出國報告審核表

出國報告名稱：The 9th ICEB參加論文發表暨香港科技大學及中央圖書館e化參訪

出國人姓名（2人以上，以1人爲代表）	職稱	服務單位
黃瓊之	編輯	資訊組

出國類別：☑考察 ☐進修 ☑研究 ☐實習 ☐其他＿＿＿＿＿＿（例如國際會議、國際比賽、業務接洽等）

出國期間：98年11月30日至98年12月5日　報告繳交日期：99年01月25日

計畫主辦機關審核意見

☑1.依限繳交出國報告

☑2.格式完整（本文必須具備「目的」、「過程」、「心得及建議事項」）

☑3.無抄襲相關出國報告

☐4.內容充實完備

☐5.建議具參考價值

☐6.送本機關參考或研辦

☐7.送上級機關參考

☐8.退回補正，原因：☐不符原核定出國計畫 ☐以外文撰寫或僅以所蒐集外文資料爲內容 ☐內容空洞簡略或未涵蓋規定要項 ☐抄襲相關出國報告之全部或部分內容 ☐電子檔案未依格式辦理 ☐未於資訊網登錄提要資料及傳送出國報告電子檔

☐9.本報告除上傳至出國報告資訊網外，將採行之公開發表：

☐辦理本機關出國報告座談會（說明會），與同仁進行知識分享。

☐於本機關業務會報提出報告

☐其他＿＿＿＿＿＿

☐10.其他處理意見及方式：

審核人	一級單位主管	機關首長或其授權人員
	編輯代理資訊組組主任 黃瓊玉	顧敏

說明：

一、各機關可依需要自行增列審核項目內容，出國報告審核完畢本表請自行保存。

二、審核作業應儘速完成，以不影響出國人員上傳出國報告至「政府出版資料回應網公務出國報告專區」爲原則。

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出國報告（出國類別：參訪研究）

參加 The 9th ICEB 論文發表
暨
參訪香港與澳門中央圖書館

服務機關：國家圖書館

姓名職稱：黃瓊玉編輯

派赴國家：香港暨澳門

報告日期：99 年 2 月 1 日

出國期間：98 年 11 月 30 日至 12 月 5 日

摘　要

此行的活動,主要分成兩方面,一是澳門參加第九屆國際電子商務研討會(ICEB)進行論文發表，二是參訪香港中央圖書館與澳門中央圖書館。

（一）參加第九屆國際電子商務研討會：

參加本屆國際電子商務研討會，一則基於此研討會(ICEB)是重要的國際性會議，並以促進電子商務的研究與教育，不斷提高社群的服務質量爲宗旨，與本館的發展理念與服務精神相同而值得參加。二則，因本屆會議對發表論文的審查，乃邀請國際學者進行雙盲的嚴格審核，若能獲選而前往發表，有助本館國際聲譽的傳播，更可提升本館同仁研究風氣，故會前積極投入論文撰寫，最後選前往發表。然而，本次參加本屆國際電子商務研討會,除了達成前述兩項任務，亦對會中各人士多方交流，亦積極收集有住本館發展數位圖書館的相關參考資料。還有，也主動推展本館努力推動與持續追求的電子化成果。所以，可鼓勵同仁多參加這類的研討會。

（二）參訪香港中央圖書館與澳門中央圖書館：

本次的參訪-香港中央圖書館與澳門中央圖書館，皆深受兩館館長的熱情接待而可以進行深入的參訪，十分感激。兩館因其皆具有該地區中央圖書館的地位，故圖書編目具有領導權限，可掌控香港與澳門地區的圖書書目。而香港中央圖書，其不僅硬體的建築較爲宏偉，其資訊設備與系統規模較大且較爲完整，其視聽服務已經邁入(館內)隨選視訊的服務，可以提供讀者便捷的影音視訊服務而且還具有自動運輸箱，可以自動將書籍運送到合適的單位，以利館員收集整理。而澳門中央圖書館雖然未見先進的數位化科技，但是卻發現其對澳門圖書的書目的統一處理，乃運用我國資訊廠商所客製發展。由此可知，我國資訊廠商已具有整合圖書的客製能力，顯然本館可以信賴我國資訊廠商整合圖書的客製能力，無須處處仰賴外國的套裝圖書軟體。而且，澳門中央圖書館長也一再表示客製資訊系統的好處，顯然客製化資訊系統是本館發展資訊化的必然考量。

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一、目的

職於 98 年 11 月 30 日赴澳門參加第九屆國際電子商務研討會（ICEB）進行論文發表，並參訪香港中央圖書館與澳門中央圖書館。

此行的目的可分爲兩方面：

（一）參加第九屆國際電子商務研討會目的:

1.闡揚本館發展理念與服務精神

2.提供本館發展數位圖書館參考

3.發揚本館努力推動與持續追求的電子化成果

4.傳播本館國際聲譽以提升本館同仁研究風氣

一則電子商務國際研討會(ICEB)成立於 2001 年 12 月 21 日，已經有九年的歷史，亦是重要的國際性會議。其宗旨乃促進電子商務的研究與教育，任務爲提供一個可儲存和分享電子商務相關知識的論壇，以不斷提高社群的服務質量，乃與本館的發展理念與服務精神相同而值得投入。二則本屆（第九屆）會議的主題爲「數位化社會中無所不在的電子服務」，與本館逐日邁向的數位化服務的目標相同，更有其必要了解會議探討的內容以爲本館發展數位圖書館的參考，因而需要參加。三則，今年的主題更是本館不斷努力推動與持續追求的方向相同，因而有必要對國際社會的專業人士表達本館的投入與成果，故而需要參加。四則，此會議對發表論文的審查，乃邀請國際學者進行雙盲的嚴格審核，其後亦再針對相關主題而收錄於 SSCI 與 EI 國際性重要期刊，因而有助本館國際聲譽的傳播，更可藉此提升本館同仁的研究風氣。

（二）參訪香港中央圖書館與澳門中央圖書館目的:

提供本館進行數位化圖書館的參考，進而加速本館的數位化發展。

由於時代趨勢所需，本館早於多年前即投入實體與數位兼具的圖書館發展的。然而，數位圖書館推展，不僅需要對實體的館藏內容進行電子檔化的工作，還需要建立知識管理之傳達、分享、分工(協同運作)、運用、創新等 e 化的機制。雖然本館各業務單位已經陸續進行或完成館藏內容的電子檔化，亦逐日發展傳達、分享等 e 化的機制，但是對於其他的知識管

理機制仍待建置或整合，方可邁入實體與數位融合的全方位圖書館。除此，本館基於國家級圖書館的地位，被賦予典藏各種國家級內容的權利與義務，如政府的公報與出版品、全國博碩士論文等的典藏，還有爲促進國家知識管理發展的台灣網站典藏專案、數位出版計畫等的專案計畫等，都是非常需要內容電子檔化與機制 e 化等的圖書館數位化的因應。

有鑑於上述的前往參訪的背景，因此期藉由本次前往澳門參與 ICEB 研討會之餘，可以就近前往澳門中央圖書館與香港中央圖書館進行參訪，期從中獲得各種有關圖書館內容電子檔化或機制 e 化之數位化的發展啓示，以供本館進行數位化圖書館的參考，進而加速本館的數位化發展。而上述的說明，即是本次前往澳門中央圖書館與香港中央圖書館參訪目的。

二、過程

此行的過程可分爲兩方面：

（一）參加第九屆國際電子商務研討會過程:

