MANAGING AN INTERNET PORTAL

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ABSTRACT

This article presents a model for Internet portal management. The model allows portal implementers to monitor and reflect on their portal implementation process and to identify appropriate strategies to improve their community building efforts. The portal management model (PMM) is a lifecycle model that contains four stages. Each stage is identified and described by a number of characteristics and an associated existential crisis. Each crisis must be addressed for the portal to remain in business but it must be overcome to move on to the next – more advanced – stage. Four competitive strategies are presented as effective for steering the portal through each of the stages. At the initial stage, the new portal should seek to be the unavoidable pesky little brother and seek to imitate the older established portals. At the second stage the appropriate strategy is for the portal to gain strength through marriage rather than staying single – called the battle of the sexes strategy. At the third stage it is time to take firm control over the portal community. Here open confrontation is unavoidable as in the fairytale of Tweedledum and Tweedledee. At the fourth and final stage, the established portal must ceaselessly monitor the market for new contestants and counter them.

Keywords: Internet portal, portal management model, network externalities, virtual communities, network economics, switching costs, lock in effects, installed base of users, and life cycle model.

I. INTRODUCTION

Portals help users navigate websites and are common on the Internet. Historically portals started as an entrée point on the growing Internet for a group of users. Recently they developed into end points – closed self-referring systems or walled gardens.

Portals exist for a large number of topics. One of the best known is WebMD (www.webmd.com) that provides a universe of information and links about general healthcare issues. However, other portals cover more exotic topics such as the "forest conversation portal" (www.forests.org) and the "poetry portal"(www.poetry-portal.com). A growing number of portals such as Blackplanet.com mainly for African Americans or AsianAvenue.com mainly for Asian Americans cater to ethnic groups. *Starmedia.com* is a popular all around portal in Latin America. According to Nielsen-Netratings (www.nielsen-netratings.com/), portals are extremely popular not only in terms of hits but they are also the stickiest, i.e., visitors spend longer time on a portal compared to all other types of sites. For example in the first week of August 2002 visitors only spent 8

minutes on average at the basic search engine Google[1] whereas they spent almost 40 minutes at Yahoo![2].

Despite their popularity, the mortality rate of Internet portals has been and continues to be extremely high, but these sad prospects do not slow down the number of portals being launched by optimistic entrepreneurs. On the contrary investments and human capital being poured to build up portals seem to be never ending. We already witnessed the fall of countless portals and the loss of billions of dollars.

Part of the picture is that while most portals fail, other portals such as WebMD[3], eUniverse[4] and iVillage[5] thrive and are all listed among the top 25 most popular web places on the Internet[6].

What distinguishes successful portals from fiascos? Clearly it is not just a question of failing to attract visitors because many collapsed portals were successful at some point in their (short) lifecycle in attracting many guests and caught the eye of the public. This paper attempts a novel answer by introducing a business model for managing Internet portals and argues that the distinction between success and collapse rests in:

- managing the portal community and
- in timing the taxation of the community for accessing the portal's services.

This paper is organized as follows. Section II defines Internet portals and their services. Section III presents their associated communities. Section IV explains the concepts of lock in and switching costs briefly. Section V presents the Portal Management Model (PMM). Lastly, section VI summarizes the model's four phases, discusses the model's application limitations, and draws conclusions

II. PORTAL SERVICES

A portal is commonly defined as a website that offers a set of services that helps users navigate the Internet. Most common services include:

1) search services,

2) content,

3) community building features,

4) commerce offerings and

5) personal productivity applications [Eisenmann and Pothen, 2000].

A horizontal and vertical span and a geographical sphere of attention characterize a portal as relative to other portals. The horizontal dimension refers to how wide the portal defines its field of operation. The scope of some portals is horizontally narrow (e.g. focusing entirely on a specific health problem), whereas the scope of others is broader (e.g. health issues in general). The vertical dimension defines the degree to which the portal recruits its members for its community among a specific type of people. It may be narrow vertical in scope (e.g. targeted only at young

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[1] http://www.google.com
[2] http://www.yahoo.com
[3] http://www.webmd.com
[4] http://www.euniverse.com/
[5] http://www.ivillage.com/
[6] http://www.nielsen-netratings.com/

football fans) or it may be more general (e.g. targeted at all football fans). The geographical dimension refers to the range of the portal. Some portals operate only within a certain part of a city, some on a national scale, while others seek to unite across nations and continents.

