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IT Industry Analysts: A Review and Two Research Agendas

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Abstract:

The firms involved in analyzing the information technology industry (IT), such as Gartner, Forrester, and IDC, are reputed to have a major impact on both IT vendors and IT adopters through their influence over how IT actually is acquired and used. The purpose of this article is to take stock of the nascent stream of research on industry analysts that has developed in recent years in order to shed some light on the IT analysis industry—to analyze the IT industry analysts, if you will. Using an organizational field-level lens, we look at the business models of the firms that operate in this industry. We examine the main institutional work that the analysts in these firms perform as status arbiters, institutional carriers, network brokers, IT fashion setters, and knowledge entrepreneurs. We examine the competitive and institutional pressures faced by analysts in these firms. Finally, we propose two research agendas: (1) to study the impact that this industry has had, and could continue to have, on the IT industry as a whole, and (2) to study how the relationship between the academic information systems community and the IT analysis industry might co-evolve.

Keywords: IT industry analysts, innovation, IT fashion, consultants, rankings, status, categories, forecasting

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Everybody here has a job to do when they go home every night.
Pray for confusion. The more there is, the better off we are.
Manny Fernandez, Gartner ex-CEO [Strauss, 1999]

I. INTRODUCTION

The worldwide information technology (IT) industry is huge, and the stakes are high. From hardware to software to services, IT generates major economic growth around the globe. This industry has spawned many other industries and sub-industries, such as the video games industry and the electronic automotive parts industry. Indeed, the IT industry is so large that over the last twenty-five years, a sub-industry has developed that does nothing but analyze the IT industry and how organizations use IT. Firms in this industry, which we call the *IT analysis industry* (ITAI), are large (such as Gartner, IDC, and Forrester) or smaller (such as Aberdeen, GigaOM, Ovum, Yankee Group, and include numerous independent technology bloggers and analysts), but all have the purpose of providing information about IT to their clients. The problem is that IT manufacturers, software developers, IT services providers, and many other IT-related firms rely on the information provided by ITAI firms, yet relatively little is known about this industry, the types of services and functions it provides, and how much influence it has over what IT is developed and used. To our knowledge, relatively few information systems academics have looked at IT industry analysts and what they do. Despite significant contributions (e.g., Firth and Swanson, 2005; Hoerndlein, Benlian, and Hess, 2011; Pollock and Williams, 2009, 2010, 2011), so far, IT industry analysts have not attracted the attention they deserve from the information systems field at large, given their ubiquity and reported power.

The purpose of this article is to shed some light on the IT analysis industry. The intent is to use an organizational field-level lens [Chiasson and Davidson, 2005] to examine the overall industry and the business models of its firms, and probe the institutional work that the analysts in these firms perform. Finally, we develop two research agendas; (1) to study the impact that this industry has had, and could continue to have, on the IT industry as a whole, and (2) to study how the relationship between the field of information systems and the IT analysis industry might evolve in terms of the important roles each might play in the relationship.

IT industry analysts appear to have a major impact not only on what IT gets developed, but also on what IT gets used by firms in industries as diverse as the financial industry and automotive industry. IT industry analysts reportedly use the findings of academic IT researchers,[1] yet academic IT researchers seem to use IT analysts' findings only for broad industry numbers, such as the growth of social media. There appears to be a gulf between academic IT research and research produced by ITAI firms. However, it is frequently acknowledged that people in the IT industry and IT practitioners use the analysis and research from ITAI firms much more often than they do from academic researchers. It is time for academic researchers to study the ITAI. Knowing more about this industry and what it does should enhance academic IT research. Knowing how ITAI's research intersects with academic IT research should help both IT industry analysts and academic researchers. It should also help people in the IT industry and IT practitioners by providing an independent look at the industry and showing how IT academic research and IT industry analysts' findings are related.

The rest of this article is organized as follows. After sketching a portrait of the positions occupied by industry analysts in the IT innovation marketplace, we argue that future theory development about the work of industry analysts may be enhanced by examining five distinct roles they fulfill in the IT innovation marketplace: industry analysts act as (1) status arbiters for IT innovations and their associated vendors, (2) institutional carriers of mimetic pressures, (3) network brokers bridging structural holes, (4) IT fashion setters, and (5) knowledge entrepreneurs. We also highlight three specific competitive and institutional pressures which industry analysts are currently facing and offer conjectures as to how these pressures may affect their role. We conclude by putting forward two research agendas of issues in critical need of examination by the academic information systems community.

[1] The CEO of Gartner stated in a conference call with financial analysts that his firm confer with academic institutions around the world to understand their perspective on the future of the IT industry [Gartner inc., 2012c]. We are not aware of empirical verification of the actual extent of this relationship and believe clarity on this issue would be of significant interest and value.

II. WHY INDUSTRY ANALYSTS?

A key attribute of the IT innovation process is its pervasive uncertainty, which is heightened by the high stakes involved. IT innovations are highly complex products which do not explain themselves and which require significant organizational learning in order to be adopted successfully [Swanson, 2010]. For adopters, the selection and implementation of IT innovations are high-risk ventures that can significantly alter the career paths of the managers accountable for them. For vendors, the selection of product features to develop or of markets to target is neither a straight-forward process. This "Knightian" uncertainty about quality [Podolny and Hsu, 2003] is the main reason why the marketplace for IT innovations has seen the rise of industry analysts, such as Gartner, Forrester, IDC, and Ovum, that attempt to fill this institutional void for knowledge. Industry analysts are, therefore, one key source of knowledge at play in the community learning about IT innovations [Wang and Ramiller, 2009]—in tandem with other sources such as the media, trade shows, peer user groups, and other types of consultancies.

Similarly, the information systems discipline has recently acknowledged the promise of analyzing IT innovation processes at the level of institutional fields [Chiasson and Davidson, 2005] and of acknowledging the origins and trajectories of IT innovations from their design through their adoption and final retirement [Williams and Pollock, 2012]. Many insights have been gained on the challenges associated with IT innovations through studies completed at the firm level of analysis. However, such study usually neglects significant broader institutional context [Currie, 2009], which may make the transposition of these findings from one context to the other difficult. The IT innovation process at the firm level needs to be studied conjointly by taking into account the lifecycle of the organizing vision of the IT innovation, the role of vendors, consultancies, the mass media, and peer user groups, for instance. We believe one such institutional aspect is currently neglected: the role of industry analysts among IS consultancies [Swanson, 2010].

The importance of industry analysts in the IT innovation process is heightened by increasing reliance of IT adopters on the marketplace to fulfill their IT needs [Markus and Tanis, 2000]. A number of factors contribute to this trend. First, a chronic perception of IS units as cost centers and the exhortation to focus on so-called core competences since the 1990s led many managers to conclude that the task of innovating with IT should be accomplished outside of their firms [Dibbern, Goles, Hirschheim, and Jayatilaka, 2004]. Second, vendors benefit from increasing returns to scale by selling additional licenses of the same technology to multiple IT adopters and to allocate part of these benefits to the continuous development of the technology [Cusumano, 2004]. Third, the required amount of capital to launch an IT venture has rapidly declined in recent years, which means that the IT marketplace is witnessing a proliferation of product categories to respond to more and more specialized business needs [Vance, 2011]. Overall, a greater reliance on the marketplace to fulfill IT needs represents a significant opportunity for industry analysts who sell services to both IT vendors and IT adopters.

The growing importance of industry analysts in the IT innovation marketplace can be seen as part of larger social pressures toward the auditing and commoditizing of markets in general [Carruthers and Stinchcombe, 1999]. Emerging IT innovations are notoriously difficult to comprehend and ambiguous. In the early stages of the lifecycle of the organizing vision of an IT innovation, much work is needed to facilitate interpretation and comprehension [Swanson and Ramiller, 1997]. Industry analysts have emerged as a third-party on which managers rely to reduce the risk of adverse selection, that is, to adopt a "lemon." They also provide a means to commoditize complex IT products and services through the commensuration and the reduction of their features to comparable and similar metrics [Pollock and Williams, 2009].

Yet, what is particular about the IT innovations marketplace is that it is one of the few business-to-business marketplaces where third-party actors play a significant role in the mediation of exchanges by delineating product categories, by certifying vendors' characters and products, and by acting as advisor to buyers [Kwon and Easton, 2010]. Such third-party actors are commonplace in many consumer products and cultural markets, but, in contrast to IT industry analysts, they do not tend to exhibit as much clout concentrated in the hands of a few actors. For instance, critics have provided the function of filtering and stratifying products in cultural industries—such as film, music, wine-making, and video games—for a long time, but their opinions are usually fragmented among multiple media outlets. The publishing industry has also developed a set of rankings to assess the quality of universities and tertiary education institutions worldwide (Financial Times, BusinessWeek, U.S. News, etc.), but the competition that has emerged because of these rankings generates ambiguity spaces that institutions can seize in order to further their interests [Sauder and Espeland, 2006]. Financial analysts also fulfill the function of assessing the character of firms for the benefit of potential investors, but, again, financial analysts are fragmented, and their influence usually derives from the convergence or divergence of the opinions of many analysts rather than the opinion of a single analyst [Rao, Greve, and Davis, 2001].

While Gartner has attracted much of the information systems community's attention to date [Burks, 2006; Firth and Swanson, 2005; Pollock and Williams, 2009], there is a great diversity of industry analysis firms in the IT innovation

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marketplace. Firms like Forrester, IDC, and Ovum are the most well-known competitors of Gartner, but there are many others whose role seems to have been under-appreciated by the information systems research community, mainly because they operate on a smaller scale. Additional hints to the growing importance of industry analysts in general are found in the increasing pervasiveness of a new boundary-spanning occupation [Rao and Sivakumar, 1999]: "analyst relations" (AR) professionals who are employed by vendors to manage interactions with industry analysts and challenge their role as status arbiter [Hopkins, 2007].

