高置信度的**訂單關聯規則**商品

2. 評分協同過濾：

評分的標準可分為五個級距：

- 力推:五分
- 推薦:四分
- 普通:三分
- 不喜歡:二分
- 極度討厭:一分

若會員已評價數量至少兩個，且有至少一項評分大於等於評分三分(普通)

基於商品的協同過濾:從歷史評分找出其最高前兩者，分別從還未購買過之商品比對商品間的相似度，相似度高則推薦。

若會員評價數量只有一個：

則分別從還未購買過之商品以 SLOPE ONE 計算預測值，預測評分大於三分，則將其推薦出去。

導覽列的瀏覽歷史紀錄相關商品推薦：

呈現瀏覽歷史紀錄的高關聯規則商品，以**訂單規則**進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

4. 瀏覽者情境(1)(1)

- 瀏覽者有評分資料(1)
- 瀏覽者無點擊行為(1)
- 瀏覽者為會員

(A)資料庫整體用戶評分資料少

由於瀏覽者有評分資料，瀏覽者為會員，瀏覽者也有了點擊行為，系統同時假設瀏覽者的喜好是會改變的。推薦系統將統計瀏覽者的本次登入瀏覽紀錄，以前3多，認定成瀏覽者喜好商品，並以這些商品去進行點擊關聯規則推薦(以動態點擊率的資料累積速度是較評分與訂單多，故以點擊紀錄當作計算來源)。但對於過去的評分喜好更是一份重要的依據，所以在此情況下推薦系統的推薦模式為:

首頁的綜合推薦區塊:

此區塊主要為個性化的綜合推薦區塊，以抓取瀏覽者喜好為主。推薦模式以評分協同過濾與點擊關聯規則並行

1. 點擊關聯規則:

由於資料庫資料少則以瀏覽者的本次登入瀏覽紀錄，瀏覽前 3 多商品之” 點擊” 的關聯規則。

2. 評分協同過濾:

評分的標準可分為五個級距:

- 力推:五分
- 推薦:四分
- 普通:三分
- 不喜歡:二分
- 極度討厭:一分

若會員已評價數量至少兩個，且有至少一項評分大於等於評分三分(普通)

基於商品的協同過濾:從歷史評分找出其最高前兩者，分別從還未購買過之商品比對商品間的相似度，相似度高則推薦。

若會員評價數量只有一個:

則分別從還未購買過之商品以 SLOPE ONE 計算預測值，預測評分大於三分，則將其推薦出去。

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品，以容易收集的點擊規則進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

(B)資料庫整體用戶評分資料多

由於瀏覽者有評分資料，瀏覽者為會員，瀏覽者也有了點擊行為，系統同時假設瀏覽者的喜好是會改變的。推薦系統將統計瀏覽者的本次登入瀏覽紀錄，以前3多，認定成瀏覽者喜好商品，並以這些商品去進行訂單關聯規則推薦(資料庫整體用戶評分資料多，就能以較為準確的熱銷紀錄當作計算來源)。但對於過去的評分喜好更是一份重要的依據，所以在此情況下推薦系統的推薦模式為：

首頁的綜合推薦區塊：

此區塊主要為個性化的綜合推薦區塊，以抓取瀏覽者喜好為主。推薦模式以評分協同過濾與訂單關聯規則並行

1.點擊關聯規則：

由於資料庫資料少則以瀏覽者的本次登入瀏覽紀錄，瀏覽前3多商品之訂單關聯規則。

2. 評分協同過濾：

評分的標準可分為五個級距：

- 力推:五分
- 推薦:四分
- 普通:三分
- 不喜歡:二分
- 極度討厭:一分

若會員已評價數量至少兩個，且有至少一項評分大於等於評分三分(普通)

基於商品的協同過濾:從歷史評分找出其最高前兩者，分別從還未購買過之商品比對商品間的相似度，相似度高則推薦。

若會員評價數量只有一個:

則分別從還未購買過之商品以 SLOPE ONE 計算預測值，預測評分大於三分，則將其推薦出去。

導覽列的瀏覽歷史紀錄相關商品推薦:

呈現瀏覽歷史紀錄的高關聯規則商品，以訂單規則進行關聯規則的計算。

商品頁以訂單關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的訂單關聯規則商品。

商品頁以點擊關聯規則的推薦區塊:

呈現瀏覽商品一定支持度下高置信度的點擊關聯規則商品。

伍、展示與評估

電子商務演化如圖 2 所示[]。

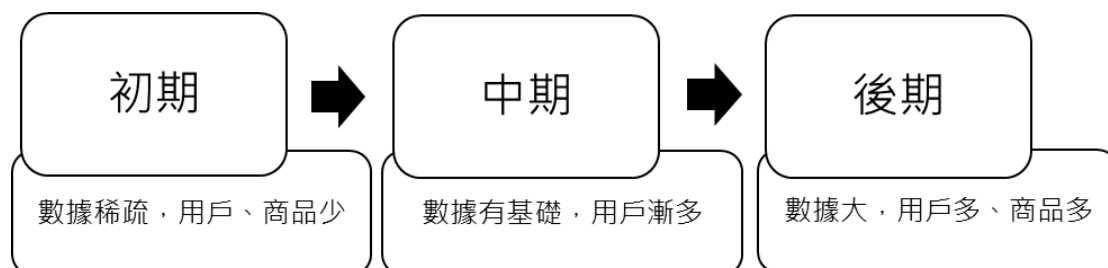


圖 2 電子商務演化(本研究整理)

電子商務初期：數據稀疏，用戶、商品少。先為所有用戶的評價空值填入 Slope one 值預測值後再進行協同過濾的計算，而關聯規則以點擊率為資料來源。

電子商務中期：數據有基礎，用戶漸多。以原商品評分陣列預測法 - 先為所有用戶的評價空值填入填入加權 Slope one 值後進行預測的推薦流程而關聯規則以訂單為資料來源。

電子商務後期：數據大，用戶多、商品多，電子商務後期資料逐漸肥大，線下計算不可避免，但應考慮到即時計算的需求，如何犧牲合理推薦品質換來更好的推薦轉換率是值得思考的問題。