Success of a portal is defined here as becoming dominant in the three dimensions – horizontal, vertical, and geographical. An example of declared success can therefore be "to be the preferred site for rock'n'roll lovers under 25 years in the greater Cleveland area" (narrow horizontal, vertical, and geographical scope).

It is worth noticing that portal membership is not exclusive. A specific user may belong to several portals at the same time. For example, it is not unusual for a user to prefer one portal for professional activities and another for leisure, thus visiting two different portals regularly, but for different purposes. Users come to a portal to access relevant information, but they often also come to a portal to participate in the community built around the portal. Table 1 summarizes portal characteristics.

Table 1. Portal Characteristics

Portal characteristics	Horizontal	Vertical	Geographical
Wide	General topic – e.g. health	General scope – e.g. all football fans	Broad range – e.g. international
Narrow	Specific topic – e.g. diabetes	Specific scope – e.g. young football fans	Short range – e.g. municipality

III.PORTAL COMMUNITIES

The dependency between users and portal services is mutual. A portal cannot exist without a community of users, and the users will only visit the portal if there is a set of relevant services which they demand.

A virtual community as an Internet phenomenon receives a lot of attention [Hagel and Armstrong, 1997; Rheingold, 1993]. The following characteristics describe a virtual community [Whittaker, Isaacs, and O'Day, 1997]:

1) Members share a goal or interest that provides the reason for being a part of the community,

2) Intense interactions and strong emotional ties,

3) Shared activities between community members,

4) Access to shared resources,

5) Support between community members and

6) Social conventions, language, or protocols.

Some virtual communities are self-organized and are both the source and destination of community activities [Rheingold 1993]]. However, the focus here is on those virtual communities deliberately build around a portal for a commercial purpose.

Most portals seek to build a community around their span of attention because a community is loyal, active, and long-term. For a portal, a lively community increases the users' sense of belonging to the portal. Switching to a different portal does not only mean getting used to a different user interface, a new set of services, and going through the agony of customizing the new portal, it also means abandoning a community of friends. Therefore most portals provide

community building features such a free email, Instant Messaging, free space for websites, chat, and discussion groups. The following section describes the economic rationale for how and why services, users, and communities are married.

IV. NETWORK ECONOMICS

The body of research commonly referred to as network economics is applied as a theoretical vehicle. The research tradition emanates from a desire to understand the development and use of standards [Farrell and Saloner, 1985], technological innovation [Nelson, 1994] and associated business strategies [Shapiro and Varian, 1999a, 1999b; Brynjolfsson and Kahin, 2000]. Its point of departure is often historical accounts of technology innovation processes [Arthur, 1989]. For example network economics offers explanations of the static QWERTY layout of the keyboard [David, 1985] and of the battle between VHS and Betamax in setting the standard for VCRs [Katz and Shapiro, 1986]. It also addresses broader issues such as policy making, regulation, and maintaining and sustaining communities of technology users. To present a comprehensive account of network economics is beyond the scope of this paper, but a few key points are necessary.

LOCK-IN EFFECTS

Lock-in effects capture the idea that the use of certain technology or service soon becomes a habit that is hard to break. To operate a technology efficiently it is necessary to invest both time and resources to become acquainted with it. When a technology becomes well known to the user, she no longer pays attention to it or the dependency she developed. As the German philosopher Martin Heidegger was the first to point out, the technology becomes an extension of self (ready-at-hand). A clear example is the layout of the typing keyboard [David, 1985]. We know where the different keys are located and we can operate the keyboard seamlessly in our endeavor to write. We do not need to know why or with what purpose the keys are ordered in the particular QWERTY way (these decisions are black-boxed in the standard). If we buy a new computer we expect that the keys on the new keyboard to be ordered "just as usual". A breakdown occurs if we travel to a different country where a keyboard layout may be slightly different. To operate the keyboard is no longer seamless and we have to direct our attention from our primary purpose, namely to write, to something experienced as secondary, namely operating the keyboard and locating the next key (to Heidegger, it becomes present-at-hand). In short it is a nuisance to change from something known well to something new and different.

We all recognize the same kind of dependency in our everyday lives. For example how accustomed we become to what is in each section in our favorite newspaper, the division of a book into chapters, and the dependency we develop with our favorite portal on the Internet. These tools all support our real intention, to obtain the relevant news, to read a book, and to find information on the Internet, respectively. Only if the tool breaks down does it steal our attention from our real purpose. As long as it operates properly, it is transparent to us.