A small but significant stream of in-depth research has emerged in recent years to explore the work and influence of industry analysts and of Gartner in particular (e.g., Firth and Swanson, 2005; Mallach, 1997; Pollock and Williams, 2009, 2010). We believe that much further work is needed from the information systems community to address this gap. This gap is further exacerbated by the fact that industry analysts fulfill a function similar to the one fulfilled by the academic information systems community which, broadly put, is to create, distill, and diffuse evidence-based knowledge pertaining to the successful adoption and management of IT innovations. As Pollock and Williams [2010] noted in their meticulous account of how Gartner analysts produce their analyses, industry analysts are increasingly appropriating the language and methods of academia, not only to conduct research, but also to objectify and legitimate their assessments, opinions, and recommendations. Hence, we see that some might infer that practitioners sometimes regard the knowledge produced by industry analysts as more relevant or less esoteric than the one produced by the academic information systems community. Thus, the role of industry analysts is in need of examination not only for its influence in the IT innovation process, but also for its influence on the academic information systems community.

III. KEY IT INDUSTRY ANALYSIS FIRMS

In North America, industry analysis firms initially emerged to respond to the need of vendors for quantitative IT research that could guide their product development and marketing activities. A number of prominent players emerged in the first twenty years of the industry, from the 1960s to the early 1980s. In the mid-1980s, the dominant industry analysis firms were IDC, Dataquest, the Yankee Group, and Gartner. Other firms also offered market research services within their portfolio of consulting services: Arthur D. Little, McKinsey, Quantum Science, and Infocorp [Bartolik, 1985]. We will now portray a few dominant firms of the industry.[2] Table A-1 in Appendix A lists a further sample of firms operating throughout the world in the industry as of 2012.[3]

IDC

Patrick McGovern founded IDC in 1964 in Boston. The firm initially sold research through subscription plans to IT vendors seeking market share information [McGovern and Morrow, 2000]. Its first two products in 1964 were a database of computer installations in the U.S. and the *Computer Industry Report,* known in the IT industry as "The Gray Sheet" [McEnaney, 1985]. IDC focused on doing quantitative research on behalf of IT vendors and on compiling data from customer surveys about mainframe computer installations, configurations, applications, etc. The idea behind the venture came from a meeting between McGovern and the CEO of Univac in 1964. According to lore, McGovern was told to triple the price of his research to enhance its perceived quality and reliability [McGovern and Morrow, 2000]. In 1967, McGovern forayed into the publishing business by launching *Computerworld.* IDC thus became a source of content for the media and magazine publishing operations of IDG, its parent firm, which by 1987 oversaw eighty-five publications, such as *Macworld* and *Computerworld,* in twenty-nine countries [Carroll, 1987]. Conversely, the publishing operations of IDG became a source of raw data for IDC's research content. In 2012, IDC's parent company, IDG, had revenues of $3.4 billion, employed about 13,340 employees, operated over 460 websites in 110 countries, and organized over 700 technology-related events in 63 countries around the world [MarketLine, 2013]. About 40 percent of revenues were generated by subscriptions and conference registrations, while the remaining came from advertising, event sponsorships, and market research [StartupDigest, 2010]. While many publishers have struggled in recent years to adapt to the emergence of digital distribution of the Web and tablets, IDC's parent company has reportedly been able to do so successfully [Kleiner, 2012]. IDC's customers have traditionally consisted mostly of IT vendors [Franson, 1987; McEnaney, 1985], but IDC has also catered to the needs of large IT adopting firms over the years.

The Yankee Group

The Yankee Group, founded by Howard Anderson in 1970, was one of the first industry analysis firms to add qualitative commentaries and opinions to the factual data compiled from customer surveys. Furthermore, while competitors such as Dataquest and IDC were focusing on the semiconductor and mainframes segments

[2] For a detailed account of the history of the industry from a North American perspective, see Hopkins [2007].

[3] Since many firms in the industry are privately owned, the source of employee and foundation year data are the estimates provided by the company profiles found on LinkedIn.com as of November 2012. Firms are presented in alphabetical order.

respectively, the Yankee Group focused on the telecommunications segment [Bartolik, 1985]. One of the Yankee Group's first research successes was to successfully predict the dismantling of AT&T following antitrust litigation in the 1970s [Bartolik, 1985; Curwood, 1984]. The Yankee Group was also one of the first industry analysis firms to base its business model around renewable subscription services and seminars to its customers. To leverage its insight into the telecom industry, Howard Anderson launched a venture capital firm in 1983, Battery Ventures, which went on to successfully fund a number of high-tech firms (e.g., Akamai, Nextel, ITA Software). Over time the Yankee Group would span a number of prominent entrepreneurs in the ITAI industry, such as the founders of META Group, Forrester, and AMR [Adams, 1984; Beam, 1988; Cone, 1998]. Despite early successes, the Yankee Group fell on hard times following the burst of the dot-com bubble in 2000. In 1996, Howard Anderson sold the Yankee Group to Primark. In 2000, the firm was sold to Reuters, which sold it back to Decision Matrix Group, a private equity firm, in 2004. In 2005, the firm was acquired by yet another private equity firm, Alta Communications [Reed, 2005]. In 2011, the Yankee Group reportedly generated revenues of $41 million [Hoover's Online, 2012] and primarily conducted research on telecommunications technologies to cater to the needs of network operators and vendors.

Forrester

After spending five years at the Yankee Group, George F. Colony founded Forrester in 1983 in Cambridge, Massachusetts. In contrast to IDC and Dataquest's focus on quantitative market data at the time, Forrester gained in visibility by offering bold and contrarian prognostications [Fattah, 1996]. For instance, in 1987, Forrester issued a report predicting the demise of the mainframe and the rise of the PC-based client/server architecture [Rifkin, 1994]. In 1996, Forrester predicted that SAP's R/3 software would become obsolete and that SAP customers should prepare a realistic exit strategy. SAP's stock price reportedly dropped 9 percent in the two days following this prediction [Edmondson, Baker, and Cortese, 1997]. In 1996, the firm made an initial public offering [Rifkin, 1997]. At the end of the 1990s, the firm began expanding in Europe, opening offices in the Netherlands, the UK, and Germany [Forrester Research, 2009]. In 2000, a television studio was added to the firm's head office, from which interviews with analysts could be broadcast to the media. In 2002 the firm launched one of its flagship products, the "Forrester Wave," a device that ranks vendors in certain market categories and competes directly with Gartner's "Magic Quadrant" [Forrester Research, 2009]. Following the burst of the dot-com bubble, many ITAI firms struggled, and Forrester was no exception. At the end of December 2002, the firm had shed more than half of its employees, going from 800 to 360 employees [Kirsner, 2002]. On the lookout for new revenue sources at the time, Forrester began offering consulting and peer-networking services in addition to its research and conference activities. In 2003, Forrester acquired Giga, a firm that had been founded by Gideon Gartner after he severed his ties with Gartner in 1993. In 2012, Forrester had revenues of $283 million and was pursuing an aggressive growth strategy through the expansion of its sales workforce from 450 to 1000 [Forrester Research, 2012a, 2012b].

Gartner

In 1979, Gideon Gartner and David Stein co-founded Gartner, which would become the first industry analysis firm to base its business model on the needs of IT adopters and investors, rather than IT vendors [Gartner, 2010a; Hopkins, 2007; Whiteley, 1998]. The circumstances in which Gartner was launched in 1979 also shaped the business model the firm subsequently adopted. At the time, Gideon Gartner was working as a financial analyst for Oppenheimer on Wall Street after spending time at IBM in the 1960s. He had become somewhat of an industry outsider and thus did not have the network ties that other industry analysis firms had to IT vendors; instead, Gideon Gartner forged ties to the community of IT adopters by attending IT user groups like the Society for Information Management [Gartner, 2010b]. Gartner initially focused on rendering IBM's sales tactics transparent to IT adopters [Bulkeley, 1982]. Having worked at IBM in the 1960s, Gideon Gartner was well positioned to help IT adopters navigate IBM's aggressive sales tactics of the 1970s. At the time, IBM was often accused of smearing its competitors and entertaining ambiguity about its own offerings so that it remained the only viable and safe alternative. Gene Amdahl, who left IBM to found his own hardware firm, famously said that IBM's sales tactics relied on creating "fear, uncertainty and doubt" ("FUD") in the minds of potential customers who might be considering Amdahl's products [Bylinsky and Petre, 1982]. IBM sales representatives would reportedly lie about product specifications, engage in predatory pricing practices, and grossly exaggerate switching costs and reliability shortfalls of competitors' products. Given IBM's 70 percent share of the mainframe computers market at the time, these practices eventually attracted the attention of the U.S. Department of Justice, which initiated an anti-trust suit [Anders, 1982]. The savings made by IBM customers from Gartner's research services provided ample justification for the value of the firm's services and thus provided a source of sustained growth [Hopkins, 2007].

Over time, Gartner expanded its research offerings and gained a significant advantage over its competitors with its Wall Street approach to research, by keeping reports short and succinct, as well as by providing access to its analysts over the phone—tactics which eventually made it the dominant industry analysis firm it has become today [Desmond, 1985; Whiteley, 1998]. Gartner was acquired in 1988 by the advertising firm Saatchi & Saatchi, which then sold it in 1990 to a group called *Information Partners,* composed of external investors and Gartner's top

management, as it became evident that the expected synergies were not realized [Whiteley, 1998]. Dun & Bradstreet, which had a financial participation in Information Partners, would eventually gain control of Gartner and spin out the company in 1993 through an IPO. In the mid-1990s, the firm made several acquisitions to build a computer-based training unit; however, providing such services proved a failure at the time, and the unit was sold in 1998 at a loss [Gartner inc., 1998]. Since then, Gartner has grown into a global firm with $1.47 billion in revenues through the acquisition of rivals like Dataquest, META Group, AMR Research, and the Burton Group [Fisher, 1995; Gartner inc., 2012a].