1.ICEB 發展探討

國際電子商務會議（International Conference Electronic Business, ICEB）成立於 2001 年 12 月 21 日，經過長達一年的策劃和討論,終於成立。 而 ICEB 的遠景與任務如下：

遠景 ：

“ 成爲世界上一流兼具教育知識的電子商務論壇。”

任務:

國際聯盟電子商務是一個國際性組織 ， 旨在促進研究和教育電子商業。並提供一個論壇，以儲存和分享相關的電子商業知識，全力追求服務質量不斷地提高而因應社群所需。“

ICEB 的會議歷程如下:

- ICEB 2001 香港（2002 年 1 月 30 日）
- ICEB 2002 台北（2003 年 3 月 20 日）
- ICEB 2003 年新加坡（2004 年 5 月 1 日）

- ICEB 2004 年北京（2005 年 5 月 1 日）
- ICEB 2005 香港（2006 年 5 月 1 日）
- ICEB 2006 坦佩雷，芬蘭（2007 年 3 月 1 日）
- ICEB 2007 台北，台灣（2008 年 1 月 15 日）
- ICEB 2008 年美國夏威夷（2008 年 11 月 21 日）

3.本屆會議

本屆國際電子商務會議於 2009 年 11 月 30 日-12 月 03 日舉辦。 而其內容分述如下：

(1)主題：

本屆國際電子商務會議主題:無所不在的電子服務之數字社會。

由於網際網路的盛行，使得電子商務推動於各界，而爲因應電子商務的潮流，社會的運作亦逐日形成數字化。因此，全球社會已是電子服務無所不在的數字社會。然而，這樣的社會型態，必然有許多與以往不同之處而值得投入探討，故而舉辦本次會議，期從中獲得更多啓示與回響，進而促進此無所不在的電子服務之數字社會更完善地發展。

(2)地點：

本屆國際電子商務會議地點:於澳門，永利酒店。

(3)主辦單位：中文大學香港

過去各年的大會上，我們已經研究自許多不同方面的電子商務問題，其中包括物流，供應鏈，移動商務，全球化，Web 2.0 等。

然而，鑑於在社會上技術應用的重要性，則今年會議議題的走向爲無處不在的電子化服務在數字社會。因此，本次第九屆國際電子商務會議（ICEB 2009）’ 爲促進交流研究成果，提出如下三大方向的議題：電子社會，電子生活，和電子商務。而細項議題爲：

●供應鏈管理及電子物流

●企業電子化服務的體系結構和服務創新及對策

●客戶關係管理

●個人化，移動化電子服務

●電子政務和電子社區

●服務創新和戰略

●電子商務與創業

●商業智能

●電子商務運營策略

●數據挖掘和倉儲

●案例研究-電子商務健康

●電子商務：理論與應用的發展-最新理論的進步

●信息安全

●創新電子商務

●信息管理

●供應鏈整合

●電子商務：理論與應用開發

●互動電視

●虛擬社區

●移動商務

●知識管理

●網際網路安全和隱私

●生產和物流系統優化

●IT 委外

而對論文的審查作法，採用作者與審查者互不知曉的雙盲審查作法，期藉此嚴格審查作法，可以促進各議題探討得更深入與完整。

(4)本屆國際電子商務會議行程如下:

November 30, 2009 (Monday)	
6:30 PM – 8:30 PM	Registration & Cocktail Reception

December 1, 2009 (Tuesday)		
8:30 AM – 10:30 AM	Opening Ceremony and Keynote Speech	
10:30 AM - 11:00 AM	Break	
11:00 AM - 12:30 PM	Issue	Session Chair
Session 1A	SCM & e-Logistics	Irene Wang
Session 1B	Enterprise e-Services Architectures and Service Innovations and Strategies	Hsin-Lu Chang
Session 1C	Customer Relationship Management (Session I)	Jiang Bo
Session 1D	Personalized, Mobile and Ubiquitous e-Service	Siriluck Rotchanakitumnuai
Session 1E	e-Government & e-Communities (Session I)	Peng Zhu Zhang
12:30 PM - 2:00 AM	Lunch (Included in registration fee)	
2:00 PM - 3:30 PM	Issue	Session Chair
Session 2A	Service Innovation and Strategy (Session I)	Rebecca Yen
Session 2B	e-Business and Entrepreneurship	Ping Yi Chao

Session 2C	Customer Relationship Management (Session II)	Wei-Hsi Hung
Session 2D	Business Intelligence	Mika Hannula
Session 2E	e-Government & e-Communities (Session II)	Zhang Cheng

3:30 PM - 4:00 PM	Break

4:00 PM - 5:30 PM	Issue	Session Chair
Session 3A	Service Innovation and Strategy (Session II)	Ja-Shen Chen
Session 3B	Operations Strategy for eCommerce	Benjamin Yen
Session 3C	Data Mining and Warehousing	Indranil Bose Indranil
Session 3D	Case Study in e-Health	Irene Wang

6:30 PM - 8:30 PM	Welcome Dinner (Included in registration fee)

December 2, 2009 (Wednesday)		
8:30 AM - 10:00 AM	Issue	Session Chair
Session 4A	e-Commerce: Theory and Applications Development - Recent Theoretical Advancements (Session I)	She-I Chang

Session 4B	Information Security	Ming Dar Hwang
Session 4C	Innovation in e-Business	Kung-Jen Wang
Session 4D	Information Management (Session I)	Jinlong Zhang
Session 4E	Supply Chain Integration (Session I)	Anming Zhang

10:00 AM - 10:30 AM	Break

10:30 AM - 12:00 PM	Issue	Session Chair
Session 5A	e-Commerce: Theory and Applications Development (Session I)	George Lin
Session 5B	Interactive TV	Rua-Huan Tsaih
Session 5C	Virtual Community (Session I)	Ludwig Chang
Session 5D	Information Management (Session II)	Jinlong Zhang
Session 5E	Supply Chain Integration (Session II)	Xiande Zhao

12:00 PM - 1:30 PM	Lunch (Included in registration fee)

1:30 PM - 3:00 PM	Track	Session Chair

Session 6A	e-Commerce: Theory and Applications Development - Recent Theoretical Advancements (Session II)	PengZhu Zhang
Session 6B	Mobile Commerce (Session I)	Lee Schlenker
Session 6C	Virtual Community (Session II)	Ludwig Chang
Session 6D	Knowledge Management 1	Jao-Hong Cheng
Session 6E	Internet Security and Privacy	Kanliang Wang

3:00 PM - 3:30 PM	Break

3:30 PM - 5:00 PM	Issue	Session Chair
Session 7A	e-Commerce: Theory and Applications Development (Session II)	Ravi Seethamraju
Session 7B	Mobile Commerce (Session II)	Lee Schlenker
Session 7C	Production and Logistics System Optimization	Weiguo Fang
Session 7D	Knowledge Management 2	Liang Ting Peng
Session 7E	IT Outsourcing	Sophia Wang

6:30 PM - 8:30 PM	Closing Dinner (Included in registration fee)

December 3, 2009 (Thursday)	
11:00 AM - 5:00 PM	Macau City Tour (Optional)

(6)個人論文摘述

- 題目

Study of the basic characteristics of an interactive TV service

- 摘要

The general financial crisis has led to much soul searching in the corporate world. Unsurprisingly, in this economic climate, risk management has come to the fore, but investment in e-commerce has also become conspicuous. The two trends are not unrelated. Dreze and Hussherr (2003) have observed that the percentage of revenue derived from internet advertising decreased only 50% of it's previous level, while that generated by Yellow Pages advertisements fell to 93%. Television advertising revenue, however only decreased to 97%. This evidence suggests that Web-based advertisements have had a deleterious effect on the development of e-commerce. Television advertisements have monopolized market share, and Tsaih, Chang and Huang (2005) have attributed the successful delivery of iTV content to four primary characteristics: appeal, direct interactivity, accessibility of information, and customization. Each falls under the rubric of customer-driven value as providing the impetus for a prospective iTV commerce. Firms tended to refocus on television because they expected the interactive pattern of e-commerce to pioneer commercial development of an interactive TV service (iTV service).