Network economics seeks to price this nuisance. In the words of Shapiro and Varian [1999a], a user that is locked in to a standard technology or service must incur certain costs, if she wishes to switch to a different one. The challenge for a portal is to offer services that lock-in the users and the community. For example by designing and composing the portal user interface and services so that the user becomes dependent on them for seamlessly navigating the Internet, or by offering free storage of addresses or files. In combination, these efforts establish barriers that in practice prevent the user from switching to another portal without paying a heavy penalty. Portals must actively and deliberately seek to incorporate such lock-in strategies in their design and implementation.

NETWORK EXTERNALITIES

An attractive source of lock-in is belonging to a community that interacts. If a user decides to switch to a different portal not only must she incur individual switching costs due to personal lock-

in but also the switching costs that stem from retiring from the present portal community. If the community is concentrated around one portal, switching is especially painful. As soon as the relative size of portal community is beyond a certain threshold (often denoted the critical mass) the portal will automatically attract the vast majority of the community. An efficient way to achieve a critical mass of users is to offer community services that exhibit high network externalities [Oliva, 1994]. Typical services are those that allow members of a community to interact with each other (e.g. chat, discussion forums, dating services, Instant Messaging). Common for these services are that their value to each user increases significantly as others belonging to the same community start using the service. Similarly, if few use the service it is of little value. The loneliest place on the Internet is an empty chat room!

The value of a community follows a rule of thumb that is known as Metcalf's law. It states that the value of a community of n members is n^2. This means that two communities of 5 members each are worth $5^2 + 5^2 = 50$, but a joined community of 10 is worth twice as much, namely a 100. Joining or leaving portals becomes one of the most important decisions for companies controlling some service that a community depends on. In consequence, compatibility standards that once were only of interests to technical specialists became extremely important to managers as well [Shapiro and Varian 1999b]. Metcalf's law and the notion of critical mass combined explain why it is sometimes preferable to merge portal communities rather than staying solo when building a successful Internet portal.

ECONOMICS AND TAXATION

Together with the web address and brand name, the installed base of users is the portal's most valuable asset. In assessing a portal's value, it is necessary to sum up all switching costs pertaining to each user. For example if you have one million users and on average each incurs $178 in total switching costs, the value of the installed base is $178 million.

In line with network economics, the portal can "tax" its community once they are locked in. Taxation should be understood in the widest sense; for example, banner ads are considered here as a form of taxation. Another example is selling books at a premium price that is carefully balanced with the anticipated inconvenience of searching for an optimal price, re-entering personal details and shipping preferences, and going through a credit verification process. A few portals actually charge the users a monthly fee for access. The idea is that as long as the taxation is perceived as less than the nuisance of switching, the users will stay. A portal that establishes itself in this way as the primary communication hub for a community that is locked in to the portal's services and community features is very advantageous. How to jockey the portal systematically into such an attractive position is not an easy task, which we discuss next.

V. A MODEL OF PORTAL MANAGEMENT

This section presents the four stages of the portal lifecycle:

- Attraction
- Contagion
- Entrenchment
- Defense

and moulds them into the portal management model (PMM). PMM is a lifecycle model that idealizes a successful portal implementation process from genesis to domination. PMM was defined and conceptualized through numerous interactions with portal managers, students of e-commerce, IT practitioners, Internet consultants and IS researchers.

PMM proposes that each stage poses a key challenge that must be overcome in order to proceed to the next – more advanced – stage. If a challenge is not resolved properly, the portal

cannot evolve but will stagnate. The second and third stages are transitional stages that are unstable in the sense that the potential income from the portal community is less than the resources needed to operate the portal. It is possible to stay in these two stages only as long as capital is injected. Portals should therefore generate detailed plans and budgets well in advance for the move through these two stages.

Besen and Farell [1994] describe strategies of joining communities built around the use of some standard technology. In the simplest form – when there are just two companies – there are three unique combinations.

- In the first combination, both companies wants to set the standard for a given technology and both are willing to fight for it. Besen and Farell call this strategy *Tweedledum and Tweedledee*.

- In the second combination, each company prefers its own standard technology but is willing to compromise rather than going solo. This strategy is refereed to as the *Battle of the sexes*.

- Finally we have the situation where one company prefers its own standard technology while the contestant – the *pesky little brother* – wishes to join the established network of technology users.

