

Cost-effective service excellence

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Abstract This article integrates relevant literature to develop a conceptual model on the potential avenues to achieve service excellence at low unit costs, which we term *cost-effective service excellence* (CESE). To gain a deeper understanding of these strategies, their applicability and interrelatedness, we analyze how 10 organizations have achieved CESE. Our findings show that CESE can be achieved through three core strategies. First, a *dual culture strategy* provides a comprehensive set of high-quality services at low cost, largely driven by leadership ambidexterity and contextual ambidexterity. Second, an *operations management approach* reduces process variability and thereby allows the increased use of systems and technology to achieve CESE. Third, a *focused service factory strategy* can enable CESE through a highly specialized operation, typically delivering a single type of service to a highly focused customer segment. The use of the three approaches ranges from “pure” (e.g., mostly pursuing a dual culture strategy) to combinations of the latter two approaches with the dual culture strategy (e.g., a focused service factory strategy combined with dual culture). Our conceptual model provides an integrated view of the strategic

options available to organizations that aim to pursue a strategy of CESE.

Keywords Service excellence · Productivity · Cost-effectiveness · Dual culture strategy · Ambidexterity · Buffering · Front office minus · Modularization · Self-service technology · Focused service factory

The tradeoff between customer satisfaction and productivity has been widely acknowledged in the service marketing and operations management (OM) literature and remains a key challenge for organizations that strive for both objectives (Anderson et al. 1997; Rust and Huang 2012). These two approaches conflict because too strong a focus on cost reduction associated with productivity can reduce customer satisfaction, and concentration on customer satisfaction is assumed to cost more, thereby reducing productivity (Rust and Huang 2012). Research in marketing has confirmed this tradeoff (Anderson et al. 1997; Rust and Huang 2012), and it has been shown to be more pronounced in services than in goods, especially when frontline employees are involved (Anderson et al. 1997; Marinova et al. 2008; Singh 2000). In addition to the intangibility and variability of services that make them more difficult to standardize (Chase 1978; Frei 2006), perceived quality in services frequently depends on customization desired by consumers. High levels of customization are costly because employees typically play a prominent role in service delivery (Anderson et al. 1997). As expressed by Rust and Huang, “increasing service productivity often involves a tradeoff, with better service typically requiring more labor intensity, lower productivity, and higher cost” (2012, p. 47).

Few service organizations seem to be capable of pursuing a strategy focused on customer satisfaction and productivity at

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the same time given that they require “distinctive organizational systems, structure, and cultural underpinnings” (Rust et al. 2016, p. 156). Therefore, pursuing a dual strategy combining service excellence that generates high customer satisfaction and low cost, resulting in high productivity, is likely to be a “daunting task” for most organizations (Mittal et al. 2005, p. 547).

While the general belief is that a tradeoff exists and that service excellence and cost effectiveness are in conflict, examples can be proffered where organizations achieve both and manage to align high productivity and customer satisfaction. For example, Shouldice Hospital simultaneously has 50 to 75% lower costs compared to general hospitals, a failure (reoccurrence) rate equal to 1/6th to 1/12th of industry average and exceptionally high customer satisfaction (Heskett and Hallowell 2004; Heskett et al. 2015, p. 14). Similarly, Singapore Airlines has earned a stellar reputation in the fiercely competitive commercial aviation industry by providing customers with exceptional quality service while it is at the same time one of the world’s most cost-effective full-service airlines (Heracleous and Wirtz 2010, 2014). Both organizations combine the purportedly incompatible strategies of service excellence and high productivity.

This conceptual study contributes to marketing theory in pivotal ways and follows the call to address important, substantive questions (Hauser 2017; Houston 2016; Tellis 2017) whereby we focus on a topic that has rarely been investigated and offer propositions that may lead to surprising findings countering existing wisdom. Specifically, the purpose of this research is to explore the alignment among service excellence and high productivity approaches to demonstrate ways through which service firms can achieve what we call *cost-effective service excellence* (CESE). Studies of companies that have achieved a dual strategy demonstrate that it positively affects financial performance (Mittal et al. 2005; Swaminathan et al. 2014). However, these studies remain silent on how CESE can be achieved. This research addresses this gap and explores the options available to achieve CESE by integrating and synthesizing the marketing, management, and service OM literature on the interrelationships among these approaches. Furthermore, we analyze how 10 organizations achieved CESE and integrate the findings with the literature to form a set of propositions and a conceptual model of CESE.

Service excellence, productivity, and organizational performance

As different streams of literature use various terminology, we clarify key terms in Table 1. The main literature used in our review and synthesis is summarized in Table 2, with the following section reviewing empirical studies on the impact of customer satisfaction and productivity on organizational performance.

Empirical evidence

Literature in marketing shows empirically that using a customer satisfaction strategy generally improves financial performance (Anderson et al. 1997, 2004; Gupta and Zeithaml 2006; Kamakura et al. 2002; Rust et al. 1995). This strategy results in superior risk-adjusted equity returns (Aksoy et al. 2008; Fornell et al. 2006) largely through the positive effects that customer satisfaction has on repeat purchase, cross-buying, and referrals (for a detailed review see Gupta and Zeithaml 2006; Oliver 2010), and through increased attitudinal loyalty and reduced price sensitivity (Umashankar et al. 2016). Likewise, the OM literature shows that increased efficiency can improve business performance through cost reduction (Breyfogle 2003; Crosby 1979; Deming 1986).

Combining these two foci, service organizations can pursue three alternative customer satisfaction and productivity-focused strategies: (1) increasing customer satisfaction, (2) increasing productivity, and (3) pursuing a dual strategy whereby they attempt to pursue customer satisfaction and productivity at the same time. Of the three strategies, limited empirical evidence suggests that organizations focusing on customer satisfaction have a higher financial return than those either focusing on productivity or trying to execute a dual strategy (Rust et al. 2002).

Furthermore, and critical for our study, the literature distinguishes between organizations that *pursue* a dual strategy versus those that *actually achieve it* (Mittal et al. 2005). Empirical evidence suggests that once companies successfully achieve a dual strategy, they reap the highest long-term financial return compared to organizations that focus on either customer satisfaction or productivity alone (Mittal et al. 2005). A dual strategy is clearly highly desirable, but very difficult to achieve (Rust et al. 2002). While the financial performance of the strategies has been examined and the desirability of a dual strategy established, there is a wide gap in the literature with regard to how service organizations might be able to achieve it (c.f., Mittal et al. 2005; Rust et al. 2016; Swaminathan et al. 2014), which we examine in this study.

Finally, the extant research has examined customer satisfaction as a continuum, whereas we focus specifically on the high end of customer satisfaction, that is, service excellence. A number of studies have shown that the relationship between customer satisfaction and key outcome variables generally follows a linear positive or an inverse S-shaped function, which is convex for high levels of customer satisfaction (Kumar et al. 2013), including for repeat purchase (Mittal and Kamakura 2001) and willingness to pay (Homburg et al. 2005). Furthermore, Keiningham and colleagues show in a stream of research that the relationship between a firm’s relative (ranked) customer satisfaction at the individual customer level and share-of-wallet follows a Zipfian distribution with sharply increasing share-of-wallet for firms with higher

Table 1 Definition of key terms

Terms	Definitions
Cost-effective service excellence (CESE)	<ul style="list-style-type: none"> Refers to a state when an organization delivers simultaneously high levels of customer satisfaction and high levels of productivity. That is, an organization delivers CESE if it simultaneously is among the best performers in its competitive set in terms of customer satisfaction and productivity.
Dual culture strategy	<ul style="list-style-type: none"> Refers to organizations that achieved CESE through ambidexterity (i.e., leadership, contextual, and structural ambidexterity), making both service excellence and productivity integral parts of the organizational culture. It enables organizations to deploy generic productivity strategies and tools to the extreme while focusing on service excellence. It allows an organization to close the gap between actual productivity and potential productivity at a given level of customer-induced variability. The literature uses various terms similar to dual culture strategy, including dual strategy, dual emphasis (Rust et al. 2016; Mittal et al. 2005; Swaminathan et al. 2014), and simultaneous attempts to increase both customer satisfaction and productivity (Anderson et al. 1997). We use the term dual culture strategy throughout.
Service excellence strategy	<ul style="list-style-type: none"> We define service excellence as an organizational strategy of delivering high levels of service that generates high customer satisfaction to its customers.
Customer satisfaction strategy	<ul style="list-style-type: none"> Service marketing literature uses various terms to describe an organization’s focus on delivering customer satisfaction, including revenue emphasis (Rust et al. 2016), customer satisfaction (Anderson et al. 1997; Swaminathan et al. 2014), and effectiveness (Rust and Huang 2012). We focus on the high end of customer satisfaction and use the term service excellence strategy.
Perceived service quality and customer satisfaction	<ul style="list-style-type: none"> Perceived service quality is defined as “meeting or exceeding customer expectations,” which is consistent with the Gaps Model (Parasuraman et al. 1985, 1988). In this manuscript, we use the terms customer satisfaction and perceived service quality interchangeably when we refer to perceptions of customers.
Productivity	<ul style="list-style-type: none"> Productivity is defined throughout the manuscript as output/input ratio (Grönroos and Ojasalo 2004). The literature uses various terms to describe an organization’s focus on productivity, including cost emphasis (Rust et al. 2002, 2016), cost reduction (Mittal et al. 2005), efficiency (Swaminathan et al. 2014), and productivity (Anderson et al. 1997).
Customer-induced variability	<ul style="list-style-type: none"> The term customer-induced uncertainty was used in early service operations research to discuss efficiency-related challenges in service organizations (Chase 1981). More recent work use the term variability (e.g., in arrival times, and requested services and features) which follows a statistical distribution and is not uncertain (Frei 2006). In the marketing literature, customer induced variability is typically referred to as “customization” (e.g., Anderson et al. 1997). For simplicity, we refer to customer-induced uncertainty, variability, and customization as customer-induced variability.

ranked customer satisfaction (Keiningham et al. 2015a, b), and customers can become an organization’s “apostles” at high levels of customer satisfaction (Jones and Sasser 1995). Therefore, we focus on organizations that are at the leading edge in terms of customer satisfaction in their respective industries.

