Technology Market Dynamics: Fifth Generation Networks and Huawei Market Leadership

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Abstract

The extant research has established that there is a pioneering market share advantage when the product category is successful, and under certain other conditions. This finding has been found across many product categories. Applying this database of empirical knowledge, the paper addresses the following two important research questions. 1) How does the market share advantage to early entrants impact the Fifth Generation (5G) network technology market structure? 2)How is financial strength of a firm related to market entry of its brand? To analyze and understand these questions of import, we examine the Fifth Generation (5G) network market. And in this context, we assess the position of the market pioneer Huawei and other players. We show that the early entrants enjoy a sustained market share advantage in technology product/service markets. More specifically, we show that the market share advantages (disadvantages) can be quantified in a monotonic relationship using a generalized empirical formula. We also show that financially stronger firms (operationalized by percentage change in earnings per share) tend to enter the market early, and thus secure the market share advantage. Huawei benefits from these market phenomena.

Keywords: Pioneer, Early Entrants, Technology Market, Fifth Generation (5G) Networks, Huawei, Earnings Per Share, Financial Performance.

JEL classification: L10, L96, M31, M38.

Introduction

The extant research has established that there is a pioneering market share advantage when the product category is successful, and under certain other conditions. This finding has been found across many product categories.

Applying this database of empirical knowledge, the paper addresses the following two important research questions. These research questions have substantial impact on scholarship and practice.

1. How does the market share advantage to early entrants impact the Fifth Generation (5G) network technology market structure?
2. How is financial strength of the firm related to market entry of its brand?

We chose the 5G market because 5G is transforming every-day consumer experience in many ways, and altering the landscape of our society, commerce and economy, and polity in substantial ways. 5G is making Artificial Intelligence (AI) applications seamless. 5G and AI, together, are revolutionizing the Internet of Things (IoT) (Schulte and Lee 2019, Lee and Low 2018, Liu and Tsyvinsky 2018, Liu and Liu 2016, and Narula 2016). In this context, we assess the position of the market pioneer Huawei and other players.

The paper is organized thus. In the next section, we provide a very brief overview of the relevant literature. Then we present the empirical models that have been employed with many datasets and product categories to estimate the effect of order of entry on market share, and the effect of a firm's financial strength on its ability to accelerate its entry into the market. The following section discusses the generalized formula quantifying the order of entry effect, and its applications to 5G market. The we present a brief discussion of the effect of financial

strength of a firm on its market entry strategy, and its implications for the 5G market. We finally close the paper with a brief discussion of managerial implications, limitations and opportunities for future research.

Brief overview of relevant literature

The extant research has documented that there is a sustained market share advantage for early entrants/pioneers if the product/service category is adopted by the consumers (Bond and Lean 1977, Urban et. al.1986, Robinson 1988a, Parry and Bass 1989, Kalyanaram and Urban 1992, Kalyanaram, Robinson and Urban 1995, Kerin, Kalyanaram and Howard 1996, Berndt et. al. 1995, Shankar et. al. 1999, Kalyanaram and Raguvir 1998, King 2000, Vakratsas, Rao and Kalyanaram 2003, Shamsie, Phelps, and Kuperman 2004, Kalyanaram 2008, 2009 and 2013, Yu and Gupta 2014, Zammit and Montaguri 2017). The analyses have been conducted across many product/service categories using both time-series and cross-sectional data.

There are many economic (e.g. Schmalensee 1982) and behavioral (e.g. Kardes, Kalyanaram, Chandrasekar, and Dornoff 1993, Kardes and Kalyanaram 1992, Carpenter and Nakamoto 1989, Zammitt and Montaguri 2017) reasons for this pioneering phenomenon, including that the pioneer becomes the proto-type for the category and that later entrants suffer from an asymmetric comparison in favor of the pioneer.

Empirical framework: underlying empirical models

Here we discuss the Share and the Entry Models that have been commonly employed for empirical estimation of effect of order of entry on market share, and the effect of a firm's financial strength on its ability to accelerate its entry into the market.