The following subsections describe the four phases of PMM and adapt Besen's and Farell's (1994) original strategies to the context of Internet portals. The Portal Management Model is shown in Figure 1.
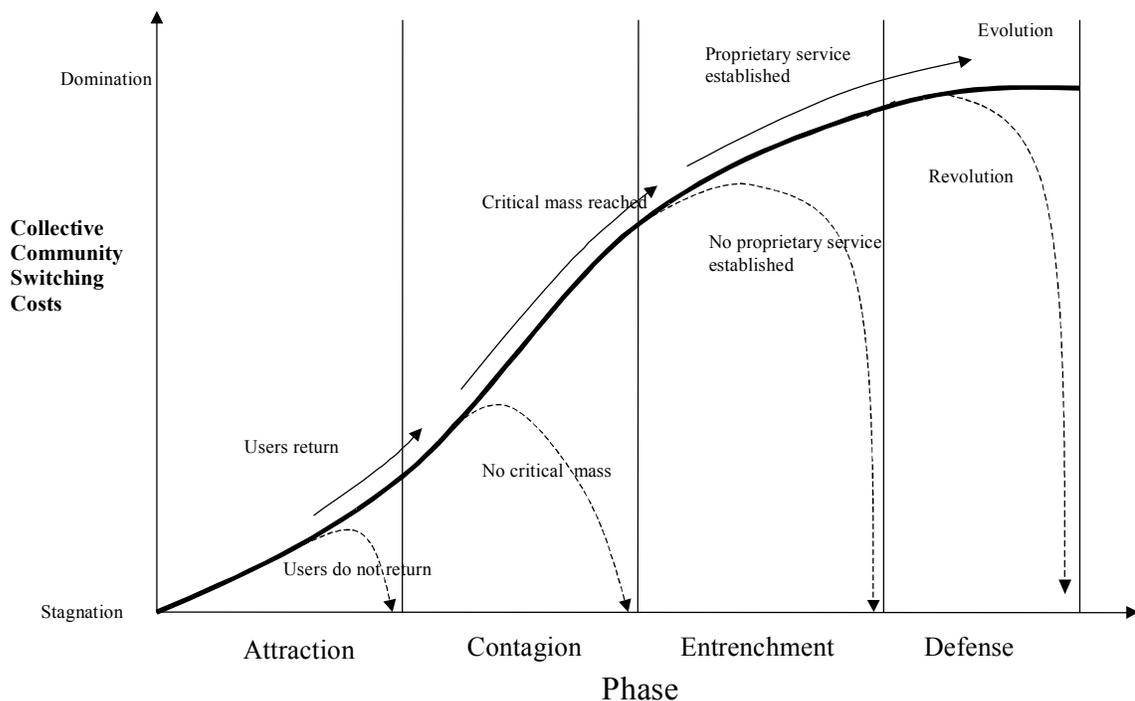
Figure 1. Portal Management Model

ATTRACTION PHASE

The beginning of the first phase is marked by the launch of the portal website. The portal's first objective is to attract users and let them try out its services. The main mechanism for attracting users is through mass media such as TV advertisements, newspapers, and banner ads. On their

first visit it is important to get users to leave traces of their visit that can be used to make the portal more convenient upon return. However, obtaining the data should not be too cumbersome on the part of the visitors or it might scare them away. A popular way to attract first-time visitors is to offer gifts or discounts. In general the more attractive an initial offer, the more information the portal can justify demanding from the visitor to redeem it [Nielsen, 1997]. For example, the online payment service PayPal (www.paypal.com) initially offered visitors $15 just to sign up – an effective yet expensive means to enlist new portal users.

From a strategic point of view, the new portal should seek to be the unavoidable *pesky little brother* and pinpoint existing communities of users that might be interested in the service of the new portal. In the situation where an overlapping portal already exists with a dominant position and a large installed base of users, the new portal can use several angles to win over users.

The simplest strategy for the young portal is simply to imitate the user interface, the vocabulary, the services, and other characteristics of the established portal, thereby minimizing the switching costs incurred from learning to navigate and use the new portal's services and user interface. A practical example of this strategy was Microsoft's specialized WordPerfect help function in MS Word. The help function was offered to the community of former WordPerfect users to lower the knowledge threshold of switching from WordPerfect to MS Word [Shapiro and Varian, 1999a]. To counter such initiatives the dominant company can exercise intellectual property rights and use process patents. For example, Amazon[7], the online bookstore, seeks to protect its' *1-click check out* with a patent [Jarvenpaa and Tiller, 2001].

Another strategy is to provide portal services that the established portal cannot offer or only offer partially because of compatibility issues. As innovation of services and technology proceeds, the dominant company wants its community to co-evolve alongside it. However the dominant portal must ensure that new services are backwards compatible. This requirement can very well prevent offering a service or impede a new service so that it cannot be exploited to its fullest potential. The pesky little brother does not have these kinds of restrictions. Therefore it can offer the service completely and exploit its fullest technological potential. The young portal is especially attractive to new Internet users that do not have a bag of old habits or legacy services that demand compatibility.