Root causes of the conflict between service excellence and productivity

As we have noted, while a dual strategy is desirable, it is particularly difficult to achieve for service organizations (Anderson et al. 1997; Marinova et al. 2008; Rust and Huang 2012; Singh 2000). To explore potential ways to achieve CESE, we examine next the root causes underlying the service excellence-productivity conflict by integrating the service quality and productivity literature.

First, many services are produced through distributed operations with real-time production and consumption (e.g., every fast food outlet, beach resort, and bank branch can be viewed as a mini-factory). Achieving CESE seems

particularly difficult for service firms because distributed operations—involving simultaneous production and consumption as well as customization in real-time at the customer interface—make industrialization, deskilling, economies of scale, productivity, and quality control difficult to achieve (Chase 1978, 1981).

Second, customer-introduced input, process, and output variability have been identified as key limiting factors in increasing productivity. That is, operations cannot be organized and scheduled at optimum efficiency as customer arrival times, product and feature choices, preferences, capabilities, and customer effort and involvement in service production vary (Chase 1978, 1981; Frei 2006). In marketing, customer variability is often referred to as “customization” (e.g., Anderson et al. 1997). Offering flexibility and the right type of process capacity, employee skills, and supplies “on demand” and at high quality is challenging and expensive.

Third, the customer’s experience and satisfaction often depend on the three additional Ps of services marketing: people, process and physical environment (Booms and Bitner 1981). To deliver service excellence, the three functions of

Table 2 Key literature related to cost-effective service excellence

Study	Focus of study	Method	Key findings and conclusions
Empirical Studies on the joint impact of customer satisfaction and productivity on organizational performance Anderson et al. (1997)	Conditions under which a customer satisfaction/ productivity tradeoff is likely	Empirical model using combined Swedish Customer Satisfaction Barometer and economic return data from publicly listed firms (ROI, labor productivity)	<ul style="list-style-type: none"> •Tradeoffs between customer satisfaction and productivity are more likely for services than goods. •Conflicts between customer satisfaction and productivity are stronger when customer satisfaction is more dependent on customization than standardization, and when service employees play an important role.
Rust et al. (2002)	Compared performance of firms that <i>tried</i> to achieve high customer satisfaction, high productivity, or both	Longitudinal two-period survey; sample of 71 business units, 186 respondents; subjective organizational performance data	<ul style="list-style-type: none"> •Firms that primarily <i>tried</i> to achieve a customer satisfaction strategy (i.e., a revenue expansion strategy) outperformed firms that focused on productivity (i.e., cost reductions), and firms that tried to achieve both high customer satisfaction and productivity.
Mittal et al. (2005)	Compared performance of firms that <i>successfully achieved</i> high customer satisfaction, high productivity, or both	Empirical model using ACSI data, and data envelopment analysis (DEA) to measure productivity from Compustat and Competitive Media Services data; 77 firms, longitudinal data over 6 years	<ul style="list-style-type: none"> •Firms that <i>successfully achieved</i> a dual emphasis (i.e., achieved both high customer satisfaction and high productivity) showed higher long-term financial performance than firms that achieved either high customer satisfaction or high productivity alone.
Rust and Huang (2012)	Optimal level of productivity for profit maximization	Empirical model using Compustat data; more than 700 service firms over two periods, 5 years apart.	<ul style="list-style-type: none"> •Found an inverted U-shape relationship between productivity and profitability. •Optimal level of productivity is lower when better service quality is financially beneficial (when the firm has higher profit margins or can charge higher prices). •Optimal level of productivity is higher when market concentration is higher, or when higher wage levels discourage the provision of better service quality. •Optimal level of productivity increases as technology advances.
Swaminathan et al. (2014)	How a firm's merger moderates the joint impact of the dual goal of customer satisfaction and productivity	Empirical model; combined ACSI data with financial data obtained from Compustat. Uses a differencing approach (i.e., changes in customer satisfaction and productivity as independent variables rather than absolute levels)	<ul style="list-style-type: none"> •Firms in a merger situation that successfully achieved a dual emphasis (i.e., simultaneously increased customer satisfaction and productivity) outperformed firms with a dual emphasis in a non-merger context. •In non-merger situations, firms that achieved a dual goal did not realize high firm value increases but still achieved a small positive return, whereas firms that focused on customer satisfaction or efficiency alone showed a small decline in Tobin's q. •A merger situation may enable a successful dual strategy as more likely to be made available during the integration period after a merger.

Table 2 (continued)

Study	Focus of study	Method	Key findings and conclusions
Rust et al. (2016)	How firms adopt cost and quality (revenue) emphasis and their impact on business performance	Longitudinal multi-level survey	<ul style="list-style-type: none"> •Quality (revenue) emphasis is driven by individuals close to the customer (front-line and sales employees) and converges at the organizational level (i.e., individual-to-collective convergence). •Productivity (cost) emphasis is driven by formalized organizational procedures and senior management and converges at the organizational level (i.e., collective-to-individual convergence). •Quality emphasis convergence improved business performance, but cost-emphasis convergence did not.
Organizational ambidexterity and dual culture			
Gibson and Birkinshaw (2004)	Contextual ambidexterity at the business-unit level	Interviews in 41 business units across four levels of hierarchy	<ul style="list-style-type: none"> •Introduces the concept of contextual ambidexterity. •Achieving ambidexterity at the individual level (i.e., individuals make their own choices between conflicting goals) results in superior unit performance.
Raisch and Birkinshaw (2008)	The antecedents, outcomes, and moderators of ambidexterity	Literature review and conceptual study	<ul style="list-style-type: none"> •Structure (structural and spatial separation), context, and leadership are organizational antecedents to organizational ambidexterity. •Environmental factors (environmental dynamism and competitive intensity) and market orientation are moderators of the antecedents and outcomes of organizational ambidexterity. •Contexts of organizational ambidexterity include organizational learning, technological innovation, organizational adaptation, strategic management, and organizational design. •A full-service airline can simultaneously be a quality and a cost leader. •The airline's incentive system, training, and internal communications drove a dual culture that focused on cost-effectiveness in everything that did not touch the customer, and it focused on service excellence as soon as the customer was involved.
Heracleous and Wirtz (2010)	Mechanisms through which Singapore Airlines achieved a dual culture of cost-effectiveness and service excellence	Case study-based research	<ul style="list-style-type: none"> •Manufacturing principles can be applied to services to increase productivity and consistency. •Highly centralized, carefully organized and elaborately engineered processes are key for the industrialization of service. •Services can be industrialized using hard technologies (e.g., machines, tools, and artifacts), soft technologies (e.g., preplanned service systems), and hybrid technologies. •High volume, carefully planned systems, and division of labor are key to achieving high productivity and quality.
Productivity in service operations			
Levitt (1972)	Manufacturing principles applied to service processes	Conceptual study	<ul style="list-style-type: none"> •Manufacturing principles can be applied to services to increase productivity and consistency. •Highly centralized, carefully organized and elaborately engineered processes are key for the industrialization of service. •Services can be industrialized using hard technologies (e.g., machines, tools, and artifacts), soft technologies (e.g., preplanned service systems), and hybrid technologies. •High volume, carefully planned systems, and division of labor are key to achieving high productivity and quality.
Levitt (1976)	Redesigning services to achieve high productivity and consistency	Conceptual study	<ul style="list-style-type: none"> •Manufacturing principles can be applied to services to increase productivity and consistency. •Highly centralized, carefully organized and elaborately engineered processes are key for the industrialization of service. •Services can be industrialized using hard technologies (e.g., machines, tools, and artifacts), soft technologies (e.g., preplanned service systems), and hybrid technologies. •High volume, carefully planned systems, and division of labor are key to achieving high productivity and quality.