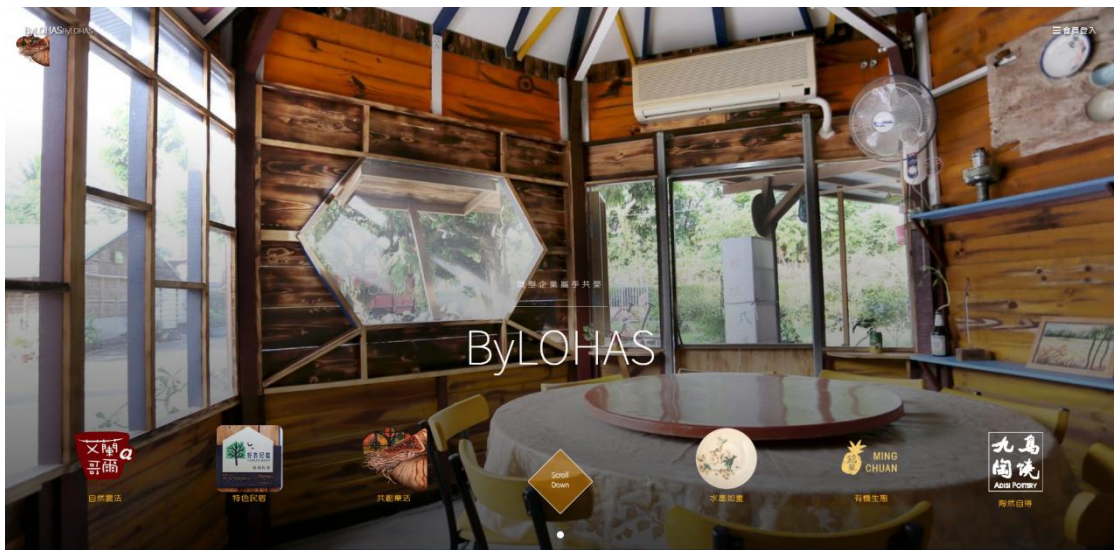


圖 4 視覺化首頁

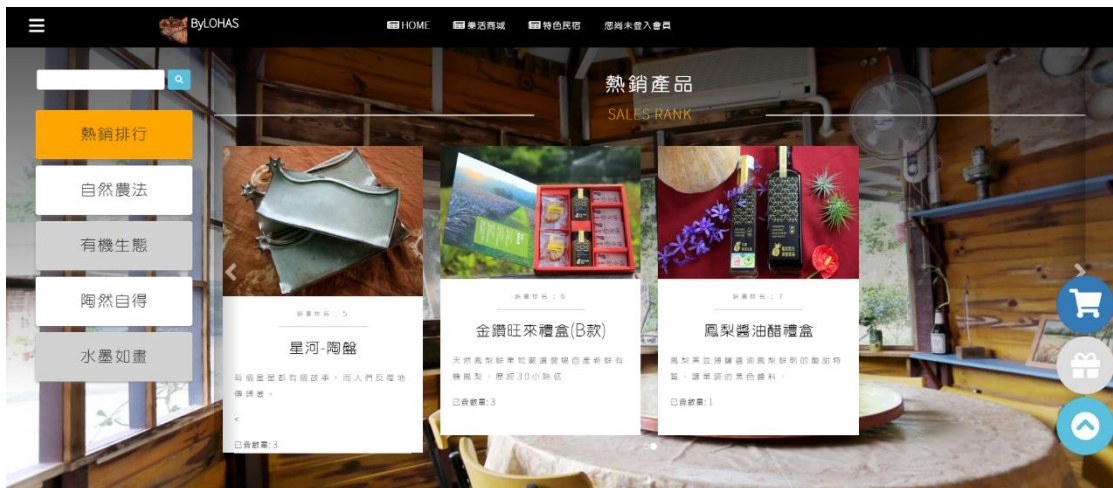


圖 3 視覺化首頁

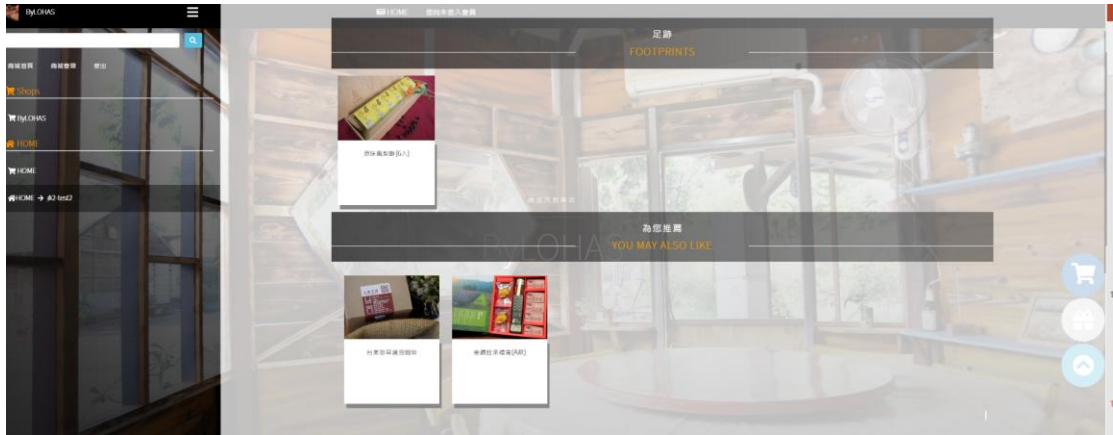


圖 5 推薦呈現

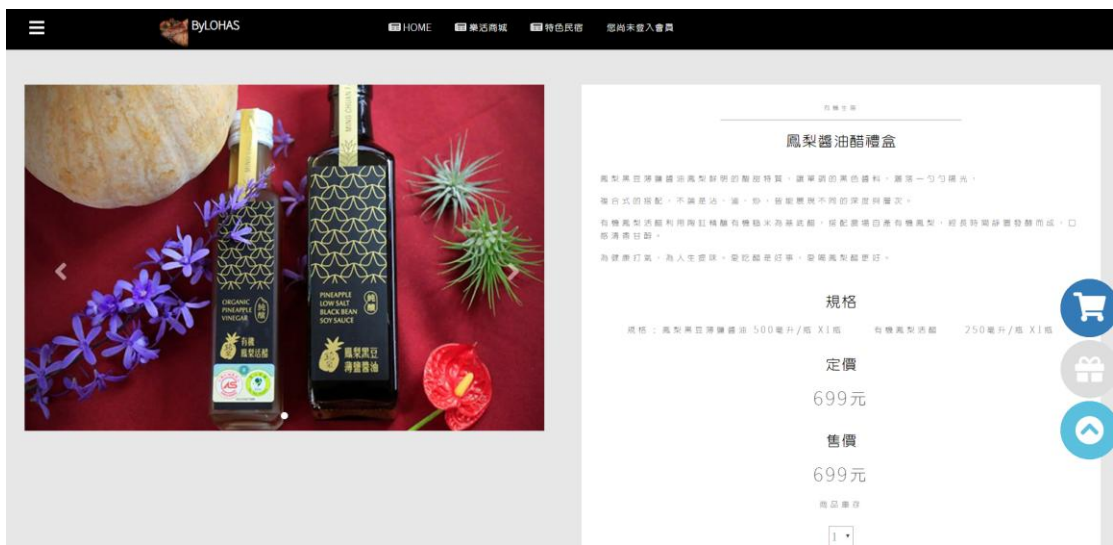


圖 6 商品頁面


```

class cf_slope_one_model_view{
private $total_product; //取得所有商品陣列變數 ok
private $user_array; //統計用戶樣本總數
private $user_num; //統計用戶樣本總數

private $array; //隨機商品product_id對應的陣列
private $array2; //隨機商品score對應的陣列

public $popularity; //還未購買商品array (query var)
private $predict_product_id; //還未購買商品array
private $product_num; //商品總數

private $Avg_difference; //存平均差值 與權重 array
public $final_slope_one;

/*建椅子*/
/*想法: 從目前會員中找到為購買之商品後, 把其為購買商品評分以加權slope_one演算法填補起來, 存入slope 預測清單資料表*/
/*作法:1.此類別須執行整表查詢, 如同關聯規則, 是由系統管理員執行*/
/*作法:2.查詢評價整表*/
/*作法:2.查詢評價整表*/
function cf_slope_one_start($target_user){
try{
if( $this->get_row("SELECT * FROM `main` where `user` ='{$target_user}'")>0){
//評分表main不得為0

//1.必要前置變數 取得所有商品陣列變數
$this->total_product = $this->get_total_product_table();
//2.必要前置變數 統計用戶樣本總數
$this->user_array = $this->get_random_user_table($target_user,300); //先進行查表 看有多少用戶
$this->user_num = count($this->user_array); //2.必要前置變數 統計用戶樣本總數

//推薦陣列
/**/
$this->array2 = $this->get_array($target_user); //隨機商品score對應的陣列
// $this->array = $array; //隨機商品product_id對應的陣列
// $this->array2 = $array2;

//還未購買商品array
$this->popularity = 0;
$this->predict_product_id = $this->recommend_product_id($target_user , $this->popularity); //ok

//確認計算需求:此會員有評分空值
if(!empty($this->predict_product_id) ){
//商品總數變數
$this->product_num= count($this->array2[0])-1;

$this->start_slope_one($this->predict_product_id);
}
}
}
}

```

圖 9 加權 Slope One 類別

```

class cf_main_final_release{
private $total_product; //取得所有商品陣列變數 ok
private $user_array; //統計用戶樣本總數 ok
private $user_num; //統計用戶樣本總數 ok

private $array; //隨機商品product_id對應的陣列
private $array2; //隨機商品score對應的陣列

public $popularity; //還未購買商品array ok
private $goods;

private $all_user;
private $all_goods;
private $cos;
private $neighbour_set2;

public $neighbour_num=0; //預設排3人比較
private $pred_array_col;

function cf_main_final_release(){
try{
if( $this->get_row("SELECT * FROM `main` where `user` ='{$SESSION['valid_user']}'")>0){
//取得所有商品陣列變數
$this->total_product = $this->get_total_product_table();
//統計用戶樣本總數
$this->user_array = $this->get_total_user_table($SESSION['valid_user']); // $SESSION['valid_user'] 使用者
$this->user_num = count($this->user_array);

//推薦陣列
$this->array2 = $this->get_array(); //隨機商品score對應的陣列
// $this->array = $array; //隨機商品product_id對應的陣列
//

//還未購買商品array
$this->popularity = 0;
$this->goods = $this->recommend_usergoods($SESSION['valid_user'] , $this->popularity); //ok

// $this->neighbour_num = $this->get_neighbour_num();

$this->all_goods= count($this->array2[0])-1;
$this->cos=$this->get_cos_array($this->user_num,$this->all_goods, $this->array2);
$this->neighbour_set2=$this->get_neighbour_set2($this->user_num, $this->all_goods, $this->array2, $this->cos, $this->neighbour_num);
$this->pred_array_col=$this->get_pred_array_col($this->user_num, $this->all_goods, $this->cos, $this->neighbour_num, $this->neighbour_set2, $this->goods, $this->array);
}
}
}

```

圖 10 協同過濾類別

陸、討論與結論

由於時間有限，商城累積的資料量(訂單)不足以達成良好的推薦效果，請系上同學在模擬送禮情境下，於商城網站上進行瀏覽、與模擬訂購，經過了為期三天的蒐集，以下討論與評估將以點擊關聯資料來源為主的 A(01)(0)、 A(0)(1)這些情況進行討論。

表 7 系統點擊規則紀錄

| | 有效點擊 | 商品涵蓋數量 | 系統分析耗時 |
|-------|------|---------|--------|
| 第一次分析 | 33筆 | 37筆不同商品 | 31秒 |
| 第二次分析 | 52筆 | 43筆不同商品 | 43秒 |
| 第三次分析 | 66筆 | 43筆不同商品 | 1分03秒 |

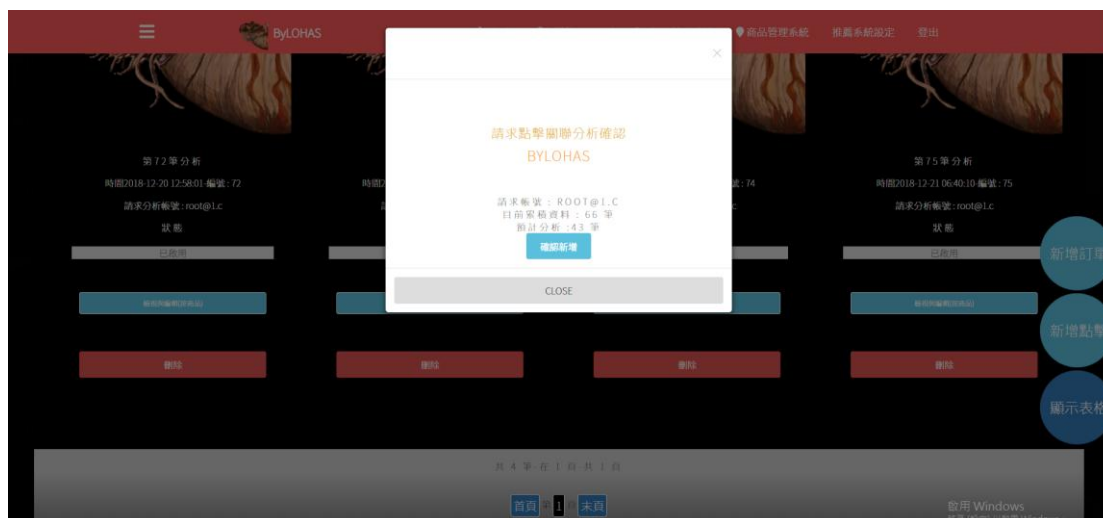


圖 11 系統後台

(一) 推薦服務流程中何時該啟動線下計算

系統於每天結算一次該日的點擊紀錄，並於第三次結算後累積出 1048 筆關聯規則後，進行第二次的測試。測試情境如下「今天假設要在商城上進行送禮購物，請測試者隨意瀏覽網站，對於推薦的商品是感到新鮮喜愛，就進行點擊商品頁面後加入購物車」，結果如圖表 6-3。

表 8 系統推薦結果紀錄

| 點擊編號 | 瀏覽者身分 | 執行推薦次數 | 總成功次數 | 推薦區塊1 | 推薦區塊2 | 推薦區塊3 | 成功率 |
|------------|-------|--------|-------|-------|-------|-------|------|
| 33F6B64251 | 會員 | 9 | 4 | 成功次數2 | 成功次數1 | 成功次數1 | 0.44 |
| F922C6D42B | 非會員 | 8 | 6 | 成功次數4 | 0 | 成功次數2 | 0.75 |

| | | | | | | | |
|------------|-----|---|---|-------|-------|-------|------|
| C4E614E2B5 | 會員 | 3 | 1 | 成功次數1 | 0 | 0 | 0.33 |
| 62A1EDA5BC | 非會員 | 3 | 2 | 成功次數1 | 成功次數1 | 0 | 0.66 |
| AB556EAADA | 非會員 | 5 | 3 | 成功次數1 | 成功次數1 | 成功次數1 | 0.60 |
| 1AF1DBAAB7 | 非會員 | 7 | 5 | 成功次數5 | 0 | 0 | 0.71 |
| EDBAA4B757 | 非會員 | 5 | 2 | 成功次數1 | 成功次數1 | 0 | 0.40 |
| A4225B47F5 | 會員 | 4 | 3 | 成功次數1 | 成功次數2 | 0 | 0.75 |