Share model

Empirical research has used a variant of the underlying model structure (Kalyanaram and Urban 2013, Kalyanaram 2017). The complete model states that share is a function of order of entry, marketing variables, product quality, and time dynamics. All variables except order of entry are expressed as ratios to the first brand to enter the category. The formal equation is:

$S_{it} = (E^{\alpha}_i)\,(Q^{\lambda}_i)\,(P^{\beta}_{it})\,(A^{\delta}_{it})\,(M^{\eta}_{it})\,(D^{\pi}_{it})$

where:

S_{it} is the market share of ith entrant expressed of as ratio (S_i / S_1) at time t

E_i is the order of market entry (2, 3, 4, 5 …) of the brand i

Q_i is a measurement of the perception of the quality of the brand i

P_{it} is price of ith entrant expressed as ratio (P_i / P_1) at time t

A_{it} is advertising of ith entrant expressed as ratio (A_i / A_1) at time t

M_{it} is promotion of ith entrant expressed as ratio $(M_i / M_1$ at time t

D_{it} is distribution of ith entrant expressed as ratio (D_i / D_1) at time t

The above model structure has many interesting features. One, being multiplicative model in structure, it allows for nonlinear response and interaction effects between the variables. Two, as the constant ratio model formulation, it assumes that successive entrants draw shares from all earlier entrants proportional to their respective shares. Accordingly, the curves of relative share versus time become smooth. Three, ratios of the variables carry the important property of eliminating cross-category differences that arise solely because of the differences in number of entrants in categories. We are thus able to make reasonable comparisons across categories with different numbers of brands. For instance, in a three-brand as well as in a two-brand category, we assert – rightly so -- that the share ratio will be the same

between the second and first entrants even though the absolute share may be very different (e.g., 40% vs. 60% in a two-brand market and 33.3% vs. 50% in a three-brand market).

The share model presented above can be converted into a linear model by taking logs on both sides. For estimation purposes, this is a linear time series cross-sectional model. Accordingly, the linear model specification is as follows.

$$\log (S_{it}) = (\alpha) \log (E_i) + (\lambda) \log (Q_i) + (\beta) \log (P_{it}) + (\delta) \log (A_{it}) + (\eta) \log (M_{it}) + (\pi) \log (D_{it})$$

This is a linear regression with no additive constant. The additive constant would confound the interpretation of the magnitude of coefficients because with an additive constant, the share index will not equal to one for the first brand in the market as is required by logical consistency.

Entry model

The entry models are generally represented as a function of expected market share and the firm's size and performance. Many models assume perfect foresight (see Prescott and Visscher 1977 and Lane 1980). Accordingly, the models use the maximum share achieved by the nth brand as the measure of share potential. Models use total sales as a surrogate for size and market power of a firm. As a surrogate for skill, the models use the average rate of growth of earnings per share over 5 years. The entry equation is represented thus.

$$E_i = (V^{\tilde{A}}_i) (R^{\hat{E}}_i) (Z^{\hat{U}}_i) (Y^{\check{K}})$$

where

E_i = order of market entry of brand i

V_i = anticipated share defined as maximum market share of ith brand divided by the first brand

R_i = ratio of average earnings per share growth over five years for ith brand to average earnings per share over five years for the first brand.

Z_i = ratio of total dollar sales for brand i's firm to the total dollar sales for first brand's sales.

Y is a constant, and V_1, V_2, V_3, V_4 are parameters to be estimated.

We can linear the entry model too be taking logs on both sides. This model then is a linear regression model for estimation purposes as shown below.

$$\log (E_i) = (\tilde{A}) \log (V_i) + (\hat{E}) \log (R_i) + (\hat{U}) \log (Z_i) + (\check{K}) \log (Y)$$

Generalized formula for estimating the market share advantage

Based on extensive empirical research using the above described models across numerous datasets and product categories, the following generalized formula has been established for estimating the market share as a function of order of market entry (Hauser and Wernerfelt 1990, Kalyanaram et. al. 1995, Kalyanaram and Raguvir 1998, Riemer, Mallik and Sudharshan 2002, Kalyanaram 2008, Kalyanaram 2009.)

The formula

The entrant brand's forecasted market share divided by the pioneer's/first entrant's market share roughly equals one divided by square root of order of entry. The market share advantage can be quantified using this formula.

$$\frac{S(n)}{S(1)} = 1/\sqrt{n}$$

where S(n) is the market share of the nth entrant/brand and S(1) is the market share of the first/pioneering entrant, and n is the order of market entry.