Table 2 (continued)

Study	Focus of study	Method	Key findings and conclusions
Chase (1978, 1981)	Customer contact limits productivity; suggests decoupling and buffering of the back office	Conceptual study	<ul style="list-style-type: none"> •The less direct contact a customer has with a service system, the greater is the system's potential productivity. •Low contact systems are easier to industrialize. •Decoupling and buffering the "technical core" (i.e., back office) from the front office allow higher productivity in the back office.
Lovelock and Young (1979)	Productivity impact of customer behavior	Conceptual study	<ul style="list-style-type: none"> •Customer behavior is a critical determinant of the productivity of service operations and therefore has to be managed carefully. •Organizations can shape and change customer behavior to better align it with more productive service processes.
Frei (2006)	Customer involvement in service processes as a strategic decision	Conceptual study	<ul style="list-style-type: none"> •Customers introduce five types of variability into service processes (i.e., arrival time, product and feature choice, customer capability, customer effort, and involvement). •Strategies to deal with customer-induced uncertainty include two broad options: focusing on a tightly defined customer segment combined with a limited breadth of service products; and using automation combined with SST ("low-cost accommodation").
Meuter et al. (2000)	Customer responses to SSTs	Critical incident study with 800 respondents	<ul style="list-style-type: none"> •Key satisfiers include increased customer efficiency (e.g., saves time) and convenience by making service available when and where customers need them.
Meuter et al. (2005)	Customer trial of SSTs	Two surveys of users and non-users of two new SSTs in the context of prescription refill ordering	<ul style="list-style-type: none"> •Consumer readiness is identified as a key barrier of SST trial. •Key consumer readiness variables are identified: role clarity, intrinsic and extrinsic motivation, and ability to use the SST. •Consumer readiness also mediated effects from innovation and individual characteristics and explained why these variables affect trial.

Studies are organized by topic and in chronological order within topic

operations, marketing, and human resources therefore need to be tightly integrated. This integration frequently leads to tradeoffs between functional objectives, especially between marketing and operations. These tradeoffs are well documented, with marketing typically focusing on service excellence, loyalty, sales, upselling, cross-selling, and market share, whereas operations worries about unit costs, productivity, and capacity utilization (Lovelock 1992). Striving for CESE must address these three causes of the customer satisfaction–productivity tradeoff.

Methodology for synthesis of literature and case analysis

To develop our propositions, we synthesized relevant major streams of thought from the marketing, management, and OM literature that relate to the constructs of service excellence, service productivity, and profitability. We identified two main streams in the academic literature that provided background for our integration and analysis (Table 2). The first stream, on organizational ambidexterity, is rooted in the management literature and explores how organizations can simultaneously pursue and integrate different, often conflicting objectives. The second stream is based on the OM literature that tackles the root causes of low productivity in service operations and offers potential solutions. We combined both streams of literature to develop our propositions.

Furthermore, we used a case-based approach to identify examples of organizations that were successful in achieving CESE to illustrate the propositions. Even though these cases were largely used as examples, they allowed unexpected findings to emerge. Ultimately, we combined the literature with the added insights from the case studies to propose ways that organizations can achieve CESE.

To identify potential organizations for our case analysis, we first outlined criteria for service excellence and productivity. Next, we identified organizations from multiple sources, including the academic literature, published case studies, books by leading academic service experts (e.g., Heskett et al. 2015), books about leading service organizations, and the published media. To establish whether these organizations indeed achieved CESE, we compared them to the criteria for service excellence and productivity. Service excellence was assessed by examining publicly available service quality and customer satisfaction indices (e.g., the American Customer Satisfaction Index), service excellence awards (e.g., J.D. Power), industry awards (e.g., Condé Nast Traveler), and other third-party data (e.g., TripAdvisor). Productivity was assessed through measures such as labor productivity (e.g., revenue/full-time equivalent employee) and industry-specific productivity measures (e.g., cost/seat mile in an airline context). The organizations

that fit our criteria—which were among the leading organizations in their respective industries in both service excellence and productivity—are provided in Table 3.

The selected organizations had extensive materials published on them, including interviews with senior management, books, case studies, and features in academic articles. We collated and integrated the information from these sources to gain an understanding of *what* and *how* these organizations achieved service excellence and high levels of productivity until we reached saturation. We then coded each organization on their use of the key CESE strategies identified in our literature review (e.g., had a culture of keeping costs low or used SSTs more extensively compared to industry). The authors coded independently and then discussed their coding for each organization until they reached agreement. Finally, we conducted interviews and site visits with three of the smaller and somewhat less publicized organizations (Ristorante D’O, National Library Board, and Narayana Health) to verify our understanding of the organization’s deployment of CESE strategies and confirm our coding. The findings were consistent across sources and over time (see the [Web Appendix](#) for key findings and their sources) and were used for our analysis. Figure 1 shows the final coding.

The integration of the literature in the following sections suggests a number of specific approaches organizations can pursue to achieve CESE which we grouped conceptually into three main categories. The first main category is an organization strategy which we termed *dual culture strategy*. It focuses an entire organization on the simultaneous pursuit of service excellence and productivity. The second—*operations management approach*—is a combination of OM tools that are used to reduce process variability so that systems and technology can be increasingly deployed to deliver CESE; they are buffering and front office minus, modularization of service options, and self-service technologies (SSTs). The third is a *focused service factory* strategy that achieves CESE through a highly specialized operation. These approaches are described in the remainder of this article in the context of their respective literatures.

Dual culture strategy

The dual culture strategy uses organizational ambidexterity to drive the deployment of generic productivity strategies and tools to the extreme.

Organizational ambidexterity

In management, the pursuit of conflicting organizational goals has been studied in the ambidexterity literature. Ambidexterity describes how organizations are able to

Table 3 Organizations that have achieved cost-effective service excellence

Organization (Industry, Country, Size) ^a	Evidence for service excellence	Evidence for Cost-effectiveness
Singapore Airlines (SIA) (airline, Singapore, 24,000 employees)	<ul style="list-style-type: none"> •Was the “world’s most awarded airline” (Heracleous and Wirtz 2010, 2014) •Was ranked number 1 for 28 of the previous 29 years in the Condé Nast Traveler’s World’s Best Airline Award (Condé Nast Condé 2017) •Won Global Traveler (USA) Best Overall Airline in the World Award in 2016 for the 12th time (Global Traveler 2016) •Skytrax’s Airline of the Year Award 3 times since 2004; ranked among top 3 of the World’s Best Airlines in the past 5 years (Skytrax 2017) •Was the top rated airline in the Customer Satisfaction Index of Singapore (CSISG) since its inception in 2008 (CSISG 2016) 	<ul style="list-style-type: none"> •Costs per available seat kilometer (ASK) were 4.6 cents compared to 8–16 cents for full-service European airlines, 7–8 cents for U.S. airlines, and 5–7 cents for Asian airlines (Heracleous and Wirtz 2010, 2014). SIA was identified as a cost leader in its peer group measured in cost/ASK (Airline Leader 2014) •Financial performance was better than industry on gross margin, ROA and ROI over the past 30 years (Heracleous and Wirtz 2010, 2014), and it had never booked an annual loss (Singapore Airlines Annual Report 2016)
Ristorante D’O (restaurant, Italy, 40 employees)	<ul style="list-style-type: none"> •Had 1 Michelin Star; 1 Gambero Rosso Fork (Nobel 2013) •Had a wait for up to 8 months for a table; was full every day for lunch and dinner (Cheshes 2015; Nobel 2013) •Was ranked number 1 of 31 restaurants in Cornaredo on TripAdvisor (2016) 	<ul style="list-style-type: none"> •Charged about 1/3 or less of competitors’ prices. Price of a typical meal at 1-Michelin star restaurants in Italy was 130 Euros; D’O price for lunch was 20–25 Euros and 45–50 Euros for dinner (Cheshes 2015; Nobel 2013; Pisano et al. 2013) •Had less than half of the number of employees compared to similar Michelin-one-star-rated restaurants in Europe (i.e., 14 employees compared to 36). Although Ristorante D’O paid higher than average wages, it enjoyed significant savings in labor costs (Nobel 2013; Pisano et al. 2013)
Amazon (online shopping, web hosting, content distribution, US, 270,000 employees)	<ul style="list-style-type: none"> •Was the top rated Internet retailer in the ACSI (2017) for 18 years •Ranked number 1 on the Customer Service Hall of Fame list for 7 consecutive years (Comen et al. 2016; Sauter et al. 2015) 	<ul style="list-style-type: none"> •Amazon had the lowest prices for almost any product enabled by scale and intense cost control (Stone 2013), yet operating margins of its retail business were 3.1% in 2016 (CSIMarket 2017), suggesting high productivity •Highest sales/employee p.a. (\$1.2 million) of online retailers in 2016 (CSIMarket 2017)
The Vanguard Group (investment management, US, 14,000 employees)	<ul style="list-style-type: none"> •Highest ACSI rating of its industry (ACSI 2017) •Entire suite of U.S. ETFs made Forbes’ list of “Best ETFs for Investors in 2016” in 10 of 13 categories (Baldwin 2016) •Morningstar awarded the advisory teams of Vanguard Wellesley Fund and Vanguard Market Neutral Fund the “Managers of the Year” Award in 2016 (Waggoner 2016) 	<ul style="list-style-type: none"> •Had an average expense ratio of 0.12% which was the lowest in its industry and compared to an industry average of 1.01% (Bogle 2011; Vanguard 2017), suggesting high productivity •Won the CIO 100 Award from CIO Magazine in 2015 which recognized organizations that exemplified the highest level of operational and strategic excellence in IT (CIO Magazine 2016) •InformationWeek magazine named Vanguard one of the top innovators in IT in 2014 in the US (InformationWeek 2014)
National Library Board Singapore (NLB) (public library system, Singapore, 1000 employees)	<ul style="list-style-type: none"> •Was identified as an organization that delivered service excellence (Johnston 2007) •Won a long list of Singapore and global awards related to service excellence, technology, and innovation, incl. Singapore Service Excellence Award 2009; Singapore Quality Award 2011; Singapore Service Excellence Medallion 2015; Public Service Premier Award 2012; President’s Design Award for library@Orchard (Design of the Year) 2015; Innovation Excellence Award Singapore 2016; MIS Asia 2011 IT Excellence Award; World Summit Award Mobile 2013; Global Business CIO Award 2014; WebAward 2014 – Government Standard of Excellence; Interactive Media Award 2014; Global Enterprise & IT Architecture Excellence Award 2014 & 2015; SAP 2010 Award for Most Innovative Project (Public Sector); (Source: National Library Annual Reports 2017) 	<ul style="list-style-type: none"> •Highest labor productivity compared to peers in terms of number of library visitations and borrowing per employee (authors’ analysis based on data provided by global benchmark libraries; data will be provided upon request)