The problem with this novel strategy was that the iTV service was too conceptually nebulous to readily comprehend. It was variously mistaken as referring to a network television service and a digital television service. To avoid further setbacks, it is very important that we clarify the basic

characteristics of iTV service for the benefit of the fields of information technology, MIS, broadcasting, commerce and so on.

After conducting literature reviews and interviews, we were able to delineate the basic characteristics of iTV service as follows:

1. The contents of iTV service:

We refer to iTV content to specify television content with attached iTV enhancements. These enhancements are code-activated by users to access content. The content consists of three types:

(1) iTV broadcasting content:

This video stream is based on a broadcaster's fixed schedule of channels. If subscribers wish to watch the content, they use a remote control to choose the channels of a broadcasting company. The contents could consist of either programs or advertisements.

(2) iTV enhancing content:

This refers to a video file of a [video] website. To watch content, subscribers first select it by clicking on the item. It is then transmitted to the TV from the video website.

(3) iTV inserting content:

Here we refer to a literal-string or graph of iTV broadcasting content or the iTV enhancing content from broadcasting systems or video websites. It actively displays on users' TV sets in the form of moving literal-strings or by opening small pop-up windows without any prompting by the user.

2.The supply and use process, and components of the iTV service :

In terms of subscriber demand and the system company (Cable TV) supplier, three viewpoints can be extrapolated :

(1) Process: To sum up:

Step1:

Supply-end: A Broadcasting system broadcasts contents to Demand-end:

a set box.

Step2:

Demand-end: A user watches TV contents and uses an operating equipment (such as a remote controller to propose requests (from Demand-end: A set box) to Supply-end: A management system-data recording system.

Then Supply-end: A management system-data recording system deals with requests and sends requests to Supply-backend systems. (Such as a video Server & system, transaction, system, client service system etc.)

Step3:

Supply-backend systems (Such as a video Server & system, transaction, system, client service system etc.) replies requests to Demand-end: A set box.

Then users repeat the process.

(2)Components: To sum up:

Supply-end:

A management system-data recording system , a broadcasting system , a backend system.

Demand-end:

A TV set, An operating equipment, a set box.

Public or Supply-end:

A return path, a network line, a channel of transmitting the broadcasting system signals.

(3)Feedback patterns of the iTV service:

The key factor was the feedback of users in regard to supply and usage. Because feedback was transmitted by the return path, we referred to it as return data. Its contents were subdivided into two types:

- The situational item (reactivity):

This is a record of the subscribers' patterns of movement and viewing

times, in tandem with the content thus consumed. The data was recorded in the subscriber's terminal device to assist firms' understanding of the subscribers.

- The Opinion item (feedback):

The input of subscribers was assessed according to a variety of categories. For example, a subscriber could vote for the best actor or topic, rate a service or program, and so on. This data helps firms to more effectively understand the opinions, requirements, and expectations of their subscribers.

（二）參訪香港中央圖書館與澳門中央圖書館過程:

A.香港中央圖書館

香港中央圖書館，在香港特別行政區具有中央與公共圖書館雙重身份。其位於銅鑼灣摩頓台，樓高 12 層，佔地約 9,400 平方米，平 面面積 33,800 平方米，建築費高達港幣六億九千萬元。並且，香港中央圖書館還獲選被指定爲九個國際組織的收藏圖書館，包括亞洲 開發銀行、歐洲聯盟、國際海事組織、聯合國、聯合國教科文組織、 世界銀行、世界貿易組織及世界糧食計劃署。

爲利於瞭解香港圖書館，如下從其目標、建設、館藏等進行本次參訪之報告。

- 目標

香港圖書館服務由「康樂及文化事務署」提供，以配合社會人士 對知識、資訊、自學進修及善用餘暇的需求，以及推廣本港的文學藝 術。所以，目標是以下列方式爲市民提供服務：

1.作爲資訊中心 ：

爲公眾人士提供免費設施，俾能輕易獲取有關各學科及其最新 發展的資料；

2.作爲持續教育的工具:

讓市民利用圖書館資源去自學進修；

3.作爲推廣香港文學活動和文學研究中心 ：

促進市民對文學創作和研究的興趣，鼓勵和推廣文學寫作，發展 和保存香港文學，以及促進文化交流；

4.作爲消閒去處:

讓市民外借館藏回家享用，善用餘暇 ；

5.作爲社區文化中心 ：

舉辦均衡及以圖書館資源爲本的活動，爲不同年齡的讀者提供 資訊、娛樂和消遣及爲日常生活增添姿采。

- 建設

2001 年 5 月 17 日，位於銅鑼灣摩頓台的香港中央圖書館已經落 成啓用。啓用後，香港中央圖書館已成爲本港最具規模的公共圖書 館，館藏量可達到二百萬項。擁有最先進的資訊科技及數碼圖書館的 設施，香港中央圖書館成爲了香港公共圖書館系統的行政總部及主 要圖書館，與及香港的主要資訊中心。除了基本的圖書館設施及服務 外，香港中央圖書館亦會提供一個分有六個不同專科部門的中央參 考圖書館，一個玩具圖書館，一個青少年圖書館，與及一些可供租用 的場地設施包括展覽館及演講廳。

香港中央圖書館的館藏共 1,248 萬項，當中包括書籍、視聽資 料、報章、期刊、唯讀光碟數據庫、縮微資料及地圖等，涵蓋各個學 科的廣闊知識領域。部分的館藏可供讀者外借，其餘的則存放於館 內 作讀者參考之用 。

所以，香港中央圖書館，一方面爲市民提供較大規模的圖書館設 施，另一方面提供更全面的參考及資訊服務。

- e 化

現時的公共圖書館系統由 66 間固定圖書館、10 間流動圖書館組 成。這些不同規模及類型的服務點平均分佈於香港境內每個區域，並 且經由圖書館自動化系統連接起來，爲不同年齡及不同界別的讀者 提供簡便快捷的多元化公共圖書館服務。爲利於對香港中央圖書館的了解，如下分成

e 化設施與整合 e 化說明:

1.e 化設施

包括自助借書機、還書箱服務、資訊終端機及多媒體資訊系統。這些都是全港最新的自動化設施。

另外，爲大大提高圖書館服務的效率，令讀者在更有效快捷獲取 館藏資料的同時，也令圖書館在人力資源分配上，獲得最佳的效益。 現時的圖書館自動化系統，是世界上最大型的雙語兼容圖書館自動 化系統之一。透過圖書館目錄終端機、互聯網設施及多媒體終端機， 以多媒體形式傳播的電子資訊已經成了圖書館資源中不可或缺的組 成部分。公眾人士現時已經可以在偏遠的地點獲取圖書館的服務， 包 括透過電話或互聯網續借書籍，在互聯網上翻查聯機公眾檢索目錄、 預約書籍及以電子郵件查詢資料等，爲讀者提供了更大的方便。