由測試結果可知，點擊的關聯規則，對於初期沒有太多評分資料的推薦系統是有幫助的，藉由去除最小支持度，僅以支持度排序與最小置信度的點擊關聯規則並導入 Slope One 的協同過濾的混合推薦系統，一定程度上維持了不錯的推薦能力，更串聯了不同商家，達成微企共好共榮的目標。然而面對資料的持續增長，如圖表. 6-1 第三次產生 1048 筆點擊規則時，系統的回應時間就長達 1 分鐘，由此可知離線計算是無法避免的，也是獲得更高準確度的辦法。

在實作的過程中，沒有一套公式或流程是萬用解法，基於用戶，基於物品的協同過濾，關聯規則，並沒有誰孰誰劣，互相有一定程度的互補性，分別適合不同場域的推薦。視環境情況，利用不同演算法的優勢，互相補足搭配才能找到相對於統計熱銷排行較智能的智慧推薦。

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捌、

透過顧客的喜好，進行更精準正確的行銷，讓網路購物達到更高的效益，儘管系統目前仍未完全成熟，仍有許多須修正及改進的地方，但憑藉著當前的雛型及日後的研究，我們有自信能讓整個系統更臻完美，朝更廣闊的方向發展。

國立臺東大學執行教育部 107 年高教深耕計畫

B-2 打造綠色國際大學

綠色知識經濟創新報告書

議題 B2：透過社群媒體行銷活動強化顧客
資產--以陶藝微型產業為例

ENHANCING CUSTOMER EQUITY THROUGH
SOCIAL MEDIA MARKETING ACTIVITIES: A
CASE STUDY OF POTTERY MICRO-ENTERPRISE

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中華民國 107 年 11 月

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Abstract

In the context of revolutionary technology 4.0 is happening in the world, information technology is the "key" of change, which leverages Taiwan to develop in many aspects. Nowadays companies are more than ever facing the challenge of using the variety of available communication channels as effectively and efficiently as possible – especially when looking at social media.

Social media has revolutionised the way brands and consumers interact: from a monologue to creating active conversations and engagement through a variety of platforms.

Social media marketing is the perfect intersection between the needs of customers and the business goals of the brand. Understanding the needs of consumers, understanding the topics they are interested in, their online community is at the heart of the success of social media marketing.

In terms of a pottery micro-enterprise, it's a traditional business, so the value they choose here is not about the revenue or profit, but the meaning behind every product they make.

The aim of this paper is to discuss how to enhance the loyalty of customer when there is an impact of marketing on the product. This reflects the percentage of effective use of these marketing methods.

The research also focused on establishing if social media marketing positively influences the relationships between self-brands congruency, intimacy and trust.

Keywords: Social media, Pottery Micro-Enterprise, Facebook, Advertising

Chapter 1: Introduction

1.1. Background

More than 70 years ago, since the advent of modern advertising, people in the industry have recognized that advertising is a direct reflection of contemporary society. A publication by the US advertising agency NWAyer & Sons in 1926 writes: “Everyday the picture of the times in which we are living is recorded vividly and fully in newspaper ads and magazines”. Now with only a modem connection, we can see that picture right on our computer screen.

The Internet has become an important part of advertisers' media mix. Sensitive traders have found the Internet to be more than just a regular information network. It is a global marketplace and with the day-to-day development of the Internet, knowledgeable marketers are turning this new technology into their advantage. Online advertising is growing at a rapid rate in the world, more than 100% per year, benefiting both advertisers and advertisements. The number of businesses involved in online advertising is also increasing rapidly. As of March 2017, there are 3.74 billion internet users in the world, this number in 2016 is 3.26 billion users.

Among the continents, Asia is home to the most internet users in the world. In fact, the number and percentage of internet users in Asia are growing constantly compared to 2016. The number of accounts in Asia now account for about 50.1% or more than half of the total number of worldwide internet users. Followed by Europe is 17% of the total number of users. More than 1.15 billion Facebook users, 72% of Internet users join the social network. In particular, the proportion of social network users in the age group of 18-29 reaches 89%, and at the age of 30-49 is 72% have some say about the influence of social networking with the current youth.

The wide, varied and complex social network is also where each of its followers can use to find out what suits their interests, abilities, thoughts and actions. It's clear that social networking has a lot to offer, that is, sharing the community, being able to entertain anywhere, easily update information. And most young people now have facebook accounts, with up to 2-

3 accounts. Many young people share that facebook is a part of their lives, sometimes both positive and negative.

1.2. Motivation

Not only known for its natural beauty, Taiwan is also known as the "Asian dragon", with the Taiwanese economy growing to the highest level in Asia, attracting many of its labor force countries in the region to work hard to work here. In addition to the strong development of agro-forestry-fisheries based mainly on abundant natural resources, Taiwan has also rapidly developed in the fields of trade, technology and modern electronics.

Taiwan's technology sector has grown rapidly, confirming its position in the world. In 2013, UMA is the third largest semiconductor company with 10% market share. The world's leading semiconductor company in 2013 is also Taiwan's TSMC, another company founded by investment and research agencies set up by the Taiwanese government.

Taiwanese enterprises are not out of this trend. With the emergence and development of e-commerce, Internet advertising has also begun to emerge in Taiwan. Taiwanese businesses are beginning to discover the power of online advertising and it has proven to be a great success, especially in helping Taiwanese businesses gain their presence in worldwide market. However, as with e-commerce, Internet advertising is limited to micro-enterprises.

The influence of the use of Social Networking Sites on people's behavior has recently become more visible than before. Since its inception, social media marketing has gained a lot of attention and interest from those who know and work in the field of marketing. The fact remains that many controversies still surrounds the emergence of this type of marketing in recent years. Many old-fashioned marketing experts argue that social media marketing is just a tentative trend, but it's also likely to collapse early on with the current social networking or network share trends, which is the main tool of this kind of marketing. At the same time, these experts also believe that social media marketing is not as cheap as many people think, due to the effort to regularly update information and customer care on social networks is very great.

In order to differentiate among competitors, brands need to break the mould to escape out of the vicious cycle of competitive benchmarking and imitation (Chan and

Mauborgne, 2003). This is where social media comes into the marketing mix. (*Marketing mix is a collection of marketing tools used by businesses to achieve marketing objectives in the marketplace. The term was first used in 1953 by Neil Borden, president of the American Marketing Association, taking the formula one step further and setting up the term marketing mix. A well-known marketer, E. Jerome McCarthy, proposed a 4P classification in 1960, which has now been widely used. Marketing mix is classified according to the 4P model, including: Product, Price, Place, Promotion used in the marketing of goods.*)

Social media has existed since the development of the World Wide Web in different forms such as newsgroups but only early adopters of technology adoption lifecycle used it (Ryan and Jones, 2009) to allow the exchange of content (Kaplan and Haelein, 2010). As the interfaces have been simplified, social media crossed the chasm to the mainstream markets. Thus, social media creates both an opportunity and a huge challenge. The key role in building and developing relationships with consumers across different social media platforms is communication—engaging, entertaining and triggering responses from consumers.

1.3. Objective

Every country has its own famous traditional industries, and in Taiwan too. In addition to the land of technology, Taiwan is also known for its traditional pottery village. Pottery products and handicraft products are often of long-standing origin, being preserved by people from one generation to the next.

九鳥陶燒 is as a symbol of the beautiful traditional trade of Taitung, Taiwan. For people who lives in Taitung, this place is not only a traditional location, but also an attractive place to learn about pottery, a long-standing art craft, as well as to know. The process of making a ceramic work takes much effort and time.

Pottery artists are not like a living body, a miniature universe in which the harmonious combination of the five elements are metal, wood, water, fire and earth. The development of the profession is seen as the eloquence of the Five Elements, which is the flow of the Five Elements in the process of creative work with strictly technical procedures.

The main research objective is to investigate how traditional pottery micro-enterprise use social media, particularly creating their own website, Facebook, e.g., in order to develop customer relationships and thus analyze customers' behavior with the products. On the use of advertising on Facebook, here are the benefits that micro-enterprise A will achieve:

- Reduce costs: Because of advertising by facebook, 九鳥陶燒 can target the right audience they want to market their product or service, this helps them reduce the cost of advertising on facebook as much as possible, and helps limit the customers whom do not have demand for products and services that they are providing

- Besides, 九鳥陶燒 will have the opportunity to reach more diverse customers, not only Taiwanese people but also customers from other countries in the world. And the cost that 九鳥 spent on running ads on facebook is negligible.

In addition, thanks to the Google Analytics (GA) tool as well as Facebook Pixel, I believe they will help 九鳥陶燒 have a holistic, more general view of customer behavior, will know the wishes that customers target and implement what acts on the website, whereby 九鳥

陶燒 will change every day, develop website in the direction not to lose ‘the soul’ of the pottery that just keep up with the trend of the world.

With the desire to promote marketing on FB, website, I fully believe that the revenue of 九鳥陶燒 will grow 5% to 10%, and the more 20% is the number of people are inspired. I am hoping that among these 20%, young people will outgrow.

1.4. Outline of the thesis

Today, referring to social media marketing, people will immediately think of large-scale promotions, marketing, product launches, events, and large companies. If so, are smaller companies, along with their traditional, historical and ethnic products, more likely to compete in the current IT environment?

What belongs to the old traditional value should be handed down, always mentioned every day because it is the core of a country. So letting young people know more about the things of the older generation, we should use the tools of the younger generation to talk about, which is an approach modern and pure way.

In this thesis, I want to divide into 5 parts

- Chapter 1: Introduction
- Chapter 2: Literature Review
- Chapter 3: Research Method
- Chapter 4: Design and Development Framework
- Chapter 5: Results and Discussion
- Chapter 6: Conclusion

CHAPTER 2: LITERATURE REVIEW

2.1. 九鳥陶燒

九鳥陶燒 was established in 2002 by the Paiwan (排灣) ceramics artist. It is located in the New Banyan (新班鳩) Village of Chulu, Taitung. Art teacher of enterprise A has been working along the way for nearly 20 years. The starting point for creation is to find the roots of the traditional culture of Paiwan people and hope that through the power of art, the voice and channels of the aboriginal people will be created. He has used all kinds of pottery tools in his studio. Different kiln styles show their unique works. It is like the creative belief that he upholds. The fun of different cultures and art cultures excites a brilliant and diverse art.