The young contester can explore a number of strategies and it can be quite difficult for the established portal to avoid the little brat totally. The challenge at this stage revolves around getting users interested in what the new portal offers and making them want to return for more. Successful progression to the next stage depends on users returning to the portal. An existential crisis occurs if no or few users return to the portal. This stage is summarized in Table 2.

Table 2. Summary of the Attraction Phase

	Attraction Phase
Focus and crisis to handle	Attract users and get them to return
Degree of lock in	Low
Strategy	Pesky little brother

CONTAGION PHASE

In the contagion phase, the focus is for the portal to "infect" the recurring users so that they become carriers and thereby help spread the portal. That is, the recurring users become

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[7] http://www.amazon.com

ambassadors for the portal. They will seek to recruit more users to join the portal community. When the relative popularity of a portal reaches a certain threshold within some community, the portal will grow to become dominant. Domination means that if you feel you belong to a certain community there is only one portal that you consider when being active in that community on the Internet.

At this point the degree of lock-in of the community to the portal is only moderate, which means that the users can leave and join a rival portal with relative ease. Therefore, there is no point for a portal in engaging in an open war to keep the community.

Sometimes having *one* portal is *sine qua non*. This goal is the case in three situations [Besen and Farell, 1994, p. 125]:

> 1) If the total community is too small to justify more than one portal,
>
> 2) If none of the portals have sufficient resources take on a costly open battle, or
>
> 3) If the resources needed to win the dominance battle are prohibitively large compared to the prize.

In these three situations each company prefers its own portal, but also prefers to join forces rather than open battle. Therefore, one portal seeks to persuade the other to join it by offering both commitments and concessions.

One outcome could be that the two portals join their communities to achieve a critical mass but divide the community's potential revenue streams along horizontal, vertical, or geographical dimensions between them. The important issue is that while the portal community is not locked in and no portal achieved a critical number of users there is no reason to engage in battle.

The strategy at the contagion stage revolves around spreading the portal to a community to reach a critical mass of users. Successful progression to the next stage is dependent on achieving this critical mass. An existential crisis occurs if the portal fails to attract a sufficiently large number of users. This stage is summarized in Table 3.

Table 3. Summary of the Contagion Phase

	Contagion Phase
Focus and crises to handle	Spread the portal to attract a critical mass of users
Degree of lock in	Moderate
Strategy	Battle of the sexes

ENTRENCHMENT PHASE

The focus in the first two stages was to service and build a community of users. In the entrenching phase the focus is for the portal to make the users adopt a service that is controlled by the portal. This strategy increases the lock-in for the users and thereby chains them to the portal. If the portal fails in installing its proprietary service, the community is left open for other portals to poach. One approach to installing a proprietary service is to bundle it with an existing open or common service. Bundling can take the form of upgrading or improving the existing service by adding new (proprietary) features. Other portals might object and counter as the portal deliberately steers the portal away from open communities and compatible tools. Whereas it earlier was preferable to stay clear of confrontation, now is the right time to battle for the control of the community. When both firms choose to compete and not allow compatibility they decide to have a battle as in the tale of *Tweedledum and Tweedledee* in *Alice in Wonderland*. In an Internet

portal context, both portals try to win the dominant position by building the larger community while trying to lure over users from the rival's community and attract "unattached" users. Defection can be supported, for example, by offering a safe migration passage that promises "renegades" extraordinary benefits and also preserves their status and loyalty points [Shapiro and Varian, 1999, David and Bunn, 1988]. Such strategies can be targeted to spark mass defection or numerous individual desertions.

After a successful introduction of the proprietary service it is now possible to tax the community for the specialized services rendered and recoup the investments made in building the portal and the community. Before the community was locked in, taxation for services would have disintegrated the community and the users would have left for a portal offering similar services for free or for less. To put it in a slightly more positive light: at this point the portal is capable of offering highly specialized services for which users are willing to pay a premium price. This phase is summarized in Table 4.

