Lecture 3

Managing Digital Business Architecture

Introduction

This topic will focus on the **management decisions involved with creating an effective technology infrastructure** rather than focusing on the technology in detail.

The infrastructure & support of different types of digital platform

directly affect the quality of service experienced by users in

terms of speed/ responsiveness.

The **range of digital services** provided also **determines the**

capability of an organisation to **differentiate** itself in the

marketplace.

Geogiou (2016), MD of Code Computerlove – said **technology is**

a mainstream item for any organisation, **not just those that**

describe themselves ass 'tech' or 'digital' & **not dealing with**

technology leaves one **open to vulnerability**

Digital Business Infrastructure – refers to the **combination of hardware** e.g., servers/ client desktop computers & mobile devices, **the network used to link hardware & software applications** used to deliver services to workers in the business & also partners & customers

Infrastructure – also refers to the **architecture of the networks, hardware & software** and **where it is located.**

Infrastructure – can also refer to **methods of publishing data & documents** accessed through applications.

Key Decision – deciding **what elements are located in the company** and which are managed externally.

(Source: Chaffey et al, 2019)

Key Management Issues of Digital Business Infrastructure

Main issue	Detail	Where covered?
Which digital access platforms should we support?	Mobile platforms such as smartphones lead the way in importance, so the right investment decisions need to be taken here. Other data exchange methods between services, such as feeds and APIs, also need to be considered	We introduce the key types of consumer access platforms and data exchange options, and the opportunities of mobile marketing at the start of the chapter
Setup and selection of services for a new digital service	Many managers are involved in managing the introduction of a new service where they have to select a platform, suppliers and models for access and data storage	A section on set up of customer-facing digital service addresses these management decisions, including domain selection, use of hosting providers and cloud services
How do we achieve quality of service in digital services?	Requirements are: business fit, security, speed, availability and level of errors	Section on ISPs in this chapter and in Chapter 9
Where do we host applications?	Internal or external sourcing and hosting	Management issues in creating a new customer-facing digital service in this chapter
Application integration	Integration of digital business solutions with: – legacy systems – partner systems – B2B exchanges and intermediaries	Section on technology standards
How do we publish and manage content and data quality?	How content and data are updated so that they are up to date, accurate, easy to find and easy to interpret	Introduced in this chapter
How do we manage employee access to the Internet?	Staff can potentially waste time using the Internet or can act illegally	Introduced in Chapter 4
How do we secure data?	Content and data can be deleted in error or maliciously	Introduced in Chapter 4

(Source: Chaffey et al, 2019)

Digital Business Technology Platforms

Traditionally – options to **reach customers /** partners digitally – **via desktop and browsers.**

Mobile access has exceeded desktop since late 2016 (StatCounter, 2016) – enabled by growing range of mobile platforms e.g. Apple's IOS and Google's Android.

Combined with hardware platforms above, marketers can used different software platforms to reach & interact with their audience through content marketing or advertising such as:

Desktop, Laptop & Notebook Platforms.

1. Desktop browser-based platforms – Traditional web access through the **consumers browser** e.g. Internet Explorer, Google Chrome or Apple Safari.
2. Desktop Apps – Not talked about much – Apple users access **paid/ free apps** from desktop via Apple app store. Gives opportunities for brands to engage via these platforms.
3. Email platforms - Separate option from browser or app-based options to communicate with prospects/ clients
4. Feed based – Users will consume date through **RSS feeds**, and **Twitter/ Facebook** updates can be considered a form or feed/ streams where ads can be inserted.
5. Video Marketing platforms – **Streamed video** delivered through platforms mentioned above e.g. browsers, plug ins – but it is a separate platform.

Mobile Phone & Tablet Platforms

Mobile devices have transformed the way consumers access online content & services for entertainment, socializing and purchase decisions.
As mobile platforms can be used in different locations, there are lots of opportunities to engage customers through mobile marketing and location based marketing.

The Main mobile platforms are:

6. Mobile Operating system & browser – mobile browsers closely integrated with the operating system.
7. Mobile-based apps – Apps are proprietary (exclusive) to the mobile operating system. E.g. Apple iOS or Google Android.

Geofencing – ring-fencing of physical locations to target audiences using technologies on mobile devices.

When users with the technology (and permission to be engaged) moves within the ring-fenced zone, marketers can target that user with location relevant communications.

e.g., Dominos used location-based targeting to users of specific apps that were associated with room access in hotels in Florida. Apps are used by hotels to allow guests to access their rooms during their stay. Dominos wanted to target guests with an alternative offer to room service.

