Smart for whom? Cost ambiguity as corporate strategy in the 21st century telco sector

Anthony M. Gould and Guillaume Desjardins

Anthony M. Gould is a University Professor and Guillaume Desjardins are both based at Relations industrielles, Laval University, Quebec, Canada.

Abstract

Purpose – *This paper aims to expose techniques that telco vendors use for maximising revenue from their clients. Although the five-point strategy unearthed was based on the Canadian telco industry, it is interpreted as generic to the digital-age.*

Design/methodology/approach – *Findings are based on focus groups with telco vendors and client perception data. Inductive reasoning is used to generalise findings to other distinctively digital-age industries.*

Findings – *This paper finds five generic techniques that are used within the Canadian telecommunications (telco) industry to ensure that customers cannot control the cost of a smartphone. These techniques are described as an array of telco hybrid offerings, each with its own cost-structure and pricing strategy; the underestimation problem; devices are not geostationary; third-party agreements; and death-by-a-thousand-qualifications.*

Research limitations/implications – *The research develops theory about modularity and platform technologies.*

Practical implications – *Findings and insights have implications for strengthening consumer protection arrangements in the teleco industry, as well as other distinctively digital-age industries.*

Originality/value – *This paper elaborates theory (particularly with respect to platform technologies and modularity). It interprets the flexibility that comes with modern technology as having a specific downside for consumers, namely, the removal of their capacity to control cost. As far as the authors have been able to ascertain, such an interpretation has not hitherto been presented. It is hoped that the classification of findings will become something of a public policy template for ensuring consumer protection.*

Keywords *Government policy, Competitive strategy, Management strategy, Customer satisfaction, Information society*

Paper type *Research paper*

1. Introduction

Within certain distinctively contemporary industries proliferating product/service options and associated offering complexity appear to have strategic consequences. For the early adopter retail consumer within these new sectors, super high-tech but apparently indispensable items such as smartphones offer the allure of multiple features which can be deployed in hybrid combinations. For the seller, there are myriad marketing opportunities which may emphasise elements such as having a one-stop shop for all of life's needs and "the cool factor", a euphemism for what Gomez and Gould (2010) characterise as group cohesion or bounded solidarity concerning norms and products that exist mainly in youth culture. However, mixed in with corporate hype about offering advantage and coolness, these same twenty-first-century industries use pricing strategies that produce value for the firm through creating confusion and ambiguity for the consumer. Such an approach can be viewed as a corporate strategy-related issue and has more theoretical implications.

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In this article, an analysis of telco (telecommunications) vendors' work will be used to draw conclusions about a competitive stance that appears to be emerging as generic within

particular contemporary industries. The strategy concerns the way costs are passed on to retail consumers. Because modern teleco devices offer seemingly unlimited functionality, it is difficult to give end-users an accurate approximation of what they will pay for their device through a billing cycle. Based on results obtained from teleco sector, focus groups as well as industry–client perception survey data, it will be argued that telco firms contrive to create such confusion and/or take advantage of it. Hence, rather than assisting its clients to understand and therefore control their costs, the industry derives advantage from making consumer needs-analyses hyper-complex. From a design, development and manufacturing perspective, providers are incentivised to create meaningless functionality to enhance ambiguity and make consumer cost-control unduly difficult. From a retail perspective, vendors typically have no commercial reason to assist end-users to correctly analyse smartphone device requirements and are disinclined to discuss with their clients the cost implications of likely usage patterns. Indeed, such retailers have an interest in perpetuating customer confusion. This state may alternatively be thought of as contemporary technology interacting with – or being exploited by – vendor policies to create negative consequences for the client. More specifically, it will be argued that inculcating customer confusion is a strategy implemented within retail outlets through five protocols that occur when a retail consumer interacts with a telco-firm. These five protocols are conceptualised as tactics. They perpetuate cost-related ambiguity as an industry norm; make those who misanalyse their needs/wants feel unintelligent and therefore loath to complain or speak about their malaise; and marginalises late-majority consumers as *Luddites*.

The project asks two related questions which, although about the telco sector, are also somewhat generic to other digital-age industries:

1. What strategies do telcos pursue in their dealing with retail customers?
2. How do contemporary telco selling tactics inform theory about concepts such as platforms, modularity and customer-type?

Findings are relevant to management strategy theorists and practitioners – particularly business ethics theorists – and those interested in how technological advance impacts the emergence of new industries. The article is structured in four parts. First, there is a review of literature which presents: an overview of the characteristics of the digital or post-modern age; an *exposé* of key characteristics of consumer technology using contemporary concepts such as modularity and multifunctionality to guide, in particular, an analysis of how the modern telecommunications (telco) sector is different from its predecessor telephone industry; and a review of theory addressing modern telco industry user-characteristics and market considerations. Section 2 describes – and gives rationale for – the study's methodology. The Section 3 presents focus group and client perception survey results. Section 4, the discussion, interprets findings/themes as tactics used by telco vendors pursuant to the implementation of a strategy. This discussion will also explore what findings suggest about theory concerning platform technologies, modularity and modern telco consumers; and raises further possible research agendas. Section 5, the conclusion, reflects on the broader implications of the study's results for the digital age and relevant literature.

2. Literature representations: digital-age technologies, telco vendor policies and modern telco user characteristics

Economic historians frequently distinguish between eras based on the way commerce is undertaken, as well as the array of consumer product offerings that exist as a consequence of prevailing technology. For example, authors such as Kluver (2006) and Laudon and Laudon (2012) differentiate between a post-industrial mode of commerce where the emphasis was principally on the newly emerged services sector and the digital or new-media age when information became a more important commodity and computer networks the means by which it was shared and traded. Accordingly, Laudon and Laudon (2012) argue that the point of demarcation between these two eras is marked by the widespread public use of the Internet. Sociologists interpret the same period of transition

somewhat differently. For example, authors, such as Rose (1991), Bell (2008) and Strangleman and Warren (2008), view the switch to an Internet-enabled world as marking the beginning of post-modernism. Insofar as work and commerce is concerned, they generally deemphasise notions of a so-called digital age but rather interpret the critical transition point as the time from when individuals started identifying less with their job and/or class and more with their leisure preferences and other lifestyle considerations. Partly as a result of different perspectives – and disparate intellectual traditions – a fuzzy boundary exists between the post-industrial and digital/post-modern age. For purposes of the current article – and consistent with the view of authors such as Berners-Lee (2000) – the point of demarcation between the two eras is approximately 1992 when the World Wide Web became a public utility.