Table 3 (continued)

Organization (Industry, Country, Size) ^a	Evidence for service excellence	Evidence for Cost-effectiveness
Google (Internet-related services and advertising, US, 57,000 employees)	<ul style="list-style-type: none"> •Achieved the top industry ACSI rating since its inaugural coverage in 2002 except for one year (ACSI 2017) •Won Tech Brand of the Year at the TrustedReviews Awards 2016 (TrustedReviews 2016) 	<ul style="list-style-type: none"> •Second highest sales/employee p.a. (\$1.7 million) in the internet and social media industry and third highest in the technology sector (CSIMarket 2017) •Extremely cost-effective on a “per customer” or “per transaction” basis as it employed very few service employees and relied on scalable self-service solutions and user communities (Cutts 2011; Krazit 2009)
United Services Automobile Association (USAA) (financial services, US, 28,000)	<ul style="list-style-type: none"> •Top-ranked in The Customer Experience Index by Forrester Research in the bank, credit card, and insurance categories 2013 to 2016 (Forrester 2016) •Top-ranked company in Net Promoter Index of Customer Loyalty from 2009 to 2016 in the Satmetrix benchmarks in the banking, automotive and home insurance categories (Satmetrix 2016) •Named Customer Service Champion 2014 (JD Power 2014) •Low annual customer churn rate of 2.2% (Lal and Fisher 2014) 	<ul style="list-style-type: none"> •Operating expense ratio was almost half of industry average; it was 21% compared to 39% in 2015 (USAA Annual Report 2015) •Competitive pricing, with the lowest price in the market for the majority of its products (Heskett et al. 2015, p. 56; Weliver 2014)
Narayana Health (healthcare, India, 16,000 employees)	<ul style="list-style-type: none"> •Frost and Sullivan India Healthcare Excellence Awards – Healthcare Provider Company of the Year 2012 (Frost and Sullivan 2012) •Winner of Gold Award in Customer Service by Asian Hospital Management Awards 2014 (Hospital Management Asia 2014) <p>Mortality rate 30 days after open heart surgery 1.4% vs. 1.9% in the US (Anand 2009)</p>	<ul style="list-style-type: none"> •Won Economist Business Process Reengineering Award 2011 for “reducing health-care costs using mass-production techniques; performs more heart operations at a lower cost and a lower mortality rate than leading American hospitals.” Dr. Shetty was called the “Henry Ford of Healthcare” (Economist 2011) •Cost was as low as \$800 for an open heart surgery in its new facility in Mysore, India (Global Health and Travel 2014)
Shouldice Hospital (healthcare, Canada, 100 employees)	<ul style="list-style-type: none"> •Lowest recorded failure rate (reoccurrence rate) in the world which was 1/6th to 1/12th of industry average (Frei and Morriss 2012, p. 129; Heskett and Hallowell 2004) •Exceptionally high customer satisfaction and bonding with patients (Frei and Morriss 2012, p. 126; Heskett and Hallowell 2004) •Ranked as one of the top 10 global hospitals by healthcareglobal.com (Sarma 2013) 	<ul style="list-style-type: none"> •50 to 75% lower price compared to general hospitals while it was highly profitable (Heskett and Hallowell 2004; Heskett et al. 2008, p. 62–63), suggesting high productivity •Low nurses to patient ratio of 1:14, compared to an industry average of 1:4 (Heskett and Hallowell 2004)
JetBlue Airways (airline, US, 18,000 employees)	<ul style="list-style-type: none"> •Had the highest ACSI rating of its industry since its inaugural coverage since 2012 except for one year where it tied with Southwest Airlines (ACSI 2017) •Rated as the top low-cost airline for customer satisfaction for the 12th consecutive year in 2016 (JD Power 2016) 	<ul style="list-style-type: none"> •Offered fares of up to 65% lower than legacy carriers, but added comfort features such as more leg room, leather seats, individual video screens, free Wi-Fi, and flew into major airports (Hoyt et al. 2010; Huckman and Pisano 2011; Jacobs 2013), and was positioned as “best service at low prices” (Smyth and Pearce 2006, p. 13) •Low cost per seat available mile, which were significantly below network carriers and equal to or only marginally higher than low frills low cost carriers (Harris 2015; Smyth and Pearce 2006, p. 18; Trefis Team 2015)

^a The organizations are listed in the order of their use of CESE strategies as shown in Fig. 1

simultaneously pursue courses of action along different, often conflicting dimensions. Dimensions that have been studied include exploitation versus exploration, incremental versus radical innovation, continuous versus radical change, and efficient versus flexible organizational structure (for

a review see Raisch and Birkinshaw 2008), but not yet cost-effectiveness versus service excellence, which we advance in this section. Furthermore, robust findings link ambidexterity to organizational performance (O’Reilly III and Tushman 2013).

Fig. 1 CESE strategies pursued by sample organizations

Organizations	Dual Culture Strategy	OM Approaches Based on Reduced Process Variability			Focused Service Factory
		Buffering & Front Office Minus	Modularization of Service	Self-service Technology	
Singapore Airlines	●	○	○	○	○
Ristorante D'O	●	○	◐	○	○
Amazon	●	●	●	●	○
Vanguard	●	●	●	●	◐
National Library Board Singapore	○	●	●	●	○
Google	○	●	●	●	○
USAA	○	●	●	●	◐
Narayana Health	●	○	○	○	●
Shouldice Hospital	○	○	○	◐	●
JetBlue	○	○	○	○	●

Use of Strategies/Tools: ● Extensive ◐ Moderate ○ Little/Not at all

Note: Coding is relative to the respective industry an organizations operates in.

To be ambidextrous, organizations must resolve internal conflicts for resources as well as shift demands in their task environments. While earlier studies viewed these tradeoffs as insurmountable, more recent research has presented three organizational approaches to support ambidexterity (Benner and Tushman 2003; Raisch and Birkinshaw 2008). First, *structural ambidexterity* involves separating organizational units to allow units with different competencies to address inconsistent demands (Benner and Tushman 2003; Gibson and Birkinshaw 2004).

Second, *contextual ambidexterity* involves achieving alignment and adaptability by pushing the integration of conflicting goals to the individual employee (Gibson and Birkinshaw 2004, p. 209). Individual-level behavior is then shaped by the context (i.e., systems, processes, and beliefs), which is designed to enable and encourage individual employees to exercise their own judgment in dealing with conflicting demands (Gibson and Birkinshaw 2004).

Third, *leadership ambidexterity* can enable organizations to manage conflicting demands (Lubatkin et al. 2006; Smith and Tushman 2005). Senior management's paradoxical frames lead to a "both/and logic" rather than an "either/or logic" (Collins and Porras 1994, pp. 43–45; Smith et al. 2016). This view enables positive conflict and allows leaders to embrace rather than avoid contradictions (Smith and Tushman 2005). Leaders then play a critical role in putting the systems in place that allow supportive contexts for ambidexterity to emerge, and focus and energize the organization

on these key ideas, role model the desired ambidextrous behaviors, and then reinforce them with rewards and recognition (Gibson and Birkinshaw 2004).

Based on the literature and our case observations we propose in the following sections that an organization's simultaneous focus on service excellence and cost-effectiveness is akin to other potentially conflicting goals studied in the organizational ambidexterity literature.

A dual culture focused on service excellence and cost-effectiveness

We used the lenses of structural, contextual, and leadership ambidexterity to examine whether and how our 10 case organizations achieved CESE. All 10 organizations focused on service excellence, of which five pursued a dual culture strategy where they consciously drove a simultaneous focus on both service excellence and productivity (i.e., Singapore Airlines, Ristorante D'O, Amazon, Vanguard, and Narayana Health; see Fig. 1 for the coding, and the [Web Appendix](#) for the detailed case evidence). Interestingly, of the three ways to achieve ambidexterity, leadership ambidexterity was evident in all five of these case organizations, and structural ambidexterity, which arguably received the most attention in academic research, featured least prominently, if at all.