香港中央圖書館的多媒體資訊系統，亦可帶來全新的公共圖書 館服務。這個系統改變了以往尋找資訊的模式，爲你提供搜尋及篩選 數碼化資訊的一站式服務。多媒體資訊系統爲你提供了自選錄音 (AOD)及自選視像(VOD)服務。此外，系統也提供不同的數碼化圖像資 料如縮微膠卷、剪報、地圖、海報和場刊等。利用已連網的工作站或 互聯網，你可以不受地域限制地查閱及使用各類數碼化資訊。由於版 權限制的關係，大部份視聽資料祇可在館內使用。

總之，香港中央圖書館擁有最豐富的參考館藏，且是多個主要國 際機構及本地書刊註冊組的特定藏書處。並且，是香港特別行政區的 中樞系統及資訊中心。

2.整合 e 化

對於香港地區圖書整合 e 化部分，因其具有香港特別行政區中央圖書館的地位。故具有推行整體圖書整合 e 化的權力，較無整合圖書的困擾。

並且，其亦對外進行圖書整合 e 化，如爲加強大珠江三角洲在文 化藝術方面的合作，促進三地的藝文交流，粵港澳三地的文化部門， 包括廣東省文化廳、香港特區政府民政事務局及澳門特區政府文化 局於二〇〇三年八月簽訂 「粵港澳藝文合作協議書」 ， 共同拓展藝文合作空

間。根據該合作協議書，粵港澳三地圖書館數字化聯網， 在統一平台上互換館屬信息資源是主要的合作範疇之一。經過各方 的努力配合，三地圖書館網站現已落實開設「粵港澳圖書館專訊」及 「粵港澳圖書館參考諮詢服務」網頁的連接。

還有，將香港公共圖書館、澳門中央圖書館、深圳圖書館與廣東 省立中山圖書館的書目數據庫連接互通,讀者可透過 Z39.50 網關同 時檢索三地圖書館的書目的「粵港澳圖書館聯 機 目 錄 」資料庫 查 詢服務，而更加強圖書館間的交流，爲三地讀者提供更豐富的資訊 。

B.澳門中央圖書館 e 化

澳門中央圖書館，乃指總館，成立於一八九五年，館址設於聖奧古斯定修道院。總館發展歷程艱辛，曾於一九一七年至一九二九年搬遷於聖用約瑟修院、峰景酒店大樓、塔石殘疾人收容所及前市政廳大樓，及至一九八三年才遷於荷蘭園大馬路現址，遂後發展壯大至今。總館歷經多次搬遷與更名，其組織型態、藏書結構與服務對象亦逐漸改變，但是其擔負促進人類精神文明和培育人才任務卻始終如一。

現在的澳門中央圖書館之服務已趨多元化，除了提供基本的服務，如讀者證辦理、資料影印與查閱、圖書借閱及報刊閱覽外，還增加微縮資料查閱、澳門資料參考諮詢、逾期報刊閱覽、寬頻上網、電子化新聞資訊、電子資源資料庫、銷售文化局出版物等服務。

如下從分館介紹與整體說明進行本次參訪之所得報告。

(一)分館介紹

澳門中央圖書館，尚有相關的分館，簡述於後：

1. 何東圖書館

建於一八九四年，原主人爲官也夫人，其後數易其主，輾轉由香港富紳何東爵士於一九一八購入。爾後，其逝世後由後人遵照遺囑將崗頂前地三號的故居贈與澳門政府，並捐贈 25000 港元購置中文圖書，而建立此所收藏中文書籍的公共圖書館。整體而言，何東圖書館的館藏特色以古籍、

文、史、哲、藝術、建築類書籍及多媒體視聽資料爲主。

2. 青洲圖書館

位於青洲美居廣場四樓，開設於一九九五年，是當時首家採用圖書防盜系統的澳門公共圖書館。整體而言，青洲圖書館主要提供讀者證辦理、圖書及多媒體視聽資料借閱、資料影印、澳門特別行政區政府公報查閱、報刊雜誌閱覽、寬頻上網及檢索網上電子資料庫等服務。

3. 望廈圖書館

開設於一九八八年，其館藏具有豐富的兒童書刊及親子教育類書籍，十分便於附近中小學學生及家長借閱。整體而言，望廈圖書館主要提供讀者證辦理、圖書借閱、資料影印、澳門特別行政區政府公報查閱、報刊雜誌閱覽、寬頻上網及及檢索網上電子資料庫等服務。

4. 民政總署大樓圖書館

以葡國瑪弗修道院圖書館爲設計藍本，裝潢與家具陳設具有濃厚的古典氣息。其於一九二九年啓用，是澳門圖書館的前身，也是服務時間最常與館藏價值較高的圖書館之一，專門收藏十七世紀至二十世紀中葉的外文古籍，特別是葡國在非洲及遠東的歷史文獻。此外，還有十九世紀末到二十世紀初期的葡文報紙，一包含一八二二年創刊的蜜蜂華報，其是澳門地一份報紙。整體而言，民政總署大樓圖書館館藏特色以外文古籍、葡萄牙在非洲與遠東的歷史文獻爲主。

5. 路環圖書館

設立於一九一一年，前身爲路環公局市立學校，直至一九八三年正式改建爲圖書館。整體而言，路環圖書館館藏書籍以兒童讀物及通俗小說爲主，提供讀者各地報紙與各類雜誌。

6. 流動圖書館

其服務開始於一九八六年十月，首輛圖書車固定停泊於白鴿巢公園前地，第二輛則於一九八八年十一月投入服務，兩輛車開始輪流停泊於人口稠密的街道。爾後，隨這兩輛圖書車的相繼退役，新貨車於二零零五年十一月投入服務。該車共三十一層書架，藏書以大眾讀物、園藝、家政、醫

藥與小說書籍爲主。

(二)整體說明

澳門中央圖書館，乃隸屬於澳門特別行政區市政廳，具有中央與地方圖書館雙重地位，亦即凡澳門地區出版的圖書必須送存兩本到澳門中央圖書館收藏，並兼具供一般民眾使用的公共圖書館之性質。

如下從資料庫選擇、書目整合、圖書 e 化與未來隱憂進行說明。

1. 資料庫的選擇

因於預算有有限，則以豐富館藏欠缺的資料庫爲主，亦即以採購具有特色的資料庫爲主。目前主要以大陸論文與期刊資料庫，以及香港報紙資料庫兩大類爲主。並且，採購大陸與香港二類資料庫可使館藏於中文圖書資料更具完備。

2. 書目整合

由於其具有澳門地區中央圖書館的地位，再加上地區內並無強勢的圖書單位。因此，其對於圖書書目具有絕對的整合地位，完全由澳門中央圖書館負責編目，澳門地區各處亦遵循其編目。目前因於電子資源的內容不易掌控，則未納入書目整合。但是，亦積極規劃處理的方式。

3. 圖書 e 化

澳門中央圖書館因具有中央及圖書館的地位，故高層非常支持其進行 e 化，並且授予其中央集權的權力進行 e 化的推動。但是，因逾其規模有限，其發展時間較晚，則目前對於圖書 e 化的推動，主要採行套裝軟體(台灣的資訊公司-傳技公司的圖書產品)進行。目前進行十分良善。而對於圖書資源的備份，亦是異地備份的概念，故目前乃備份於文化局。