If the arrival of the Internet was a direct influence on the emergence of a new era, then other more protracted contextual elements can be considered as indirect influences. One of the first of these was anticipated in the Woodward–Blauner hypothesis which represented a critique of the fragmented and routinised work methods of the industrial-age factory paradigm (Lincoln and Kalleberg, 1992; Beamish, 2010; Marsh and Mannari, 1981). This perspective was influenced by Emile Durkheim's division of labour thesis which proposed that class conflict is a fleeting problem that will eventually resolve itself (Ritzer and Smart, 2001; Beamish, 2010). According to such a view, Marxist-type notions of worker alienation have much to do with how capital and labour coexist when the factory paradigm is becoming established and therefore hardships endured by the *proletariat* are ephemeral. These growing pains occur because technology is sufficiently developed to be integrated into a strategy of mass production but not so advanced that it can make work interesting (Milgrom and Roberts, 1990). From a practical standpoint, optimism about the trajectory of modernity appears to have face validity. For example, prior to the digital age, those with responsibility for selling technology-enabled products – such as vendors within the pre-Internet consumer electronics industry – undertook tasks that were simultaneously easy to execute and uninteresting because the devices they sold required little explanation, few usage instructions and almost no costing analysis.

2.1 Digital-age technologies and the increasing importance of platforms and modularity

Digital-age technology is associated with the rise of theory in two related areas: platforms and modularity. Authors such as Muffato (1999, p. 147) define a platform as "a relatively large set of product components that are physically connected as a stable sub-assembly and are common to different final models. By using a platform approach, a company can develop a set of differentiated products". On the other hand, Bresnahan and Trajtenberg (1996) view this same phenomenon more broadly. Drawing on Kogut and Zander's (1992) conception of how knowledge may be viewed as a portfolio of options for future advantage, they argue that platforms are synonymous with general purpose technology or innovation that obtains its worth through being deployed by downstream licensees and as a means of accommodating multiple disparate functions. Hence, at least one line of reasoning about the commercial application of platforms has been that their owners create value for themselves through hosting more specific offerings. Contemporary strategy-orientated literature addressing this same phenomenon suggests that markets are established which allow the creators of software to compete with each other for the best platform provider (Kogut and Zander, 1992; Gambardella and McGahan, 2010). Accordingly, the owners of platforms make decisions about which offering they will host based on their perception of how attractive that offering will be to an end-user (their client). The emphasis here is on platform providers as marketers, a focus which downplays their role as innovators but instead portrays them as selectors of innovation. This view is consistent with Bresnahan and Trajtenberg's (1995) original conception of platforms as general purpose "enabling technologies". For example, a basic-functionality platform technology in the modern telco industry is Android Market.

Schilling (2000) addresses the issue of modularity, specifically product modularity. Consistent with the work of authors working across disparate disciplines (Baldwin and Clark, 1997; Garud and Kumaraswamy, 1995; Worren, 1997), she defines this construct as "the degree to which system elements can be separated and recombined" (Schilling, 2000, p. 312). Her view invokes the notion of mixing and matching components and addresses, in particular, how modularity is inclined to evolve. The framework is based on the interaction of elements/variables within and external to a system being analysed. Schilling's (2000) conception of how modularity changes do not attribute agency to key system actors and therefore do not offer explicit strategy advice. Rather, it implies that systems evolve in a specified way if left unchecked and in response to key contextual shifts such as – what she calls – urgency and heterogeneity of demands. In this regard, Schilling describes her framework in organic, or even Darwinian, terms, as a general systems theory. She notes, for instance, "that the context creates forces which draw a system towards a particular state" (Schilling, 2000, p. 314). On the other hand, Schilling's (2000) conception does have implicit planning implications. Indeed, with the rise of networked computer systems and distributed computer power, her formulation gains a special strategic utility. For example, her first proposition about modularity is that "the degree to which functionality is achieved through component specificity will be negatively related to increasing inter-firm product modularity" (Schilling, 2000, p. 322). Hence, if a manufacturer's offering requires highly specific components, it may make sense for that manufacturer to de-emphasise outsourcing and focus instead on vertical integration, at least for relevant inputs.

Concepts such as platform technology and modularity became more important dimensions of corporate strategy as the industrial-age consumer electronics industry entered the digital age. This transition period mostly saw greater degrees of offering modularity in that sector. Put in terms of the Schilling's (2000) conceptualisation, industrial-age devices have greater synergistic specificity as a consequence of heterogeneous inputs having more limited recombination possibilities. For example, a transistor radio, a classic late-industrial age consumer electronics item, uses a transistor-embedded circuit board – which could be argued to be a limited-potential platform technology – in combination with somewhat combinable elements such as a switch, a dial and battery apparatus. However, the same device also relies on much less readily combinable elements, including an antenna and a small speaker. Partly as a result of this relatively low level of component modularity, the resulting product – the transistor radio – cannot be used for anything other than converting electromagnetic radio waves into sound waves. Hence, during the era when such items were popular – an era that can be characterised generally as consisting of technical systems of low component modularity – there was a broad consensus concerning what they could do. It is axiomatic that few would have expected that a radio-type device would take photos or act as a personal messaging service.

At the time when transistor radios were the *I*pod*s* of their day, it was possible to design products that did more than one task; however, there were limits to such versatility. Once again, this kind of an early attempt at multifunctionality can be analysed using the aforementioned concepts of platform technology and modularity. For example, industrial-age multipurpose items typically had to encase separate primary infrastructure within a single (generally plastic or Bakelite) housing unit. Such a shell-structure could be conceptualised as a platform according to the Muffato's (1999) definition, albeit a low-tech one, which provides merely a suitable physical spatial arrangement for modules to be plugged-in. A case in point of a versatile product in the 1960s which uses a platform to support downstream technologies, is the *Westinghouse Escort Transistor Radio/Lighter/Clock/Flashlight*; the (unsightly and unwieldy) *Swiss Army Knife* of transistor radios (www.radiomuseum.org/r/westinghou_rs21p08ars_21_p_08.html). Other examples of multipurpose offerings of the late industrial age include clock-radios and radio cassette recorders. These items typically – at least when analysed at one level – combined two different infrastructures (elements of low-modularity) and possibly a shared infrastructure such as a speaker (an element of greater modularity). The aesthetic disadvantage of industrial-age multipurpose

offerings mostly meant that gadgets retained a distinctive use-based identity, a state which created conceptual alignment between the look, feel and expectations of an offering and its function. Industrial-age multi-purpose products can be interpreted using Schilling's (2000) general systems view of modularity. However, to take full advantage of Schilling's (2000) framework, in cases of – say – twentieth-century technology, it is often necessary to broaden the object of analysis from the components of individually-combined single-function items to the ensemble of combined items considered collectively. This shift in analytic focus does not appear to violate Schilling's (2000, p. 314) assumption that modularity may be considered at various horizontal strata of "hierarchically nested systems". For example, if an integrated transistor radio is viewed as a module, then it would have been highly interchangeable or – to use the Schilling (2000) parlance – have a low level of synergistic specificity. In particular, it can be placed in a plastic shell structure which could also house other products. Because the platform in such a case is a housing unit, the limiting factor would be awkwardness and unsightliness, a shell (platform) cannot be made infinitely large. This impediment – henceforth referred to as the one infrastructure/one function principle of industrial-age technologies – typically meant that, when it came to creating versatile products, manufacturers were constrained in their capacity to offer additional functionality.