First, the *leadership* of all five organizations pushed and even rallied their organizations to pursue a dual culture,

typically through internal communications, training, and incentive systems (c.f., Gibson and Birkinshaw 2004). For example, Jeff Bezos, Amazon’s CEO, was known to put the needs of its customers first and was infamous for becoming enraged when individual customers complain, requiring that anxious employees chase down solutions immediately. At the same time, he role-modelled and communicated frugality on anything that did not relate to customers (Stone 2013, p. 330–331). “Customer obsession” and “frugality” were core values at Amazon (Stone 2013, p. 88). John Bogle, Vanguard’s founder and former CEO, emphasized the organization’s strategy to “provide the highest quality of investor services, at the *lowest possible cost* [sic]” (Bogle 2002, p. 138). Vanguard emphasized frugality even when recruiting by looking for crew members who “understand and sympathize with the need for frugality” (Heskett et al. 2015, p. 77).

Dr. Devi Shetty, founder and chairman of Narayana Health, explained, “The notion that ‘if you want quality, you have to pay for it’ went out the window a long time ago at Narayana Health” (Global Health and Travel 2014, p. 44). His senior employees received daily text messages detailing the previous day’s expenses to keep them conscious of the need to keep costs low and motivate them to generate ideas for cost savings and process improvements (Govindarajan and Ramamurti 2013). Chef Davide Oldani, founder and head chef of Ristorante D’O, was passionate about making the Michelin-starred restaurant accessible to a broad audience and constantly communicated this to key stakeholders (Cheshes 2015; Pisano 2013).

Finally, Singapore Airlines’ leadership, internal communications, and training continuously emphasized that profit is a function both of service excellence (which drives the loyalty of demanding business travelers, its core target segment) and costs (the other side of the profit equation). To reinforce that message, Singapore Airlines offered bonuses of up to 50% of employees’ annual salaries depending on the airline’s profitability but also cut basic pay by up to 20% when it was making losses. The result was a culture that became exceedingly customer-centric and that internalized the idea that anything that touched the customer must be consistent with Singapore Airlines’ premium positioning, whereas everything behind the scenes was subject to extreme cost control with employees focusing intensely on managing costs and improving productivity (Heracleous and Wirtz 2010, 2014).

Second, *contextual ambidexterity* is obvious in many of our dual culture strategy cases where it governed employees’ thinking and decision making about when to focus on service excellence, when to emphasize cost-effectiveness, and—ideally—how to integrate both objectives synergistically. Often, both objectives were aligned and could be pursued at the same time, but sometimes tradeoffs had to be made. Here, employees needed to know how to make such decisions, and an internalized dual culture

provided this governance mechanism. For example, Singapore Airlines served Krug Grande Cuvée and Dom Pérignon in first class. To minimize costs, cabin crews offered whichever bottle was open unless a passenger specifically requested the other brand. No cost seemed too small to reduce (Heracleous and Wirtz 2010, 2014).

Narayana Health had an intense focus on surgery quality and success rates. Yet its surgeons constantly compared and generated ideas across their network on how to cut costs, such as through the routine reuse of medical devices that were sold as single-use products. For example, the \$160 steel clamps that were employed during open-heart surgeries were sterilized and reused up to 80 times (Govindarajan and Ramamurti 2013).

Similar observations were also made with Amazon and Vanguard, where tradeoff decisions were pushed to decision makers to integrate the conflicting objectives. As stated in Amazon’s leadership principles: “Frugality – We try not to spend money on things that don’t matter to customers. Frugality breeds resourcefulness, self-sufficiency and invention” (Stone 2013, p. 330). It seems that leadership and contextual ambidexterity go hand-in-hand in our case examples.

Third, we also found some evidence that *structural ambidexterity* was used to achieve CESE. For example, Singapore Airlines centralized its innovation department in a separate unit that emphasized developing the next industry-leading in-flight service innovation (Heracleous and Wirtz 2010; Heracleous et al. 2009).

Our case findings together with the literature review suggest that organizational ambidexterity and its mechanisms to implement it are also applicable to the simultaneous pursuit of the different and often conflicting objectives of cost-effectiveness and service excellence. This context has not been studied in the organizational ambidexterity literature before and leads to our first proposition:

P1: Mechanisms for achieving organizational ambidexterity (i.e., leadership, contextual, and structural ambidexterity) allow organizations to simultaneously achieve service excellence and cost effectiveness.

We observe two departures from the traditional management literature on ambidexterity. First, in the dual culture of service excellence and cost-effectiveness, it seems that all departments (albeit with different emphasis) must be involved, which differs from the traditional view of structural ambidexterity in the management literature (c.f., Gibson and Birkinshaw 2004). For example, Singapore Airlines’ centralized innovation department not only focused on service and inflight product innovation but also rigorously emphasized costs. When the company launched the then-widest business class seat in the industry, it designed it in a way that wowed

travelers: the seat could be flipped over and turned into a flat bed with a duvet and bigger pillows. Because the “flipping” was done manually, the number of heavy and engineering-intensive motors in a seat was reduced and provided significant savings in fuel, repair and maintenance, and purchase costs (Heracleous and Wirtz 2010).

Second, although not completely separated structurally, dual culture organizations distinguish between the customer-facing front office and the back office. The front office is generally more customer- and service excellence-focused than the back office. Even in Singapore Airlines, the cost squeeze was less intense when related to in-flight service excellence and cabin crew—all of whom had extensive training, reasonable travel allowances, and expensive uniforms. In the back office, Singapore Airlines drove distributed innovation throughout the organization. As these departments were largely not customer-facing, their focus tended to be on cutting costs. But again, potential customer impact was always considered so that service excellence would not be compromised (Heracleous and Wirtz 2010, 2014). That is, the front and back office are both customer-centric and cost-conscious at the same time, and the cost- and service excellence-foci differs only in degree and not in substance. In conclusion, while structural ambidexterity has a supporting role, we do not find that it is a key enabler for CESE, whereas leadership and contextual ambidexterity are pervasive and clearly visible in all five cases.

It seems intuitive that contextual ambiguity supported by strong leadership ambidexterity are key to addressing the challenges related to distributed operations, customer-induced variability, and the required integration of functions that are common to service organizations. Also, our finding that leadership ambidexterity is present in all our dual culture organizations is consistent with work by Rust et al. (2016) who suggest that cost emphasis comes from the top and found that the companies that are successful in their cost emphasis tend to have it pushed down. In sum, senior management must build a culture of cost-consciousness and intense service excellence simultaneously (Mittal et al. 2005; Anderson et al. 1997). CESE permeates all aspects of our case organizations and is more complex than the typical exploration (e.g., innovation) and exploitation (e.g., running robust and efficient processes) conflict. We summarize the preceding discussion in the following proposition:

P2: Because the root causes of the productivity–satisfaction tradeoff (i.e., distributed operations, customer-induced variability, and integration of functions) permeate the entire service organization, leadership ambidexterity and contextual ambidexterity are most critical in achieving CESE with structural ambidexterity playing a less important role.

The focus on service excellence, while difficult to achieve, is a corporate mission that is more attractive to employees than one focusing on cost-cutting and frugality. It is easier to establish buy-in from employees for the former, largely because they typically feel proud to be part of an organization that delivers excellence (Gouthier and Rhein 2011). This is true in all of our five cases. However, when asked to be cost-effective at the same time, employees find this mission more difficult to accept. For example, in spite of Amazon’s top American Customer Satisfaction Index (ACSI) ratings, it did not appear anywhere on the lists of best companies to work for and was even been accused of achieving its high level of productivity by squeezing employees. One source reported that workers “were pushed harder and harder to work faster and faster until they were terminated, they quit or they got injured” (Nocera 2015). Also, Amazon’s limited employee benefits did not help; it was said that the only free benefit workers received was aspirin (Streitfeld and Haughney 2013), bonuses were back-loaded, and there was no subsidized parking, no subsidized meals (employees had to pay for snacks at vending machines), and all had to fly economy class (Stone 2013, p. 112, 329, 330). Similarly, Singapore Airlines walked a fine line between employee satisfaction and keeping costs low as indicated by periodic employee complaints of unhappiness over pay, bonuses (Heracleous et al. 2009, p. 159–161), and medical leave policies that were viewed as stingy (Kaur 2017).

Our findings suggest that high productivity and cost-effectiveness combined with customer centricity can put a strain on employees. The organizations in our sample addressed this by emphasizing various rationales for expecting cost-effectiveness and service excellence at the same time, to obtain buy-in from their employees. Examples include a mission to provide the best customer value (Amazon), recognition that the company operates in a hyper-competitive industry that challenges survival (Singapore Airlines), appreciation that employees are working for members (Vanguard and USAA), making Michelin-starred food affordable (Ristorante D’O), and supporting a charitable cause (Narayana Health). It seems that a dual culture strategy requires a strong rationale for employees concerning why cost-effectiveness is critical in addition to service excellence. That is, employees appear to need a credible “rallying cry” to be willing to subscribe to a dual culture strategy. We advance the following proposition from the preceding discussion:

P3: Delivering service excellence is more attractive to service employees than cost-effectiveness which often requires sacrifices from employees. To gain employee buy-in to deliver both at the same time, a convincing rationale needs to be made apparent.