This formula postulates that the pioneer enjoys a sustained market share. Applying the formula, the forecasted market shares relative to the first/pioneering brand are 0.71, 0.58, 0.51, 0.45 and 0.41 for the second, third, fourth, fifth and sixth entrants respectively. That is the market share of the second entrant will be 71 percent of the first/pioneering entrant's market share, and those of third, fourth, fifth and sixth entrants will be 58, 51, 45 and 41 percent respectively. As we note, the pioneer continues to enjoy a market share advantage.

Table 1 summarizes the forecasted market share ratios as calculated using the generalized formula.

Table 1: Forecasted market share relative to the pioneer/first entrant using the formula

Order of Market Entry	Forecasted Market Share
First/Pioneer	1.00
Second	0.71
Third	0.58
Fourth	0.51
Fifth	0.45
Sixth	0.41

Applying the formula and using the arithmetic that the market shares must be add up to 1 (100 percent), we can compute the relative market shares.

For instance, when there are only two brands/players in the market, what will be the market shares of the first entrant and the second entrant? We know that the market share of the second entrant (say, S(2)) is 0.71 of the first entrant's market share (say, S(1)). We also know that the market shares, S1 and S2, should add up to 1. Thus, we have the following two equations:

$$S(1) + S(2) = 1$$
$$S(2) = 0.71 \, S(1)$$

Therefore, market shares of the first and second entrants are 58 and 42 percent respectively.

What about the relative market shares of six market players? We would compute thus.

$$S(1) + S(2) + S(3) + S(4) + S(5) + S(6) = 1$$
$$S(2) = 0.71 \, S(1)$$
$$S(3) = 0.58 \, S(1)$$
$$S(4) = 0.51 \, S(1)$$
$$S(5) = 0.45 \, S(1)$$
$$S(6) = 0.41 \, S(1)$$

Therefore, the market shares of the first, second, third, fourth, fifth and sixth entrants are 31, 22, 18, 16, and 13 percent respectively.

Table 2 summarizes the above computation and lists the market shares (in percentages) as a function of the number of market entrants.

Table 2: Market shares (in percentages) as a function of number of market entrants

Number of Market Entrants	First Entrant	Second Entrant	Third Entrant	Fourth Entrant	Fifth Entrant	Sixth Entrant
One	100	--	--	--	--	--
Two	58	42	--	--	--	--
Three	44	31	25	--	--	--
Four	36	25	21	18	--	--
Five	31	22	18	16	13	--
Six	27	19	16	14	12.5	11.5

Predictive power of the formula in technology market

Kalyanaram and Raguvir (1998) have applied the above formula in the context of wireless markets in Europe. Their analyses demonstrated that "first entrants are also market leaders in most countries."

Mapping very closely to the prediction by the formula, they found that the average market share of all the first entrants in various countries was about 58.5 percent, and that of the second entrant was about 41.5 percent. Exactly the same numbers as predicted by the formula. The analyses included the following wireless markets: Belgium [Belgacom Mobile (first entrant) and Mobistar (second entrant)]; France [France Telecom (first entrant) and SFR (second entrant)]; Germany [Mannesman (first entrant) and T Mobil (second entrant)]; Italy [Telecom Italia Mobile (first entrant) and Omnitel Pronto Italia (second entrant)]; Netherlands [PTT Telecom (first entrant) and Libertel (second entrant)]; Spain [Telefonica Moviles (first entrant) and Airtel (second entrant)]; and Britain [Vodafone (first entrant) and Cellnet (second entrant)].

Estimating Huawei's market share leadership in 5G market

Huawei has become the leader of fifth-generation (5G) with an estimated market share of 28 percent. The competitors are: Ericsson and Nokia, the European companies, and the three big US carriers, Verizon, AT&T, and T-Mobile and Sprint (they are merging.)

Applying the generalized formula, Huawei's market share can be forecast to be about 27 percent in the long run, even when five other viable competitors – Ericsson, Nokia, Verizon, AT&T and T-Mobile/Sprint – emerge. Huawei is currently the leader, and it is

Given that Huawei's current market share is estimated to be about 28 percent, and the forecasted market share when all the competitors are fully functional is 27 percent, Huawei is expected to continue to be the market share leader even when the other expected players enter the 5G market.