The quiet pottery burning studio is actually a well-prepared pottery cultural park. Besides the working area, there is Balaam ruins (巴蘭遺址). Teacher of 九鳥陶燒 holds artistic heritage, exchanges, and excavations. The idea of sparks, holding pottery teaching camps, guided tours from pottery culture to pottery courses, DIY experiences, ecological tour of Balaam ruins, etc., not only provide opportunities for artists to study and refine, but also open up the creation for the general public. In the serpentine Chulu Mountain, we can smell the phenanthrenes, and admire the exquisite Paiwan traditional clay pots, the simple cups of the chiefs, and the names of the deer and name card holders such as Chulu and Luye as inspirations. The artistic energy exhibited by the bird pot is absolutely amazing.

In the past few years, 九鳥 have actively developed 九鳥陶燒 brand products "The Story Series Cup". With ceramics DIY experience activities, continuous efforts in the practice of ceramic art and culture.

2.2. Web 3.0

Web 3.0, also known as the Semantic Web, is defined by the World Wide Web Consortium (W3C) to identify a new generation of web sites with unique, more modern features that focus on the use of formatting data and common protocols so that every website, every online service can communicate with each other quickly, conveniently and easily. Previously, we had the concept of web 1.0 and 2.0:

Web 1.0 is essentially a simple, structured web-based class that interacts with a low number of users and data, providing almost one-way content. However, this is the first generation of the mass Internet and opens many changes to the IT world.

Web 2.0 is the boom of social networking sites, online media, and forums, big forums that link and help users interact with each other. The content can be uploaded by users and often incorporates more modern technologies to make the process of using and browsing the web rich, diverse and easier.

Thus, with the more advanced concept of the present time is web 3.0, the disadvantages, inconvenience exists in web 1.0, web 2.0 will be overcome, and web 3.0 will include technologies that provide new way of helping computers organize themselves and draw conclusions from online data. Therefore, the name Semantic Web was born as a specific definition for this type of web.

2.2.1. Benefits of web 3.0

High data sharing capabilities: When transferring data from one web page or another, developers do not need to spend too much time writing tools to read data, they just need to notify the other party. They know what they send data to and the other writes the software to read the right things.

Synchronization: One of the gadgets of web 3.0 recently shown is that you can log in with Facebook, Google account when accessing a website or application. The news app can query weather data from Yahoo easily, without the need to manually find or collect complex data. Dropbox can be integrated quickly with Microsoft Office.

Accurate search results: The Web 3.0 information exchange also makes finding information on the Internet easier, more efficient and returning the correct information related to the keywords are being searched. This is because websites use data in standard format, and search engines like Google Search, Bing Search and Yahoo Search just read that data for analysis and memory, without having to go through complex HTML files that not as structured as before.

2.2.2. Its challenges

Although there are many advantages, but the generation of Web 3.0 also face many challenges, risks need to overcome, heading to an advanced-civilized technology background in the future. Overcoming these challenges, Web 3.0 will definitely be a product, an indispensable tool and means for any Internet user.

- **Massive Data:** The World Wide Web now has billions of web pages, each with a different amount of data. Therefore, automatic systems need to be redesigned to handle large amounts of input data. Duplicate data is also a problem that Web 3.0 faces and needs a solution.
- **Unclear data:** Some keyword synonyms or unclear data on the Internet nowadays also lead to inability to process and render inaccurate search results.
- **Security:** When data is easily shared with large volumes, it also carries a high risk of security, confidentiality. However, this problem is considered to be overcome by new security technologies.

2.3. 4th Revolution (Web 4.0/ Revolution 4.0)

The term Revolution 4.0 is derived from the "Industrie 4.0" concept in a German government report in 2013. "Industrie 4.0" connects embedded systems and intelligent manufacturing facilities to create digital convergence between industry, business, function and internal process. But understanding of Revolution 4.0 is not yet clearly defined. "The first industrial revolution was using water and steam energy to mechanize production. Applying electricity to mass production, the 3rd revolution uses electronics and information technology to automate production. Now, the 4th Industrial Revolution is flourishing from the 3rd ones, it combines the technologies together, blurring the boundaries between physics, digital and biology." (Klaus Schwab, 2016). According to experts, Revolution 4.0 will take place on 3 main areas including Biotechnology, Digital and Physics. The core elements of Revolution 4.0 will be: Artificial Intelligence (AI), Internet of Things (IoT) and Big Data. In the field of biotechnology, Revolution 4.0 focuses on research to create leaps and bounds in Agriculture, Fisheries, Medicine, Food Processing, Environmental Protection, Renewable Energy,

Chemistry and Material. Finally, the field of physics with new robots, 3D printers, self-driving cars, new materials (graphene, skyrmions, etc.) and nanotechnology.

If Revolution 4.0 is quickly followed by automation, robotization of production processes, workers will get more rest. For example, a production line in the past had to be 50 employees, if using digital technology, automatic and using robots instead of workers, it would be necessary to just 2-3 people to control the chain. In addition, the working time will be shortened. However, the downside of Revolution 4.0 is that it can cause inequality. Especially can break the labor market. When automation replaces manual labor in the economy, when robots replace people in many areas, millions of workers around the world may fall into unemployment.

The world has experienced three Industrial Revolution and now is the fourth, according to the source of history, each revolution contributes to increasing labor productivity, making more material goods for the community as well as utility for human. And workers themselves have to adjust to the new situation. Looking back 3 Industrial Revolution has passed, no revolution has disrupted the labor market in the extreme direction, that labor will be much unemployed. Therefore, with the wave of the 4.0 Revolution we have the right to believe that the labor market will be restructured.

Table 1 Four Revolutions of World



| 1 st | 2 nd | 3 rd | 4 th |
|---|--|---|--|
| The introduction with steam and water power | Mass production using electrical power | Automatically production using IT systems, electronics. | The smart production using Big data analysis, breakthroughs from IoT and cloud |

| | | | |
|--|--|--|------------|
| | | | technology |
|--|--|--|------------|

(Source: Klaus Schwab, 2016)

2.4. AIDA Marketing Model

In the 90s of 19th century, marketing and advertising researchers were struggling to stimulate consumer demand for more goods and services from customers. They realized that a process of impact on consumer psychology was needed to make sales more effective. They found that differences in age, education, gender, consumer preferences, and many other factors influenced the purchase behavior. An urgent task that needs to be done is to analyze how consumers decipher ad inputs into purchase feedback, since only then can they create an effective advertising strategy. However, due to the barriers associated with psychological effects on consumer buying behavior, advertisers still do not receive reliable feedback despite their efforts. In 1898, Lewis first introduced the system of customer response levels in the purchase process in 3 steps: Attention – Interest – Desire. After a while, Lewis added a "buy action" step to the AID model and from there AIDA was officially launched. And then the

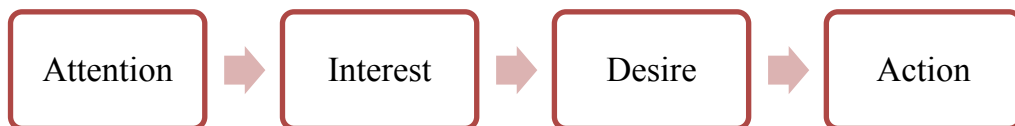


Figure 1 AIDA Model

customer response levels have been raised to 4 levels: Attention – Interest – Desire – Action. Successful, or unique, ads need to attract attention, maintain interest, create desires, and lead to actions.

(Source: E. St. Elmo Lewis, 1898)

a. Attention

The first step in the AIDA marketing communication model is to attract the attention of the target audience. To attract the attention of target customers in the current explosion of information, marketing managers have to choose the right method and appropriate marketing tools to attract attention. Attracting the attention of target customers can be the most difficult period for a business in the marketing communication model.

b. Interest

After attracting the attention of target customers, how can businesses excite their excitement with their products and services in a clever way? The attraction of people will only have a certain effect without permanence and stability if you do not show them new things, attractive in it. Creating pleasure is one of the most important and difficult steps.

c. Desire

After gaining the attention of target customers, the next step in the marketing communication model is to create the desire to interact with the target customer. The success of marketing communication is not about trying to sell a product, but rather about whether the customer really wants to buy the product from the business. There are two simple ways for businesses to stimulate their customers' expectations: to enhance their experience within using the products and services that provided by business and to make these target customers can be reached positive experiences that others have experienced.

d. Action

Business maybe has attracted the attention of target customers, making them interested and desire to own products and services of the business; but all the effort will be "zero" if the customer finally still does not act.

2.5. 5A model

The AIDA model in the marketing and sales process was developed in 1898 and is still widely used today. In order to sell successfully, marketers need to employ appropriate tactics to influence each stage of a customer's purchase process, from Attention-A, Interest - I, desires - D to action - A. This formula has been the guideline for marketing and branding managers in many years. However, according to Emmanuel Probst, in the current context,

AIDA is becoming obsolete and does not follow the buying cycle of consumers who have already stayed in "always connected to the digital world." Thus, Kotler *et al.*, (2016) has come up with a new formula that responds to changes in technology in recent years. That's the 5A model, short for the five words "Aware," "Appeal," "Ask," "Act," and "Advocate.").



Figure 2 5A Model

(Source: Kotler *et al.*, 2016)

a. Aware

At this stage, consumers know very little about the brand, getting quite passive branding information from the media, advertisers, influencers, friends or family.

b. Appeal

When processing the marketing message that you receive, consumers can form temporary memorability or unforgettable impression. At this stage, consumers will remember the most impressive brands. Therefore, they are strongly influenced by the initial attraction of a brand.

c. Ask

At this stage, consumers research brands in their short list by actively collecting information from the media, friends, family and the companies themselves. They also connect with other consumers to find information and build "product community" relationships that can lead to a weakness or strength of the brand due to awareness and support of the masses.

d. Act

This stage is not limited to customers purchasing but also involves their use of after-sales products and services.

e. Advocate

At this stage, consumers show loyalty to the brand by making regular purchases and encouraging others to buy.

To be successful, marketers must focus on branding from the early stages of the customer's buying process and use price-oriented tactics at later stages. The branding process needs to be drastic to ensure that the message of the business occupies an important place in the minds of consumers. At the same time, tactics such as discounting or creating urgency can make customers go to action faster at a later stage. Meanwhile, Probst stated that in B2B business environments, brands need to focus on marketing activities at the time that consumers want to find out more about the product more than at attractive period. The reason is that the purchase process of the business often lasts and many people involved in the same product evaluation with many different aspects. Brands aimed at professionals in this business environment need to demonstrate superior competitive advantage.

2.6. Social media marketing

2.6.1. What is Social media?





A number of experts, bloggers or websites have also come up with different definitions of "Social Media" and there is no consistency. By the definition of Tracy L. Tuten, 2014 "Social media is an online tool for communicating, sharing and connecting individuals, communities and organizations that are interrelated or interdependent by technology and mobile platforms."

