

Impact of Digital Communication Systems On Drive-Thru Customer Experience

A Research Supplement to the
Quick Serve Performance Study

December 2006



Table of Contents

Table of Contents	2
Executive Summary	3
Research Methodology	4
Category Definitions	5
Summary Results Overview	6
Assessment	7
Tables & Graphs	9
▪ Participating Chains	
▪ Daypart	
▪ Service Time	
▪ Total Service Time by Number of Vehicles in Line	
▪ Average Vehicles in Line by Chain	
▪ Service Rating & Service Graph	
▪ Service Time by Chain	
▪ Order Accuracy & Order Accuracy Graph	
▪ Breakdown of Inaccurate Orders	
▪ Speaker Clear and Understandable & Speaker Quality Graph	
▪ Breakdown of Speaker Clarity Issues	

About Insula Research

Insula Research is a full-service marketing research and auditing company that designs and executes customized primary market research studies for clients including on-site data collection programs, in-depth analysis and actionable strategic and operational guidance. Founded in 2005, Insula is based in Columbus, Ohio and offers national coverage, servicing small and large clients alike.

Executive Summary

In 2006, Insula Research conducted the *Quick Serve Drive-Thru Performance Study*. The primary objective was to determine the leading restaurant chains in several categories of drive-thru operation. The study included assessments from restaurants in all 50 states, and included 25 quick serve restaurant chains.

A supplement to the study was completed at the same time to examine the impact of digital communication systems on speed of service, order accuracy and outbound speaker clarity. This report provides details concerning the supplemental study. For this study, the maximum error (i.e. worst case scenario) at a 95% confidence level was targeted at approximately 4.8% in a two-way split of the data.

The study data indicates that restaurants using digital technology for drive-thru communications improved in all 3 areas: drive-thru service time, order accuracy and sound clarity.

Restaurants with digital systems recorded average service times of 163.5 seconds, versus 199.7 seconds at restaurants without digital systems. Restaurants with digital systems delivered accurate orders to their customers approximately 2% more often than the non-digital group. And restaurants with a digital speaker experienced less clarity problems (3.5%) than those without a digital speaker (9.4%). In fact, for every 100 customers served, the digital system improved communications for approximately 5 of them.

We consistently saw evidence to support that digital communications systems improve the communications process, and the ability of the restaurant to deliver accurate orders to its customers.

Research Methodology

The *2006 Quick Serve Drive-thru Performance Study* was produced and conducted by Insula Research. This research was supported by sponsors *QSR Magazine*, Phase Research (founding sponsor), Delphi Display Systems, First Data Corp, VeriFone, Archon Development (Prophet) and Florida Plastics.

The primary objective for this study was to determine the leading restaurant chains in several categories of drive-thru operation. Data for the study was collected during the months of April, May, June and July of 2006. Restaurants were visited between the lunch hours of 11:00 AM and 2:30 PM, and between the dinner hours of 4:00 PM and 7:00 PM. A restaurant could only be visited twice, once during the lunch period and again during the dinner period.

A research supplement was commissioned to examine the impact that digital communication systems had on timing, order accuracy and speaker clarity. A total of 342 audits were conducted at specific locations that were known to use digital communication systems, 100 of which were completed in October of 2006.

Category Definitions

Speed

Speed measurement, called “service time” was included in the overall analysis. Service time is simply the time from when a vehicle stops at the speaker/order post until the entire order is received.

Accuracy

The objective of the order accuracy measurement was to determine which chains were most accurate. During each visit, the researcher ordered a main item, a side item and a drink. One special request was made for each order. For example, a field researcher could order a Whopper with no pickles at Burger King, and then a taco combo with a request for hot sauce packets at Taco John’s. After receiving the order, all food and drink items were checked for complete accuracy. Any food or drink item received that was not exactly as ordered was listed as inaccurate. Similarly, orders were considered inaccurate if a requested condiment was not received, if the order failed to contain at least one napkin or one straw, or if the cashier gave incorrect change. Any order that contained one or more inaccuracies was listed as inaccurate.

Speaker Clarity

The objective of the speaker clarity category was to determine the chain that had the clearest and most understandable interaction, from a customer’s perspective, via the speaker. During each visit, researchers determined the clarity of the speaker interaction. Speakers that had an excessive amount of static, a volume level that was too high or too low, were out of order, or were simply unclear, were logged as being unacceptable. Each chain was then ranked based on the percentage of acceptable speakers.

Summary Results Overview

Service Time

- On average, restaurants utilizing digital systems had faster service times than those that did not.
- The average amount of time to serve a consumer was 199.7 seconds at restaurants without the digital systems. At restaurants with digital systems, consumers were served in only 163.5 seconds, a decrease of 36.2 seconds.