4. 未來隱憂

主要是空間的不足與電子資源的選擇兩方面:

a.空間的不足：

一則因於部分空間處於古蹟所在處，則不可擴充或改建，二則因收藏的圖書日多，擇空間越顯不足。

b.電子資源的選擇：

隨著資訊化時代的來臨，電子資源日益廣泛，如何選擇購買，以利其特色的豐富與使用的成效，即是未來必須面臨的要項。

三、心得

對於此行的心得亦可分爲兩方面：

首先，對於參加第九屆電子商務國際研討會的心得如下：

參加此次第九屆電子商務國際研討會(ICEB 2009)，乃於館長指導並與個人一起對論文主題中最新議題之一的”互動電視服務（Interactive TV Service）”進行研討。爾後，則以”互動電視服務基本特質”投稿。期間不僅對於論文內容投入甚深，且對中英文的處理亦費時甚多，並終於完成摘要與全文。最後，經過摘要與論文兩次的雙盲審查，終於脫穎而出並或邀前往發表。

然而，本次論文發表的最重要意義，除了表達本館對學術研究的重視，更重要的是提出如何應用數位社會最新服務的互動電視服務於本館服務，如數位內容（如電視新聞）之回溯查詢服務、（多頻道）意義比對查詢服務、隨選視訊服務等，這些觀點與服務都獲得在場學者的認同與肯定，確實於國際研討會有效推展本館的學術研究面與實務運作面成果。

其次，是本次參訪香港中央圖書館與澳門中央圖書館，具有如下的心得。

圖書館是人類心靈和各種創作的搖籃，這個搖籃即將因應時代所需而發展爲數位化圖書館，但是也因內容與機制的轉化而產生挑戰。然而，圖書館應該從根本改變，掌握「化危機爲轉機」的致勝秘訣，提昇角色，定位至知識管理者，同時善用數位圖書館的相關科技，主動行銷、傳遞知識與資訊，並在科技與人文、傳統之間找到平衡。所以，本館積極發展數位圖書館，並訂定今年(2010)爲國家圖書館 e-promotion 年，確是符合時代所趨。

而本次的參訪-香港中央圖書館，其與澳門中央圖書館相較之下，腹地較大、發展較早與經費較豐，則不僅硬體的建築較爲宏偉，其資訊設備與系統規模較大且較爲完整。尤其是香港中央圖書館的視聽服務已經邁入

(館內)隨選視訊的服務，可以提供讀者便捷的影音視訊服務。除此，香港中央圖書館亦具有自動運輸箱，可以自動將書籍運送到合適的單位，以利館員收集整理。對於圖書資訊化方面，亦因其具有香港地區中央圖書館的地位，故圖書編目具有領導權限，可掌控香港地區的圖書書目。

而本次的另一參訪處，在澳門中央圖書館雖然未見先進的數位化科技，但是卻發現其掌握整合全澳門圖書的書目地位，並統一運用唯一的資訊系統處理，而此系統則爲我國資訊廠商所客製發展。由此可知，我國資訊廠商已具有整合圖書的客製能力，顯然本館可以信賴我國資訊廠商整合圖書的客製能力，無須處處仰賴外國的套裝圖書軟體。而且，澳門中央圖書館長也一再表示客製資訊系統的好處，顯然客製化資訊系統是本館發展資訊化的必然考量。對於圖書資訊化方面，亦因其具有澳門地區中央圖書館的地位，故其圖書編目易具有領導權限，亦可掌控澳門地區的圖書書目。

四、建議事項

對於此行的建議亦可分爲兩方面：

首先，對於參加第九屆電子商務國際研討會的建議如下：

因此，若俟後有類似的國際性研討會，則建議同仁不僅可積極前往參加，更可投入論文的發表，既可利於自我的研究能力，亦可有效推展本館於國際社會。

其次，是本次參訪香港中央圖書館與澳門中央圖書館，亦提出如下的建議。

本次的兩館之參訪，從其 E 化的軟體系統與硬體設備，都令人多有啓發。亦可作爲個人投入本館 E 化的參酌。不過，因於時間限制，未能到大陸圖書館參訪，而目前的大陸圖書館無論軟體系統與硬體設備都有長足進步，實值得前往參訪。因此，建議下次可針對大陸的重要圖書館進行參訪，以促觀念與實作的發展。

附錄

(一)　發表論文全文

STUDY OF THE BASIC CHARACTERISTICS OF AN INTERACTIVE TV SERVICE

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Abstract

The iTV service was too conceptually nebulous to readily comprehend. It was variously mistaken as referring to a network television service and a digital television service. To avoid further setbacks, it is very important that we clarify the basic characteristics of iTV service for the benefit of the fields of information technology, MIS, broadcasting, commerce and so on. After conducting literature reviews and interviews, we were able to delineate the basic characteristics of iTV service as follows:1. The contents of iTV service; 2.The supply and use process, and components of the iTV service.

Format Instructions

1.Background and motivation

The fall out from the financial tsunami has severely affected every industry. Without exception, enterprises are actively seeking new business opportunities to ward off its effects. With the developed networks of the current era, e-commerce is receiving particular attention and making serious waves. The embedding of advertisements on the World Wide Web is growing in prevalence. However, only 50% of this embedded advertising is seen by users. This is considerably smaller than the 93% of advertisements seen in the Yellow Pages and the 97% seen on television. Indeed, it demonstrates that the development of e-commerce has been largely unsuccessful. In addition to holding the highest rate of television advertising, Tsaih, Chang and Huang [22] state that transmitted ITV content has the following four characteristics and each of them can be referred to as a (customer) value driver of the proposed ITV business: appeal, direct interactivity, accessibility of information, and customization. Therefore, enterprises are again focusing on television, and are using the interactive model of e-commerce to guide the development of interactive television services. In turn, this is prompting the evolution of other services such as in the digitalization of book content. This evolution forms as a background to the current study.

Given the novelty of interactive television services, it is easy to form misconceptions. A simple example is the misunderstanding that network television and digital television can provide interactive television services. This has affected the development of these services, thereby delaying the next wave of business. In addition, this also affects the reach and evolution of related services. The major tasks and purposes of this study are to determine how to define the fundamental characteristics of interactive television services, to effectively grasp the focus of development and to encourage the realization of new business opportunities and services.

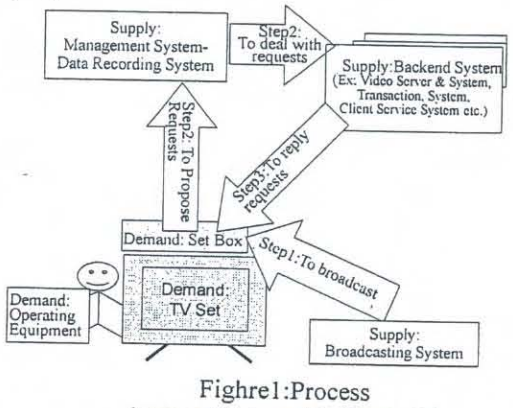
2.Literature review

The following literature review was carried out to establish the foundation and coherent development of this research.

2.1Television services

Kim and Sawhney[14] argue that television services have the ability to generate and exchange of control information. Culturally, the audience passively receives the services provided by the company (television station and system operator). Institutionally, television services are controlled by government and supervisory bodies. Technologically, television services preserve the social structure under the central government and the audience passively receives services from the company (television station and system operator).

Television services present content in the televising equipment of the audience during the process of broadcasting (as in Figure 1 [5]). However, for each generation of television services the business models, control strategies and regulatory models are different (see Table 1: Galperin and Bar, [10]).