Social media can be described as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content" (Kaplan and Haenlein, 2010, 61). Social media tools include social networking (e.g., Facebook and LinkedIn), blogs (e.g., Blogger and WordPress), reviews and rating services (e.g., Amazon, Trip Advisor, and Yelp), photo and video sharing

(e.g., Flickr and YouTube), document and content sharing (e.g., Dropbox and Google Docs), podcasts (e.g., iTunes), and knowledge sharing (e.g., Wikipedia) (Scott and Jacka, 2011). Thus, from the general point of the two concepts can be understood briefly: Social media are tools for communicating and sharing information on the internet.

2.6.2. 4 Zones in Social Media

Based on the well-known model studied and developed by Tracy L. Tuten (2014), social media is divided into four zones, there are:

-  Zone 1: Social Community, which is prominent in social networking, is a channel that focuses on developing relationships and engaging users with similar interests and interests. Thus, social communities have multi-dimensional interactive features, allowing users to chat, connect and share information.
-  Zone 2: Social Publishing is a site that helps disseminate content online. Includes blogs, microsites, sites for posting images / video / audio / document, bookmarks and news pages.
-  Zone 3: Social Commerce is a form of leveraging online tools that support buying and selling, as part of e-commerce, where buyers and sellers can be more flexible in interacting, responding and share knowledge.
-  Zone 4: Social Entertainment is a site or online tool that allows users to enjoy and entertain. Featured include social games, online gaming sites, etc.

Understanding the architecture of social media, company can be easier in terms of delivering content and cost-sharing plans by looking at the overall picture to achieve the goals of social media marketing campaigns. The amount of user-generated content is growing, with many opportunities and challenges for brands, as the user interacts with social media every day, and they are likely to be more or less affected by the discussion of other users. Ofcourse, social networking is an indispensable channel to invest in when it comes to attacking social media but the brand needs to listen to consumers, explore their brand health, insight customers as well as industry trends on this channel to take full advantage of opportunities as well as not face the risk.

2.6.3. In terms of Social Media Marketing

Customers are increasingly active on social media, but the concept of social media marketing is still confused. What is social media marketing? How to get a good social media marketing campaign? According to Philip Kotler published in 2015 at Northwestern University (USA): Digital Marketing is a combination of marketing activities on the Websites, Email, On-Ads, Podcasts, Webcasts, SEO, SEM, On-Ads, Mobile Marketing, Social media, etc. So Social media marketing is a part of Digital Marketing.

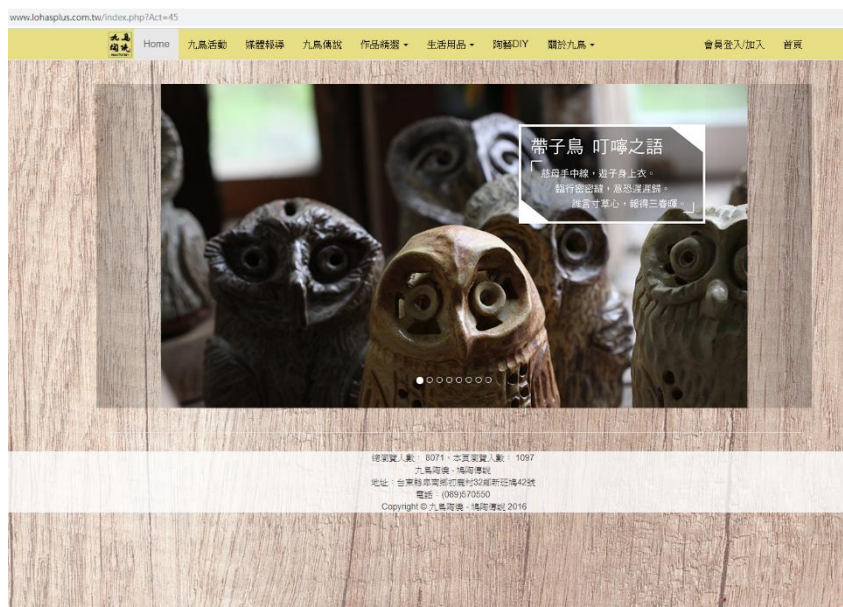
Social Media Marketing uses social media channels to build activities, interact and deliver messages to meet branding and communications goals. (Tracy L. Tuten, 2014). The essence of social media marketing differs from traditional marketing that derives from the very essence of social media. An effective Social Media Marketing strategy should meet the following requirements:

- ✚ Set clear goals and KPIs: Most traditional marketing campaigns and Social Media channels in particular need parameters or indicators to measure performance. So, in order for your marketing strategy to succeed, you need to set goals and specific KPIs for each campaign, stage.
- ✚ Focus on certain issues: Instead of pouring money into your campaign in an unpredictable way, you should focus on specific issues, clearly defined stakeholder groups, or you can focus on weaknesses that your competitors have not done well.
- ✚ Invest in content creation, attraction: Content is gaining momentum and becomes the main soul of many social media marketing campaigns today. As consumers now search for everything on the Internet and their contact with the actual product is content (text, video, images). Whether or not they want to come to see the product or purchase directly depends on this factor.
- ✚ Build Your Own Consumer Community: Many Facebook fanpages now use the Private Group as a place to focus and tap their potential customers. (On Google Plus, there is also the ability to create private groups.) In the specialized concepts, this can be seen as the private community of the company, enterprise or organization. You can also focus on building these channels to reinforce older, or more convenient products.
- ✚ Long-term planning: A long-term, specific plan / strategy, spanning time, will help your strategy to be closer and easier to reach the most common goals.

2.7. Website Marketing

Website is an environment where the advertising industry is seeking to exploit its effectiveness. Many experts say, with the power of technology, this market will continue to grow. Microsoft Chairman Bill Gates has advised businesses should find another way to bring the trade information to consumers. The reason that Bill Gates put forward is that it will not be able to capitalize on the patience of TV viewers to intermingle between the few commercials. Gates himself said the technology would change the field, although it is acknowledged as unknown how the format of advertising will change in the future.

Website Marketing is a good solution to advertise your business. The solutions include: Optimize website ranking on search engine (Search Engine Optimization), advertising on Google, social network Facebook, forum, etc. so that many websites are well-known to visit, to buy goods and services of the business. In the world, online power has made this form of advertising grow at a rapid pace and bring huge revenue. According to Buzzmetrics, cost per thousand impressions include pop-up, banner, logo, sponsorship, etc. accounted for 43% of revenue, performance form like Pay-per-click is about 37%. The combined form of the two categories is 20%. CPM is a form of advertising that effectively counts by the number of



visitors to the site, unlike Performance, which is measured by the number of clicks a visitor makes.

Figure 4: Figure 3 九鳥陶燒 website homepage

(Source: 九鳥陶燒 website homepage)

2.8. Advertising on FB

Facebook ads are a direct advertising service that Facebook provides to its users to deliver messages and product information to potential customers through Facebook's smart filter based on users' activities, positions, and preferences. Facebook is reached to more than 1 billion users in the world, supporting 70 languages, over 50% of whom sign up, update about 2 billion comments, and "LIKE" on Facebook every day. The scope of Facebook's activity is expanding at a tremendous pace. Facebook's advertising potential is growing rapidly and is becoming a serious challenger to Google. Many companies and corporations have succeeded in marketing on Facebook, and have become the case studies for marketers like Coca-Cola, Red Bull, Walt Disney or Starbucks which is fanpage's members up to several tens of millions.

Small and medium sized enterprises are the most vulnerable to and affected by the effects of economic change. They must constantly seek solutions that help them become agile. One of the ways that they can discover is to use new digital media such as Facebook. Many small and medium sized enterprises believe that they need to share information about the product as much as possible, so that the information and decision-making opportunities of their customers will increase. In fact, continuous advertising but no one interested in participating in many times will be counterproductive, will lead potential customers "run away." Businesses should think about their core values, then try to connect and convey those values to their customers via Facebook, with attractive content, with moderate frequency and in a trustworthy voice. Facebook has many forms of advertising suitable for different marketing objectives, but now there are two popular forms of advertising facebook, most people choose:

Post page ad: is the most popular form of facebook advertising today, is the way to advertise a post on your Fanpage. The article will read "Sponsored" to reach users by: Age, gender, region, occupation, etc. Content is the key of this form. Post content should be attractive, attracting users to interact.

Click to web: this is a form of facebook advertising that directs customers to click on your website to increase traffic to your website. Thus, direct sales on the website will also become more effective, cost savings for the process of doing SEO as well as other forms of advertising through the website.

When the budget does not allow to build and develop a brand, small and medium sized businesses should use Facebook - a tool that saves both the scope of impact and the breadth of influence. An importance they have to know is what the way they choose. The combination of advertising options and effective tools is one of the most effective ways for businesses to reach out to the public, promote brand awareness, promote deliberation, purchase intent as well as enhance interactivity with the business.

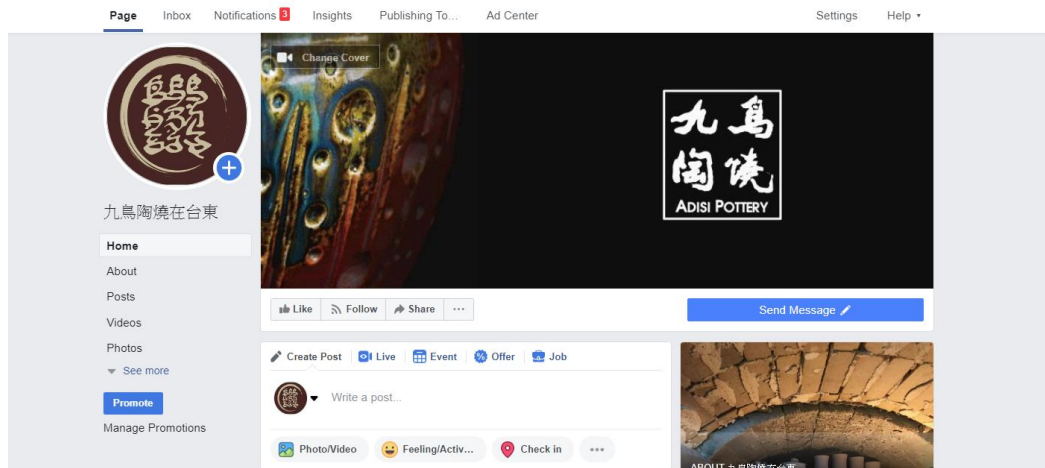


Figure 5: Figure 4 九鳥陶燒 Facebook fan page

(Source: 九鳥陶燒 Facebook fan page)

2.9. Google Analytics Tool

2.9.1. What is Google Analytics (GA?)

Google Analytics is a free service provided by Google to evaluate the effectiveness of online marketing activities (including SEO and other marketing activities). Everyone can use this service. Google Analytics provides users with data about traffic, traffic sources, demographic data, and consumer behavior on the website. Google Analytics can integrate with many other Google products like Google Adwords, Google Adsense, and Google Webmaster Tools. The main features of Google Analytics include:

- + Customize the Dashboard to see what data you need
- + Use Advanced Segment to track specific campaigns
- + View demographic data of traffic sources: age groups, locations, favorite topics
- + See what customers search on the website
- + Visualize the most popular content
- + Funnel Visualization: Users often leave the shopping cart at which step
- + Track sales of products
- + Monitor user behavior (Multi-Channel Funnels)
- + Create models for comparison of marketing channels (Model Comparison)

Despite the huge number of competitors, Google Analytics is the most widely used tool in the world, because of the massive benefits that Google Analytics offers. According to Builtwith there are currently over 30,000,000 sites are installing Google Analytics. Many websites of big corporations like Puma, Nissan, BuildDirect, etc are using Google Analytics. Google Analytics is not difficult to use. This system is developed and scientifically organized, scientific and logical. Its customization capabilities are also great. Google Analytics has smart alert modes, powerful and effective filters for each location (Customize for Sale Manager Dashboard to be different from SEO Manager, other than Adwords Manager).