IV. BUSINESS MODELS OF INDUSTRY ANALYSIS FIRMS

Before analyzing the work accomplished by ITAI firms from a theoretical perspective, we present a descriptive overview of their business model to shed light on their internal dynamics. ITAI firms are fundamentally professional service firms in the business of creating and selling information and knowledge [Sarvary, 2012; von Nordenflycht, 2010]. As such, they face strategic challenges similar to other types of professional service firms, such as market positioning, scaling, "cat herding," signaling competence, and securing trust from stakeholders [Maister, 1982; von Nordenflycht, 2010]. While specific business models vary, all ITAI firms rely on management practices to systematically scan, collect, enhance, spread, and leverage knowledge about the development, commercialization, selection, acquisition, deployment, and assimilation of IT innovations [Ofek and Sarvary, 2001]. The main costs incurred by ITAI firms are the labor dedicated to the production of content and advice (e.g., 810 analysts and 481 consultants at Gartner in 2011), as well as the labor dedicated to sales, advertising, and business development (e.g., 1268 sales agents at Gartner in 2011) [Gartner inc., 2012a]. At Gartner and Forrester, total costs are divided about equally across these two cost components [Forrester Research, 2012a; Gartner inc., 2012a]. The rationalization of knowledge management practices and the syndication of content allow these firms to benefit from significant scale economies when growing because the cost structure of the largest ITAI firms is mainly fixed rather than variable. ITAI firms may be further categorized according to the type of service they provide, the market segment they target ("vertical"), and whether they derive their revenues prominently from IT vendors and/or IT adopters.

For large ITAI firms, research generates the bulk of annual revenues (67.6 percent at Forrester and 68.9 percent at Gartner in 2011]. The margins derived from the sale of research services are significant (67 percent at Gartner in 2011]; once content has been produced, it can be leveraged and sold many times across multiple communication channels, as well as bundled and repackaged with complementary content. The large ITAI firms sell their research services as twelve, twenty-four, or thirty-six month subscriptions to individuals ("seats") within organizations and measure their sales performance according to the total annualized contract value, client retention rate, and wallet retention rate (which indicates if customers have increased their spending on research services from the firm). In 2011, Gartner had 12,427 client organizations, including vendors, IT adopters, and investors, under contract for an average of $90,000 contract value per client organization [Gartner inc., 2012b]. IT adopters purchase research to conduct benchmarking studies, operation reviews, or to (in)validate IT-related decisions, among other things [Firth and Swanson, 2005]. Vendors might purchase market data and customer surveys, as well as license reprints and quotes from reports to be used as part of the vendors' own marketing material. In recent years, ITAI firms have begun bundling and customizing research content according to the organizational role of the subscriber—CIO and executives, IT managers, IT professionals, or vendor staff, for instance [Forrester Research, 2012a; Gartner inc., 2012a]. Interestingly, the business model underlying research services has much commonality with the business models found in cultural industries [Hirsch, 1972]. ITAI firms compete against each other on the basis of optimizing content production processes but also of distributing, syndicating, and making content stand out to gain awareness among audiences. Being quoted in the technology and business media and striving to attain public recognition as an opinion leader is critical to the success of ITAI firms, as well as for an individual analyst's career prospects [Hopkins, 2007; Syre and Stein, 2000].

ITAI firms also generate revenues from consulting activities. The nature of these activities depends on whether clients are vendors, IT adopters, or investors. ITAI firms advise vendors on positioning and commercialization strategy, on technology and product development, and on assessing potential acquisitions among other topics. IT adopters seek counsel for qualifying and defining needs; identifying, selecting, short-listing, and negotiating with vendors; as well as benchmarking IT activities, among other topics. Investors might need ITAI firms' advice as part of due diligence processes in venture capital investing, for instance. In contrast to other types of IT consultancy firms [Swanson, 2010], ITAI firms' consulting activities can be relatively short in duration; they are often conducted over the phone and can last from a few minutes to a few hours. The margins derived from consulting activities are much lower than those derived from research activities (37 percent at Gartner in 2011); as such, consulting activities are much less leveraged than research activities. Consulting revenues are also much less predictable than recurrent research revenues. It is interesting to note that in contrast to large ITAI firms, many small and niche ITAI firms give away research content as a strategy to penetrate and challenge the domination of large ITAI firms. Such ITAI firms appear to follow a "freemium" model by which they produce and diffuse research content for advertising and visibility

purposes, while generating revenues from consulting activities or the organization of peer-networking forums. While the research produced by the ITAI firms might be highly visible in the marketplace and attract much attention, ITAI firms' consulting activities are said to be the most consequential on IT adopters' decisions and vendors' strategies, according to "analyst relations" experts [Hopkins, 2007] as well as ITAI firms' own marketing material [Golterman, Erskine, and Budkie, 2010].

ITAI firms' third source of revenue comes from the facilitation of peer-networking forums [Forrester Research, 2012a; Gartner inc., 2012a]. The audience for these forums primarily consists of IT adopters, who might seek the counsel of their peers to request advice and feedback and to share experiences about common problems. These forums occur both in face-to-face site visits or seminars on special topics, but also in online collaborative tools. These forums are marketed by ITAI firms on the basis of their privacy and exclusiveness and, therefore, higher relevance than traditional expert-based counsel.

ITAI firms' last source of revenue consists of the organization of conferences and trade shows [Forrester Research, 2012a; Gartner inc, 2012a]. These events not only facilitate networking activities among analysts, vendors, IT adopters, and investors, but also serve to advertise analysts and their new research content. Revenues come from participant registration fees, vendor sponsorships, and exposition booth fees. In 2011, Gartner organized sixty such events, while Forrester organized nineteen such events worldwide [Forrester Research, 2012a; Gartner inc., 2012a].

Finally, ITAI firms can be categorized according to the origins of their revenues: ITAI firms that generate most of their revenues from vendors are labeled "sell-side," while those that generate most of their revenues from IT adopters are labeled "buy-side" [Hopkins, 2007, p. 45]. ITAI firms usually do not disclose the origins of their revenues, but financial analysts and observers have guessed that IDC derives the majority of its revenue from vendors [Kleiner, 2012; Hopkins, 2007; Franson, 1997], Gartner as much as 60 percent [Finneran, 2007], and Forrester about 33 percent [Finneran, 2007]. Niche ITAI firms also cater to different segments of the IT industry; for instance, the Tower Group caters to the needs of the financial services industry, Ovum and the Yankee Group specialize in the telecom industry, while the Advisory Board Company specializes in health care and higher education.

V. ROLES OF INDUSTRY ANALYSTS

A review of ITAI firms' business models is insufficient to account for the work they do and the influence they have in the IT marketplace. The opening quote to this article by a former-CEO of Gartner illustrates that, at the crux of ITAI firms' work, is the pervasive uncertainty that plagues economic exchange in the IT innovations marketplace and that increases search and transaction costs for IT adopters and vendors. We contend that, from an institutional perspective [Chiasson and Davidson, 2005; Currie, 2009; Mignerat and Rivard, 2009], industry analysts reduce uncertainty in IT innovation markets [Swanson, 2010] through five roles that are analytically distinct: (1) status arbiter, (2) institutional carrier, (3) network broker, (4) IT fashion setter, and (5) knowledge entrepreneur. These roles were not identified in a deductive fashion; rather, they were identified from a selective review of the nascent academic literature and accounts from the business media about industry analysts. We do not contend that this list is definitive or exhaustive; rather, we propose these five roles as a complement to previous research on IS consultancies (e.g., Pollock and Williams, 2009, 2011; Swanson, 2010) and as a springboard for future inquiry leading to a refined understanding of how industry analysts work.

Status Arbiter

Due to the turbulent, ever-changing nature of the IT industry, IT vendors and IT adopters continuously seek information about firms in the IT industry and the products and services they have developed and are offering for sale. This information is usually in the form of descriptive information but, most importantly, also includes opinion and judgment about the firms and their products. This is particularly true in markets where technology is highly uncertain and untested. IT adopters look for what they consider to be independent judgments on these new technologies. What is the quality of these new products/services? What impact will these new products/services have on the IT industry and on the firms that adopt these new products/services? Are there other products/services in the same market category, and what is their quality? These and other questions are important for IT adopters and vendors. The answers to these questions in the form of judgments from industry analysts can have a major impact on what products/services are acquired and used, and on the fortunes of firms that provide these products and services. Thus, industry analysts act as status arbiter by creating market categories and by classifying and ranking vendors within these categories [Pollock and Williams, 2009, 2011; Pollock and D'Adderio, 2012].

Difficulties in assessing the quality of an IT product or the character of a vendor increase the likelihood that status, that is, a vendor's position in a hierarchical order, will be used as a proxy for quality [Podolny, 2005]. In markets where uncertainty about quality is important and attention is scarce, status lowers the search and transaction costs

for sellers and buyers [Simcoe and Waguespack, 2011]. Some aspects of quality can be directly observed and inferred from the reputation of a vendor, that is, from "an expectation of some behavior or behaviors based on past demonstrations of those same behaviors" [Podolny, 2005, p.13]. A vendor may have a reputation *for* reliable products or *for* good customer service, for instance. Yet, a fundamental level, regardless of the level of quality displayed by a vendor, there will inevitably be some perceived variance around that level, since quality is imperfectly observable [Podolny, 2005]. While vendors continuously compete with each other to increase their status in the eyes of IT adopters through signaling and affiliation with other high-status exchange partners, the cost of collecting reliable information that would reduce this variance can be quite high for IT adopters. Given uncertainty about quality, IT adopters and potential exchange partners of that vendor will be motivated to look for other material indicators of quality.

Such indicators are routinely created, produced, and disseminated by industry analysts though the use of ranking devices and calculative practices. Pollock and Williams [2009, 2011] as well as Pollock and D'Adderio [2012] provided incisive analyses of how such work is accomplished by Gartner analysts. Industry analysts objectify these calculative practices by disclosing the broad principles of their methodologies, but still obfuscate the details regarding specific instances of their application [Pollock and D'Adderio, 2012; Smulders, 2011]. Industry analysts do so to protect their image of integrity, given that analogous calculative practices used to rank higher education institutions have been shown to be much more the outcome of contingent negotiation than the disinterested application of norms [Free, Salterio, and Shearer, 2009]. For the managers of IT adopting firms, the evaluations provided by industry analysts provide assurance against lemons, build legitimacy, and expedite the adoption process; in other words, they usually find analysts evaluations useful because there is less to justify both before adopting IT innovations and after the fact if something goes wrong.