Scholars have focussed attention on the use of digital-age technology to bridge gaps of time and distance. They typically conclude that one of the commercial implications of communications-related innovation is more fierce competition (Bell, 2008; Smart *et al.*, 2010). For example, the Internet potentially enables a consumer to shop throughout the world to obtain a best price (Barkley *et al.*, 2007). Alongside the time/distance gap-bridging facility that has come with advances such as fibre-optic cable, chip miniaturisation, enhanced processing power and twenty-first-century wireless-connectedness, two more theoretical phenomena have emerged. First, platform technologies have been created which are no longer mere physical housing units. Indeed, the digital-age notion of platforms is critically concerned with how contemporary technology may enable an offering to metamorphosise from a device that does one function to a gadget that does an entirely different task.

The second consequence of advances in computer processing power and chip miniaturisation, insofar as it impacts contemporary product offerings, concerns modularity. Compared with their industrial-age equivalents and interpreted using Schilling's (2000) modularity framework, the components of digital-era devices are generally less "synergistically specific" and hence more interchangeable. Such systems-related differences have practical consequences. For example, as mentioned, in the digital-age, it is no longer necessary to use a platform which physically connects a tape-recorder to a transistor radio to create a multi-purpose product. Rather, an infrastructure system has been created that is sufficiently versatile to change itself from a sound recording device into a gadget for listening to remotely transmitted audio. The Apple *Iphone* is an archetypal example of such an offering. It uses the same platform to execute up to hundreds of functions, in the process, blurring the boundary between form and function. The new-age one-infrastructure/multiple function (platform) principle has also been driven, largely at a consumer level, by the emergence of new functions. For example, in the digital-age, there have emerged utilities and conveniences such as email facilities, more advanced gaming, GPS technology and, in the very recent past, applets that may be used on tablet-type devices which do dissimilar tasks such as life coaching and management of grocery lists.

2.2 The emergence of the digital-age telco industry and modern telco vendor policies

Certain digital-age industries have traceable legacy sectors. Contemporary teleco firms represent a case in point. Telco products/services can be contrasted with their predecessor offerings because they do genuinely new tasks and use the same platform to offer an expanded range of functions. These two differences create substantial strategy and marketing-related dissimilarity between the industrial and digital-age eras. For

example, in the digital-age new functions often entail, in the service-product ratio, more service than product (Vargo and Lusch, 2008). The common infrastructure innovation – provided on a computer-based platform – has fuelled rapid growth in offering availability (Rust and Espinoza, 2006). Hence, when a customer asks for a mobile phone plan, they may choose from amongst hundreds of options, a state which means that the twenty-first-century consumer environment is more complex than its earlier incantation. One manifestation of such enhanced complexity is that service/product offerings may be able to be accessed over lengthy periods and in varying degrees. For example, when purchasing an *Iphone* or a *Blackberry*, a customer who seeks primarily a telecommunications device would likely be asked how much texting they want to do. They may receive an option of having 100 text messages per month for free, between 100-500 for $4,99 or unlimited for $19,99 (Rogers Communication, 2012a, 2012b). They would only be able to discuss these options with a vendor if they had already agreed in principle to pay for a plan. Such a negotiation would centre on one aspect of the product's functionality. Similar planning discussions would be necessary if the customer wanted to download books or music (Rogers Communication, 2013a, 2013b, 2013c). Hence, buying a contemporary telecommunications-type device inevitably brings a consumer into contact with multiple product/service delivery cycles. It mostly requires that end-users enter into several contractual arrangements, as well as corporate relationships, where they will unwittingly be brought into the orbit of firms that will market to them using emerging and/or unconventional methods (Zanelli, 2011; American Marketing Association, 2011).

The contemporary telco industry in the Western world is a distinctively digital-age sector in the sense that it has arisen as a result of two specific influences. The first of these is the proliferation of the Internet and associated advances in miniaturisation, chip capacity, processing-speed and the emergence of wireless communication infrastructure (Laudon and Laudon, 2012). As noted, from a systems perspective, these kinds of advances have been interpreted as representing a rise in increasingly sophisticated platform technologies as well as – at least the potential for – increasing technology-related modularity. Second, within Western countries, such as Australia, Canada, New-Zealand and Great Britain, there has been a change of public policy orientation concerning telephones and related devices. In these jurisdictions, for most of the twentieth century, twisted-pair copper wire phone line networks transmitting an analogue signal between exchange hubs were mostly run by the government as public or quasi-public utilities (Gould, 2010). Throughout the 1980s, an emphasis on deregulation and a market-based approach to capital allocation created a new paradigm for delivering phone services (Harvey, 2006).

During the period of telco industry deregulation, the relevant supporting technology was evolving. It took several big steps forward in the early 1990s. The Internet and "thin" computers or distributed systems linked through servers were not the only relevant innovations of the era. For example, the *IBM Simon*, the first Smartphone device was made available to the public in 1993 at a cost of $899 in New York City (Sager, 2012). Henceforth, the concept of a wireless telephone was to be broadened to include functions such as Internet access, text messaging and the remote transmission of images. In the period from the 1990s until 2012, these functions have come to be seen as part and parcel of a phone-like device. Such a broadening of Alexander Graham Bell's original ideal can be measured in dollars. For example, in 1999, Canadian households paid $450 annually for their telephone service. In 2007, this amount (adjusted for inflation) was $773 (Robertson, 2008). In 2002, the profit to revenue ratio in wireless infrastructure surpassed that of fixed-line infrastructure for the first time. In subsequent years, the fixed-line segment of the teleco market saw either a stagnant or negative growth (Industry Canada, 2006). In 2012, major Canadian teleco providers typically offered at least 750 products/services that can be combined in hybrid options. As a consequence, devices, such as the *Iphone* and the *Blackberry* gained potential for doing much more than just making and receiving phone calls.

2.3 Modern telco consumers

Notions of telco customer-type typically – and often implicitly – emphasise the importance of creating a positive consumer experience and/or aligning offerings with consumer needs. Relevant research on telco market segmentation mostly assumes that straightforward notions of client satisfaction are ultimately what firms seek to achieve. For example, Pertruzzellis (2010) used interviews to create three categories of telco consumers based on consumption-style and buying motivation. These are technology enthusiasts who focus on technical performance and functionality; pragmatists, who are sensitive to price and tangible attributes; and Brand-Huggys, who are loyal to a brand and/or buy based on perceptions of the selection preferences of their peers. A process-orientated perspective of customer-type is offered by Kasper *et al.* (2010) who examined the mobile-phone industry in The Netherlands. These authors conclude that customers cope with offering availability using one of three strategies: price sensitivity, brand loyalty and functionalism. Kasper *et al.* 's (2000) view asserts that strategies should be aligned with customer-type. Other work in this genre also emphasises typology and alignment of product/service offerings with the needs of market segments (Schwartz *et al.*, 2002). These perspectives of technology typically assume that customer confusion is a universally undesirable side-effect of growing offering sophistication. For example, Kasper *et al.* (2010, p. 147) counsel managers that they should [. . .]:

> [. . .] carefully check whether providing additional information and choice really contributes to improving decision-making.