Order Accuracy

- Order accuracy improves with the use of a digital system.
- Restaurants with a digital system have less inaccurate orders (7.3%) than restaurants without the digital system (8.7%).

Speaker Clarity

- Speaker interactions are clearer with the use of digital systems.
- Restaurants without a digital system experience more speaker clarity problems (9.4%) than restaurants with a digital system (3.5%).

Assessment

Service Time

When analyzing the service time results, which include order time based on this study's methodology, we can see a significant difference from 163.5 seconds at restaurants with digital systems versus 199.7 seconds at restaurants without. This holds true for every cross-tab except the '6 or more vehicles in line' group, where less than a one second difference can be seen.

In the '3-5 vehicles in line' group, the difference between service times for those restaurants with digital systems versus those without is a full minute (207.7 vs. 267.8). Some caution should be used with this metric however, as the digital systems theoretically will impact only the order time, which should be less than the 60 second difference in service times quoted. As such, there are clearly other variables impacting this measure. The fact is, however, we consistently see superior service times in our analysis at restaurants with digital systems when compared to restaurants without.

Speaker Clarity

Based on the analysis above, there does appear to be time saving at restaurants with digital systems. So the next question is why? At restaurants with digital systems, the incidence of an interaction that was NOT clear and understandable fell from 9.4% down to 3.5%. When we factor out those interactions where only a non-system related issue was cited, such as language barriers, the incidence for the non-digital group falls to approximately 8% of interactions that were not clear and understandable, and approximately 2.9% for the digital group. Stated slightly differently, for every 100 customers served, the digital system improved communications for approximately 5 of them. Although this does not sound like a particularly overwhelming number on the surface, consider the number of customers served each day, and then the number of restaurants in a chain. In

larger chains the impact could be several thousand customers per day. With each interaction that must be repeated, or that is processed inaccurately because of a communication related issue, the restaurant has spent valuable seconds and/or delivered an inaccurate order. This is where an investment into digital technology demonstrates value.

Order Accuracy

When we examine the impact on order accuracy, there also appears to be a positive correlation. Specifically, restaurants with digital systems delivered accurate orders to their customers approximately 2% more often than the non-digital group (93% accurate with digital versus 91% accurate with analog). This certainly stands to reason, as better communication eliminates the potential for errors. Caution should be used as the difference seen is within the margin of error based on the sample sizes; however, as mentioned above, approximately 5% fewer customers experienced interaction difficulties by ordering via digital. The 2% fewer customers who ultimately received an inaccurate order at restaurants with digital communications are consistent with this measure.

Conclusion

In field research there are often many variables that are difficult to account for. As such, the key to arriving at appropriate conclusions is to look for consistency as you assess the different metrics available. As we examine the case to determine whether or not digital communication systems have a positive impact on drive-thru operations, we consistently see evidence to lead us to believe that digital communications systems indeed do improve the communications process, and ultimately the ability of the restaurant to deliver accurate orders to its customers expeditiously.

Tables & Graphs

Table 1: Participating Chains

CHAIN	TOTAL		DIGITAL SYSTEM			
	Count	Col %	YES		NO	
	Count	Col %	Count	Col %	Count	Col %
A&W	202	3.4%			202	3.6%
Arby's	289	4.9%	8	2.3%	281	5.0%
Bojangles	211	3.6%			211	3.8%
Burger King	309	5.2%	11	3.2%	298	5.4%
Captain D's	200	3.4%			200	3.6%
Carl's Jr	165	2.8%			165	3.0%
Checkers	181	3.1%			181	3.3%
Chick-fil-A	206	3.5%			206	3.7%
Church's	236	4.0%			236	4.2%
Dairy Queen	288	4.9%	1	.3%	287	5.2%
Del Taco	183	3.1%	2	.6%	181	3.3%
El Pollo Loco	140	2.4%			140	2.5%
Hardee's	269	4.6%			269	4.8%
Jack in the Box	271	4.6%	63	18.4%	208	3.7%
KFC	304	5.1%	6	1.8%	298	5.4%
Krystal	181	3.1%	1	.3%	180	3.2%
Long John Silver's	249	4.2%	4	1.2%	245	4.4%
McDonald's	341	5.8%	64	18.7%	277	5.0%
Popeye's	260	4.4%	1	.3%	259	4.7%
Rally's	163	2.8%			163	2.9%
Taco Bell	375	6.3%	118	34.5%	257	4.6%
Taco John's	150	2.5%			150	2.7%
Wendy's	355	6.0%	62	18.1%	293	5.3%
Whataburger	207	3.5%	1	.3%	206	3.7%
White Castle	175	3.0%			175	3.1%
GROUP TOTAL	5,910	100.0%	342	100.0%	5,568	100.0%