The evaluations produced by industry analysts are also valued by the financial community. Financial analysts use industry analysts' evaluations to assess the performance of vendors. The evaluations of industry analysts influence financial analysts' cognitive categories through which vendors' potential and performance are assessed. Research about the influence of financial analysts' forecasts indicate that vendors that are less prototypical within the market categories proclaimed by industry analysts could be less successful in securing venture capital financing and, therefore, have a lower likelihood of survival and growth [Navis and Glynn, 2011], experience higher stock price volatility [Zuckerman, 2004], face higher costs of capital and depressed stock prices [Zuckerman, 1999], and feel compelled to restructure product offerings to make them fit better with institutionalized market categories [Zuckerman, 2000]. Evidence also suggests that unfavorable assessments from industry analysts could precipitate exits at the upper echelons of vendors [Wiersema and Zhang, 2011]. While such outcomes are not traditionally investigated by the information systems community, the shifting locus of sourcing IT innovations from in-house to the marketplace [Markus and Tanis, 2000] makes these outcomes increasingly relevant to our understanding of the competitive and institutional dynamics of IT innovation processes [Li, Shang, and Slaughter, 2010].

The influence yielded by industry analysts is probably situational rather than deterministic. Anecdotal evidence suggests that industry evolution [Agarwal and Tripsas, 2008], as well as the career of organizing visions associated with IT innovations [Ramiller and Swanson, 2003; Wang and Ramiller, 2009], could moderate the influence industry analysts exercise as status arbiters on the IT innovation marketplace. Segments within the IT industry usually evolve through a series of stages: emergence, growth, shakeout, and maturity [Agarwal and Tripsas, 2008]. Similarly, the organizing visions associated with IT innovations have careers along which know-what, know-why, and know-how is collectively developed and disseminated among the community of vendors, IT adopters, consultancies, the media, investors, and industry analysts [Ramiller and Swanson, 2003; Wang and Ramiller, 2009]. Industry analysts' influence could be moderately significant in initial stages of emergence/growth when there is turmoil about technology trajectories and no dominant design has yet emerged. During these stages, industry analysts will attempt to make sense of the identity of new vendors and of the affordances provided by new IT innovations. They will assess opportunities for new market categories and might engage in practices of sense giving by proclaiming new categories and new visions [Pollock and Williams, 2011]. Industry analysts might find rank-ordering vendors difficult and premature at this early stage since there are too many vendors and the IT hasn't coalesced around a dominant design. They might instead focus on putting together "lists" (like Gartner's "cool vendors" list) rather than predicting which vendors will be leaders of the emerging market categories (obviously it would be too embarrassing for the analysts' reputation to be caught on the wrong side of history). Furthermore, given the state of flux in market categories, when putting together their rankings, industry analysts might be more lenient with vendors that fit in more than one market category [Ruef and Patterson, 2009]. The influence of industry analysts in rank-ordering vendors could be most significant when IT markets are in a shakeout stage; a dominant design has emerged, and industry analysts' evaluations serve to precipitate the exit of incompatible vendors that do not fit neatly into the sharpened organizing vision associated with the IT innovation. When the know-what, know-why, and know-how associated with IT innovations have become taken for granted and the underlying technology has become a commodity, industry

analysts might retire market categories since there are too few vendors to rank and the status hierarchy has stabilized.

Anecdotal evidence in support of this pattern can be found in the evolution of Gartner's "Magic Quadrant for Social Software" over time. The introduction of the magic quadrant for "social software," a new market category, coincided with the abandonment of the "integrated collaboration" category [Drakos and Burton, 2006]. In 2007, the first version of the magic quadrant classified twenty-five vendors within the "Team Collaboration and Social Software" category, but no vendors were ranked as "leaders" [Farber, 2007]; twenty-three vendors were ranked as niche players. The following year, the "Team Collaboration" component of the category name was dropped; thirty-eight vendors were included, but still no leaders [Drakos, Bradley, and Mann, 2008]. In 2009, the magic quadrant's name was changed again, this time to "Social Software in the Workplace" [Finley, 2010]. In 2010, only twenty-tree vendors were part of the magic quadrant, due to a change in the inclusion criteria: Gartner now required vendors to provide references from four customers with at least 5000 employees [Finley, 2010]. In 2011, twenty-two vendors remained; three were ranked as leaders and only ten were ranked as niche players [Drakos, Mann, Rozwell, Austin, and Sarner, 2011]. Interestingly, the analysts' pattern of retrospective sense making, instantiated a "wait-and-see" approach during the emergence/growth stage; along with active scanning for market success, cues among weak signals could well lead to a Matthew effect: a small, early status differential between vendors gets amplified due to a cumulative advantage process [Podolny, 2005; Waguespack and Sorenson, 2011].

Furthermore, the extent to which ranking devices like the magic quadrant are performative in the market [Espeland and Sauder, 2007; MacKenzie and Millo, 2003], that is, the extent to which they effectuate self-fulfilling prophecies rather than passively represent reality, is also an open empirical question. Evidence about how various actors react to industry analysts evaluations [Pollock and Williams, 2009, 2011], to user-generated rankings like those found on TripAdvisor [Scott and Orlikowski, 2012], to music sales charts [Anand and Peterson, 2000], to wine ratings [Hadj Ali, Lecocq, and Visser, 2008], and to university rankings [Bowman and Bastedo, 2009; Espeland and Sauder, 2007; Sauder and Lancaster, 2006] indicate that analysts' ranking devices could be performative to some extent. More empirical work that specifically focuses on IT industry analysts is still needed to clarify that issue. At issue is the extent to which the rankings and categorization moves by industry analysts are challenged and thwarted by IT adopters and vendors. Far from being passive conformers in reality, vendors certainly enact a variety of strategies to confront industry analysts' rankings [Pollock and Williams, 2009], to invent new market categories [Su, 2011], to discursively establish their leadership and status by persuading and co-opting industry analysts [Wang and Swanson, 2007], and to legitimize their preferred interpretation of organizing visions [Kaganer, Pawlowski, and Wiley-Patton, 2010]. The conduct of empirical inquiry about such implications of the role of industry analysts as status arbiter is important, given their apparent power to stifle innovation and nudge the evolution of innovation markets in certain directions.

Institutional Carrier

Industry analysts act as carriers of institutional mimicry and conformity in two ways [DiMaggio and Powell, 1983; Scott, 2003]: (1) they facilitate adaptive emulation when firms search for so-called best practices of IS management, and (2) they mediate comprehension and adoption processes when firms intend to innovate with IT. At an organizational level, this role of industry analysts might generate less than mindful behavior from IS adopters; they might become less attentive to their local organization facts due to analyst's intervention and promotion of particular organizing visions [Swan, Newell, and Robertson, 1999; Swanson, 2010]. At an industry level [Chiasson and Davidson, 2005], this role of analysts might have the effect, in the long term, of homogenizing IS management practices enacted by firms.

First, managers face significant uncertainty about how to govern their IT resources and what IT capabilities to develop. When the assessment of performance has an ambiguous comparative basis and the search for solutions is costly, they may recur to industry analysts for auditing and benchmarking services where "data points" are collected and provide a basis from which to compare so-called best practices to internal organizational practices [Lacity and Hirschheim, 1995; Strang and Still, 2006]. Industry analysts routinely collect industry-wide data through surveys of their customers on various practices related to IS management: application portfolio, infrastructure, security, outsourcing, service management, and performance assessment, for instance. They also collect data that are of interest for vendors, such as technological trajectories, market shares and trends, and generic customer requirements. They are able to perform this role due to their network position as opinion leader that allows them to share best practices, standards, and comparison data across structural holes and to structurally equivalent peers [Burt, 2005]. During benchmarking engagements with industry analysts, success stories about industry peers are shared and scrutinized for insights. Cost data are collected and analyzed for deviations from norms and averages; operating routines are compared to standard templates. The performance of various IT management practices is ranked-ordered. Organizational objectives are adjusted and calibrated to industry-wide norms. Firms that engage in normalizing their practices without being mindful of their own circumstances may have good reasons to do so

[Swanson and Ramiller, 2004]. Mimicking is not necessarily dysfunctional or inefficient; despite the risks, firms are often rewarded if they copy their competitors and their peers [Swanson and Ramiller, 2004]. Despite early work on how benchmarking is conducted in outsourcing decision processes [Lacity and Hirschheim, 1995; Willcocks, Fitzgerald, and Lacity, 1996], the information systems literature has been surprisingly silent on how industry analysts construct metrics and so-called best practices, as well as contribute to more or less mindful behavior during benchmarking activities.

Second, managers also seek industry analysts' advice when they intend to innovate with IT [Burks, 2006]. Interactions with analysts may be quite short, but they nevertheless could carry tremendous influence on how managers comprehend and adopt technologies. For instance, an analyst might assist managers at various stages of the IT sales cycle [Wybo, 2007] by refining organizational needs, determining systems specifications, searching for information about vendors, determining selection criteria, reviewing bid submissions, short-listing vendors, evaluating vendors, obtaining customer references, selecting vendors, and negotiating a contract. The apparent objectiveness of an industry analyst might provide participants in such episodes of collective decision-making with "good reasons," that is, arguments or rationales that are cognitively attractive but that also nudge the group toward overpriced or poor alternatives [Barber, Heath, and Odean, 2003]. Furthermore, an analyst might reveal competitors' IT choices; such awareness might lead managers to make a suboptimal choice, even if the chosen IT is of inferior quality compared to available alternatives [Tingling and Parent, 2002]. When an analyst discounts a vendor that does not fit well into market categories, managers might even remove the vendor from its consideration set even if the vendor might be the most congruent with their firm's idiosyncratic requirements [Pollock and Williams, 2007]. Studies of financial analysts [Hayward and Boeker, 1998] suggest that the analyst might recommend a vendor that is more central to the considered market category or that he has a vested interest in promoting. Such advice-giving might precipitate rhetorical closure about the meaning of IT innovations and their affordances [Pozzebon, Titah, and Pinsonneault, 2006]: in other words, it may nudge the firm toward dominant and successfully diffused organizing visions, and it may push firms to herd their peers in how they innovate with IT, possibly leading to greater homogeneity of IT innovation behavior at an organizational field level [Walden and Browne, 2009]. This departure from mindful engagement with IT is compounded by the fact that an analyst does not have much time to become acquainted with the local circumstances faced by the firm when formulating advice.