This conclusion is viewed here as controversial and provides a point of departure for the present study. Specifically, it may be that improving customer decision-making is antithetical with seller interests. For example, Hoch and Deighton (1989) note that consumer information allows a buyer to create hypotheses that assist them to achieve better value for money. They further describe – albeit without strong evidence – a family of strategies that vendors use to undermine a consumer's confidence in their capacity to use knowledge to create hypotheses, the so-called "making-the-customer-feel-dumb" phenomenon. The logic of undermining consumer confidence is: if one party believes that they are at an intellectual disadvantage, they will suspend critical reasoning and, in so doing, surrender decision-making power. Hence, vendors are likely to have little motivation for creating clarity for customers and substantial motivation for making them more confused.

3. Methodology

This section presents an overview of this study's procedure and associated rationale.

3.1 Procedure

This study uses two data sources to address its question(s). Each indexes a different perspective on the object of analysis. The two data sources are: telco-industry outlet-based vendor focus-group results and qualitative results obtained from telco industry consumers concerning their experiences interacting with the industry and using industry services/products.

3.1.1 Focus groups with telco-industry outlet-based vendors. Two 90-minute focus groups were held in Quebec City on the 25 and 30 January 2013. There were six former retail telco salespeople in each meeting and hence 12 individual contributors across the two sessions. Participants were approached by one of the authors of this article who also manages teleco retail-outlet operations in Canadian shopping malls. Hence, they were recruited as a convenience sample. Each had a minimum of six months of experience working in industry retail outlets.

Consistent with the recommendations of authors such as Yin (2009) and Silverman (2007), four strategies where used to avoid concerns such as demand characteristics and other

systematic sources of error that may have biased focus-group findings. First, the purpose of the study was deliberately kept vague (i.e. the facilitator began the session by saying "we are not sure about how the telco industry interacts with retail consumers and want to start our exploration of this issue with a discussion of how you go about doing your job"). Second, *post-hoc* questionnaires were administered which asked participants if they were aware of the purpose of the sessions and/or if they felt at ease discussing the way they do their job. Third, there was a priori development and pretesting of focus-group thought-starter questions.

Focus groups used the same format. Contributors were asked unstructured/opened-ended questions about how they personally, and the telco industry generally, go about selling to consumers. They were invited to give basic responses and then to elaborate. During the sessions, those who were not responding directly to questions were asked to add-to, modify and/or clarify points being made by primary contributors. Questions that were posed to focus group participants included:

- What do you say to customers when they approach you and ask for assistance in choosing a suitable smartphone/tablet device?
- How do you close a sale? – How do you ensure that you don't lose a customer?
- How do you go about explaining the variety of product/service offerings that a customer could potentially purchase? How do you make sense of such complexity for your client?
- How much corporate pressure are you under to make sales? How do you manage such pressure? What corporate advice is offered to you about meeting your sales/financial objectives?
- What things are you told to do to make your firm successful? Do you implement corporate sales/marketing policy or do you modify it? Please speak about this issue.
- What problems do you have implementing corporate sales/marketing policy?
- Were there aspects of your past employer's approach to sales and marketing which worried you or which you had trouble implementing? Please speak about this matter.
- What were the most frequent complaints that you received from customers? Please consider complaints/problems at the point of sale and those arising subsequently.

The dialogue provided by focus group participants was recorded on audiotape, transcribed and subsequently presented to two research assistants for interpretation. The assistants were given broad instructions. They were invited to create superordinate categories (themes) and – if called upon – to explain the process they used for creating such themes. The themes created by the assistants were subsequently examined by the researchers who had prior familiarity with selling tactics literature and practice.

3.1.2 Qualitative results obtained from telco industry consumers concerning their experience(s) interacting with the industry and using their device. Major firms within the Canadian telco sector frequently collect from samples of their customers, what they refer to as, client-perception data. An industry standard for client feedback is that eight to ten individuals who make a purchase within a given retail outlet per month will be targeted to provide their impressions of both their purchased offering and their buying experience (Rogers Consumer Measurement Program, 2012b).

Following an approach from this article's authors, the major Canadian telco firm Rogers agreed to make the qualitative component of its client database for the months of April, May and June 2013 for the province of Ontario (Canada's most populous province) available for this project. The accessed data took the form of anonymous client comments. These had been separated a priori from the quantitative elements of client feedback. Comments were collected and presented in a random order (in French and English) with each block of comments coming from an individual client.

Rogers and its various subsidiaries, as the largest telco provider in Canada (with 36 per cent of the market share for mobile phones; CRTC Report, 2012), operates 256 corporate outlets; those which sell under licence are not counted in this number. In Ontario, the firm operates 156 corporate outlets (approximately 61 per cent of its national retail operation and accounting for approximately 66 per cent of its national market share).

In total, 94 qualitative customer survey elements where obtained from the 156 Ontario outlets that provided the reference group that was targeted for data. Rogers was able to indicate that in the year from June 2012 to June 2013, it had 12,296 new customers nationwide and that approximately 66 per cent of these (8,115) were from the province of Ontario. Hence, *the sample* of this sample (96) represents close to 1 per cent of Ontario's Rogers's customers for the reference period.

Qualitative client perception data was provided in its raw form to three research assistants. These assistants – who did not previously participate in identifying superordinate categories (themes) from the vendor focus group transcripts – were asked to group comments into themes. They were not given criteria or detailed instructions about how they should go about their task. Rather, they were told that the researchers were seeking to identify six to ten conceptual groupings. The assistants were also told that the project's researchers would be interested to know – *post-hoc* – about the process they used to create categories.

3.1.3 Analysis: combining perspectives of telco industry vendors and their customers. Vendor focus group and consumer perception output were combined to create an impression of the tactics that vendors use to make sales. Three research assistants (who had not been involved with either analysis of vendor focus group data or client perception data) were asked to examine themes emerging from the vendor focus groups and the client perception database. Their task was straightforward: they were asked to systematically take each vendor focus group theme and determine the extent to which it was similar to each theme arising from the client perception database. They were to rank the level of similarity on a five-point Likert-type scale where one represents "no obvious similarity" and five represents "near sameness". They, thus, had to make 48 individual decisions, i.e. they had to compare each of eight focus group themes with six client perception data themes.

A matrix structure (Table I) was used to contrast two different perspective of telco industry selling tactics. Matrix columns were established as vendor perception of what they do to sell their offering. Rows were established as client perception-related themes. The individual cells of the matrix were numeric measures of degree of conceptual alignment between vendor- and client-generated themes.

The last column of Table I provides a measure of the extent to which telco industry vendors and their clients view the selling process in the same way. A maximum possible score in each cell of this last column would be 30 (perfect alignment between what vendors say they do to make a sale and all aspects of how a client perceives this vendor tactic). The lowest possible score that could be recorded in the last matrix column would be 6 (no conceptual alignment between what vendors say they do to make a sale and all aspects of how a client perceives this vendor tactic).

The researchers – as a rule of thumb and *post-hoc* – accepted a score of more than 15 (with a fuzzy boundary created *post-hoc*) to establish adequate conceptual alignment between what vendors say they do to make a sale and all aspects of how a client perceives this vendor tactic. Where scores were less than 15, alleged vendor selling tactics were not necessarily discarded. However, researchers examined them again to determine if they are likely to be deployed with guile and/or duplicity. In this regard, researchers assumed that it is possible that certain vendor tactics are intended to be non-obvious.