Fighre1:Process
Source: Chiung-Yu Huang[5]

Table 1: Table of comparisons of three generations of broadcasting

Generation	First generation: Fordist television	Second generation: Multi-channel television	Third generation: ITV
Service	One-way broadcasting of few video channels	One-way broadcasting of multiple video channels	Two-way delivery of multiple video channels and other services
Business model	Mass advertising and/or license fees	Mass advertising, license fees and subscriptions	Targeted advertising, subscriptions and transaction fees
Control strategies	Property rights over spectrum license	Integration of distribution and content assets	Access control and proprietary standards
Regulatory Model	Public trustee (incumbent protection)	Mix of public trustee and limited utility regulation	Yet to be defined

Source: Galperin and Bar [10]

2.2Interactivity and interactive media

Interactivity that is not integrated with media technology is simply face-to-face dialogue. If it is integrated with media technology, then there are three approaches: communication, mediated environment and empowerment of the users [14].With regard to communication, it is argued that the key components for interactivity are information analysis and exchange. The emphasis is on the scope of awareness and depth of experience in terms of the mediated environment, and the communication in the mediated environment is highly valued. By empowering users, it is believed that interactive media can provide a platform for different levels of communication through the generation and exchange of control information on consumer usage.

Kim and Sawhney[14] argue that new interactive media can provide all kinds of objectives for users, such as communication platforms for entertainment or knowledge sharing. Therefore, new interactive media should include communicability – which can take the form of any type of communication (such as one-to-many, many-to-many, or many-to-one); malleability – so that it can adapt to the needs of individuals and groups and provide them with a voice; information and images are also elastic; programmability – so it can design information platforms to handle and generate information; and creativity – so the potential is created for individual news. Therefore, interactive television has consumer power of control at the center and has already surpassed traditional television media, which only offers a complete set of programmed content. It is different from traditional television media, where control is centralized and cannot be transferred.

Pramataris et al [17] argue that the greatest contribution of interactive television is the new opportunity for personalization of the media. In traditional media, sellers or advertisers have to use direct consumer surveys from market research companies in order to obtain information about customer responses. Thereafter they can improve their advertising or implement enhanced customized services. However, with this method it is very difficult to verify whether these services or advertisements are really being provided to potential target consumer groups. With interactive media, customers can directly or indirectly provide their viewing or usage information through their interactive behavior. In addition, they can also amend or present individual customer information, rather than information for a large consumer group.

2.3Interactive television services

The definition of interactive television services according to the Independent TV Committee in Britain is that "interactivity is a function and not a special form of service, and it can be used in many different situations" [13].

Viewers can be involved in the exchange in the following ways. Firstly through changing the content that appears onscreen, like choosing television programs or advertising background information, or scene selection. They can also watch a secondary program while watching one of these programs. Secondly, through providing information to television stations through return channels (usually phone lines), such as ordering goods, providing opinions on television programs and through voting or participating in game shows. These services, whether provided via satellite, cable or wireless digital, can only be used by members of the public with digital equipment. Furthermore, Britain's Independent TV Committee argues that the general approach of interactive television services is different from network services. Its content and services are developing well, but only in an environment with the support of more broadly identifiable standards can station managers, advertising representatives and viewers become more willing to trust and utilize each other.

Yu-li Liu[25]argues that although two-way interactive television services have both narrow and broad definitions, feedback is the essential factor in both. The narrow definition refers to the system (or channel) operator placing the scheduled programs

into the video server, which at any time can respond to subscriber demands. Consumers can receive all their desired programs and services through their television set via transmission networks, transmitted program signals, and digital decoders. The broad definition refers to interaction with the programming source, not necessarily through a network. Communication can be over the telephone, such as song selections, call-in shows, and responding to voice and multimedia information. These all come under the broad definition.

Brown and Anderson[4] argue that the concept of interactive television services, where the level of audience participation is clearly increasing, is that consumers can become programming managers and enter information and areas of entertainment, transforming television into a consumer entertainment center and shopping cart. Additionally, ITV services also emphasize initiative and immediacy; it can provide users with a large amount of information and can immediately present information such as user opinions and lists.

Galperin and Bar[10].believe that ITV is a pull strategy: subscribers request services from multi-channel video programming distributors (MVPD), which are not necessarily linked to specific video programming. ITV has already surpassed the concept of a simple expansion of current television. Furthermore, viewers themselves take the initiative to send requests to providers. Services are not actively provided on the supply-side.

Galperin and Bar[10].categorize ITV as follows. One is a program-related ITV service, which is integrated with any particular video stream; and the other is a dedicated ITV service, which is not integrated with any particular video stream. The former is directly linked to one or several video streams and can be used to strengthen and expand the core business of television stations. The latter is independent from any specific program stream, and is sent with multi-channel video programming to third parties who have signed contracts, such as those pertaining to information, shared content and services for car salespeople and bankers. Multi-channel video programming is sent to station manages and subsequently offered to third parties for their input.

According to Tsaih et al.[22]., interactive television services can be split into the categories of "walled gardens", where multi-channel video programming controls the transmission, and online "wild forests", which are not restricted by multi-channel video programming. The difference between the two ITV services is in whether or not the consumer can receive third party content or services that are not in collaboration with multi-channel video programming.

Pramataris et al. [17] argue that in terms of the level of interactivity of ITV, it is believed that different types of interactive television programs can lead to different levels of viewer interaction. Therefore, interactivity is a two-dimensional structure. Firstly, the level of interactivity depends on the nature of the content. Secondly, the level is the inclination of viewers to interact. Yu-li Liu [25]argues that the two-way interactivity of ITV services can be separated into five levels (as in Table 2). The higher the level, the more sophisticated the level of interactivity.

Table 2: Levels of two-way ITV services

Level of interactivity	User operation model	Communication medium	Application
None (0)	Linear broadcast, users can change the channel and program	Telephone	Similar to pay-TV video-on-demand
Low (1)	Linear broadcast, users can talk to the host of the provided content and have the same control over programming as in the operation of a VCR	Cable TV , not in real time	Pay-TV video-on-demand
Middle (2)	Wireless broadcast, users can talk with the host of the provided content and have similar control programming as in the operation of LD	Cable TV network in real time	E-catalogues
High(3)	Wireless broadcast, users can select servers and terms of service	Cable TV network in real time	Electronic banking
Complete (4)	Wireless broadcast, users can select servers and terms of service, and can have	Cable TV in real time, and can also provide real time	Video conferencing and multi-

	exchanges with other users	voice and video streaming	player video games

Source: Yu-li Liu[25]

3.Research method and limitations

The topic of this study is relatively new, and the research method and limitations are particular. They are described below.

3.1.Research method

The purpose of this study is to clarify the concept of ITV services and confirm the key criteria for their operation (such as operation contents, process, elements and data return) to benefit future exploration of related topics. It is also related to discussion on governmental and national (broadcasting and technology) policy, legislation and industry support. Further, as the topic is relatively new, its promotion requires new mechanisms and there are many areas where knowledge is limited or relevant factors have not been confirmed.

Therefore, the nature of this study is similar to the qualitative research described by Marshall and Marshall and Rossman[16], which stretches across several different directions and social phenomena, has a naturalistic orientation and has an interpretive quality. Furthermore, the purpose of this study is, as Marshall and Marshall and Rossman[16]describe, an exploration into a novel and relatively uncharted system, and explore the relevant factors which have not yet been confirmed. This study has the value of qualitative research, it will therefore adopt this as its research method.