Industry analysts are not the only carriers of institutional pressures in the IT industry; professional institutions like the Project Management Institute and the Information Technology Infrastructure Library (ITIL) also facilitate isomorphism through the socialization, training, and certification of IT professionals to an objectified body of knowledge [Mignerat and Rivard, 2012]. But the role of industry analysts in homogenizing how firms comprehend and adopt IT innovations throughout the IT sales cycle certainly warrants further attention from the information systems community.

Network Broker

Industry analysts act as network brokers who span structural holes among the network of vendors, IT adopters, and investors [Burt, 2005]. They accomplish this role in two ways: (1) by introducing disconnected individuals (i.e., closing structural holes) [Obstfeld, 2005] and (2) by benefiting from the flow of information provided by their position spanning structural holes [Hargadon and Sutton, 1997].

First, industry analysts set up "mixers" [Ingram and Morris, 2007] and industry peer networks [Zuckerman and Sgourev, 2006], such as trade shows, conferences, and CIO clubs, explicitly aimed at tie creation among their participants. Industry analysts purposefully act as network entrepreneurs at such events by introducing vendors, IT adopters, or investors who might otherwise not be aware of each other. An anecdote about the strategic importance of such events in the early years of Gartner, told by Gideon Gartner, the co-founder of the firm, highlights the role of analysts in acting as the "third who joins" [Obstfeld, 2005]:

> *Being an influential advisory firm in the IT space, we had prior access to senior executives of the displaying firms, and were able to set up specific appointments during the exposition. ... almost every visitor to an event of this magnitude gets lost and exhausted on the exposition floor. Normally, visitors walk the miles of aisles, wasting huge amounts of time stopping at many booths which too often have little relevance to their interests, but even then one must often fight the crowds on the floor with little if any access to the executives and the treats upstairs! On the very first exposition day we helicoptered our clients directly to the grounds, with each analyst leading his or her five invited clients, then presenting the planned itinerary and explaining why the particular visits were selected, with a bit about the hosting executives. Then, we chaperoned the clients from selected exhibit to selected exhibit, finally discussing and recapping the day's experience* [Gartner, 2010c].

Second, industry analysts need to secure a continuous inflow of sensitive, fine-grained, and private information from vendors, IT adopters, and investors to be effective in their roles as status arbiters, isomorphism carriers, IT fashion setters, and knowledge entrepreneurs. They also need to be able to secure access to members of the media in order to generate awareness of their work as IT fashion setters. Industry analysts benefit from their social network position by accessing novel and non-redundant information from their non-overlapping set of ties among vendors, IT adopters, and investors [Burt, 2005; Hargadon and Sutton, 1997]. Industry analysts face a dilemma, however. While nurturing embedded ties might provide access to novel and private information that make their advice more effective (e.g., see Cohen, Frazzini, and Malloy, 2010, for the importance of embeddedness to financial analysts), analysts have limited time and resources to do so. They must prioritize the allocation of their efforts between nurturing costly embedded ties and maintaining arms-length ties that may only provide redundant and public information that has less value for their work [Uzzi and Lancaster, 2003]. Industry analysts also face the delicate challenge of embedding their ties while managing impressions that they are exploiting the same ties for economic gain, a conduct which is in sharp contrast to the trust and reciprocity bases of embedded ties [Chan, 2009]. This challenge may lead to defensive statements by industry analysts about how they negotiate this tension in their relationship with vendors:

> *Contrary to what many AR folks think, many Gartner analysts do value relationship building. There is nothing wrong with having good relationships with vendor executives and AR, we just may not agree with everything the vendor is doing. It's important to realize its* [sic] *business and not personal* (Gartner analyst [Golterman, Erskine, and Budkie, 2010]).

Interestingly, large ITAI firms like Gartner and Forrester appear to put much of the onus of embedding ties on their clients, especially vendors. For instance, Gartner managers strongly urged analyst relations (AR) professionals employed by vendors to increase their involvement with analysts and even to act as agents of the analysts within their own organizations:

> *Clout is the most important; AR people who help me get the answers I need with senior executives help to do my job* (Gartner analyst [Golterman et al., 2010]).
>
> *Unless an analyst relations person is helping me access the people I need to access and help me manage the information flow that goes both ways, they are just getting in the way* (Gartner analyst [Golterman et al., 2010]).

In addition to having to deal with the conflicting logics inherent with balancing their portfolio of arm's length and embedded ties, industry analysts make choices regarding what information to share and which contacts to join under a variety of circumstances that have not yet been empirically investigated. For instance, an analyst's motivation to channel quality advice to a CIO might depend on the size of a technology acquisition deal considered by the CIO or the extent to which the analyst is dependent on (i.e., seek to grow) revenues from either IT adopters or vendors [Pollock, Porac, and Wade, 2004]. The impact of such situational conditions on the interactions between industry analysts and their stakeholders might be consequential for how mindful IT adopters are in comprehending, selecting, and implementing IT innovations [Swanson and Ramiller, 2004].

IT Fashion Setter

IT industry analysts act as fashion setters and promoters of organizing visions through their promissory work [Pollock and Williams, 2010]. They fulfill this role by making public forecasts that proactively shape the trajectory and discursive activity of IT fashions. For instance, they forecast when IT innovations will become IT fashions and when they will fall out of fashion (e.g., Gartner's "Hype Cycle"). They also seek opportunities to make sense-giving moves that contribute to the community learning of know-what about IT innovations, by creating narratives that illustrates the practicalities of emerging technologies, and know-why, by framing a rationale for their adoption [Akhlaghpour and Lapointe, 2010; Wang and Ramiller, 2009]. Thus, they might influence the desirability, interpretability, discontinuity, and plausibility beliefs of potential adopters toward specific organizing visions, especially for those who have less involvement and experience with the underlying technologies [Marsan, Paré, and Beaudry, 2012]. Computerization movements might also seize on the visions and forecasts promulgated by industry analysts to mobilize support in favor of technologies that align with their interests [Kling and Iacono, 1988].

The accuracy of forecasts appears to be less of a concern than the ability to provide meaning temporarily [Pollock and Williams, 2010], until that meaning is updated with further experiential learning. As a result, overconfidence in forecasting is common; errors are usually expected and go unpenalized by the market. In 1995, the founder-CEO of Forrester boldly predicted the demise of IBM: "The company is headed for disaster. Wall Street will be fooled. The directors will be fooled. It's going to be a horrible train wreck. The only way out for IBM is to break it up. The worst mistake that Gerstner had made is that he has not changed the team … he's going to pay for it" [Buerger, 1995, p. 128]. Ten years later, he radically revised his earlier prediction: "I think the greatest technology visionary of the

1990s was Lou Gerstner" [Rich, 2005]. Another telling lack of foresight in recent years is the forecast in 2008 that Microsoft will make only small acquisitions in the short term; the analyst issued the forecast on January 31, 2008, one day before Microsoft offered to acquire Yahoo for $45 billion [Carr, 2008]. Interestingly, industry analysts might also be making forecasts as an attempt to extract meaning from the community. For instance, Gideon Gartner recounted on his personal blog how the firm used public forecasts as "stalking horses" to learn with the community:

> *My personal interpretation of the Stalking Horse term was that when a concept or issue would be elusive (as almost all information technology issues are), we would sneak up with our "stalking horse" (a table or diagram or graphic which we would draw), and close in towards a solution while in turn initiating colloquy with our peers! We could then iterate around our varying opinions, data labels and values, until we hopefully reached reasonable consensus. Our databank would then be enriched with a new-found Gartner conclusion! ... just as early hunters used these tools to sneak up on elusive quarry, in our context "stalking horses" would be graphics and techniques to "sneak up" on market growth rates and dozens of other business variables! This concept became an important part of our research process, so important that it permeated our entire research culture!* (Gideon Gartner, co-founder of Gartner inc. and Giga inc. [Gartner, 2011]).

We know little about how industry analysts come up with forecasts and what motivations or cognitive biases influence accuracy and reliability. For instance, the finding that financial analysts might be subject to pluralistic ignorance [Zhu and Westphal, 2011] suggests that industry analysts might collectively promote the hype associated with an IT fashion even if they entertain personal doubts regarding the magnitude of its practical benefits. Some analysts may also make bold forecasts and vivid organizing visions as a ploy to stand out and reach the status of "gurus," without any concern for accuracy and pragmatics. This tendency might come from situational pressures that reward boldness—customers are attracted to confident rather than cautious advisors [Radzevick and Moore, 2011], but it might also come from different cognitive styles of reasoning about the future [Tetlock, 2005]. Analyzing how analysts frame their forecasts with various genres and tropes that instantiate utopian or inevitability logics [Kling, 1994; Leonardi, 2008] could shed light on how they nudge organizing visions in certain directions, how they stabilize those visions over time, and how they affect the visions' reception by the community.

Knowledge Entrepreneur

Industry analysts, like other IS consultancies [Swanson, 2010], produce objectified knowledge about solutions to practical problems faced by IT practitioners. From simple two-page reports in the 1980s [Gartner, 2011], Gartner's research outputs have taken on the allure of scientific inquiry: many reports now contain a methodology section, and many activities leading to their production, like data collection, analysis, and representation, are analogous to the scientific endeavour [Pollock and Williams, 2009]. By doing so, analysts might desire to deflect criticisms that they base their advice on particularistic criteria such as individual preferences, background, or social connections, rather than on merit, evidence, or logic [Pollock and Williams, 2009]. Observers might consider this effort toward greater disclosure of methods and criteria to be cynical window dressing aimed at legitimating results that are inherently uncertain and unreliable, but which, in the long term, could also lead to the recoupling of analysts' practices with the principles of rigor and logic.