Table I Two perspectives (themes) on the tactics used by telco vendors to sell smartphones

Customer perspective/ Vendor perspective	*(a)*	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*	*Score (out of 30)*
(i)	4	1	2	3	3	3	16
(ii)	5	2	1	1	3	3	15
(iii)	1	5	2	4	4	4	20
(iv)	4	3	2	3	1	2	15
(v)	2	1	4	5	2	2	16
(vi)	2	1	1	1	3	4	12
(vii)	2	2	1	2	3	2	12
(viii)	4	3	1	1	1	1	11

Notes: Themes written below the matrix include letters and numbers used in the matrix for reference to themes, for customers and vendors, respectively. Vendor themes: (i) An array of offerings – each with its own cost structure; (ii) Client underestimation of an offering's potential; (iii) Devices not geostationary; (iv) Clients must enter into unanticipated third-party agreements; (v) Death of a price by a thousand qualifications; (vi) Discussing a teaser price but not what it includes; (vii) Discussing possibilities decontextualised from cost; (viii) Deliberate demonstration capability (functions must be discovered). Customer themes: (a) customers suspect their device can do more than they use it for and are frustrated by the possibility that they cannot use it with maximal utility (and that they pay for things they are not using); (b) Customers complain that vendors are not equipped to and/or unwilling to take advantage of the full range of functionality (given the run-around/no one can solve the problem because it is no one's responsibility); (c) Frustration (on the part of established customers) that new customers receive better deals than established customers; (d) Apparent lack of vendor knowledge and/or poor vendor communication skill (where the customer makes specific requests); (e) Apparent lack of vendor knowledge and/or poor vendor communication skill (where the customer makes no specific request but expects the vendor to guide him/her in order to customize functionality and respect a consumer budget) – customer blames themselves/feels stupid; (f) Apparent lack of vendor knowledge and/or poor vendor communication skill (where the customer makes no specific request but expects the vendor to guide him/her to customize functionality and respect a consumer budget) – customer blames the vendor/believes the vendor is stupid

3.2 Rationale for the study's design

The study seeks primarily to ascertain what telco vendors do to make sales. Assuming that vendor focus group participants can be made to feel at ease about disclosing how they do their job, the most straightforward way of tackling such an issue is to ask sellers about their tactics (recommended by Marshall and Rossman, 1989). However, a degree of convergent validity is afforded by the client perception data. It is noteworthy that the consumer perspective was established as subordinate to the vendor perspective because it was assumed the consumers will not necessarily be in a position – either during the selling process or *post-hoc* – to perceive and analyse the tactics being used on them. On the other hand, if a client cannot grasp what a vendor is doing to sell to them, it is necessary to determine if, indeed, the reported vendor tactic is being implemented. It may be that the vendor tactic is not intended to be seen by the client. In such a case, the paradigm being used in this study allows for an unseen tactic to remain in play. However, in the event that a vendor says that they are using a particular tactic which should – according to the vendor – be able to be perceived by a consumer and there is insufficient consumer-based evidence of the phenomenon, the selling tactic was – at the discretion of the researchers – able to be eliminated from consideration. Variants of the technique used here for combining qualitative perspectives have been used in other commercial contexts by authors such as Marshall and Rossman (1989).

To avoid the possibility of data (quote)-mining and/or a tendency to favour evidence which confirms pre-existing hypotheses/prejudices, independent – and separate – "analysts", as needed, were used to identify themes emerging from vendor focus groups, client perception data and the perspective-combining exercise.

4. Results

Table I is a matrix which presents the study's results.

Results presented in Table I provide evidence that vendors engage in five tactics to make sales (tactics i to v and with less consumer evidence for the presence of tactics vi, vii and viii). These elements are mostly acknowledged by vendors and are strongly perceived by clients. They will be focussed on – and interpreted – in the discussion.

5. Discussion

This discussion will address what the study's findings suggest about the tactics used by the telco industry to be commercially successful, a response to the first question. It then examines data pertaining to the study's second question which addresses what results suggest about literature-based theory, particularly theory concerning platforms, modularity and telco customer-type.

5.1 Telco industry selling tactics and the customer experience

The study's first research question is, what tactics do telcos pursue in their dealings with customers? Here this question is answered. As noted, five partially overlapping themes emerged from focus group discussions and were corroborated by client perception survey data. This section interprets each of these.

5.1.1 An array of telco hybrid offerings – each with its own cost structure and pricing strategy

> We sold a lot of different products. Each had to be costed differently because each has its own special abilities ex-telco vendor #4.

Advances in micro-processing, chip miniaturisation and wireless communication have created a state where a common platform technology can support hundreds – or even thousands – of functions. An archetypal example of this is the smartphone, so named because, in addition to being a mobile telephone device, it can do other tasks. The smartphone may be used as a disconnected utility or as one which is Internet- and/or satellite-enabled. For detached functions such as, for example, use as a calculator, a costing methodology may be easy to understand and explain. In practice, it entails conveying an appreciation of the variable costs of the device's battery or external power-supply requirements and a fixed – or semi-variable – cost; conceptualised as incremental depreciation of the life of the apparatus. However, detached functions are not the *raison d'etre* for a smartphone but merely provide additional marginal utility. Rather, much of what smartphones do requires wirelessly connected associated infrastructure. The use of such external technology is typically costed – and priced – using principles such as data-download requirements and minutes of access (technically data download is the metric which is used for costing smartphone Internet access but customers invariably prefer to attempt to convert this measure into a "minutes of access" metric. Such a conversion cannot be done straightforwardly, a complication which creates industry advantage and consumer disadvantage). For example, at the time of writing, Rogers and Bell Canada had a choice of available data-download options for their smartphone clients (technically this metric is bandwidth, which roughly equates to extent of access through a server to the Internet and includes capacity for upload and download). These are offered as data-based packages but are sometimes imprecisely converted (upon request) into approximations of minutes of access. A typical client may choose amongst options of 100, 250, 500 MB, 1, 3 or 5 GB of download capacity per month or, as an alternative, pay for what they use on a weekly or monthly basis. They could be told – or otherwise become aware – that phone calls, text-messaging and Internet downloads have different use requirements. More specifically, a single remotely-accessed medium, such as smartphone Internet usage, has variation in data drawdown requirements. For example, on an *Android* device, the viewing of a short text-based email will typically require about 0.005 MBs of bandwidth, whereas a 20-minute HD video may require up to 80 MBs of bandwidth. On the other hand, individually branded smartphones draw differently on data to perform identical functions. For example, a *Blackberry* compresses data about 20

per cent more efficiently than an *Iphone* and therefore provides a less expensive means for viewing email-based texts and images (this benefit accrues when viewing images because it results from a download compression and not an upload compression).