(Source: Chaffey et al, 2019)

Summary of Mobile Access Consumer Proposition

Table 3.3 Summary of mobile access consumer proposition

Element of proposition	Evaluation
No fixed location	The user is freed from the need to access via the desktop, making access possible when on the move
Location-based services	Mobiles can be used to give geographically based services, e.g. an offer in a particular shopping centre Many mobiles have integrated GPS
Instant access/convenience	The latest 3G, 4G and 5G services are always-on, avoiding the need for lengthy connection
Privacy	Mobiles are more private than desktop access, making them more suitable for social use or for certain activities, such as an alert service when looking for a new job
Personalisation	As with PC access, personal information and services can be requested by the user, although these often need to be set up via PC access
Security	Mobiles have become a form of wallet (with services such as Android Pay and Apple Pay), but thefts of mobiles make this a source of concern

(Source: Chaffey et al, 2019)

Mobile App V's Mobile Site Decision

Digital business need to decide whether to base their proposition around a mobile app or mobile website.

Favourability of Mobile Site

- Instant Availability – permanently available.
- Ease of Compatibility – compatible with all devices
- Immediacy of being up to date – Latest version or a service/ data is through a site
- Search Visibility – mobile sites indexed in search engines
- Ease of Distribution – Content is easily shared via linking & social sharing.
- Long Shelf Life – site evolves over time
- Ability to stimulate app behaviour – can be designed to operate & look like an app
- Cost – development of a mobile site is cheaper than app
- Maintenance – Easier

Favourability of Mobile App

- Level of complexity & service – can deliver more complex experience.
- Individualized service – apps can be personalized
- Processing capability –apps can make full use of processing capability of a mobile device
- Offline – Apps can be used offline so can run for extended periods without a data connection.

Management Issues in Creating a New Customer Facing Digital Service

Domain Name Selection – usually selected to be the name of the company. The extension at the end will indicate its type.

- .com- represents international/ American company.
- .org – used for non-for-profit organisations.
- .mobile – for sites configured for mobile phones .
- .NET – for network provider.
- .Edu – for academic institute in US.
- There there are specific country codes.:
- .co.uk – Company based in the UK.
- .fr – France
- .it – Italy etc.
- .ac.uk – UK based university
- .org.uk – UK based non-for-profit organisation.

URL (Uniform Resource Locators)

- Technical name for web address
- Standard method of addressing – make it easy to find name of domain/ document/ document on a domain .
- In larger organisations - it is important to develop a **URL strategy** - so services & resources are labelled consistently

Domain Name Registration.

- This is the process of reserving a unique web address that can be used to refer to the company website.
- Disputes arise when a company has registered a domain name that another company claims to have the rights to. Referred to as **'cybersquatting'**
- Managers/ Agencies must check that domain names are automatically renewed by the hosting company (most are today).
- If this process is not managed, companies can risk losing their domain name as another company could register it if the domain name lapsed.

Enterprise Resource Planning

Fragmented Applications Infrastructure (Not Integrated) 'Islands of Information' . May be as a result of decentralization or poorly controlled investment in information systems with different managers choosing different systems. Inefficient, costs more to support/ upgrade, Isolation between functional units.

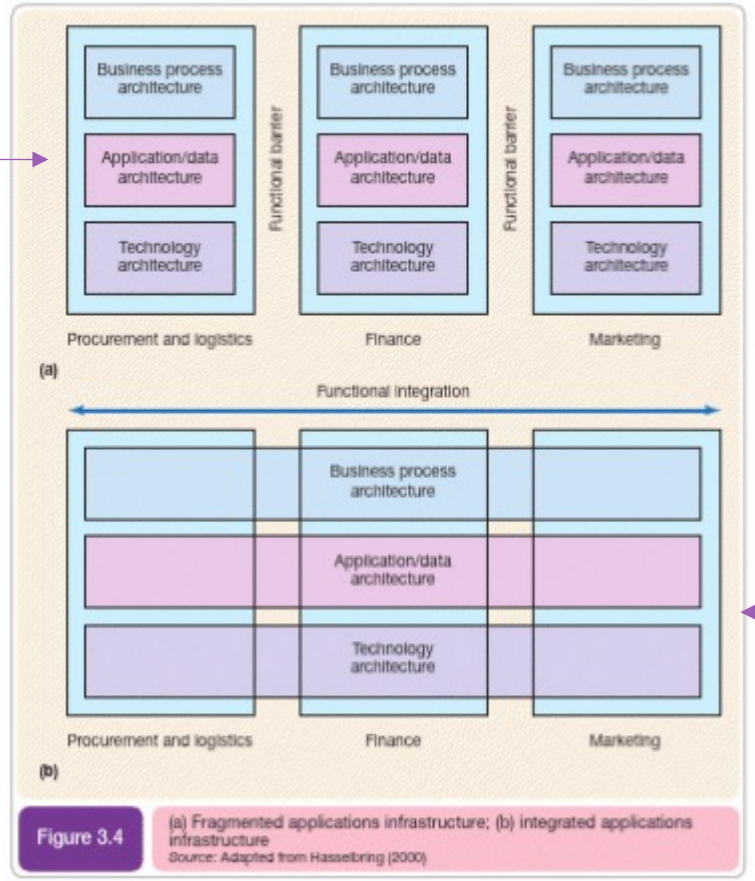

Figure 3.4 (a) Fragmented applications infrastructure; (b) integrated applications infrastructure
Source: Adapted from Hasselbring (2000)

using ERP

Integrated Applications Architecture Enterprise Resource Planning

Refers to the software providing integrated functions for major business functions suchas production, distribution, sales, finance, human resource management