Dual culture as a driver of the extreme use of generic productivity strategies and tools

The OM literature distinguishes between actual and potential efficiency at a given level of variability. It identifies variability in terms of input (e.g., customer arrival patterns), process (e.g., customer process preferences), and output (e.g., customer requests) as the key factors that determine the potential level of efficiency (Chase 1978, 1981). Service organizations that want to improve efficiency can reduce the gap between their actual and potential levels of efficiency at the current level of variability, which we called generic productivity strategies and tools. These include cost control, reduction of waste, training and motivation of employees to do things faster, better, and cheaper, better capacity utilization, redesign of customer service processes (Breyfogle 2003; Crosby 1979; Deming 1986), outsourcing of non-core activities (Wirtz et al. 2015), and tiering of service to allocate resources better to more important customer segments (Frei 2006).

Many of these strategies and activities that drive cost-effectiveness are not in conflict with service excellence. In fact, productivity improvements frequently bring with them quality improvements at the same time. For instance, if customer service processes are redesigned to be leaner, faster, and more convenient by eliminating non-value-adding work steps, then both productivity and customer satisfaction improve concurrently (Rust et al. 2016). These are the initial types of quick wins every process redesign or lean six sigma initiative likes to pursue. These strategies keep the current business model unchanged and adopt best practices to achieve the same output—a largely unchanged customer experience—with less input.

However, the service OM literature is typically not concerned specifically with service excellence, and these generic productivity strategies in themselves do not necessarily lead to service excellence. For this, a culture of service excellence is required at the same time. Integrating these two literatures, one can argue that a dual culture strategy allows organizations to drive these generic productivity tools to the extreme (Heracleous and Wirtz 2010, 2014). That is, employees in a dual culture strategy will focus on closing the gap between potential and actual efficiency while maintaining service excellence.

Based on our case observations, dual culture organizations are masters of generic productivity strategies and tools to cut costs to the bone and boost productivity, while managing for service excellence. All five of our case organizations that pursued a dual culture strategy examined every aspect of their operation to reduce costs and used the full gamut of management, operations, and technology tools to boost productivity. For example, Ristorante D'O examined every aspect of the restaurant operation to reduce costs. It introduced multi-tasking with the chefs serving the food and therefore did not

employ waiters, leading to a significant reduction in labor costs. It chose glasses and plates that withstand breakage to reduce replacement cost. It is also located in a low rent area (situated 20 km away from the city with rent estimated to be half of the restaurants in the center of Milan) and ran at 100% capacity utilization for all lunch and dinner shifts to reduce unit costs (Pisano et al. 2013; Pisano 2013).

Vanguard streamlined its entire operations—including back office, distribution, and marketing—to remove all unnecessary costs (Bogle 2002, p. 193; Heskett et al. 2015, p. 76–77). Narayana Health introduced a host of measures to lower cost such as redesigning the processes before and after surgery to allow the use of operating theatres for 20 hours a day (Anand 2009; Global Health and Travel 2014; Govindarajan and Ramamurti 2013). Examples for Amazon and Singapore Airlines were discussed in the previous section. In sum, we posit that a dual culture strategy is accompanied by the highly effective use of generic productivity strategies and tools while pursuing service excellence.

P4: A dual culture strategy enables organizations to deploy generic productivity strategies and tools to the extreme and allows these organizations to minimize the gap between actual and potential efficiency at an excellent level of service.

OM approaches to reduce process variability

Organizations can increase their potential level of efficiency by reducing process variability, which then allows them to deploy specialization and industrialization tools (Frei 2006; Levitt 1972, 1976). Much of the research in service operations centers on how organizations can increase the level of efficiency by reducing customer-induced variability. From a cost-effectiveness point of view, these approaches typically require a reduction in process flexibility that involves changes both in customer behavior (e.g., giving customers a tighter script which integrates them more into the service process) and customer choice (e.g., offering modular options rather than full customization). The key approaches advanced in the literature are: (1) isolating and industrializing the back office, and shifting activities from the expensive front to the mechanized back office (Chase 1981), (2) modularizing service through reduced customer choice (Chase 1978; Frei 2006; Shostack 1987), and (3) deploying SST (Meuter et al. 2000, 2005). These strategies lower process variability and thereby reduce potential conflicts between productivity and service excellence. We discuss the three approaches next followed by our case examples.

First, low customer contact systems are easier to industrialize (Chase 1978, 1981), and decoupling and buffering the “technical core” (i.e., back office) from the front office allows

higher productivity in the back office as it can operate without customer-induced variability (Chase 1981). Firms can then operate the back office in a much more cost-effective manner by deploying technology and systems, leading to a reduction of fluctuations in workload and capacity utilization. The back office can focus on productivity and process quality, and the front office can provide customer satisfaction and sales. This plant-within-a plant approach generally results in overall higher productivity and better service quality. However, decoupling can affect the customer experience as buffered activities move from real-time interactions between the front-line and customers to off-line transactions executed by the industrialized back office.

Second, a buffered and reduced front office can be further simplified and variability lowered by reducing customer choice, interaction flexibility, and contact in the front office through modularization of service, allowing an increased deployment of systems and technology also in the front office (Chase 1978, 1981; Frei 2006). Furthermore, reducing complexity (i.e., number and intricacy of the steps involved) and divergence (i.e., executional latitude customers and employees have) reduce variability and lead to uniformity that can enable higher productivity, but also reduces customization and customer choice (Shostack 1987).

Third, once processes and products have low complexity and are modularized, the deployment of SSTs becomes easier. SSTs provide great opportunities for increasing service productivity (Frei 2006; Meuter et al. 2000, 2005). However, deploying such technologies and systems, including web- and app-based services and approaches to co-creation, can have a significant impact on the customer experience and require careful management of customer behavior (Collier and Sherrell 2010; Lovelock and Young 1979; Meuter et al. 2005; Wunderlich et al. 2012).

Five of our case organizations relied heavily on these OM approaches to increase productivity (i.e., Amazon, Vanguard, National Library Board, Google, and USAA; see Fig. 1). While theoretically the three approaches can be pursued in isolation, they tend to build on another, and our five case organizations pursued all approaches at the same time. Of these organizations, the National Library Board (NLB) had the most extensive physical customer-organization contact, which Lovelock (1983) referred to as people-processing services. Buffering front office activities from the back office (e.g., book drops, RFID-enabled dropping of books into mailboxes of Singapore Post, auto-sorting systems, and robot-assisted shelf-reading all helped to reduce waiting times, improve availability of titles, and enhance convenience), and modularization of service (e.g., payments were accepted only through a low-fee cashless system) enabled the pervasive deployment of SSTs. NLB's heavy focus on SSTs resulted in constant experimentation and innovation (e.g., with app-delivered services, digital services, and self-service

reservation systems via lockers), and it became a globally leading library in SST deployment. For example, it was the first library to implement RFID to automate check-out, returns, and sorting. NLB managed to simplify, modularize, and automate its service processes to an extent that allowed it to operate some of its branches entirely through SSTs without customer-facing employees even being present (Choh 2003; Heracleous and Johnston 2009; Ramchand et al. 2005; Tay 2013). Related to SSTs, NLB also made heavy use of crowdsourcing, peer-to-peer, community, and volunteer-delivered services. For example, its Citizen Archivist Project used crowdsourcing to provide captions and transcribe 15,000 photos and documents (National Archives of Singapore 2017; Spring Singapore 2016).

Vanguard too decoupled its customer-service processes, modularized them, and then moved them to self-service platforms. It had no branches and relied almost entirely on the Internet, apps, phone, and mail to interact with its customers. The result was that the typical Vanguard client required little direct contact with the company (Heskett et al. 2015, p. 78). Even for personal interactions, technology augmented each client's relationship with a financial adviser using its Personal Advisor Service (an Internet-based financial advisory service) which depended on portfolio analytics to match the investment strategy with a customer's financial goals and dramatically reduced the time needed to generate a client's financial plan while enhancing advisory quality (Sunderam et al. 2015).

USAA extensively used remote delivery channels and SSTs, with the vast majority of service transactions being transacted through cost-effective SSTs. A highly successful example is its pioneering of remote deposit capture (Deposit@Home) that allowed members to photograph a check and instantly deposit it, eliminating the need for physical check processing at USAA (Heskett et al. 2015, p. 55–57; Lal and Fisher 2014; Quittner 2011).

Likewise, Amazon and Google reduced their front office, used pervasive SSTs, and operated highly industrialized back offices. Amazon's business model was built on the Internet, with a strong focus on SSTs (e.g., for search, selection, payment, account management, and reviews) facilitated by modular services (i.e., highly structured processes with a few, clear options), a minimal front office (mostly its website) and an almost completely buffered back office that could run highly efficient fulfillment services (McGee et al. 2017; Peters 2006; Stone 2013).