Empirical findings on the relationship between the order of entry and financial strength of the firm

The empirical insights relating to the ability of a firm to accelerate market entry to its financial performance are described briefly here (Kalyanaram and Urban 2013).

Order of market entry is directly related to the expected maximum share. That is, higher share expectations are correlated with earlier entry (lower entry values).

The change in earnings per share are negatively correlated with entry order. That is, financially successful, growing firms tend to be earlier entrants.

Accordingly, entry is not exogenous, but rather endogenous phenomena related to the firm's skill and strategy of entering high potential markets early.

However, size of firm is not correlated to entry.

In the 5G market, all the players are of roughly even financial strength. We do not expect any significant advantage to any of them in particular. So, the market share advantage granted to Huawei as a result of its pioneering entry is likely to be sustained unless the later entrants design a dramatically different positioning.

Strategic implications, limitations and future research

In this section, we briefly outline the strategic implications of the findings, limitations of the research, and opportunities for future research.

Strategic implications

The strategic implications of this research are as follows.

1. Pioneers enjoy a sustained market share. So, Huawei is here to stay for a long time with an in-built share advantage.

2. If the pioneer becomes an intermediate choice as a result of entry of a competitor, then the pioneer will lose its market share advantage (Zammitt and Montaguri 2017). The only way to retain the competitive edge is through differentiated positioning. Suarez and Lanzolla (2005) explain how in technologically evolving market place, the pioneering advantage could be short-lived if the later entrants design and offer new and attractive features. This suggests that firms need continuous innovation with new and improved attributes to maintain the share advantage. Here, Huawei can lose its competitive edge if Verizon or any of the competitors is able to differentiate itself from Huawei and force it to an intermediate choice. But this appears unlikely because Huawei is also at the forefront continuous innovation.

3. The firms that are most likely to enter early are those with demonstrated skill as measured by the growth in earnings per share and foresight in identifying high share potential market opportunities. Here, Huawei's investments in 5G technology, including designing exclusive 5G chips, has been enabled by its strong and sustained superior financial performance.

4. For a pioneer to become a market leader, the brand/firm must exhibit vision, persistence, commitment, innovation and asset leverage (Golder and Tellis 2006). Huawei has done just that by designing cost-effective equipment and solutions.

5. What should be the Pricing Strategy for 5G offerings and services? As proposed by Bertini and Reisman (2013), optimal pricing has to be dynamic letting the customer determine the value of the service and determine the price. Implicit in this is recognition of heterogeneity in framing and utility function of customers (Kalyanaram and Little 1994). If the customer-determined price is not viable for offering the service, then the firm may withdraw the offering. Called as FairPay architecture, Bertini and Reisman describe the approach as defined by empowerment of the customers and continuous dialog between the firm and customers (Reisman and Bertini 2018).

Limitations

There are two important limitations that must be stated.

1. The pioneering effect and the resultant market share reward happens only when the product category succeeds, and the first entrant as a corollary succeeds. There are many instances of pioneering failing, when the product category did not find adoption by the consumers. In empirical estimations, non-survivors do not obviously get included. Accordingly, the estimated effects of the order of entry are

conditioned on the success of the category. See Golder and Tellis (1993 and 2006), and Suarez and Lanzolla (2005) for an excellent discussion of this.

2. The research needs to be replicated in many more technology product categories to further refine and enrich the formula, and deepen the understanding.

Directions for future research

Three directions of future research are evident.

1. First, the model could be extended to account for the time between entrants and include structures that assess how enduring the entry advantage is.
2. The second direction of research is to find the fundamental causes of the innate order of entry effect. Because behavioral and economic phenomena might explain the effect, more behavioral experiments are needed to uncover the underlying causative relationship between market share and order of entry.
3. The third is employing more sophisticated estimation methodologies such as varying-parameters approach where the parameters are allowed to vary to fit each observation and, accordingly, dynamically estimated. Or consider incorporation of heterogeneity in parameter estimates. Or a Bayesian approach. These will certainly enhance the accuracy of the empirical estimates. Research has, though, established that more advanced technologies may lead to a slightly better estimate of the magnitude of effects but the direction and/or statistical significance of the results is very unlikely to change. So, we are confident of our empirical results and findings.

References

BERNDT, E.R., BUI, L.T., REILY, D.H., & Urban, G.L. 1995. Information, Marketing and Pricing in the U.S. Anti-Ulcer Drug Market. *American Economic Review*, Vol. 85, No. 2 (May), 100-105.