When choosing a smartphone and associated offerings, a source of confusion arises because of a problem of perspectives. Customers typically speak about the functions they seek whereas vendors speak about data-use requirements. This predicament is exemplified in the case of communication-related possibilities. In the twenty-first century, there are multiple ways to bridge the distance-gap in real time. A customer will often have implicit awareness of the presence of various options. The choice they make is typically between, for example, pay-per-call, special long distance plans and voice IP protocols like *Skype* or *Whatsapp*. Thus, they view their problem as being about what product/service they should use. For the majority, this decision is price-dependent. In deliberately taking a counter-perspective of the same issue, the vendor communicating with the smartphone customer is likely to analyse a set of needs using a data-download, or "bandwidth" frame of reference. This kind of seller/buyer language mismatch is contrived and maintained by the industry in order to place the customer at an expertise disadvantage. As a result, it appears – based, in particular, on client perception data – customers begin to lack confidence in their buying interactions with the industry. In an effort not to look foolish, they usually accept what they are told and are loath to complain.

5.1.2 The underestimation problem

> Generally customers only knew about a tiny percentage of what their device could do when they left the store. Even if they asked me, I couldn't know all that a device can do and why should I bother. I'd made my sale Ex-telco vendor #3.

A smartphone is a piece of handheld infrastructure with either a touch screen and/or physical qwerty keyboard which supports multiple functions including those which necessitate integrated wireless data connection to a remote server. A broader conceptual definition was presented in the introduction. However, focus group participants said that most of their former customers used terms such as *Iphone*, mobile phone or cellular phone to identify, what is more accurately called, a smartphone. This finding was revealed also in client perception data (embodied in Theme 5, in particular). There is industry data suggesting that the majority of people who buy a smartphone are seeking primarily a portable device that they can use to make calls (Rogers Communication, 2013c). Furthermore, a typical smartphone consumer is not aware of at least 30 per cent of its basic functionality (Rogers Communication, 2013c).

Telco vendor focus groups participants suggested that firms explicitly instruct sales staff not to inform clients of the full range of potential uses of a smartphone. For example, according to one ex-industry vendor, Bell Canada tells its vendors to only demonstrate how to make and receive phone calls and text messages. Hence, a customer, or perhaps their children, must discover a new device's additional functions including features such as its web browsing and GPS facilities. Such discovery is often costly for the customer and therefore profitable for the vendor. For example, Internet browsing on a smartphone is bandwidth dependent and therefore charged at a variable rate (Bell Canada, 2013a, 2013b; Rogers Communication, 2013a, 2013b, 2013c). The majority of customers purchasing a device for the first time are price sensitive and sign up for the lowest-cost plan. Within one to two billing cycles, it is estimated that about 30 per cent of first-time customers change their plan due to unexpected costs associated with function discovery (Bell Canada, 2013, 2013b).

5.1.3 Devices are not geostationary

> [. . .] the thing about smartphones is that as soon as you leave your house you are going to be in trouble. You can end-up paying a lot more than you think; you are going to be screwed. Ex-telco Vendor #3.

Smartphones are obviously portable. This convenience has cost implications which are difficult to conceptualise and explain. Such a problem – which is in fact an advantage for the vendor – invariably results in customers paying more than they planned in their recurrent smartphone budget.

In the telco industry, the concept of roaming exists. This refers to use of offerings on a device outside of a designated home area. When a customer roams, certain service-elements go from being charged on the basis of a one-off fixed or semi-variable fee, to being variably-costed. Roaming in different parts of the world attracts arbitrarily different time-based tariffs. These differences also exist within a geographical region. For example, in the USA, it may cost $1.45 a minute for someone from a Canadian home base to make a local phone call. The same fee can be up to $4.00 per minute in Cuba for the Canadian who roams within that country (Rogers Communication, 2013a, 2013b, 2013c). Internet roaming charges work slightly differently because they do not rely on a distinction between local and long distance. For example, outside of a home area in Canada, a customer who roams within the USA may pay up to $50 per MB of Internet download. In Cuba, the same quantum of downloaded data could cost $2000 (Rogers Communication, 2013a, 2013b, 2013c).

It was revealed in industry client perception data and telco industry focus groups that travelling smartphone customers typically find out about the cost implications of roaming after being unpleasantly surprised by their monthly bill the first time after they have strayed outside of a home base. Such customers may subsequently complain to their vendor that they were not properly informed of how their service-use requirements would be expensed when they were away from their place of residence or phone registration. If this occurs, the industry can offer a solution: "travel packages". These enable a customer to make either a one-off or monthly purchase of a plan which allows them to reduce costs outside of a home base zone. In theory, it is possible to receive discounts of up to approximately 70 per cent per minute for phone calls when travel packages are used to roam. Indeed, marketing copy for Rogers, Bell Canada and Telus trumpets consumer savings of this magnitude (Rogers Communication, 2013a, 2013b, 2013c, Bell Canada, 2013, 2013b; Telus Corporation, 2013). However, customers are mostly told that packages come with conditions. These vary across functions and are designed to stop a 70 per cent discount on client roaming fees being realised. For example, at the time of writing, Rogers offers a travel deal which charges Internet usage in increments of 20 kb packages. Research has shown that over 50 per cent of smartphone Internet log-on activity when roaming (away from a home base) is to send and receive emails (Bell Canada, 2013, 2013b). A short text-based email will typically only require about 5 kb. Under the terms of the Roger's travel plan, this kind of communication would be expensed at the minimum 20 kb rate.

Internet access away from a home base may be further complicated because of compatibility with infrastructure used in locations where roaming occurs. For example, the Canadian telco industry's high speed Internet-on device (Long-Term Evolution [LTE]) which costs up to three times more than a regular smartphone and allows customers – theoretically – to access the Internet at higher speeds than normal (perhaps up to 100 mbyts per second). However, the LTE service may be incompatible with infrastructure used at roaming locations so that the promise of fast service is often met with the reality of speeds which fall below the benchmark set by home-based Internet access, sometimes up to 40 times slower (Motorola, 2010).

Another customer-hostile feature of roaming concerns the pre-sale locking of devices. When an offering is purchased, it is configured to be locked – or restricted – so that the vendor firm is the only provider which is able to provide services such as roaming. Vendor focus groups revealed that customers rarely request the unlocking of their device, mostly because they are not aware that they can. If a customer does request unlocking so that they will be free to test the market for a cheaper service provider, they will be charged a fee. For example, Rogers charges $50 to unlock one of its smartphones.

Unlike the concept of roaming, device portability carries forward an industrial-age distinction which comes from the old telephone industry, the dichotomy between local and long-distance calls. As was the case in the industrial-age, in the modern era, this distinction has cost implications. For the smartphone consumer, such imposts must be overlaid on roaming-related considerations to begin to calculate a likely billing fee. For example, a smartphone user who is based in the city of Montreal and who does not leave their home base can use one of up to, say, 50 different Rogers plans to make local calls. In so doing, they will have their pre-arranged minutes expensed at an agreed upon rate. If a client inadvertently speaks on the phone for more than their maximum allotted period, they will be charged an over-use rate (this matter could have been dealt with under the heading "underestimation". It is dealt with here to make a contrast with long-distance smartphone scenarios. Insofar as smartphones are concerned, the short-/long-distance distinction is best understood when contrasted with "roaming"). It was noted in the telco vendor focus groups that a non-proactive client – or one who does not use, or is not aware of, the Internet to check their liability to the telco – will often not know about local call overuse charges. They will typically find out about them through the post when they receive a bill. It is noteworthy that many smartphone users are not aware that they can use the Internet to check their liability to a provider (Rogers Communication, 2013a, 2013b, 2013c).