Google was another master of SSTs and co-creation, spending millions to get its SSTs right to deliver excellence in self-service, with an aversion to increasing operational headcount. The company had an extreme focus on scalable solutions (Schmidt and Rosenberg 2014, p. 78–79) that did not require headcount (Cutts 2011; Krazit 2009). Most of its products were designed to be “stand-alone” to avoid complexity for

developers and users (Girard 2009, p. 89–95; Hamel 2007, p. 102), which allowed Google to standardize its digital offerings—such as AdWords—so well that customers could self-serve without requiring direct interaction with employees (Cutts 2011). Google had very few frontline employees relative to the number of paying customers (i.e., advertisers), content providers (e.g., publishers), and users (e.g., search engine end-users). For this reason, the company was extremely cost-effective on a “per customer” or “per transaction” basis (Cutts 2011; Girard 2009). The preceding discussion is summarized in the following propositions:

- P5: Three key OM-based approaches—i.e., (1) isolating and industrializing the back office, and shifting activities from the expensive front to the mechanized back office; (2) modularizing service; and (3) SSTs—increase the level of efficiency by reducing customer-induced process variability and the related conflicts between productivity and service excellence.
- P6: Unlike a pure dual culture approach, OM-based approaches require changes in the customer interface and tend to reduce customer choice, interaction flexibility, and contact.
- P7: The three OM-based approaches create a natural flow of steps from (1) isolating and industrializing the back office, and shifting activities from the expensive front to the mechanized back office, to (2) modularizing service, and to (3) SSTs, whereby each step eases the implementation of the next and leads the approaches to be used in tandem.

Focused service factory strategy

In general, it is more costly to satisfy heterogeneous than homogeneous customer preferences (Fornell 1992), particularly in services where customer preferences are often fulfilled through customization provided by employees in distributed operations. We advance that one way to drastically increase productivity and customer satisfaction simultaneously is to tailor a single solution to meet the exact needs of a specific segment. This approach draws from the focused factory, which typically delivers a single product to a homogeneous segment (Skinner 1974). Simplicity, repetition, homogeneity and experience in a focused factory breed competence and the “focused factory will out produce, undersell, and quickly gain competitive advantage over the complex factory” (Skinner 1974, p. 116). We argue that a focused factory is even more effective in a service context with its distributed operations, customer-induced variability, and need for functional integration.

Levitt (1972, 1976) extended the idea of the focused factory to high-volume services delivered through a highly

predictable system (i.e., customer-induced variability is minimized) that allows industrialization of service through planned, controlled and automated processes. Here, tightly-integrated hard, soft and hybrid technologies together replace and deskill labor, thereby leading to high levels of productivity and consistency in quality. That is, “everything is built integrally into the machine itself, into the technology of the system” (Levitt 1972, p. 46). Three of our case organizations pursued a focused service factory strategy (i.e., Narayana Health, Shouldice Hospital, and JetBlue).

Narayana Health and Shouldice Hospital both focused on a single surgery each, cardiac surgeries for the former, and simple external hernias for the latter. Both operated focused service factories and, compared to general hospitals, pursued highly targeted business models. Narayana Health’s focus enabled it to concentrate on surgery quality (i.e., on success rates) and innovation (e.g., it pioneered “beating open heart surgery”) (Global Health and Travel 2014; Khanna et al. 2011). The sheer volume of similar surgeries enabled detailed analysis and continuous improvement. Doctors received comparative performance data for their own hospital and 21 others in the group, encouraging them to share best practices. Centralization of surgeries in a few hospitals at larger facilities allowed concentrated utilization, low unit costs, and drove learning and innovation. Narayana drove a hard bargain with suppliers—especially for equipment and consumables—due to its bargaining power generated from its high market share. Its hospitals performed about 12% of India’s open heart surgeries (Anand 2009; Global Health and Travel 2014; Govindarajan and Ramamurti 2013; Khanna et al. 2011).

Similarly, Shouldice Hospital operated a focused service factory and targeted a highly homogenous customer base, providing a single type of surgery for external, simple hernia repairs. These did not require general anesthesia, and they attracted a homogenous customer base of “healthy” patients that did not require medical attention beyond the hernia surgery and who could largely self-serve in the hospital (Frei and Morriss 2012, p. 126–129; Heskett and Hallowell 2004; Heskett et al. 2008, p. 62–63). Its processes were production-lined and industrialized to reduce surgery time and costs, and operations theater costs (Heskett and Hallowell 2004). As patients were healthy and mobile, self-service was encouraged and widely used with peer-to-peer help designed into the process. Before their surgeries, new patients met other patients who already had undergone the procedure to build confidence and reduce counseling time by nurses and doctors (Frei and Morriss 2012, p. 126–129; Heskett and Hallowell 2004; Heskett et al. 2008, p. 62–63, 2015, p. 14–15).

Finally, JetBlue followed a focused service factory strategy and offered low-cost, high-quality, operationally simple point-to-point airline service. Its focused operations were further supported with a young fleet of limited aircraft types, resulting

in low maintenance costs. The airline also operated longer-haul overnight flights to increase aircraft utilization. Its operating model resulted in low costs per seat mile while delivering higher quality service than full service airlines and other low-cost carriers (Harris 2015; Smyth and Pearce 2006, p. 18; Trefis Team 2015). Based on the preceding discussion we advance the following proposition:

P8: The focused service factory serves the largely homogeneous needs of a tightly-defined target segment. The resulting low variability in its operations enables organizations to achieve both service excellence and high productivity.

Integrative framework

We integrate the literature review and case analyses into the conceptual framework shown in Fig. 2. This framework provides a cohesive view of three core strategic options available to organizations that aim to pursue a strategy of CESE.

First, the dual culture strategy aims to provide high levels of service (including costly customization) at top quality and low cost. Here, the service offering is wide, processes are not highly structured and standardized, and customer service is flexible and customized. This type of full service is typically expensive and inefficient to deliver. The dual culture strategy is akin to

ambidextrous organizational approaches in the management literature (Raisch and Birkinshaw 2008) with a focus on leadership ambidexterity (Smith et al. 2016; Smith and Tushman 2005) and contextual ambidexterity (Gibson and Birkinshaw 2004). The organizations in our sample that successfully achieved the dual culture strategy combined an intense focus on costs with equally passionate customer centricity and focus on service excellence. Specifically, they showed an extreme deployment of generic strategies and tools that allowed them to minimize the gap between actual and potential efficiency while delivering service excellence. Furthermore, the dual culture approach in our case organizations required a rationale employees could buy into as it seemed counterintuitive to offer great service externally, but be stingy internally. It seems that being cost conscious, including on employee salaries and benefits, must be sold effectively to employees.

The second core strategy addresses the root causes of inefficiencies in service processes through OM approaches that reduce customer-induced variability and thereby reduce potential conflicts between productivity and service excellence. Unlike a pure dual culture approach, these OM approaches typically require some degree of change in the customer interface. They include (1) isolating and industrializing the back office, and reducing the front office, (2) modularization of service, and (3) SSTs.

Finally, the focused service factory strategy enables CESE through a highly specialized operation, typically delivering a

Culture for Service Excellence				
Dual Culture Strategy	OM Approaches to Reduce Process Variability			Focused Service Factory
	Buffering & Front-office Minus	Modularization of Service	Self-service Technology	
No/little change in customer interface	Reduces real time responsiveness & flexibility	Reduces customer choice	Reduces customer contact	Production lines & industrializes the service
<ul style="list-style-type: none"> > Focuses the entire organization on CESE through leadership ambidexterity and contextual ambidexterity. Structural ambidexterity can play a supporting role > Requires a credible rationale for employees to subscribe to a dual culture strategy > Extreme use of generic productivity strategies and tools to achieve the same output with less input, incl.: <ul style="list-style-type: none"> • Cost control • Train and motivate employees to do things faster, better, and more efficiently • Better capacity utilization (better matching of supply and demand) • Customer service process redesign; (Lean) Six Sigma; • Use of systems and technology (e.g., biometrics) • Outsourcing of non-core activities • Tiering of service to better allocate resources 	<ul style="list-style-type: none"> > Isolates the back office through separating and buffering activities in the front and back office > Industrializes the back-office > Shifts activities from the inefficient front-office to the back-office > Uses: <ul style="list-style-type: none"> • Plant-within-a-plant (PWP) and buffering of two separately focused operations: front office focuses on customer satisfaction and sales; back office focuses on productivity and low error rate • Systems and technology to industrialize the back-office 	<ul style="list-style-type: none"> > Reduces customer input into the service process to reduce variability > Is enabled by modularization of services and their features > Uses: <ul style="list-style-type: none"> • Hard product and service level choices • Systems and technology to industrialize the front-office 	<ul style="list-style-type: none"> > Reduces customer contact in the service production system > Uses: <ul style="list-style-type: none"> • SSTs that replace customer interactions with front line employees • Tight customer scripts 	<ul style="list-style-type: none"> > Standardizes and industrializes service offerings and their delivery processes > Uses: <ul style="list-style-type: none"> • Standardized product offering with few standard options and little flexibility and customization • Tight selection of customer segments whose needs fit the service model precisely • Standardized customer input into the service process through tight customer scripts
	OM approaches require careful consideration of target customers' needs and wants. i.e., customers have to be satisfied with changes in customer interface and options offered.			
	Can be pursued in combination with a dual culture strategy			
Case examples: Singapore Airlines; Ristorante D'O	NBL's book pick up lockers and book drops	Google's stand-alone products	USSA; Vanguard	Shouldice Hospital; Narayana Health; JetBlue

Fig. 2 Three strategic approaches to achieving cost-effective service excellence

single type of service to a highly focused customer segment. That is, the focused service factory features tightly-defined and industrialized service processes targeted at a highly homogeneous customer base. As a result, the focused service factory delivers reliably exactly what its target customers want. It also reduces customer-induced variability to a minimum—customers tend to receive a single, highly standardized, and excellent service offering.