2.9.2. The GA running process



From data collection to reporting, Google Analytics goes through four stages

Figure 6: Figure 5 GA running process

(Source: Google Analytics)

- + **Data Collection:** When a person visits website, all of their information is collected by Google using a Java Script. Their information is extracted from Cookie. Cookie store data such as where they come from (domain, language), gender, browser usage, screen

resolution how much, etc. Whenever they perform an action on website, the code also records and sends to Google's servers.

- ✚ **Configuration:** You can imagine a huge amount of data will be posted to the Google server. They need to be repackaged. The information collected will be categorized and adjusted to retain the necessary information and eliminate redundant information.
- ✚ **Processing:** At this process, information is processed "at your request". That means, for example, that you use a filter to remove incoming traffic from the internal IP, all traffic marked from the internal IP will be removed. Once processed, the data can not be retrieved. That's why Google advises people to use 3 views and be careful with filters.
- ✚ **Reporting:** After the information is processed from raw to pure, they will be exported as a report that we often see.

Here are some GA pages of pottery micro-enterprise A website that author mentioned above:

- **Home:** Store all your Account, Property, and View. Note that you can use the search or star (*) feature for important elements for easy tracking.

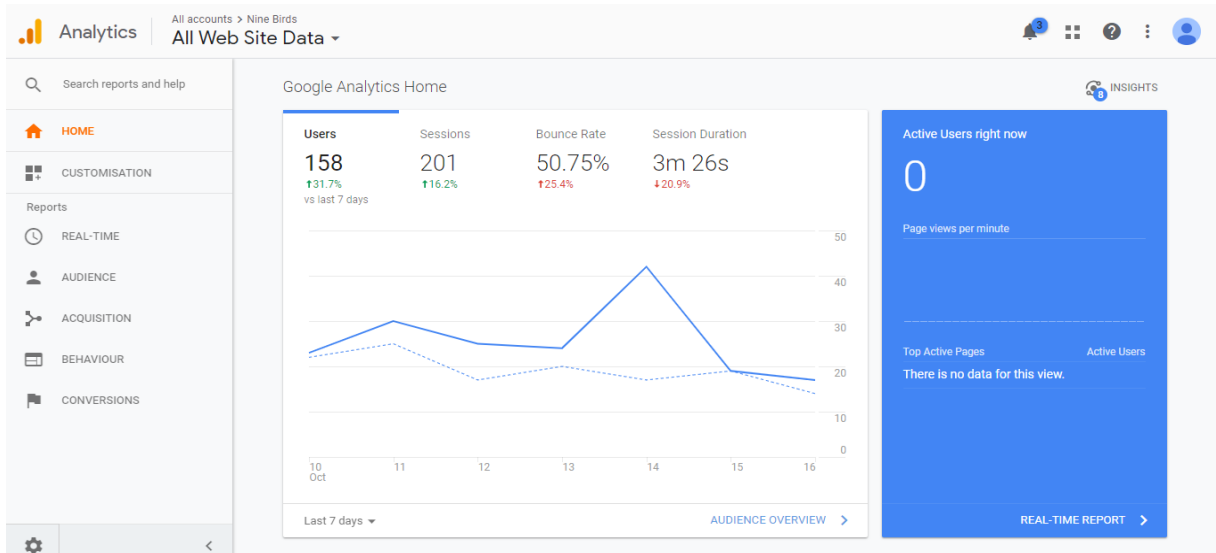


Figure 6 GA homepage of Pottery micro-enterprise A

- **Report:** The heart of Google Analytics. Click on any View, we will see the report of that view. This is the part we will work a lot.

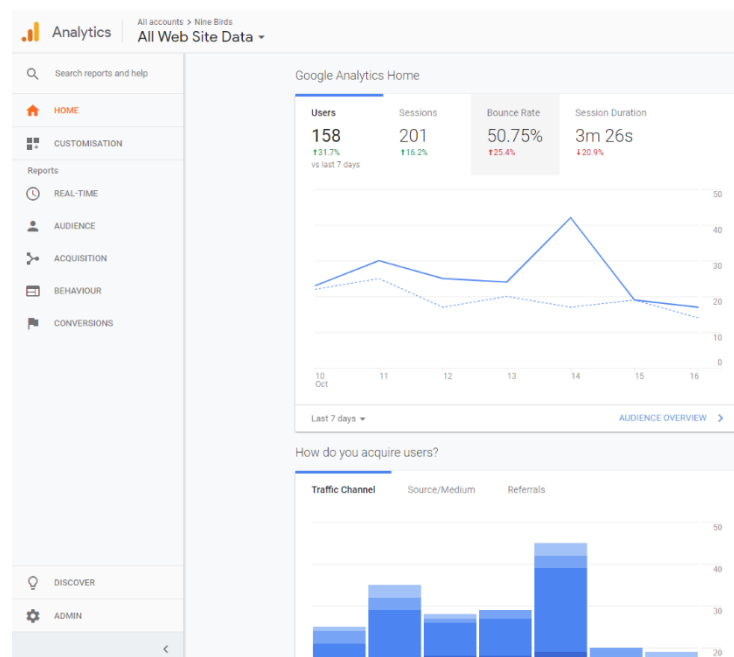


Figure 7 GA homepage of Pottery micro-enterprise A

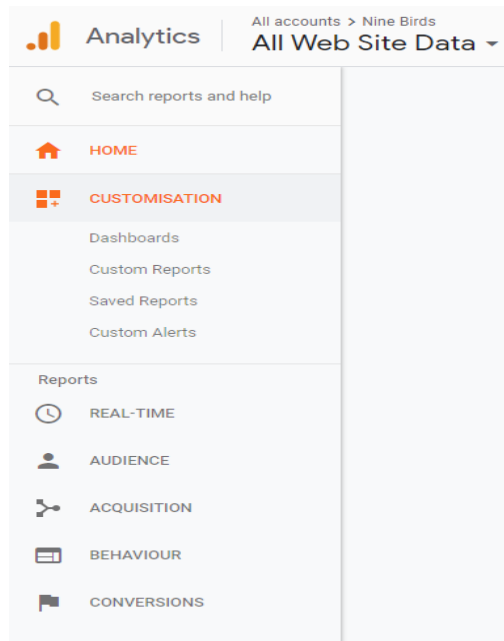


Figure 8 GA homepage of Pottery micro-enterprise A

- **Customization:** Special reports will be stored here.
- **Admin:** Like the customization, from the basic activities such as tracking code, user management, set goals to advanced, Attribution Model, Custom Alerts, and

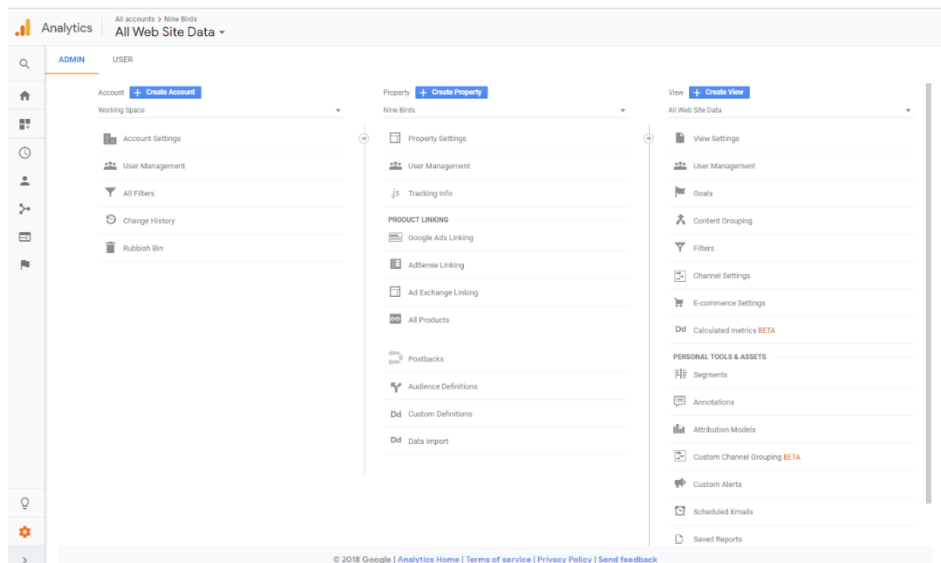


Figure 9 GA homepage of Pottery micro-enterprise A

Custom Segment are implemented in this section.