Group Total Respondents: 5,910

No. of Digital Systems: 342 (5.8%)

Table 2: Daypart

		TOTAL		DIGITAL SYSTEM			
				YES		NO	
		Count	Col %	Count	Col %	Count	Col %
DAY PART	Lunch	3,755	63.5%	195	57.0%	3,560	63.9%
	Dinner	2,155	36.5%	147	43.0%	2,008	36.1%
GROUP TOTAL		5,910	100.0%	342	100.0%	5,568	100.0%

Table 3: Service Time

		TOTAL	DIGITAL SYSTEM	
			YES	NO
Vehicle 1	Mean	201.7 sec.	166.1 sec.	203.9 sec.
Vehicle 2	Mean	193.5 sec.	160.8 sec.	195.5 sec.
TOTAL	Mean	197.6 sec.	163.5 sec.	199.7 sec.

Table 4: Total Service Time by Number of Vehicles in Line

	TOTAL		Vehicle 1		Vehicle 2	
	Digital System		Digital System		Digital System	
	YES	NO	YES	NO	YES	NO
0-2 Vehicles	148.8 sec.	183.8 sec.	147.9 sec.	185.1 sec.	149.8 sec.	182.5 sec.
3-5 Vehicles	207.7 sec.	267.8 sec.	207.0 sec.	272.2 sec.	205.3 sec.	263.5 sec.
6+ Vehicles	274.4 sec.	273.8 sec.	280.9 sec.	271.0 sec.	267.9 sec.	276.5 sec.

Table 5: Average Vehicles in Line by Chain

Chain	DIGITAL SYSTEM				NO DIGITAL SYSTEM			
	η	Total	Vehicle 1	Vehicle 2	η	Total	Vehicle 1	Vehicle 2
Jack in the Box	63	2.0	2.2	1.7	208	1.6	1.8	1.3
McDonald's	64	2.6	2.9	2.2	277	2.7	2.9	2.4
Taco Bell	97	1.3	1.5	1.0	257	1.6	1.8	1.3
Wendy's	42	0.8	0.9	0.6	290	1.7	1.9	1.4
TOTAL		1.7	1.9	1.4		1.9	2.1	1.6

Table 6: Service Rating

		TOTAL		DIGITAL SYSTEM			
				YES		NO	
		Count	Col %	Count	Col %	Count	Col %
SERVICE RECEIVED	Very Friendly	1,328	22.5%	107	31.3%	1221	21.9%
	Pleasant	2,385	40.4%	139	40.6%	2,246	40.3%
	Average	1,804	30.5%	83	24.3%	1,721	30.9%
	Lackadaisical, Mechanical	348	5.9%	12	3.5%	336	6.0%
	Rude	45	.8%	1	.3%	44	.8%
GROUP TOTAL		5,910	100.0%	342	100.0%	5,568	100.0%