In producing generalized IT management knowledge, industry analysts actually compete with the IS field for practitioners' attention. Like academics, industry analysts are knowledge entrepreneurs. They contribute to the commoditization of IT management knowledge that erodes gradually the authority of academics on knowledge production. In contrast to the academic freedom enjoyed by academics to pursue the production of knowledge for its own sake, industry analysts produce knowledge as part of a bureaucratic apparatus in a profit-seeking enterprise. Therefore, their knowledge-production activities are not typically driven by curiosity or the aesthetics of rigor but mostly by pragmatics and productivity; nor are they shaped by the same contexts [Davenport and Markus, 1999]. Analysts benefit from a level of access that only a handful of academics enjoy, putting analysts in a position to produce knowledge that practitioners may perceive as more relevant. Analysts also do not have to comply with the hazards and requirements of the peer-review process—despite reported pretensions of doing so [Pollock and Williams, 2009]—sometimes leading their knowledge claims to be perceived as more timely than those of academics.

Of course, many academics routinely produce knowledge with the intent of providing a solution to a problem experienced by practitioners, but, put as an ideal type, the overriding logic that drives analysts' production of knowledge appears to be fundamentally different. Historically, a dominant concern with pragmatics has led industry analysts to disregard rigor and validity in order to focus predominantly on the evocative affordances of the frameworks, templates, tools, checklists, scripts, heuristics, and procedures they produce. In other words, the knowledge they create can constitute "useful fictions," that is, "a language to talk about issues," that provides value, "even if 'imaginary,' in the sense that it was not sustained by empirical investigation" [Benamati, Serva, Galletta,

Harris, and Niederman, 2006, p. 670]. Research aimed at deconstructing these "useful fictions" [Chiasson and Davidson, 2012] could focus on (1) how they come to be initiated, (2) the interests at work that shape their specific content, (3) what constitutes their usefulness (e.g., setting an arbitrary standard or benchmark that becomes relatively permanent), and (4) why and how industry analysts produce valued knowledge. Research could also aim at debunking "harmful fictions"—misleading or inaccurate knowledge claims—that are made by analysts. Harmful fictions could be the result of bias, but they can also result from systematic errors in data collection and analysis. For instance, researchers have found the oft-quoted statistics on IT project performance by the Standish Group to be systematically over-inflated [Glass, 2006; Jørgensen and Moløkken-Østvold, 2006; Reich, Gemino, and Sauer, 2008].

The value and aesthetics of the knowledge produced by industry analysts should not be derided for its lack of scientific rigor, as analysts may tap into alternative conceptions of knowledge that could well be underappreciated and excluded by the IS field [Ramiller, Swanson, and Wang, 2008]. Another area of success for industry analysts has been their ability to legitimate their IT fashion setting activities and their forecasting work, despite a lack of accuracy and accountability. Industry analysts are particularly active in predicting the "next-big-thing," while, "despite the introduction of life-changing technologies over the last few decades, IS scholars are not being asked to predict how technological advancements will change the world" [Firth, King, Koch, Looney, Pavlou, and Trauth, 2011, p. 208]. Reinvigorating theories and techniques of "futures" might also contribute to an understanding of how industry analysts conduct their work [Gray and Hovav, 2008]. In fact, the IS field may have much to learn from analysts about how to make its research outcomes, not less rigorous, but more consumable [Davenport and Markus, 1999] and how to become an active participant in IT fashion setting [Baskerville and Myers, 2009].

VI. INSTITUTIONAL PRESSURES FACED BY INDUSTRY ANALYSTS

Industry analysts do not work in a competitive and institutional vacuum. Like vendors and IT adopters, they are subject to their own set of pressures:

1. Industry analysts compete against each other for resources, information, and attention, and are subject to broader macroeconomic and mimetic pressures.
2. New entrants benefiting from recent technological and institutional innovations could undermine the business models of incumbent industry analysts.
3. Key stakeholders, such as the media, IT adopters, vendors, and investors, have criticized and challenged analysts' legitimacy as intermediary in the IT innovation marketplace in recent years.

These pressures shape how much discretion industry analysts have to enact each of the five roles we have portrayed.

First, industry analysts compete under macroeconomic and institutional pressures in selling their research, consulting, peer networking, and events services to vendors, IT adopters, and investors. They also compete for attention from the media, especially from the most prestigious and visible outlets, which act as gatekeepers for the organizing visions that reach broad managerial audiences [Hirsch, 1972]. This competition might motivate industry analysts to make their rankings and prognostication aesthetically attractive rather than grounded in pragmatics [Pollock and D'Adderio, 2012]. An analyst might choose to revise vendor rankings from one year to the next, not necessarily to reflect a change in "fundamentals," but to ensure that the rankings keep an element of unpredictability. Industry analysts face significant uncertainty in establishing rankings, inventing and retiring categories, and making forecasts; this uncertainty might lead them both to herd their peers [Rao et al., 2001] or to try to stand out [Sarvary, 2012]. As already mentioned, analysts might make bold (conservative) forecasts only to attract attention away from competitors who may be too conservative (optimistic) [Radzevick and Moore, 2011].

Previous research on credit ratings agencies suggests that, in contexts of economic downturn and industry turbulence, such boldness in forecasting and rankings might become amplified [Vaaler and McNamara, 2004]. This tendency might be further encouraged by the suggestion that, because the reliability of information tends to decrease under conditions of high uncertainty, buyers may be more willing to buy more research, not less, to reduce this uncertainty [Sarvary, 2012]. When the quality of information is difficult to assess, this creates a situation in which products of industry analysts are complements and prices charged tend to be high. Many IT adopters buy the products of more than one industry analysts at a time; Forrester once estimated that 90 percent of its customers also are Gartner customers [Malloy, 1997, p. 95]. Industry analysts are well aware of the value of second opinions with regard to IT investment decisions: "It's like complex brain surgery. To get one opinion is probably not the right way to go. So, there are two opinions to be had out there, and we're one of them. We don't care if we're the first opinion or

second opinion" [George F. Colony, Forrester Founder-CEO, quoted in Rich, 2005, p. C4]. Therefore, industry analysts may benefit from more rather than less competition in some circumstances [Sarvary, 2012].

Second, new entrants continuously challenge and attempt to disrupt the business model of large industry analysts firms. In the last decade, many niche industry analysis firms employed the Internet to gain notoriety or to capitalize on their past notoriety as analysts for one of the incumbent firms. Instead of relying on subscription revenues like the incumbent firms, they make research freely available over the Web to generate awareness and rely on revenues from consulting services. Many such new firms operate in a virtual, syndicated mode where individual analysts are geographically distributed and some resources are pooled (e.g., marketing and advertisement, Web publishing, legal, etc.). Independent journalists further threaten some of the traditional market positions occupied by industry analysts. IT adopters can also increasingly rely on electronic networks and technology blogs to conduct their own research [Davidson and Vaast, 2009]. Therefore, IT adopters have a greater set of alternatives from which to source IT-related research than they did in the past. These new entrants could make written research increasingly commoditized. Incumbents like Gartner and Forrester could face pressures to increase their revenue from other sources, such as consulting services, and, as a consequence, may end up venturing into the territories occupied by IT consultancies who specialize in strategy or implementation advisory [Swanson, 2010].

Third, the most significant institutional pressures faced by industry analysts could lie in how key stakeholders have criticized their integrity in recent years, mostly because of the lack of transparency about the origins of their revenues and the methods they employ to rank vendors [Greenemeier and McDougall, 2006; Violino, 1999]. Given some anecdotal evidence [Gilbert, 2003; Gomes, 2002, 2008], there is a lingering doubt among some members of the IT community that industry analysis firms routinely engage in "payola" or "pay for play" practices with vendors [Quora, 2011], despite vehement denials [Erskine, 2006, 2009]. A few industry analysts and bloggers have also come under scrutiny because they own equity in the firms that they are following [Miller, 2011]. Still, the conflict of interests that plagues the business models of industry analysis firms might be more subtle in its influence, like the ones that are found in the financial services industry [Hayward and Boeker, 1998]. Industry analysis firms necessarily have to deal with intra-organizational conflict that arises from the conflicting demands of their various stakeholders. On the one hand, vendors and IT users expect impartial advice from analysts. On the other hand, vendors also buy research subscriptions and consulting services from the sales unit that works alongside analysts. A vendor may be simultaneously ratee of the analysts and (prospective) customer of the sales unit. As a result, analysts must choose whether or not to portray vendors in a manner that promotes the sales unit's interest. Financial slack sometimes exacerbates the criticality of this dilemma:

> *… the more earnings pressure you have on you, the more likely you are to compromise your ethics …. For instance, the line between being an analyst and an advocate become thinner if research companies look to boost profits through trade shows, endorsements and other objectivity-graying activities to please investors. Don't forget that predictions in this business can often be self-fulfilling prophecies. … Increasingly, there are so many opportunities to be partial in this business that it takes a strong backbone to keep your ethics* [Gideon Gartner, Gartner and Giga co-founder quoted in Fattah, 1996, p. 36].

Such conflict of interests reportedly plagues the financial analysis and credit ratings industries, which operate according to an equivalent business model. Ample evidence accumulated in the last decade or so suggests that financial analysts often feel obliged to please powerful customers and, thus, to provide biased investment advice in some situations (e.g., Hayward and Boeker, 1998; Hong and Kubik, 2003; Ke and Yu, 2006; Michaely and Womack, 1999]. Investigations of credit ratings agencies have shown that the switch from an investor-pay model to an issuer-pay model at Standard & Poor's in 1974 has subsequently led to inflated ratings [Jiang, Stanford, and Xie, 2012], and that large issuers of mortgage-backed securities tended to receive inflated ratings from all credit ratings agencies in general [He, Qian, and Strahan, 2011]. Evidence also shows that bias and arbitrariness could extend to how financial analysts manage market categories and classify firms [Fleischer, 2009; Waguespack and Sorenson, 2011]. Furthermore, even in the absence of powerful customers, biased advice could be inevitable due to the interaction of socio-cognitive processes and situational pressures inherent in working within organizational arrangements characterized by cross-accountability demands [Moore, Tetlock, Tanlu, and Bazerman, 2006]. As a result, it is not surprising to observe that some media outlets have a lukewarm and complex attitude toward the use of industry analysts as journalistic sources [Vance, 2006]. Understanding how industry analysts resolve conflicts of interests is crucial to the validation of their claims of independence and objectivity. How IT adopters and vendors trust (potentially) biased advice [Hoerndlein et al., 2011] and deal with the potential for opportunistic behavior [Dawson, Watson, and Boudreau, 2010] is also of great import. An irony may lie in the fact that, despite acknowledgments of bias, customers of industry analysts' advice might still use the information in their decisions, in part because they have paid dearly to listen to the advice and, therefore, induced a sunk cost [Gino, 2008], or because they might insufficiently discount the severity of the bias [Cain, Loewenstein, and Moore, 2011; Malmendier

and Shanthikumar, 2007]. Yet, such issues have not been systematically subject to empirical investigations by the information systems community.