Focus group participants noted that there is a complex costing methodology associated with using a smartphone from a home base to make long distance calls. Without a long distance option, Rogers charges 45 cents per minute in addition to normally expensed minutes. This means that if a customer goes over their allotted minutes, at least one of the elements of the double-billing (i.e. the normally expensed minutes) is increased. Long-distance plans are the purported solution to double billing. According to marketing copy, they offer "*unlimited use*" (Rogers Communication, 2013a, 2013b, 2013c). However, the industry uses this term disingenuously. For reasons that are unclear, the word "unlimited" is a misnomer and refers to converting minutes which would otherwise be expensed on local calls to long distance. Hence, it is certainly possible to exceed a purchased usage amount with an "unlimited" long-distance smartphone option. In such cases, the per-minute charge rate increases greatly.

When it comes to long-distance calling, a source of confusion for smartphone clients arises from fuzzy-boundaries that are associated with the notion of a home base. The technical reason for such ambiguity arises from the way signal towers and servers (switches) manage signal traffic. From a costing standpoint, the issue can be conceptualised as two invisible bubbles: one for outgoing and one for incoming calls. On the one hand, an outgoing call bubble will always surround the smartphone user when they move within the provider's network. If a user strays outside of the provider's network, roaming is initiated. However, from 2007, a new regulation in Canada has created options whereby smaller providers such as Videotron can offer their customers access to the networks of larger providers; in such circumstances, the clients of the smaller providers, by virtue of using borrowed infrastructure, are treated as though they are roaming. This moving bubble phenomenon has an organic shape. Its form changes constantly such that, for practical purposes, the local/long distance distinction becomes impossible to specify for the travelling smartphone user. On the other hand, the "incoming call bubble" is fixed geographically. It is placed around a client's specified cell number which is not necessarily the point where the smartphone is purchased. Hence, incoming calls will always count as long-distance if a client receives the call while they are outside of their receiving bubble.

5.1.4 Third-party agreements

> Whenever you buy a smartphone you are actually entering into deals with lots of third parties Ex-telco Vender #4.

Aside from a primary provider agreement, smartphone customers typically enter into other contracts with firms which can imbue their device with additional functionality. There are

mostly two duplicitous elements to these arrangements: expectations about a device and contract fee-structures.

Insofar as expectations are concerned, there is industry-based research suggesting that awareness of a smartphone's functionality is not matched by awareness of the additional contracts that are necessary to realise such potential (Howard, 2012; Cusumano, 2012; Unni and Harmon, 2007; Anderson, 2008). For example, after buying the basic device, a smartphone customer must download applets to extend their unit's functionality. In so doing, they will create agreements with firms such as Apple (for Appletstore) and Google (for Googleplay). They typically find out about these additional contractual requirements immediately after the point of sale or, at least, once they have agreed in principle to pay for a basic package. In practice, it is not possible to avoid third-party agreements when purchasing a smartphone. One reason for this is that those who purchase a device are required to create a personal identification (ID) with the manufacturer to gain support and receive warranty-related services.

The fees charged by third parties in the digital-age telco industry use complex costing methodologies in much the same way that point-of-sale providers have multifaceted and difficult to explain billing rates. Third parties invariably provide offerings which have data-use-based variable cost structures that differ by item (and/or downloaded applet, etc). From a consumer perspective, there is also the problem of the blame shifting that may occur as a result of ambiguity over who is to be the primary service provider. For example, often –to use an applet which has been purchased from a third party – software upgrades are required on a smartphone. A provider may obfuscate responsibility through indicating that a client's device lacks the requisite technical specifications to support new software. For the client, this may mean that they must use a computer to download the latest software onto their device, a task which, according to focus group participants, many smartphone clients find daunting. Participants indicated that their clients would often pay to ensure that smartphones were equipped with software that could support the latest applets, etc. Currently, there is a trend towards third-party providers offering free-applets (Rogers Communication, 2013a). Following a download, a client will find that such giveaways are delivered with additional elements which may serve as advertising, opportunities for third-parties to phish for data and/or for routing customers to subscription-based online offerings. In this context, phishing refers to a mostly illegal marketing-based practice which entails misleading customers into disclosing passwords/emails/billing and credit card details and (often) on-selling such data.

5.1.5 Death by a thousand qualifications

> When you buy a Smartphone, we would quote you a price and then tell you other things that you would need to buy before you could actually make the thing really work the way you expect. Ex-telco Vendor #2.

When buying a teleco device such as a smartphone, it is common for a vendor to offer a product/service which seems to meet a specified client's needs and is within a fixed budget. It was noted in the vendor focus groups and confirmed with client perception-related data that – at the point of sale – vendors tell clients that sometimes costs may exceed expectations. For example, vendors may offer price-sensitive clients a low-rate mobile phone plan. They would tell such consumers that a monthly budget of, say, $20 is sufficient to operate their phone. After clients agree in principle to this plan, they are told that they need to buy the phone-unit for, say, $100 more. After the customer agrees to this additional impost, they are advised that a "good" phone costs $250, and not $100. After agreeing to the good phone, the price-sensitive customer is told that they can have Internet access on their new device for an additional $45 per month. At the time of writing, Rogers Communication offered an all-in-one telephone-Internet package which appears to give comprehensive access to voice services, text-messaging, Internet bandwidth, call display and voice-mail (Rogers Communication, 2013a). This package is promoted for $45.

However, when a customer requests the option, it always becomes necessary to upgrade elements of the basic package to ensure minimal-level benefits. This may include paying extra for long-distance calls which, as noted in the discussion about "bubbles", may only be calls occurring over short distances as well as Internet bandwidth enhancements which aim to create merely minimal levels of web functionality.

5.2 Theoretical implications

Telco vendor focus-group and client perception data suggest a view of industry strategy which centres on exploiting the possibilities afforded by digital-age technology to offer a device with near unlimited functionality but – at the same time – one for which costing analysis will be dauntingly complex. In this section, the theoretical implications of such a strategy are explored with reference, in particular, to literature addressing platform technologies, modularity and types of telco customers/market segmentation considerations. Thus, this section addresses the study's second question: how do contemporary telco selling tactics inform theory about concepts such as platforms, modularity and customer-type?