CHAPTER 3: RESEARCH METHOD

3.1. Design Science Research Methodology

Since the earliest days of computer science, computer scientists have been researching design sciences without naming it. They have developed new computer architectures, new programming languages, new compilers, new algorithms, new data and file structures, new data models and database management systems. Much of the early research was focused on methods of system development. The design science research methodology (DSRM) presented here incorporates principles, practices, and procedures required to meet three objectives: it is consistent with prior literature, it provides a nominal process model for doing DS research, and it provides a mental model for presenting and evaluating DS research in

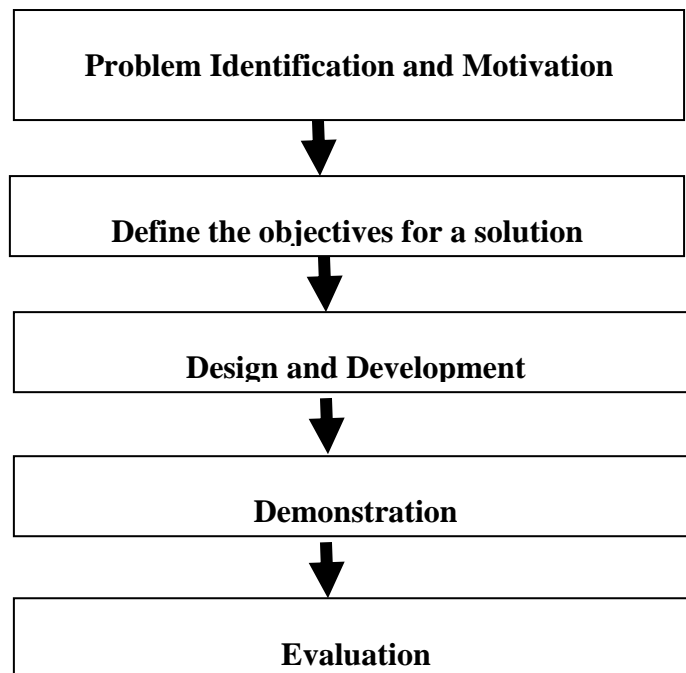


Figure 10 Design science research method (DSRM) process model

(Source: Peppers *et al.*, 2007)

1. **Problem identification and motivation.** Problem has to be identified, its solution will be found in the process of research. Identify specific research problems and give an assessment of the value of a solution. Evaluating the value of a solution will lead to two aspects: it motivates researchers and those interested in research to pursue the solution, accept the result, and it involves to understanding of the researcher on the problem. The resources required for this activity include knowledge of the status of the problem and the importance of its solution.
2. **Define the objectives for a solution.** Objectives need to be reasonably deduced from the particularity of the problem. The resources required for this include knowledge of the status of problems and current solutions, if any, and their effectiveness.
3. **Design and development.** Artifact design is a creative process. During this, problem can be restated. Such artifacts have the capability to build models, methods, a design research article may be any design object. Resources required moving from objectives to design and development include theoretical knowledge that can be given in a solution.
4. **Demonstration.** Demonstrate the use of artifacts to solve one or more instances of the problem. This may involve using it in testing, simulation, case study, proof, or other appropriate activities. Resources needed for the demonstration include effective knowledge of how to use artifacts to solve problems.
5. **Evaluation.** Observe and measure the degree of artifact of the solution to the problem. Depending on the nature of problem location and artifact, evaluation can take many forms. It may include items such as functional comparisons of artifacts with a solution target from the above activity, objective quantitative performance measures, such as budget or product generated, satisfaction survey results, customer feedback or simulations. At the end of this activity, researchers may decide whether to reduplicate step three to try to improve the efficiency of the item or to continue the communication and to further improve the effectiveness of the artifact.

CHAPTER 4: DESIGN and DEVELOPMENT

FRAMEWORK

In today's dynamic competitive economy, marketing is the core of every successful business. No matter which business you are in, you still need marketing. Marketing is a bridge between buyers and sellers - helping sellers understand the true needs of buyers in the best way. In marketing, identifying a specific goal is a prerequisite to developing an appropriate strategy to achieve that goal. A specific goal also allows marketers to measure the effectiveness of their marketing efforts. In addition, setting a specific, feasible goal also demonstrates the level and determination of the marketer.

By the end of 2016, with the introduction of the 5A approach in "Marketing 4.0", the debate over the adoption of AIDA or 5A in strategic marketing and operational planning has exploded and create a myriad of arguments not only within global companies, but also on social networking and forums with the participation of many well-known marketers on practical application actual marketing plan in 2018. Marketing 5A, essentially explained by Philip Kotler, is the way businesses and brands create the changes to drive revenue and loyalty to end-users in the buying process that is changing and deeply interfering by the development of technology in recent years. Below are 3 goals of marketing system.

a. Maximize Consumption

Establishing this goal of marketing is based on the assumption that the more people buy and consume, the happier they will be. Marketers argue that marketing facilitates and stimulates maximum consumption, which in turn drives productivity, creates jobs and brings maximum prosperity. In this view, "as much as possible". However, many people are skeptical that increasing consumption means that people are happier.

b. Maximize Consumer Satisfaction

From a marketing perspective, a business can only achieve its business goals based on efforts to increase customer satisfaction. But in practice, the increase in customer satisfaction is always difficult to overcome due to the influence of many factors in opposite directions. With limited resources, every business in the business process must make reasonable efforts

to meet the needs of different interest groups and increase the satisfaction of this group of people can be detrimental. Benefit of other groups. In addition, increasing consumer interest requires businesses to spend more on improving the efficiency of the use of resources, which is not always possible.

c. Maximize the choice of consumers (Maximize Choice)

This objective is to increase the diversity of the product and the buyer's choice, implying that consumers are more likely to choose, so that they can find the right product to meet their desire, make them feel most satisfied. However, here is the problem: the cost of the item can increase, it takes more time to survey and evaluate competing products before making a purchase decision. And are there more product types that will increase the possibilities of real choice? Some people say that there are too many brands in the market today, but there are so few differences between them. In addition, when people have too many things to choose from, the choice becomes more difficult. Thus, the job of the marketer is to identify the product lines that are reasonably structured and skillfully combine them in a product mix to provide the opportunity for the customer. They can choose what they want to meet their needs.

4.1. Facebook Advertising

Facebook has exploded to a community of more than half a billion people around the world, making it a deliciously fertile playground for marketers on the cutting edge. Whether you want to leverage Facebook Ads to generate "Likes," promote events, sell products, market applications, deploy next-gen PR, this unique guide is the ultimate resource on Facebook's wildly successful pay-per-click advertising platform. Featuring clever workarounds, unprecedented tricks, and little-known tips for triumphant Facebook advertising, it's a must-have on the online marketer's bookshelf. "The genius of Facebook is that core features mirror types of social activities humans commonly share among themselves. The word viral is often applied to the phenomenon of social media. Facebook is the epitome of online virility in that the applications facilitate and amplify compelling behaviors in which humans partake in physical life. People love to send pictures to their families, reach out to make new friends, contribute to important daily discussions, explore mutual interests, and share content that matters to individuals and social groups." (Marty Weintraub, 2011, p.9). "The power of Facebook's core features is that they ooze tons of information about users.

Ultimately, only Facebook knows all the aspects of users' Facebook activities that show up in corners of the Facebook Ads targeting algorithm. If users don't want to be targeted by Facebook advertisers, the best answer is to close their accounts.” (Marty Weintraub, 2011, p.10).

Facebook shows its great performance every year, and grows rapidly. It becomes more and more professional tool for all marketers around the world, which contains a huge amount of information about its users and their behavior, sales statistics, brand's recognition and how much it becomes popular, and so on. “Facebook offers a new model to advertise and engage with consumers. Social networking sites in general, now account for one out of every five ads people view online. As the top social media sites can deliver high reach and frequency against target segments at a low cost, it appears that some advertisers are eager to use social networking sites as a new advertising delivery vehicle.” (Kevin Curran, 2011, p. 26).

4.2. Facebook Business Manager

Facebook launched Business Manager to help companies manage and organize their Facebook Pages and advertising accounts without being tied only to an individual personal account. (Shaun Elley, 2016). Facebook Business Manager keeps a businessman completely focused on work, because it gives all necessary tools to run ads, to set audiences, to see statistics and reached results. Also a user of Business Manager will not be distracted by his personal Facebook newsfeed, because they are separated. Personal and corporate accounts work independently. It is important to look inside of this platform and briefly understand how it works.

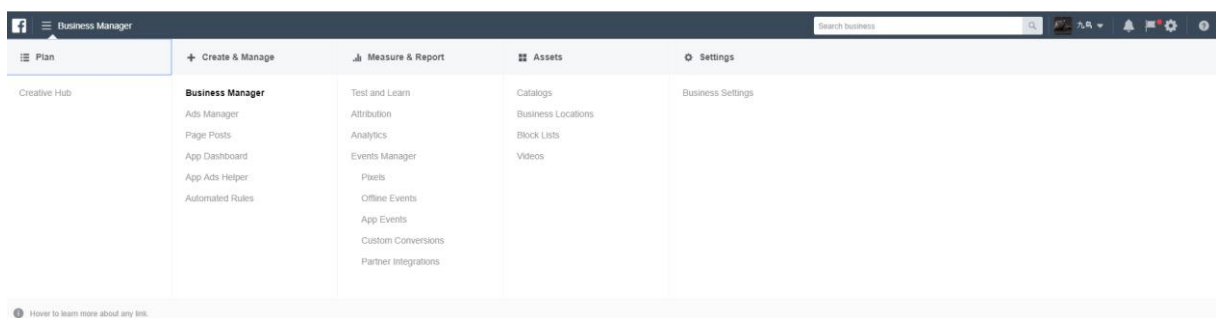


Figure 11 Facebook Business Manager Interface

(Source: 九鳥 Facebook Business Manager)

4.3. Facebook Pixel

Facebook pixel as a function, which helps to track conversions from Facebook ads, build the right audience based on the obtained ads results, optimize different ads, redirect to qualified leads – potential customer that have already visited a website and taken actions. This platform could be a great tool for young entrepreneurs to analyze what they are doing right and what wrong. All collected statistics show everything to understand the actions that have been taken. It is important to mention that although Facebook pixels are confusing, they make advertising on Facebook much more effective. It gives a better understanding of how Facebook ads are performing. All in all, an entrepreneur can make his messaging much more effective, leading to a better return later (Casandra Campbell, 2018) “In 2015, Facebook simplified functions of Pixel by introducing a new Facebook pixel that replaced the older Facebook pixels, making it the only tracking pixel everyone needs. It was updated again in 2017 to make advertising on Facebook easier and more effective. This included more tracking, such as button click activity and page metadata.” (Casandra Campbell, 2018)

Two main functions that are offered by Facebook Pixel and can help to get a better return on investments are: Custom audiences from a website Custom conversions (Casandra Campbell, 2018) Custom Audiences from a website define how Facebook helps to retarget website visitors. It tracks the movements of any visitors on a certain website who are simultaneously logged into Facebook. It records which pages on this site they visit, which pages they don't visit, and when they visit them. (Casandra Campbell, 2018). To be clear, when advertising on Facebook, it is not possible to choose specific website visitors and advertise to them. Instead, a businessman can advertise to groups of users based on shared behavior. A few examples include:

- “People who have visited a website in the past 24 hours
 - People who have visited a website in the past 180 days, but have not been back in 30 days
 - People who have visited a specific page on a website
 - People who have visited a specific page on a website but not another specific page”
- (Casandra Campbell, 2018)

4.4. 5A Model Application

With the desire to develop a good marketing campaign through updated data from GA for the website and facebook fanpage, the 5A model below will detail the process that micro - enterprise A is implementing its marketing plan.

| | |
|----------|---|
| Aware | Customers have few information about 九鳥陶燒, except existing customers. |
| Appeal | Through GA data that we already put into 九鳥陶燒 website before will show us that customers have interested in which page/products. At the same time, we put facebook pixel code into 九鳥陶燒 website. |
| Ask | In this period, we run the facebook advertising so that potential customers will identify 九鳥陶燒 fanpage. |
| Act | Based on the user data sent to Facebook from Facebook pixel, Facebook Ads will suggest each specific marketing campaign. |
| Advocate | In this section, we got both existing and potential customers |

The current 九鳥陶燒 fan page has reached 1,500 followers with consistent interactions, which is a good number for small businesses such as 九鳥陶燒. In parallel, 2019 will be a year of 九鳥 to effectuate more activities with Facebook ads, with the expectation that a large number of new customers will come to 九鳥陶燒, contribute to expand the 九鳥 community. The plan has been set and the first two months of 2019 will be the right time to do so.