In summary, researchers need to contextualize the work accomplished by industry analysts. While industry analysts play a significant role in shaping the institutional pressures that vendors and IT adopters face, industry analysts work in a competitive and technological environment that might affect the freedom they have to further their own interests. The thorny issues of how to deal with perceived bias and lack of transparency are also an ongoing concern for these firms.

VII. TWO RESEARCH AGENDAS

We have already identified several important gaps in our field's understanding of industry analysts. In order to study further the relationship between the IT analysis industry (ITAI) and information systems, we propose two separate, but related research agendas. The first research agenda focuses on the impact that the ITAI has had, and continues to have, on the IT industry as a whole. The second research agenda describes a program of study that examines the relationship between the field of information systems and the ITAI, and the important roles that each might play in the relationship. We suggest a number of research methods that researchers could use to conduct the studies noted in the two agendas. This list is not exhaustive, and we are confident that other researchers will use other appropriate methods to address these and other questions. The intent of the two research agendas is to further the understanding of ITAI and its impact on the scholarship and practice of information systems.

Research Agenda #1—Industry Analysts and the Marketplace for IT Innovations

Relatively little is known about the impact of ITAI on the marketplace for IT innovations, despite the findings of a nascent stream of research we documented above. The intent of this article is to shed some light on this issue, but what the field of IS needs is more in-depth, more rigorous study to determine what types of impacts are being made, in what areas of the IT marketplace, and the intensity or degree of these impacts. We believe that this research agenda is amenable to a diversity of theoretical and epistemological perspectives, some that we have previously discussed.

First, researchers could conduct historical analyses of the ITAI that would track the development of the ITAI and compare that to developments in the IT industry itself. Such analyses would develop a deeper understanding of when and how the major players in ITAI started and grew and how they affected the IT industry over time and how the IT industry affected the ITAI. Given the uncertainty associated with the quality of their advice, the question of how a few ITAI firms generated trust, obtained legitimacy, and grew in influence as a type of IT consultancy [Swanson, 2010] warrants further examination. Such historical analysis could highlight the various market positions adopted by ITAI firms relative to each other with regard to the content of their research products and their vendor ranking criteria. It could also highlight how industry analysts' methodologies have evolved over time in terms of rigor and how much discretion over their work they have gained or loss [Pollock and D'Addario, 2012].

Second, researchers could conduct a survey of firms in the ITAI and/or a series of case studies of a sample of firms in the ITAI to develop a greater understanding of the management and activities of these firms. A survey could focus on strategy and resources allocated to firm initiatives. It could examine firms' structures and how different roles are allocated, as well as provide more detail on the specific roles found in these firms. Researchers could examine the relationships between firms in the ITAI. For example, do IT industry analysts move between firms? What is the nature of inter-firm rivalry? How do they source the raw data used to produce their research? Case studies that expand on the seminal grounded studies of Pollock and Williams [2009, 2010, 2011] could provide more detailed information about particular firms and particular roles in those firms. In particular, so far researchers have not examined empirically and in detail the roles of institutional carrier, network broker, and knowledge entrepreneur. A further question: What other roles do IT industry analysts play other than the ones identified in this article? By collecting current data on the firms in the ITAI itself, we could acquire a better understanding as to what they do and how they do it.

Third, quantitative or qualitative studies of clients of ITAI firms could be conducted to extend the findings of Firth and Swanson [2005]. This would provide a direct "output" perspective of the impact of these firms on the IT industry. What is the profile of a typical ITAI client? What information and knowledge do these clients ask and acquire from the ITAI firms? How and when in the IT sales cycle [Wybo, 2007] are industry analysts most involved? What is the relationship between the ITAI firm and the client (e.g., fee-for-service or ongoing retainer or some other arrangement)? What portion of the IT budget do clients spend on ITAI services? What recent IT decisions have been made where the services of an ITAI firm have been essential to the decision? What roles do industry analysts play for their client firms? How do decision makers recognize and deal with potential bias in industry analysts' advice? Do decision makers discount potential bias, and/or do they take such potential bias for granted? In what circumstances

do decision makers seek second opinions, and why? In other words, when does the potential bias of industry analysts become a concern for decision makers? Researchers could ask CIOs, CTOs, and other decision makers in client organizations about their relative use of ITAI research versus academic research, and in what circumstances they use single or multiple sources for the information they need. If the distinctiveness of academic research lies in its disinterest, how does academic research actually compare to ITAI research about the perceived presence or absence of bias? Clients (and ITAI firms) could be asked about the impact of social media on their use of ITAI products and services. Such studies could be conducted in varying geographical locations in order to highlight potential cultural factors underlying the use of ITAI products and services. These and many other questions could be asked of clients in order to help scholars and practitioners better comprehend how clients benefit (or not) from the services provided by ITAI firms.

Fourth, a content analysis of IT media could be conducted to gain an "independent" perspective on the impact of the ITAI and the IT industry. Using media reports, industry blogs, twitter feeds, etc. as secondary data sources, an analysis can be performed in order to provide a picture of the influence of ITAI firms on the industry. This analysis could highlight the amount and type of media content provided by ITAI firms. Tracking the visibility of ITAI firms and their analysts could provide measures of their influence as status arbiters and IT fashion setters; ITAI firms are well aware of the importance of such influence and partly determine the salaries of analysts by how often they are quoted in the media and by whom [Auerbach, 1998; Syre and Stein, 2000]. Their influence as status arbiters and IT fashion setters also could be empirically examined through the linkage of rankings and forecasts to vendor outcomes, to the emergence and decline of market categories, and to the trajectories of technologies. Conversely, such studies could focus on information about the ITAI itself and/or specific firms in the industry in order to highlight how effective the work of "analyst relations" ("AR") professionals is in influencing the conduct of ITAI firms. This research could provide indirect evidence of the specific impacts of ITAI firms on the IT industry.

Finally, an examination of the accuracy and reliability of ITAI firms' forecasts through archival, experimental, and longitudinal research designs could provide insights into the reasoning principles, cognitive biases, and social contexts that analysts are subjected to in predicting the future of the IT industry. Are these principles the same as those of experts in other domains? For instance, is cognitive style [Tetlock, 2005] a key differentiator between good and bad technology forecasters? Are there value conflicts that are specific to technology forecasting, say "boomsters" versus "doomsters" or "utopians" versus "dystopians" [Kling, 1994]? Is the accuracy and reliability of forecasts affected by the nature of technology (hardware/software, incremental/disruptive)? Are aggregated forecasts about technology (e.g., those obtained through prediction marketplaces) more accurate and reliable than those of individual expert forecasters? It is reasonable to expect that forecasting about technological trends and events may rely on different psychological foundations than forecasting in the economic and political domains. Given the interest of ITAI firms in entertaining the impression that they possess special knowledge and given the poor track record of experts relative to laypeople [Makridakis, Hogarth, and Gaba, 2009; Tetlock, 2005] or simple heuristics [Grove and Meehl, 1996], do ITAI firms' actual forecasting performance live up to their claims of accuracy and reliability? Tetlock's [2005] studies of expert predictions suggest that one challenge in conducting such study is to find ways to keep score, to track ITAI firms' performance against explicit criteria of empirical accuracy and logical validity. The self-fulfilling character of many predictions is a second challenge [Pollock and Williams, 2010]. Predictions can yield significant influence on the course of events, given the visibility of industry analysts in the marketplace. Industry analysts might bring attention to hypothetical scenarios (e.g., spread of a new technology, growth of IT spending) that actually become reality. Industry analysts might also forecast scenarios that never materialize because they were successful in influencing managers to prevent the situation from happening (e.g., Y2K). A third challenge is gaining access to ITAI firms' content: much content produced by ITAI firms is protected by strict terms of use and by pay walls which can be cost-prohibitive for academic institutions. Examining the forecasting practices of industry analysts would not only allow researchers and clients to track their hit rates, but also to learn about how to improve managers' judgment and decision making about technology.

Research Agenda #2—Industry Analysts and the Field of Information Systems

Anecdotal evidence indicates that relatively little collaboration between the ITAI and the academic field of information systems occurs. Some have argued [Davenport ad Markus, 1999; Firth et al., 2011] that the work of ITAI fills a gap that the field of IS was not filling, that of practitioner-oriented information and knowledge about the IT industry and its products. For example, ITAI firms are able to test multiple IT products and make comparisons, whereas academic research tends not to do this, but is this something academic research should be doing? On the other hand, the rigor of the research is a major consideration for academic research, but how much does rigor play in ITAI research? What is not known at this point is to what extent do IS researchers use information provided by ITAI firms, and what knowledge and research from academic research in IS are used by ITAI firms? What also is not known is: how can researchers in the field of IS better collaborate with ITAI firms, and in what areas? O'Leary [2008, 2009] provided worthy ideas on how the IS community could appropriate ITAI firms' research, but we feel that the

interaction could be further extended. In order to answer these questions and others, we propose the following research avenues.