Table 4. Summary of the Entrenchment Phase

	Entrenchment Phase
Focus and crisis to handle	Build and diffuse proprietary service to the community
Degree of lock in	High
Strategy	Tweedledum and Tweedledee

DEFENSE PHASE

Once the portal community is well entrenched, the ongoing need is to nurture it. What keeps the community together are the portal's services, community features, and the switching costs. The community is not a static entity. At all times, some users leave and some enter the community naturally. For example, people relocate, grow older, or change profession. Change is inevitable and should not cause too much concern. However if someone in the declared scope of attention leaves to obtain a service that is not offered by the portal or simply to join another online community that is perceived as more attractive, alarm bells should sound. What is important is that the portal is on the alert for services that might lure away substantial parts of its community. The danger from disruptive technologies is real and it can bring giants down as was so convincingly argued and illustrated by Christensen [1997]. The appropriate strategy is to be the paranoid *big brother* always fearing someone is trying to steal the hard-earned concessions.

In the contagion and entrenchment strategies it is more or less assumed that the two companies are symmetrical in size and dominance. Of course, since there are two companies there are four possible combinations but only three of them are unique. The fourth which Besen and Farell [1994] omit for redundancy reasons, is needed here to denote the situation where one portal won the dominant position and does not wish to share its community with the young contester. In essence it is the opposite situation of the *pesky little brother.* We simply call it *big brother.* The appropriate measures to counter the pesky little brother are of course the adverse of the strategies employed by the younger contestant, described earlier. In addition established portals may introduce service innovations at a pace that is difficult to follow or imitate by the smaller and assumingly less resourceful contester [Shapiro and Varian 1999b]. Yet another counter measure is to set up a subsidiary that can stay poised to catch and exploit a new disruptive service [Christensen, 1997]. In the defense phase, the challenge is to keep evolution going and incorporate new services and technologies and avoid revolutions caused by disruptive technologies [Shapiro and Varian 1999b]. The idea is to move ahead while staying backward compatible.

Table 5. Summary of the Defense Phase

	Defense Phase
Focus and crises to handle	Evolution and avoid revolutions
Degree of lock in	Monopoly (very high)
Strategy	Big Brother

VI. DISCUSSION AND CONCLUSION

Managing a portal differs from other types of IT in terms of its use and implementation. It requires a fresh approach. Recognizing the power of network externalities and first mover advantage, most portals focused unilaterally on a Get Big Fast strategy [Eisenmann and Pothen, 2000]. The PMM model offers an alternative strategy. To launch and manage a successful portal four existential crises must be overcome.

- First, if visitors do not return to the portal, it cannot evolve beyond simple spot transactions.

- Second, if a critical mass of users cannot be reached, the portal will stagnate.

- Third, if a proprietary service cannot be established to lock in the customers, the portal community will remain open for others to steal.

- Finally, whenever new innovations occur they must be incorporated into the portal to avoid users leaving the portal to adopt the innovation.

A summary of PMM is presented in Table 6.

Table 6. Summary of the Stages

	I	II	III	IV
Focus	Attract users and get them to return	Spread the portal and attract a critical mass of users	Install proprietary service to the community	Keep evolution going and avoid revolutions
Degree of lock in	Low	Moderate	High	Monopoly
Strategy	Pesky little brother	Battle of the sexes	Tweedledee and Tweedledum	Big Brother

In a sense the contagion and entrenchment stages in the model are "unstable", transitional stages. The portal cannot remain indefinitely in these stages as many portals so painfully realized. The portal will either progress to the defending stage or regress and be deserted. This corresponds to the "all or nothing" characteristic of interactive media technology also noticed by other authors (e.g. [Markus 1987]). However a portal can survive for a while in these "unstable" stages through "first aid" measures such as portal owners continuously providing resources, which are disproportionate to the immediate business value generated by taxing the portal community.

The intention of the PMM is not to depict some universal model with which any situation can be approximated to fit. Rather, this paper positions the PMM as a useful tool to allow managers to

reflect and act upon their portal's progress and to assist them in their further strategy formulation. Therefore it is crucial to evaluate its applicability by assessing its usefulness as experienced by managers, instead of pursuing some rigid theoretical approach for validation.

PMM was defined and conceptualized through the author's interactions with portal owners, students, practitioners, consultants, and researchers. To validate the model further it is necessary to test its explanatory power and ability to capture portal management processes as perceived by portal managers.

The following key issues should be evaluated in connection with the PMM model.

- Do managers find PMM useful as a conceptual tool in assessing their current portal progress?

- Do managers find the PMM useful in choosing appropriate portal development strategies?

- How well does PMM capture both failed and successful portal implementation processes?

- What are the longer-term implications of its application (which may or may not be in line with the PMM's suggestions)?

Such empirical validation will hopefully also lead to refinements to the model.

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