For qualitative research, the specific history and context is very important. This information largely exists in data and literature which must be reviewed. Then it is possible to describe meticulously and in detail specific values and beliefs [16]. Therefore, this study expands upon the analysis of Li Zhengxian[26]: a. Organized data; b. Determined categories, themes, styles and patterns; c. Organized data into groups according to category, theme, style or pattern; d. Tested emerging rational understanding gradually; e. Sought other possible explanations; f. Ordered key points and wrote a report; and g. Conducted deeper explorations and conclusions in the hope of bringing forward rational and objective content.

3.2 Research limitations

This study's research limitations are mainly in the limited literature and nature of the research.

A. Limited literature

a. Exclusive literature is limited; b. Significant literature focuses on technology, and there is confusion and overlap with the situation of network television; c. All current experiments and case studies are overseas, services are limited and first-hand information is difficult to obtain.

B. Research limitations

This study has innate qualitative research limitations, such as no supporting quantitative data, no statistical significance as analogy, no genuine empirical hypothesis and no structured research sequence.

4.The basic characteristics of interactive television

From the above analysis, it is clear that ITV can come under the categories of service or operation. However, both use the platform of television, have an interactive nature and fundamentally can derive content, process and key factors, and feedback material. This is described below.

Characteristic 1: Content of ITV

ITV service content, also called ITV content, refers to the ITV enhancement of television content. This offers users another interactive television content code which enables them to click and interact. Currently, the code is not embedded. The World Wide Web can be used to ameliorate understanding of the above terminology. Web pages are text with coding for hyperlinks, where another page of content appears after the user clicks on them. Currently, television content is just like the above-mentioned webpage text without the added hyperlink coding. ITV content, however, has the addition of this coding. Clicking on ITV links brings forward more ITV content, just like clicking on a web page hyperlink brings another web page.

ITV content can appear as soon as a subscriber turns on the television, and can also appear after the user clicks. Three explanations are given below of the key points in the appearance of ITV services and user exchange:

1.ITV broadcasted Contents:

This content is relayed according to a fixed schedule and is actively transmitted via the video stream of the channel in question. Subscribers only need particular equipment (currently a remote control) to select a channel and view content. This content can be either programming or advertising. The option for interactive television is included in transmitted ITV content. Subscribers can use this function to click and make selections, and transmit their opinions or view parallel ITV content. This is the origin of interactive television. In other words, for subscribers, ITV content provides scheduled programming and (still in its infancy but emerging nonetheless) windows for interactive television activities.

2. ITV enchanced contents

This content requires users to click within interactive television content for embedded ITV enchanced contents coding. Only then can they receive transmitted video files from video sites.

The ITV enchanced contents contains the

option for embedded ITV coding. Users can utilize their equipment to click and make selections, and transmit their opinions or view parallel ITV content. This is an extension of ITV services. In other words, for users, ITV provides additional viewing content and is continuing to provide windows for interactive television activities.

3. ITV inserted contents

This content is actively displayed in marquees or other small windows from broadcasting systems or video sites to present the text strings or graphics in ITV content or ITV enchanced contents. It does not require users to click as it automatically appears. Within inserted ITV content there is the option for embedded ITV coding, and consumers can use their equipment to click and make selections. They can also transmit their opinions or view parallel ITV content. In other words, for users, inserted ITV content provides additional viewing content, and with greater prevalence is providing windows for interactive television services.

For example, when users are watching an interactive television transmission of baseball from a broadcasting system, they can use the remote control to make selections from ITV enchanced contents, such as the uniform numbers of team members, sponsoring organizations, team member histories, or commercial product descriptions. If promoted products appear in the marquee, the remote control can be used to make a selection and receive the product description. Users can even conduct purchases or exchange pre- and post- purchase opinions. Also, if users are watching the broadcast of a political commentary, they can use the remote control to directly participate in public opinion polls.

Characteristic 2: Process and key criteria for ITV services

The discussion below is from the standpoint of consumers on the demand-side and system operators on the supply-side who directly come into contact (via cable television) with consumers.

A.Process

The enjoyment process for subscribers on the demand side is as follows:

Step 1: Watch. View the interactive television content.

Subscribers view the interactive content on a particular channel.

Step 2: Request. Submit a request for interactive television services.

When subscribers wish to submit a request for interactive television content, they can use certain equipment (currently a remote control) to make selections from broadcasts or inserted content and transmit requests for broadcast information or additional interactive content.

Step 3: Respond to ITV service requests.

Broadcast information should be entered into operating equipment according to its instructions. To change the channel, return to Step 1. To view the requested ITV enchanced contents, go to Step 4.

Step 4: Continue or conclude a request – to continue or conclude an ITV service request.

When subscribers wish to continue their requested ITV service, that is, use their equipment again to select ITV (additional or inserted) content (such as transmitting their opinions, or again requesting ITV enchanced contents), or change the channel, they should return to Step 3.

When subscribers wish to end their request for ITV services, they use the equipment to click on the corresponding selection and return to Step 1. They can also directly select channels and return to Step 1, or turn off the television.

The provision process for supply-side (cable television) system operators is as follows:

Step 1: Broadcast. Broadcasting ITV content.

After (cable television) system operators obtain the content station managers include in their ITV broadcasted Contents, it is broadcast through the transmission system. Short relevant ITV enchanced contents can also be transmitted at the same time and temporarily stored in the consumer's set top box.

Step 2: Handle requests. Responding to and logging ITV service requests.

If the corresponding ITV enchanced contents is already stored in the consumer's set top box when the consumer submits a request for ITV services, the set top box can immediately display the content on the consumer's television screen. Through the return channel it can transmit related consumer usage data in regards to ITV services to (cable television) system operators to use when handling the main system and usage data logging system.

If the corresponding ITV enchanced contents is not temporarily stored in the consumer's set top box, then the set top box will immediately send a request for corresponding ITV enchanced contents through the return channel to the relevant back end system (such as a video server system, exchange system or customer service system) in the far-end video site. Through the return channel it will also send relevant usage information to (cable television) system operators who handle the main system and data logging.

The provision of the above ITV services, usage processes and relevant equipment can be seen in Figure 1.

B.Key criteria

The provision of content or services

The providers of television content or services can include program producers, television station managers, and advertising agents and companies (or third parties). Providers responsible for content or services should have the right skills, materials, hardware and software, and financial resources in

order to fulfill the two criteria below: providing interactive television content or services, and ensuring the procedure is smooth.

The first criteria for providing interactive television content or services:

1. Produce ITV content or services.

2. Manage and control ITV content or services.

There are two methods in producing ITV content or services:

Method 1: Revise traditional television content to become interactive;

Method 2: Produce interactive television content directly.

Both methods must include the following:

(a) Content must be planned and produced for MPEG video streaming, which is necessary for ITV content; (b) ITV coding should be embedded in the program content described in (a); (c) This television content must be managed and controlled.

Method 1 adds the function of ITV content to traditional television content: 1. Produce MPEG video streamed television content; 2. Replan and reproduce television content described in (1) so it conforms to the requirements of ITV content, such as the production of MPEG video streamed content requesting and explaining user responses; 3. Embed corresponding interactive television coding and related functions for the MPEG video streamed television content mentioned in (1) and (2); and 4. Manage and control the above-mentioned ITV content. Content or service providers can take full responsibility for these tasks. Tasks 1 and 2 can be entrusted to other program producers, station managers, or advertising agents, or ITV service providers can take responsibility for Tasks 2, 3 and 4.