BERTINI, M., & REISMAN, R. November 18, 2013. When Selling Digital Content, Let the Customer Set the Price. *Harvard Business Review Internet*, Retrieved from https://hbr.org/2013/11/when-selling-digital-content-let-the-customer-set-the-price.

BOND, R.S, & LEAN, D.F. 1997. *Sales, Promotion and Product Differentiation in Two Prescription Drug Markets*, Washington DC: Staff Report of the Bureau of Economics of the Federal Trade Commission, February.

CARPENTER, G.S & NAKAMOTO, K. 1989. Consumer Preference Formation and Pioneering Advantages. *Journal of Marketing Research*, 26(3) (August), 285 – 298.

GOLDER, P. N. & TELLIS, G.J. 1996. First to Market, First to Fail? Real Causes of Enduring Market Leadership. *Sloan Management Review*. Winter, 65-75.

GOLDER, P. N. & TELLIS, G.J. 1995. Pioneer Advantage: Marketing Logic or Marketing Legend? *Journal of Marketing Research*. Volume XXX, 158-170.

HAUSER, J.R. & WERNERFELT, B. 1990. An Evaluation Cost Model of Consideration Sets. *Journal of Consumer Research*, 16 (4) (March), 393-408.

KALYANARAM, G. 2017. Editorial: Endogenous Modeling of Late Entry Penalties for Packaged Goods, *NMIMS Management Review*, Volume XXXIV, Issue 1 (April), ISSN: 0971-1023, pp. 6-11, Available online at: https://management-review.nmims.edu/wp-content/uploads/2017/april/editorial-endogenous-modeling-of-late-entry-penalties-for-packaged-goods-gurumurthy-kalyanaram.pdf.

KALYANARAM, G. 2017. Editorial: Endogenous Modeling of Late Entry Penalties for Packaged Goods, *NMIMS Journal of Economics and Public Policy*, Volume II, Issue 2

(April), pp. 6-9, Available online at: https://epp-journal.nmims.edu/wp-content/uploads/2017/april/editorial-gurumurthy-kalyanaram-april-2017.pdf

KALYANARAM, G. 2013. *Marketing Dynamics in Technology-Based Industries: Pioneering Advantage Customer Experience, and Adaptive Pricing. Driving the Economy through Innovation and Entrepreneurship* (Springer India), 213–222.

KALYANARAM, G. 2009. The endogenous modeling of the effect of direct-to-consumer advertising in prescription drugs. *International Journal of Pharmaceutical and Healthcare Marketing*, Volume 3 (2), 137-148.

KALYANARAM, G. 2008. The order of entry effect in prescription (Rx) and over-the-counter (OTC) pharmaceutical drugs. *International Journal of Pharmaceutical and Healthcare Marketing*. Volume 2 (1), 35-46.

KALYANARAM, G. & LITTLE, J.D.C. 1994. An Empirical Analysis of Latitude of Price Acceptance in Consumer Package Goods. *Journal of Consumer Research*, 21, 408-418. https://doi.org/10.1086/209407.

KALYANARAM, G. & RAGUVIR, G. 1988. *Market Entry Strategies: Pioneers Versus Late Arrivals. Strategy + Business*. Retrieved from https://www.strategy-business.com/article/18881?gko=c8128.

KALYANARAM, G., ROBINSON, W.T., & URBAN, G.L. 1995. Order of Market Entry: Established Empirical Generalizations Emerging Empirical Generalizations, and Future Research. *Marketing Science*, 14, Institute for Operations Research and the Management Sciences (INFORMS), G212–G221.

KALYANARAM, G. & URBAN, G.L. 2013. *Endogenous Modeling of Late Entry Penalties*.Working Paper, MIT Sloan School.

KALYANARAM, G. & URBAN, G.L. 1992. Dynamic Effects of the order of Entry on Market Share, Trial Penetration, and Repeat Purchase for Frequently Purchased Consumer Goods. *Marketing Science,* Vol. 11, No. 3, 235-250.

KARDES, F.R., KALYANARAM, G., CHANDRASHEKARAN, M. & DORNOFF, R. 1993. Brand Retrieval, Consideration Set Composition, Consumer Choice, and the Pioneering Advantage. *Journal of Consumer Research*, Vol. 20, (June), 62-75.