The approach of integrating – different applications – through **Enterprise Resource Planning – is consistent with the principle of digital business** – as digital business applications must **facilitate the integration of the whole supply chain and value chain**.

Challenge – there is never a single solution of components from a single supplier.

Different applications have different strengths in different areas.

Enterprise Resource Planning Vendors – included SAP, Baan, PeopleSoft & Oracle

Source: (Chaffey et al, 2019) Page 90

Development of Customer Experiences & Digital Services

Web Services / Software as a Service

Web Services/ Software as a Service (SaaS) – Business Applications / Software Services – provided through Internet . The application is managed from a separate server from where it is accessed through a web browsers on an end-user's computer

Benefits of Web Services or SaaS.

- ❑ Usually paid for on a subscription basis.
- ❑ Can be switched on and off
- ❑ Payments can be made according to usage or 'on demand'
- ❑ Installation & maintenance costs outsourced.

Challenges of Web Services or SaaS.

- ❑ Less capability of tailoring to the exact business needs compared to a bespoke system.
- ❑ Dependence on 3rd party to delivery services over the web that can cause issues e.g.

1. Downtime or poor availability if network connection fails
2. Lower performance than local database.
3. Reduced data security as data not backed up locally.
4. Data protection – as customer date might be stored in different location, it needs to be secure and consistent with data protection laws

Development of Customer Experiences & Digital Services

Cloud Computing

Cloud Computing – This is the use of distributed storage & processing on servers connected by the internet.

This is usually provided as software/ data storage as a subscription service provided by other companies.

Cloud computing is the combination of networking and data storage hardware/software hosted externally to a company, usually shared between many distributed servers via the internet. E.g. Google Docs are stored in the cloud, no knowledge of where it is/ how it is managed as Google stores data on many servers. March 2017 – Google said it has spent $30 billion on data centers. Gartner (2016) estimated Google had 2.5 million servers.

Benefits of Cloud Computing

- Ability to start up and test a busines idea quickly without having to invest heavily/ physically in the technological infrastructure/ architecture associated with it.
- Ability to focus on the idea rather than the technology. Better use of human resources.

See '**Completing the Netflix Cloud Migration**' in unit 3 on Canvas

Intranet & Extranet Applications.

Intranets are used to support sell-side e-commerce from within the marketing function. Also used to support supply chain management activities. Usually deployed as web-based services supplemented by messages and alerts delivered by email or when users log into a company network.

Use of Intranet by Internal Marketing

- Staff Phone Directories
- Staff procedures/ manuals
- Information for agents
- Staff newsletter
- Training courses

Advantages of Intranets

- Reduced product lifecycles. Product to market faster
- Reduced costs as higher productivity
- Better customer service. Responsive personalized support
- Distribution of information through remote offices nationally/ globally.

Extranets are used to provide online services that are restricted to business customers e.g. if you buy a book on Amazon, and have a username/password, this is an extranet.

5 Key Questions when reviewing extranet/ creating a new one

1. Are the levels of usage sufficient?
2. Is it effective & efficient?
3. Who has ownership of it?
4. What are the levels of service quality
5. Is the quality of information adequate?

Advantages of Extranets

- Integrating supply chain using ordering, order tracking & stock control in an online environment.
- Cutting cost of documents available to end-users/ partners.
- Collaborative and speedy development of materials/ documents for partners/ suppliers/ customers
- Improving customer services by providing access to information.
- Single entry point for all outsiders. Consistency, safety & security for external users.
- Provision of 'Only For Registered Users' propositions. Used to lure new users, with unique content.

Streaming TV | Voice Over IP | Widgets

Streaming TV

Delivered using IP (Internet Protocol) either by broadband or mobile 3G/4G/5G. Can be streamed in real time or real time streaming of recorded content or downloaded before playback

Voice over IP (VOIP)

Voice data is transferred across the internet – basically allows phone calls to be made over the internet.

Widgets

Badges or buttons incorporated into a website/ social network with content/services typically served from another site, making widgets a software application or web service. Content can be updated in real time as the widget interacts with the server each time it loads