Table 2 Marketing plan content (from 2018/12/31-2019/01/27)

| Time | 12/31-01/06 | 01/07-01/13 | 01/14-01/20 | 01/21-01/27 |
|---------------------|--|---|---|--|
| Strategy | Stimulates the understanding about 九鳥 of the current customer group | Why is pottery art? | Push up more information about 九鳥 | Continuing the series of 九鳥 story |
| Method | Update the image of the product, about 阿亮 master, the story of the traditional culture protector | Update the pictures and videos on the 1st step in the process of making a product | Update the image and video on the second step in the process of making a product + an animated clip about its story | Update photos and videos on the third step in the process of making a product + an animated clip about its story |
| Earned Media | Word of mouth communication | Word of mouth communication | Information about related works is frequently sent to the fan community | Pottery and applications in daily lives |
| Paid Media | CPM | CPM | CPC | There is another animated clip in the official website |
| Purpose | Let people pay attention to the information we want to convey | Let people pay attention to the information we want to convey, starting with curiosity about 九鳥 | Let people feel, understand more about the product as well as the meaning behind. | Let customers can identify the 九鳥 website |

Table 3 Marketing plan content (from 2019/01/28-2019/03/03)

| Time | 01/28-02/03 | 02/11-02/17 | 02/18-02/24 | 02/25-03/03 |
|---------------------|---|--|--|---|
| Strategy | The outlook on life in every 九鳥 product | Continuing on last week's topic, 九鳥 deserves a cultural heritage | Introduce more about the surroundings of 九鳥 | Introduce other activities of 九鳥 |
| Method | Update the photos and videos about the fourth step in the process of making a product | Update images of fire control during pottery firing to get a perfect finish | Update the pictures, the scene of 九鳥 surrounding | Provides the information of 九鳥 exhibitions |
| Earned Media | Introduction of wood for burning, including harmful vines to plants (Mikania Micrantha) | Artisans often go to prison to teach the skills of making pottery to prisoners, wishing to bring them into 九鳥, creating new works. | More about the vegetation surrounding the Nine Birds, Balaam Cultural Ruins | Word of mouth information |
| Paid Media | | | DIY at 九鳥 Experience the culture, blend in with nature at 九鳥 | On the 九鳥 website also posted posters |
| Purpose | Delivering the message of forest protection, environment protection to | Showing the belief of society for those who want to reconstruct | Let fans not only feel the story of the work, but also enjoy the beauty of the | Let fans enjoy the most original, exquisite works from 九鳥 |

| | | | | |
|--|---------------|------------|-------------------------|--|
| | the community | their life | natural environment. | |
|--|---------------|------------|-------------------------|--|

CHAPTER 5: RESULTS and DISCUSSION

九鳥陶燒 has a clear vision and strategy which help to move forward. A clear understanding of the possibilities, the budget and the strategy can make a spectacular outcome, even though the business is small and limited in finances. Competition is extremely big everywhere. A clear understanding of a potential customer is literally the biggest advantage of every business. In this case, Facebook Pixel data helps to analyse what customers' want, how much time they spend on a website and etc. Using all tools that are provided by Facebook Business Manager can be highly valuable experience and development for companies. The successful results of Facebook ads and their strategies prove that even small business with limited budget can get a good performance and new customers just in a few days.

Pottery business is highly competitive. It is difficult to attract and create something extraordinary new to amaze potential clients. There are a large number of artists who make pottery by themselves and sell it using different platforms, such as an own web store or a social media.九鳥 created a Facebook fan page that represents this brand and helps to handle advertising. The owner knew from the beginning that this page operates only Facebook Manager and all other functions that Facebook offers for businesses. Facebook always needs a page for installing Business Manager that opens an enormous variety of different features. Before doing promotions, it is critical to define what target audience has to be used and what kind of ads do attract them. Taking into consideration all earlier mentioned thoughts, the owner decided to make an image of this brand's customer and reach it through the advertisements using Facebook Ads Manager.

One of the most important and necessary issue in successful promotion is targeting. Facebook gives a perfect tool for marketing. Since this social media website was launched as a place where people share their personal information such as age, occupation, living place and so on, it has grown into a global network of users who gave all the relevant information about themselves into the marketers' hands. Ads Manager is a right outcome that comes after choosing an audience. Facebook Pixel is a great tool for entrepreneurs who have a website. It allows to control and follow everything that happens there. How many users has a website daily? How many returning visitors did come yesterday? And many more questions can be answered using this feature.

In chapter 1 I wrote that “With the desire to promote marketing on FB, website, I fully believe that the revenue of 九鳥陶燒 will grow 5% to 10%, and the more 20% is the number of people are inspired. I am hoping that among these 20%, young people will outgrow.” This is really a strong belief I intended for 九鳥, although I do not know the future data will change by how, I will leave here the appearance of "numbers" to motivate myself as well as 九鳥. Anyway, we have been able to detail the thoughts, the plans now just look ahead and actualize these things.

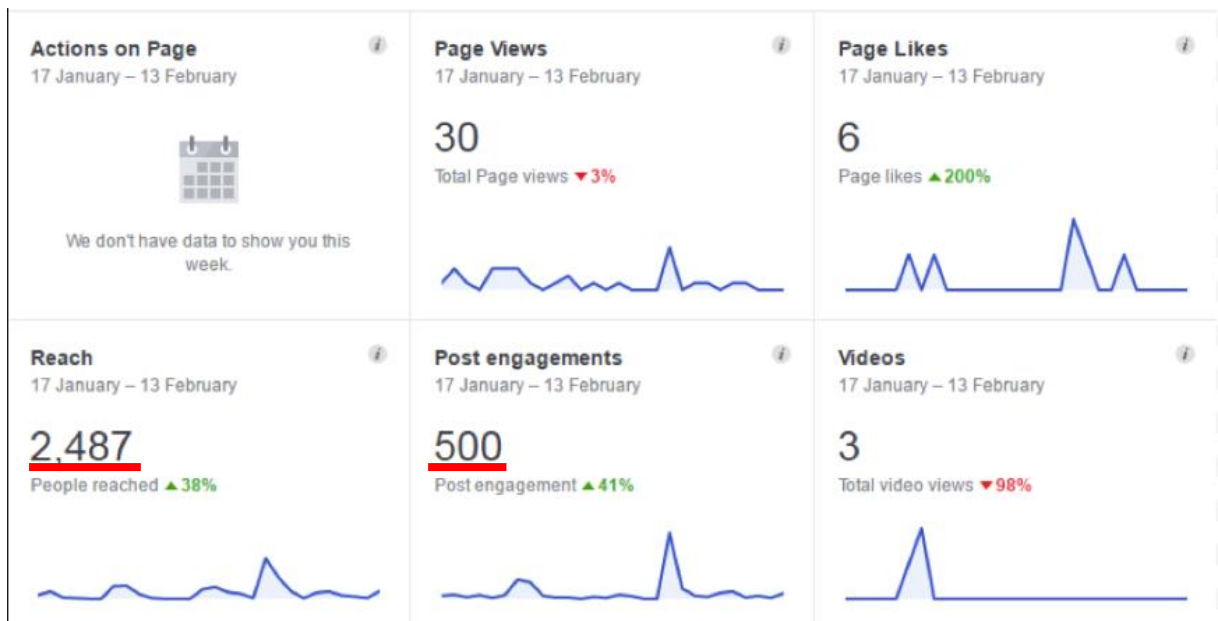


Figure 12 九鳥 Facebook insights overview data

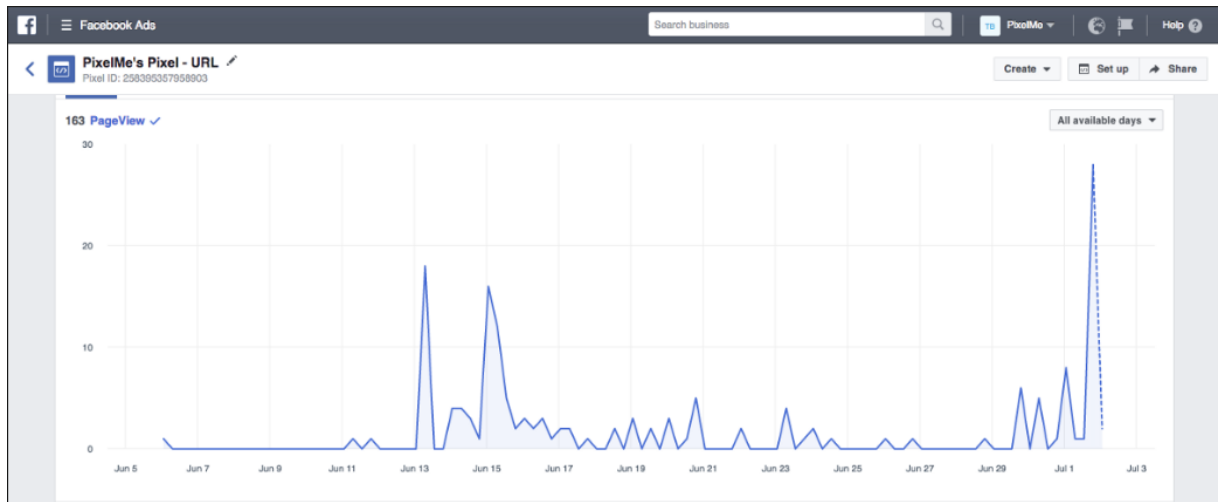


Figure 13 九鳥 Facebook Pixel data

CHAPTER 6: CONCLUSION

Nowadays, Internet and social media give a big advantage in promoting small businesses with limited budget. This thesis work will be an example of how Facebook Business Ads work and how to set up the right audience - two the most important factors of successful advertising on social media websites. 九鳥陶燒 is ambitious. Such energy can make a great impact on further growth. It needs to widen an assortment of pottery and keep a corresponding level of quality pottery and recommended price. Since this micro-enterprise operates online and wants to reach as many potential customers as possible, Facebook is chosen as the main tool for promoting.

Traditional businesses keep up with the modern trends, embrace the promotion of products to the people, contribute to preserving the beauty of ancient culture, transmission the stories, and the message of life. Ancient values of culture combined with the modern technology to bring a new breeze to each work. The story of 九鳥 never stops and will continue as each product contains fire, immortal flame.