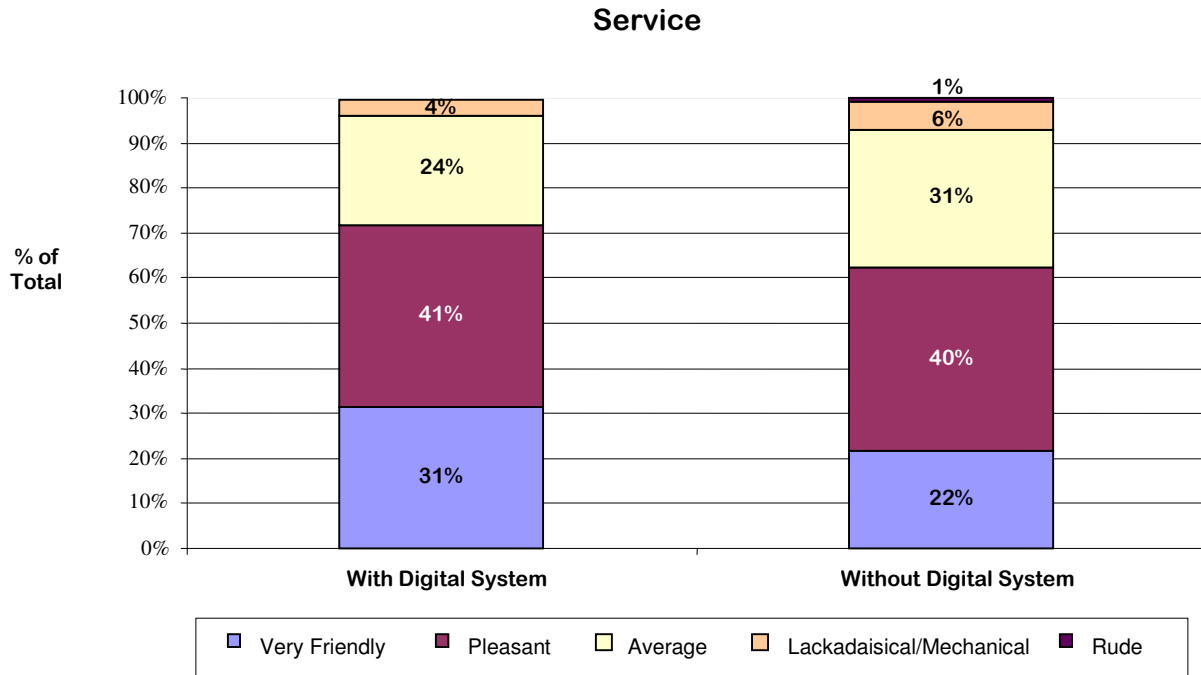


Table 7: Service Time by Chain

CHAIN	DIGITAL SYSTEM				NO DIGITAL SYSTEM			
	η	Total	Vehicle 1	Vehicle 2	η	Total	Vehicle 1	Vehicle 2
Arby's	8	151.1	168.5	133.6	281	181.0	188.0	174.0
Burger King	13	180.4	202.7	158.0	298	165.9	170.8	160.9
Dairy Queen	1	151.0	170.0	132.0	287	217.2	235.1	199.2
Del Taco	2	347.0	354.5	339.5	181	230.4	223.1	237.7
Jack in the Box	63	231.0	242.7	219.2	208	229.5	235.1	223.9
KFC	6	152.5	135.0	170.0	298	187.5	191.4	183.6
Long John Silver	4	249.3	229.0	269.5	245	183.1	194.0	172.2
McDonald's	64	160.4	165.1	155.6	277	163.8	163.3	164.2
Popeye's	1	205.0	214.0	196.0	259	235.2	219.7	250.7
Taco Bell	118	147.4	143.0	151.8	257	165.1	156.2	174.0
Wendy's	62	115.8	118.9	112.7	293	131.9	128.0	135.8
TOTAL		163.5	166.1 sec	160.8 sec		199.7	203.9 sec	195.5 sec

Note: Service time is noted in seconds in the table above.

Table 8: Order Accuracy

		TOTAL		DIGITAL SYSTEM			
				YES		NO	
		Count	Col %	Count	Col %	Count	Col %
ACCURATE DRIVE-THRU ORDER	YES	5,401	91.4%	317	92.7%	5,084	91.3%
	NO	509	8.6%	25	7.3%	484	8.7%
Group Total		5,910	100.0%	342	100.0%	5,568	100.0%