KARDES, F.R. & KALYANARAM, G. 1992. Order of Entry Effects on Consumer Memory and Judgment: An Information Integration Perspective. *Journal of Marketing Research*, Vol. 24, (August) 1992, 343-357.

KING, C III. 2000. *Marketing, Product Differentiation and Competition in the Market for Antiulcer Drugs*, Boston MA: Harvard Business School Working Paper No. 01-014, 2000.

LANE, W.J. 1980. Product Differentiation in a Market With Endogenous Sequential Entry.*Bell Journal of Economics*, 11 (Spring), 237-60.

LEE, D.K.C. & LOW, L. 2018. Digital Currency Bitcoin and Cryptocurrency. Inclusive FinTech. *World Scientific*, 33–82, https://doi.org/10.1142/10949.

LIU, Y. & LIU, G. 2016. *User-Centric Wireless Network for 5G. 5G Mobile Communications* (Springer International Publishing), 457–473.

LIU, Y & TSYVINSKI, A. 2018. *Risks and Returns of Cryptocurrency*. Working Paper, Yale University.

MONTAGUTI, E. & ZAMMIT, A. 2017. Being the first entrant and getting stuck in the middle. *European Journal of Marketing*, Vol. 51 No. 7/8, pp. 1178-1196. https://www.emerald.com/insight/content/doi/10.1108/EJM-09-2016-0521/full/html.

NARULA, NEHA. 2016. *The Future of Money*. TED Talk. https://www.ted.com/talks/neha_narula_the_future_of_money?language=en.

PARRY, M, & BASS, F.M. 1989. *When to Lead or Follow? It Depends*. Marketing Letters, 1, (3), 187-98.

PRESCOTT, E.C. & VISSCHER, M. 1977. Sequential Location of Firms with Foresight. *Bell Journal of Economics*, 8 (Autumn), 378-93.

RODRIGUEZ-PINTO, J, GUTIERREZ-CILIAN, J., & RODRIGUEZ-ESCUDERO, A. 2007. Order and scale of market entry, firm resources, and performance. *European Journal of Marketing*, Vol. 41 No. 5/6, pp. 590-607. https://doi.org/10.1108/03090560710737633.

RIEMER, H., MALLIK, S., and SUDHARSHAN, D. 2002. Market shares follow the Zipf distribution. University of Illinois at Urbana-Champaign, Available online at: https://www.business.illinois.edu/working_papers/papers/02-0125.pdf

REISMAN, R. & BERTINI, M. 2018. A novel architecture to monetize digital offerings. *Journal of Revenue Pricing Management*, Volume 17, Issue 6, 453-458. https://link.springer.com/article/10.1057%2Fs41272-018-0143-3.

ROBINSON, W.T. 1988a. Sources of Market Pioneer Advantages: The Case of Industrial Goods Industries. *Journal of Marketing Research,* 25 (February), 87-94.

SCHMALENSEE, R. 1982. Product Differentiation Advantages of Pioneering Brands. *American Economic Review*, 27, 349-65.

SCHULTE, PAUL and DAVID KUO CHUEN LEE. 2019. Huawei and the Global Landscape in 5G and Cloud. AI & Quantum Computing for Finance & Insurance, *World Scientific*, 215–243.

SHAMSIE, J., PHELPS, C. & KUPERMAN, J. 2004. Better Late Than Never: A Study of Late Entrants in House Hold Equipment. *Strategic Management Journal*, Vol. 25, 69-84.

SUAREZ, F. & LANZOLLA, G. 2005. The Half-Truth of First Mover Advantage. *Harvard Business Review*. April, 121-127.

URBAN, G.L., CARTER, T., GASKIN, S., & MUCHA, Z. 1986. Market Share Rewards to Pioneering Brands: An Empirical Analysis and Strategic Implications. *Management Science*, 32 (June), 645-59.

VAKRATSAS, D., RAO, R.C., & KALYANARAM, G. 2003. *An Empirical Analysis of Follower Entry Timing Decisions*. Marketing Letters. 14:3, 203-216.

YU, Y. & GUPTA, S. 2014. Pioneering Advantage in Generic Drug Competition. *International Journal of Pharmaceutical and Healthcare Marketing*. 01/2014; 8(2).