Combining strategies to achieve CESE

Conceptually, one could expect the CESE strategies to be used in a modular manner that allows a mixing and matching of tools and puts different degrees of emphasis on them depending on the industry context and organizational objectives. However, examining Fig. 1 suggests that our three core strategies can stand alone (e.g., pursuing a dual culture strategy like Singapore Airlines, or a focused service factory strategy such as Shouldice Hospital), but the OM approaches and the focused service factory strategy can also be combined with a dual focus strategy. For example, Narayana Health aimed to deliver healthcare to the poorest in India and therefore had an intense cost focus to keep prices low. Wealthier patients cross-subsidized poor ones, and low overall costs allowed wider coverage. In contrast, no particularly strong cost focus could be observed at Shouldice Hospital beyond the savings that were hard-wired into its business model. Similarly, Amazon and Google both heavily relied on OM approaches, but only Amazon also pursued a dual culture strategy at the same time.

It is noteworthy that none of our configurations show a combined full OM and focused service strategy approach. Perhaps the OM and focused service strategy both deliver a reduction in customer-induced variability so that their combination does not result in significant enough further incremental gains in productivity. For example, organizations such as Google and Amazon have such highly standardized processes that pursuing the focused service factory strategy does not add significant further efficiency gains through a reduction in customer-induced variability. Likewise, organizations that pursue a focused service factory strategy such as Shouldice Hospital have such low variability in their processes that OM approaches are not essential in driving the productivity potential further. In contrast, the dual focus strategy may still squeeze out further cost savings in organizations that either pursue OM approaches or a focused service factory strategy if that is deemed important by senior management. This discussion leads us to the following proposition:

P9: The three main approaches to CESE can be pursued as “pure” strategies, and both the OM approaches and focused service factory strategy can be pursued effectively in combination with the dual culture strategy.

Implementation and potential incremental gains of a dual culture strategy

Of the three core strategies, the pure dual culture strategy seems the hardest to execute. Service excellence, while complicated particularly in large organizations (Zeithaml et al. 2017), seems a more natural focus of service employees (Gouthier and Rhein 2011), but cost-effectiveness is a harder sell to employees. The organizations in our sample that pursued a dual culture strategy had strong leadership rationales and motivations that enabled them to sell cost-consciousness to their employees. As we found in our case organizations, senior management has to drive a culture of cost-consciousness and service excellence simultaneously, which is difficult (c.f., Mittal et al. 2005). In contrast, as organizations pursue OM approaches or the focused service factory strategy, the systems and technology increasingly hardwire productivity and cost-effectiveness into the business model and employees can focus on service excellence without having to focus so heavily on costs and incremental productivity gains (e.g., Google and Shouldice Hospital).

P10: OM approaches and the focused service factory hardwire productivity and cost-effectiveness into the operating model making them easier to implement than a dual culture strategy.

Furthermore, the incremental gains a dual culture strategy offers seem reduced as the business model moves towards an OM approach or a focused service factory strategy. A full-service business model, such as Singapore Airlines or Ristorante D’O, must painstakingly identify and implement efficiency gains and cost savings in all its operations. In contrast, an organization that follows the focused service factory strategy has already dramatic cost savings from the business model itself, and the incremental savings of a dual culture tend to be small compared to the savings the focused system already offers.

For example, Google is well known for its positive treatment of employees offering high pay, free meals, sports facilities, and even massages (Groysberg et al. 2011; Schmidt and Rosenberg 2014, p. 125–127). The company was top-ranked for the eighth time in 2017 in *Fortune*’s Top 100 firms to work for (Fortune 2017). However, whether Google’s employees enjoyed free massages and meals did not matter much in terms of cost per transaction if their billions of customers self-served. This intense focus on scalable SSTs allowed Google to be generous to the comparatively small number of employees they did have, virtually all of whom were involved in the creation of new services rather than in serving customers directly. Similarly, Shouldice Hospital could have become more cost-conscious, but the main savings would still come from the fact that they ran simple and low-cost operating

theaters, did not use general anesthesia and had short surgery duration due to their focus on a single type of surgery (Heskett and Hallowell 2004). In sum, we advance the following:

P11: The incremental productivity gain a dual culture strategy can achieve in an organization that already implemented either the OM approaches or the focused service factory strategy is much lower than in an organization that does not pursue any of these two strategies.

Discussion and implications

Service excellence and cost effectiveness are perceived to be in conflict, yet there are organizations that achieve both. Organizations that successfully pursue a dual strategy have been shown to outperform their peers (Mittal et al. 2005). Smith and Tushman (2005) suggest that competitive pressures make it critical to take the management of such contradictions and paradoxes seriously. In particular, they explain that sustained performance occurs through attending to and dealing with strategic contradictions. Based on an integration of literature and case examples, we propose that the successful management of service excellence and cost-effectiveness is a contradiction that can be achieved as is outlined in the conceptual framework in Fig. 2. This framework provides an integrated view on the strategic options organizations have when aiming to pursue a strategy of CESE.

The level of variability in customer service processes and resulting business models seems to be a strategic decision. If a business model keeps variability high, it requires an extraordinary effort to achieve CESE largely through leadership ambidexterity and contextual ambidexterity to successfully execute a dual culture strategy. Alternatively, variability can be reduced either on the process-side through OM approaches, or on the customer-input side through the focused service factory strategy. These alternatives imply very different business models with different value propositions and customer segments.

Even within a given business model, service firms need to be intensely aware of the cost implications of providing options, flexibility, customization, and added products and features offered to their customers. Complexity and uncertainty grow exponentially and reduce the level of potential productivity while making it more and more difficult to deliver service excellence (Shostack 1987). Therefore, it is an important and strategic decision how much variability a business model should contain, and if OM strategies and tools are pursued, how variability should be reduced while aiming to delight customers.

The focused service factory model offers many interesting business opportunities in both the offline world as well as the

online world where services are increasingly delivered through apps on smartphones. Such focused service factories typically combine smart processes and new technologies that provide tailored solutions for well-defined problems and narrowly defined customer segments (Frei 2006; Levitt 1972, 1976). For example, in healthcare, Narayana Health decided against building a general hospital that intertwined many service processes and patient segments and therefore would have been incredibly complex and expensive without the same quality output (Global Health and Travel 2014; Govindarajan and Ramamurti 2013). The principle is simple: a specialist who only delivers a single product to a single segment will be faster and better than the generalist who must cater to a wide range of customer needs.

Finally, rapidly developing technologies that become better, smarter, smaller, and cheaper (e.g., geo-tagging, robotics, drones, virtual reality, speech recognition, the Internet of Things, and artificial intelligence) will transform virtually all service sectors, and bring opportunities for a wide range of service innovations that have the potential to dramatically improve the customer experience, service quality and productivity all at the same time. The framework developed in this research offers a strategic lens through which these new services can be viewed and approached.

Further research

Around the conceptual framework shown in Fig. 2, research can be built that is executed either by extensive case analysis or surveys. Because there exists so little research on CESE, we start with a review of the literature and 10 in-depth case studies to integrate ideas and introduce propositions. A next step would be to select a broader set of service companies that provide service excellence and interview executives using a questionnaire that can be developed from this research. After collecting sufficient exploratory information, administering a questionnaire to a broader set of firms to test our propositions as hypotheses would be a logical next step.

Our 10 case organizations were selected to have a successful CESE strategy. It would be of interest to explore organizations that have pursued but have not succeeded in achieving CESE. This would help to identify the potential drivers and barriers of CESE success and their interplay for the three broad CESE strategies outlined in this article. Also, the optimal strategy is likely to be context contingent. For example, the optimal level of productivity is lower when better service quality is financially beneficial, such as when the firm has higher profit margins or can charge higher prices, and the optimal level of productivity is lower when the market concentration or wage levels are high (Rust and Huang 2012).

In addition, potential boundary conditions for each of the three main CESE strategies should be explored. For example,

if several players pursue a focused service factory strategy, an additional dual culture strategy may be required to achieve cost leadership. For example, when Southwest Airlines was the only low-cost carrier in the market, it had by far the lowest operating cost in its competitive set (Lovelock 1994, p. 78–84). As more players have entered the LCC market, the benchmark has shifted, and more cost discipline is needed to remain the most efficient player, leading back to a dual culture strategy. In online and app-based services that are highly scalable cost leadership may be largely driven by scale rather than any other factor. To explore these questions, a configuration perspective such as Gestalt-theory (e.g., Ordanini et al. 2014) and fuzzy set qualitative comparative analysis (fsQCA; Froesen et al. 2016; Ragin 2008) could be used to understand the combinatory effects at play.

While many of our propositions are rooted in the literature, a few important insights emerge from the case analysis. For example, we advance that leadership ambidexterity and contextual ambidexterity are critical in a dual culture strategy, and that cost-consciousness needs to be “sold” to employees to gain their buy-in. Future research is needed to drill down further to understand how best-in-class organizations achieve these critical goals.

In summary, this article can help academics and practitioners alike to understand better the basic approaches and strategies involved in pursuing CESE. We hope that our study will lead to further research in this field and that it yields a stronger cross-fertilization and integration of the service marketing literature on customer satisfaction, service quality, and service excellence, the management literature on organizational ambidexterity, and the OM literature on service productivity.

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