As noted, theory about platform technologies suggests that providers of these launching pads make their decision about which technologies (generally applets) to host based on a competitive analysis of which elements they believe are likely to be most attractive to potential consumers. This study's findings suggest that such a conception does not tell the whole story. Specifically, results indicate that platform providers may – in addition to considering how cool, interesting and/or useful an offering may be from a consumer perspective – also consider whether it has potential to create costing-related complexity that can be transferred to end users (consumers). This view broadens the conception of input to platform provider decision-making. For example, in deciding whether to host a specific application, a platform provider may consider that the likelihood a consumer will underestimate the cost of obtaining and using the offering as well as issues of offering attractiveness. Such a conclusion is generic and plays-out slightly differently in the telco industry where there is a platform provider for basic handset infrastructure (such as Bell Canada, Rogers Communication and Telus Corp.) and another platform provider for software application (such as Google Play, Apple Store, Blackberry OS and Windows Marketplace).

Insofar as modularity is concerned, the literature review noted that Schilling's (2000) conceptualisation – as a derivative of general systems theory – deemphasises agency on the part of actors in the process. However, the framework does make predictions about how changes in contextual elements may influence movement towards increasing modularity and away from synergistic specificity. Two of these are about customers. Specifically, *P8* of her article says that "heterogeneity in desired function or scale of a product will be positively related to inter-firm product modularity". *P10* says "if there are pressures to increase or decrease the inter-firm modularity of a product system, the speed of technological change will increase the likelihood of such a migration". These two assertions imply that a firm's degree of modularity is inclined to optimise consumer value and utility. They may be interpreted alternatively as applying to the telco industry thus: a key segment of the smartphone market is becoming less homogeneous in both the number and kind of different applets required on a device. The rate of such preference divergence is increasing and expected to increase. These contingencies create either tablet or phone-devices (platform)/software (module) ensembles with increasing degrees of modularity. Modularity is therefore the means for creating customer value because it provides a device which meets consumer needs. However, this study's findings suggest a more nuanced view. Results suggest two possibilities: each of which are compatible with Schilling's (2000) conception. First, modularity may serve to simultaneously deliver expected offerings to a heterogeneous market and be a vendor strategy for creating corporate value through influencing consumers to misanalyse their needs. Second, modularity is exclusively a means of placing customers in a position where they misanalyse

their user requirements. This latter perspective says that, although modularity may appear to provide offering heterogeneity, it has – in fact – emerged in the digital-age as a complex form of deception involving the coordination of several marketing-related elements. Such a hypothesis portrays telco consumers as being convinced by their industry that they require devices with multiple functions (a push-related view) as opposed to portraying them as being the most important driver of innovation (a pull-related view).

The study's findings have implications for established notions of customer type within digital-age industries including the telco sector. For example, the consumer categories identified by authors such as Pertruzzellis (2010) remind offering providers that elements within their portfolio should be aligned with market segments. His categories implicitly portray the vendor as responsible for ensuring customer satisfaction with all aspects of an offering; including its cost. This same view is reflected in Kasper *et al.* (2010) study which reveals that certain customers are more comfortable than others with complexity. The strategic implication of such research is that agents of the industry should effect cultural change and/or re-education of the market; with the goal being to generally make consumers more technically savvy. However, this study's findings imply that the industry may have its greatest chance of maximal profit when all customers misanalyse their needs and have to pay more but – for whatever reason (perhaps embarrassment, perhaps wanting to be part of the in-crowd/be cool, etc) – do not speak about their malaise and/or continue to endure it. To the extent that some customers do not expect and/or do not accept being duped, new – and very different – categories emerge. According to this view, the technology enthusiast (Kasper *et al.*, 2010) would be the least corporately desirable type of customer.

The notion of consumer costing analysis – or misanalysis – entails an increasingly sophisticated role for vendors. Specifically, it recasts them as facilitators of a disingenuous strategic process which requires that they have detailed knowledge of telco offering cost structures, as well as a measure of guile. The results of this study suggest – albeit indirectly – such a phenomenon. They buttress mid-twentieth-century views about the trajectory of technology, particularly the Woodward–Blauner hypothesis which implies that work is generally becoming simultaneously more interesting and complex.

5.3 Future research

This study's conclusions form a basis for further inquiry. Some future research agendas have already been foreshadowed but will be readdressed briefly here.

First, there is the issue of what an industry strategy of inculcating customer confusion means for the design, development and manufacturing of digital-age devices. For example, are the objectives of individual elements of the value-chains of contemporary industries well-aligned? If not, is it the case that retailers are best characterised as taking unethical advantage of modernity's complex technology? Another line of future research concerns the scope and context of customer confusion as an approach to making sales. Theorists such as Porter (1986, 1989) note that a particular strategy gets chosen from amongst an array of options. Saturated industries – or those operating under conditions of perfect competition – generally entail each player pursuing a different generic strategy. The question therefore arises: how can – what seem like – the widespread use of an approach based on confusion be contrasted with other approaches that digital-age firms may take? Finally, the strategic role of modularity requires further scrutiny. A future project could ask about which, of the two views presented in Section 5.2 of the discussion, seems most representative of the way digital-age sectors operate. These two views are:

1. modularity simultaneously delivers expected offerings to a heterogeneous market and is a duplicitous vendor strategy; and
2. modularity is exclusively used as a strategy of duplicity and the perception is contrived that it is designed to deliver customised offerings to a diverse market.

6. Conclusion

Digital-age industries have arisen as a result of two influences: increasing sophistication with platform technologies and their associated potential for enhanced modularity; and a market-orientated policy orientation which has seen capital move from the public to the private sector. The new spheres of commercial activity have generic features. Their offerings: tip the balance towards more service in the service/product mix; free consumers from the one-infrastructure/one-function principle; are replenished more regularly, thus sharpening the distinction between early adopters and late-majority consumers; and – important for current purposes – seem to be associated with a new kind of corporate strategy. This article has focussed on the digital-age telco sector; however, its conclusions may be relevant to the competitive orientation of other similar recently emerged industries. For example, results may be generalised to sectors including: personal finance (credit card and mortgage-related offerings); text and entertainment-based media (post-modern music, movie and print-media industries and their derivatives such as audiobooks); modular electronic offerings (for example, buying a personal computer which, in practice, is the purchase of hardware and software and their associated contracts); and Internet-based bundled offerings (for example, one-stop-shop holiday packages).

Digital-age offering complexity is made possible through the evolution of platform technologies and enhanced scope for component modularity. The goal of the new approach is to produce firm wealth for commercial entities through creating confusion and ambiguity for a retail consumer. In this milieu, end-user self-analysis is near impossible and miscalculation mostly inevitable. However, the new approach seeks to normalise customer misanalysis, making end-user overpayment the rule rather than the exception. Hence, unlike their predecessor sectors, digital-age firms support a strategy of disingenuousness – not just through the possibilities afforded by more advanced platform technologies and increasingly levels of modularity – but with psychological elements. The client is established as requiring a customised offering to cope with modernity and, as such, the master of their own destiny and of technology. However, if a client gets an analysis wrong (which they invariably do), it must be their fault because they are unintelligent and/or a twenty-first-century *Luddite*. In this environment, complaints are rare, slowed down because consumers fear that they will be perceived as either dumb and/or unable to evaluate their needs like everyone else.

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Corresponding author

Anthony M. Gould can be contacted at: Anthony.Gould@rlt.ulaval.ca