First, IS researchers could be surveyed regarding their relationship with ITAI firms. What sources in the ITAI do you use and how often? What information do you use from ITAI sources (e.g., comparisons of IT vendor products or size of IT markets) and for what purposes? What do see as the major differences in focus between academic research and ITAI research? How credible do you find the information/knowledge from ITAI firms? How useful do you find the information? These questions and others about how IS researchers use ITAI services could be asked. How can the field of IS strengthen the relationship with ITAI firms? Should the relationship be strengthened? What incentives are there for IS researchers to work with IT industry analysts, and vice versa? What roles can ITAI firms and IS researchers play that would be mutually beneficial and would strengthen the relationship? Both ITAI firms and IS researchers could learn much from grounded theory studies that shed light on the practices observed in successful collaborations. We believe that the scope of the relationship should extend beyond research activities to teaching and academic program management activities. These questions and others could lead to ideas about how to strengthen and manage the relationship between the ITAI and the field of IS.

Second, a survey of ITAI firms could be conducted that would inquire about how IS researchers can/do help firms in the ITAI. What do ITAI firms and their researchers know about IS research? What sources within the academic IS field (IS journals, AIS websites, etc.) do ITAI researchers use? ITAI firms could be asked about what roles IS researchers could play in what they do and how they could better influence IS research. The perspective of former academics employed by ITAI firms could be particularly valuable in that regard, given the appreciation they have for the work done in academia. A citation analysis could be done to determine what work is referred to and cited by IS researchers of ITAI researcher work, and vice versa.

Third, a comparative study could be done on dominant status arbiters in other industries [Kwon and Easton, 2010], their respective “analysis” industries, and their associated academic disciplines. For example, for areas such as financial analysis and credit ratings (finance), reputation in consumer goods and the automobile industry (marketing and organization studies), and corporate citizenship and sustainability (organization studies), how have their associated analysis industries developed and evolved? What roles are played by these analysis industries and their respective research-oriented academic areas? To what institutional pressures are they subjected? As we have shown throughout this essay, lessons from other industries might highlight unique aspects of the ITAI as well as inform the relationship between ITAI and the field of IS.

Finally, an online forum could be created for IS researchers and IT industry analysts and other interested parties to elicit additional suggestions for further research on this topic. Indeed, this process could be expanded to the broader IS/IT community using a crowdsourcing approach. Crowdsourcing platforms could be used to gather ideas and suggestions on research and ethical issues pertaining to the work of industry analysts from a wide spectrum of IT users, business executives/managers, and anyone with an interest in advancing the use of IT in society. This approach could also bring attention to the impediments of successful collaborations between industry analysts and academia.

VIII. CONCLUSION

We attempted to provide impetus to the important work already accomplished by a nascent community of scholars by investigating the work of industry analysts, an IS phenomenon worthy of investigation that has been neglected by the IS academic field at large. A refined understanding of the work of industry analysts will require the application of multiple paradigms, theoretical lenses, and methods (and a dose of healthy scepticism).

One implication of this review is that there could be a need to reconsider how we, as a field, conceptualize and investigate some core IS research questions. Models and theories of IT innovation diffusion are obvious targets. We now have a sophisticated understanding of how firm-specific factors affect the processes of comprehension, adoption, implementation, and assimilation of IT innovations, yet factors that relate to external sources of influence have remained a black box, usually conceptualized under the umbrellas of “social influence” or “institutional pressure,” without clear identification of the sources of such influence or pressure. Industry analysts can provide significant influence of this sort through their work. That work involves not only opinion leadership and gatekeeping, but also mass communication of interpretations and evaluations about innovations that can sway diffusion one way or another. Industry analysts also influence diffusion at its origin, by affecting which vendors venture capitalists decide to fund, in addition to what vendors decide about products to develop and markets to target. The emergence of “analysts relations” professionals—as well as popular treatises on how vendors can deal with industry analysts—in recent years are signs that vendors are challenging the power of industry analysts to shape their fortune. Therefore, there is a need to verify the existence of this reported influence and to define its boundary conditions in order to identify where theories and models of diffusion need be re-examined.

Our review also has implications for theories of IS strategy and IS management. Observing how industry analysts shape knowledge about how organizations apply technology could lead researchers to adjust models of strategic alignment and IT-driven organizational change. The benchmarks and frameworks produced by industry analysts are often consulted by both IS and business managers to make strategic IS decisions, such as the identification, development, and sourcing of IT capabilities, as well as the structuring, staffing, and outsourcing of the IT organization. Despite methodological difficulties, attention to how managers seek and deal with the advice of industry analysts provides an opportunity to contextualize firm-level decisions within the broader organizational field in which managers make them. Additional opportunities less obvious to us to bring industry analysts in IS theories must exist, and we are confident that IS researchers will discover them.

The outcome of such research should also open up possibilities for significant theoretical contributions by the field of IS to conversations in reference disciplines concerning the dynamics of markets for information, the diffusion of innovations, the rise of third-party auditing and certification practices, the impact and management of conflicts of interest, the practice of technological forecasting, and the power of intermediaries to fashion market categories and identities. The unique interest of the field of IS in the interplay of technology, management, and social issues makes it well positioned to participate in these conversations. We feel that the field of IS should engage industry analysts and recognize that they may help the field of IS to expand the "ecozone" of joint interests between academics and practitioners [Ramiller et al., 2008], despite all the criticisms that may be pointed at their work. We can't help thinking that, if IS researchers had a greater appreciation of how industry analysts work and the kinds of collaboration that are possible with firms in this industry, IS research would be stronger.

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APPENDIX A: SAMPLE OF IT INDUSTRY ANALYSIS FIRMS

Table A–1: Sample of IT Industry Analysis Firms

Name and location	Website	Ownership	Employees	Founded
Aberdeen *Boston, MA*	www.aberdeen.com	Subsidiary of Harte-Hanks	51-200	1988
Advisory Board Company *Washington, DC*	www.advisory.com	NASDAQ:ABCO	1001-5000	1979
Aite *Boston, MA*	www.aitegroup.com	Private	51-200	2005
Altimeter *San Mateo, CA*	www.altimetergroup.com	Private	11-50	2008
AMI Strategies *Farmington Hills, MI*	www.amistrategies.com	Private	11-50	1991
Analysys Mason *London, England*	www.analysysmason.com	Private	201-500	N/A
ARC Advisory *Boston, MA*	www.arcweb.com	Private	51-200	1986
Cambashi *Cambridge, UK*	www.cambashi.com	Private	11-50	1984
Canalys *Singapore*	www.canalys.com	Private	11-50	1998
CCID Consulting *Beijing, China*	en.ccidconsulting.com	HKG:8235	201-500	1986
CCS Insight *Solihull, UK*	www.ccsinsight.com	Private	11-50	1993
CCW Research *Beijing, China*	www.ccwresearch.com.cn	IDG & China's Ministry of Information Industry	51-200	2002
Celent *Boston, MA*	www.celent.com	Subsidiary of the Oliver Wyman Group	51-200	1999
Constellation Research *New York, NY*	www.constellationrg.com	Private	11-50	2010
Corporate Executive Board *Washington, DC*	www.executiveboard.com	NYSE:EXBD	1001-5000	1979
CurrentAnalysis *Sterling, VA*	www.currentanalysis.com	Private	51-200	1997
Datamonitor *London, England*	www.datamonitor.com	Subsidiary of Informa	1001-5000	1989
Enderle Group *San Jose, CA*	www.enderlegroup.com	Private	1-10	N/A
Enterprise Management Assoc. *Boulder, CO*	www.enterprisemanagement.com	Private	11-50	1996
Enterprise Strategy Group *Milford, MA*	www.enterprisestrategygroup.com	Private	11-50	1999
Financial Insights *Framingham, MA*	www.financial-insights.com	Subsidiary of IDC	11-50	2002
Forrester *Cambridge, MA*	www.forrester.com	NYSE:FORR	1001-5000	1983
Frost & Sullivan *San Antonio, TX*	www.frost.com	Private	1001-5000	1961
Gartner *Stamford, CT*	www.gartner.com	NYSE:IT	1001-5000	1979
GfK *Nuremberg, Germany*	www.gfk.com	ETR:GFK	5001-10000	1934
GigaOM *San Francisco, CA*	pro.gigaom.com	Private	51-200	2006
Gilbane Group *Cambridge, MA*	www.gilbane.com	Subsidiary of Outsell	11-50	1999
HfS Research *Boston, MA*	www.hfsresearch.com	Private	11-50	2010

Table A–1: Sample of IT Industry Analysis Firms – Continued				
Hurwitz & Assoc. *Needham, MA*	www.hurwitz.com	Private	1-10	2002
IDC *Framingham, MA*	www.idc.com	Subsidiary of IDG	501-1000	1964
Ideas Intl. *Hornsby, Australia*	www.ideasinternational.com	Subsidiary of Gartner	11-50	1986
Info-Tech Research Group *London, Canada*	www.infotech.com	Private	201-500	1998
Juniper Research *Basingstoke, UK*	www.juniperresearch.com	Private	11-50	2001
M/A/R/C Research *Iriving, TX*	www.marcresearch.com	Subsidiary of Omnicom	51-200	1965
NelsonHall *Newton, MA*	www.nelson-hall.com	Private	11-50	1998
NPD Group *Port Washington, NY*	www.npd.com	Private	1001-5000	1967
Nucleus Research *Boston, MA*	www.nucleusresearch.com	Private	11-50	2000
Orbys *London, England*	www.orbys.com	Subsidiary of Informa	11-50	1993
Outsell *Burlingame, CA*	www.outsellinc.com	Private	11-50	1994
Ovum *London, England*	www.ovumkc.com	Subsidiary of Informa	501-1000	1985
Patricia Seybold Group *Boston, MA*	www.psgroup.com	Private	11-50	1978
Pierre Audoin Consultants *Paris, France*	www.pac-online.com	Private	51-200	1976
Semico *Phoenix, AZ*	www.semico.com	Private	11-50	1994
Springboard Research *Singapore*	www.springboardresearch.com	Subsidiary of Forrester	51-200	2004
Standish Group *Boston, MA*	www.standishgroup.com	Private	11-50	1985
Strategy Analytics *Boston, MA*	www.strategyanalytics.com	Private	51-200	1968
Technology Business Research *Hamton, NH*	www.tbri.com	Private	51-200	1996
The 451 *New York, NY*	www.the451group.com	Private	51-200	2000
TowerGroup *Needham, MA*	www.towergroup.com	Subsidiary of CEB	51-200	1993
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