Tasks in Method 2 are to directly produce ITV content. There are two main forms:

1. Directly plan and produce television content so that it is suitable for interactive television services, and enter interactive content, such as requests for consumers to respond to topics and explanations after these responses, into MPEG video streaming before embedding the necessary code for additional ITV into the content; and 2. Manage and control the above-mentioned ITV content. ITV service providers can also take full responsibility for these tasks, or Task 2 can be entrusted to an ITV service supplier.

Integration and presentation of channel (broadcast) content

Individuals who integrate and present ITV content may be station managers or system operators. They must have the right skills, source material, hardware and software, and financial resources to fulfill the criteria below: to provide pre-integrated ITV content for channels and ensure it is presented in its entirety.

Criterion 1 is to provide pre-integrated ITV content (including programs and advertisements) for channels. This refers to the integration of ITV relay, attachments, inserted content and non-interactive TV content to become content for one or many channels.

As for Criterion 2, which is to ensure the delivery of ITV content in its entirety, it is necessary to sign a contract with the broadcasting channel's (cable television) system operators to obtain the commitment to ensure that there will be no disturbance to the broadcast. This commitment includes: the verification that there are no problems with pre-integrated ITV content for the channel; verification that there are no problems with the relay of additional and inserted ITV content; and the guarantee that the set top boxes or home terminals of subscribers can handle and present all the ITV content.

Transmission of ITV channel content and handling of ITV services

Those who handle the transmission of ITV channel content and ITV services can be system operators. They need to have the right skills, source material, hardware and software, and financial resources to completely fulfill the two criteria below: transmit ITV content in its entirety and comprehensively handle ITV services for customers.

The task for Criterion 1, which is the complete transmission of ITV services, is to provide a broadcast system and signal channels for transmission systems to broadcast ITV content.

Criterion 2 is the comprehensive handling of ITV customer services. The four main items are: 1. A return channel to transmit signals of user service requests to system operators' video sites, and transmit ITV (additional and inserted) content from back-end systems (such as video server networks of content providers or station managers) to subscribers; 2. Video sites, back-end systems and network connections to receive and decipher signals of user service requests, and respond to these requests; 3. Subscriber set top boxes or home terminals to show the ITV content from the operator; and 4. Information systems to record customer usage information.

According to Galperin and Bar's (2002) description, it is best to use a broadband internet connection for the return channel described in Criterion 2. Video sites are responsible for handling and recording user requests for services. They receive and decipher service request signals transmitted by subscriber set top boxes or other systems, record user-related response data, and command self-related systems or back end system operations to respond to user requests. These video sites usually include a main system and data logging system. The back end system receives video site commands and transmits appropriate responses to all kinds of ITV service requests to subscriber set top boxes. This usually includes video server computer

systems, exchange systems, and customer service systems. The video server computer system is the most important in presenting television content. It can deposit a large amount of attached ITV content and receive commands and transmit appropriate attached ITV content to subscriber set top boxes.

Operators themselves can handle tasks related to additional ITV services in Criterion 1 and 2, and can wholly or partially entrust responsibility to ITV service suppliers.

C. Enjoyment of services

To enjoy ITV services, subscribers must first order them from their ITV service provider (such as the cable television system operator). Second, they need to have a set top box or home terminal equipment which can receive and handle ITV services or content and link up with the main video servers of ITV service providers, and also equipment which can activate additional code for ITV services or content and convey requests for ITV services, such as a remote control.

The composition of the structure of the ITV service criteria can be seen in Figure 2.

Characteristic 3: Return information for ITV services

It is necessary to obtain user information in the processes of providing and enjoying ITV services, and carry out follow up work. As this information is transmitted through return channels, it is called return information. If the information is processed, it is called processed return information.

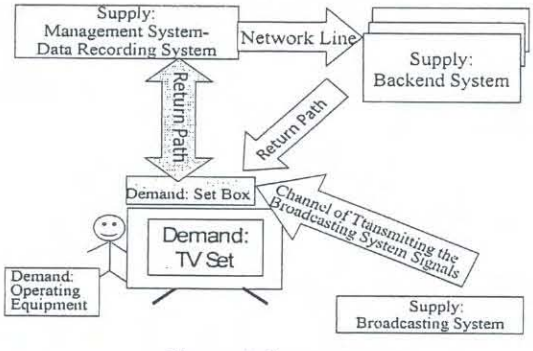


Figure2:Conponents

If users have a response or reaction towards ITV services or content, they can directly record this themselves through subscriber terminal equipment (currently a set top box), or after the user transmits to the above-mentioned subscriber terminal through certain operational equipment (currently a remote control), he or she can handle the main system and data logging systems of video sites achieved with the two methods through the return channels of system operators who log return information.

Detailed information can be separated into 1: Situational details (responses): when a subscriber opens, changes or lingers over certain ITV content, such as when the subscriber turns on the television, or changes the channel or content. The subscriber's home terminal equipment records the information in detail, such as the program viewed, the content, or time period. With this data it is possible to effectively understand actual consumer responses. 2. Opinion details (replies): when consumers enter selections or numbers with particular equipment, such as entering numbers representing their selections and voting for the best performer or topic, entering data to participate in service quality evaluations, or entering selections that represent their opinions and opinions on the service quality. With this information it is possible to effectively deduce viewers opinions and the particular demands that subscribers hold toward their ITV usage.

From the above it can be observed that return information is a consumer response or reply to ITV services. But how can (cable television) system operators record and handle return information? First and foremost, in the process of organizing and analyzing the data, they may derive the positive and negative aspects of the broadcast or provided content and make improvements in order to promote an increase in ratings. Secondly, system operators may offer or sell the first-hand return information or processed return information, and obtain tangible or intangible benefits such as cooperation or direct profit. If system operators liaise with producers and station managers, they may further understand the viewing habits and opinions of consumers. This can promote a better understanding of consumer preferences, behaviour and time periods in which they watch television. It may also aid the further development in the area of ITV and, more generally, contribute to increasing television ratings.

The technological development of video-on-demand, broadcasts, and news reports continues to gain pace. Meanwhile the cost of relevant hardware and software is decreasing, along with the difficulties in recording return information and cost of resources. Recorded content is also becoming deeper and wider. However, as operators collect return information they should be cognizant of the fact that the main objective of subscribers using ITV services is enjoyment, and not return information. Therefore, when operators wish to collect return information, they need to offer suitable rewards. Only then will they attract enthusiastic responses. Moreover, the greater the number of items and the more time consuming the process, the more likely it is that they will be dissatisfied and responses will be harder to obtain. Attention must be paid to legal standards; personal information should be respected; and there should be adjustment for psychological resistance and encouragement to take the time required.

5.Conclusion and recommendation

As ITV is a new service, and in order to encourage the practical usage of ITV services, this study explored the fundamental characteristics as to offer a more comprehensive understanding of the necessary processes and key criteria for television relay, additional and inserted content; demand-side subscribers and supply-side (cable television) system operators; and the basic characteristics of return information on specific situations (responses) and opinions (replies).

However, ITV not only affects the development of television services, it also creates a new direction for viewing digital content. Therefore, in order to promote it's effective expansion, this study also suggests the use of ITV services in national libraries. Finally this study recommends digital content, such as flashback query services (for television news), (multi-channel) meaning comparison search services and video-on-demand services.

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