Order Accuracy

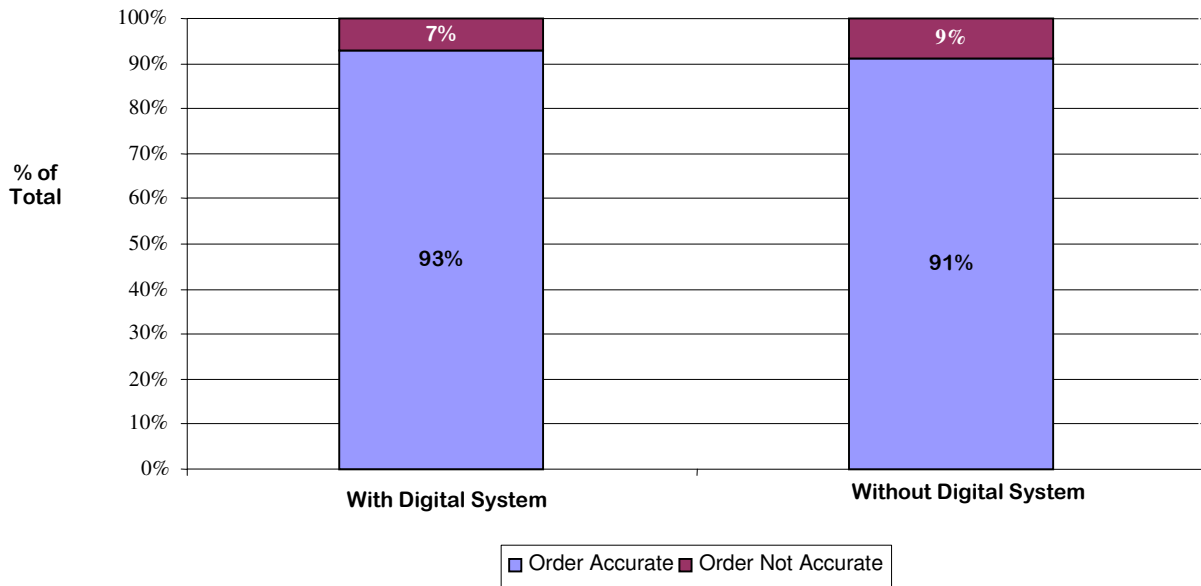


Table 9: Breakdown of Inaccurate Orders

	TOTAL		DIGITAL SYSTEM			
			YES		NO	
	f	%	f	%	f	%
Main Item Inaccurate	35	.6%	2	.0%	33	.6%
Side Item Inaccurate	45	.8%	5	.1%	40	.7%
Inaccurate Drink Flavor	40	.7%			40	.7%
Sandwich Toppings Inaccurate	54	.9%	5	.1%	49	.8%
Napkin Missing	92	1.6%	5	.1%	87	1.5%
Drink Size Inaccurate	6	.1%			6	.1%
Change Inaccurate	25	.4%	1	.0%	24	.4%
Straw Missing	70	1.2%			70	1.2%
No Ice Request Not Fulfilled	88	1.5%	1	.0%	87	1.5%
Condiment Request Inaccurate	99	1.7%	4	.1%	95	1.6%
Other	61	1.0%	4	.1%	57	1.0%
TOTAL	5,910	100.0%	342	5.8%	5,568	94.2%

Table 10: Speaker Clear & Understandable

		TOTAL		DIGITAL SYSTEM			
				YES		NO	
		Count	Col %	Count	Col %	Count	Col %
Speaker Interaction Clear & Understandable	YES	5,371	90.9%	330	96.5%	5,041	90.5%
	NO	534	9.0%	12	3.5%	522	9.4%
	NO SYSTEM	5	.1%			5	.1%
GROUP TOTAL		5,910	100.0%	342	100.0%	5,568	100.0%

Speaker Quality

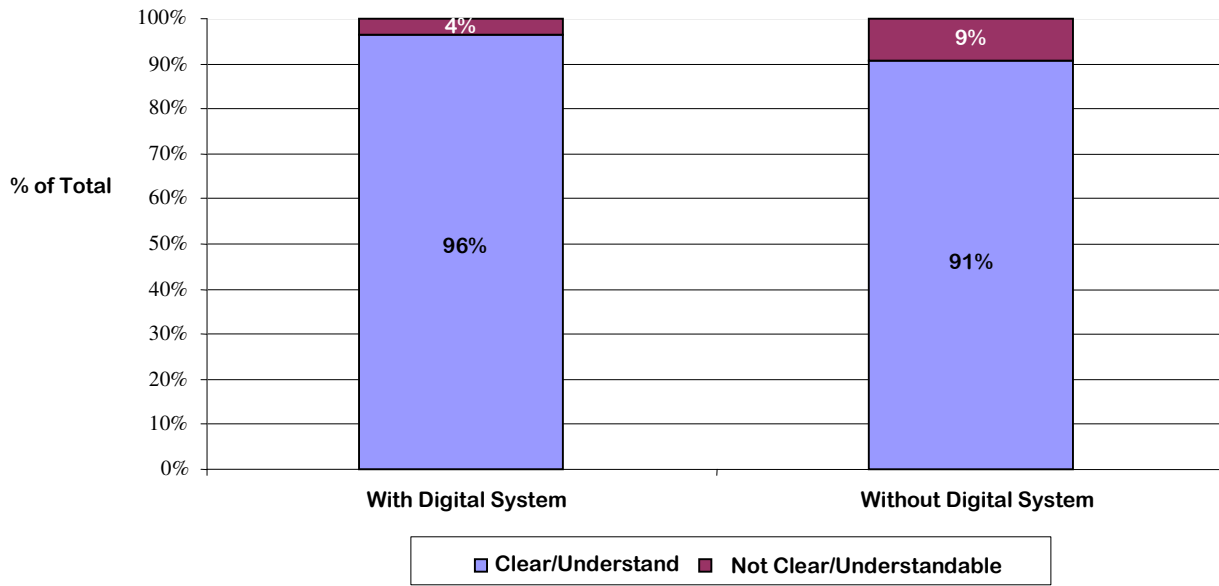


Table 11: Breakdown of Speaker Clarity Issues

	TOTAL		DIGITAL SYSTEM			
			YES		NO	
	f	%	f	%	f	%
Static	77	1.3%	2	.0%	75	1.3%
Unclear	190	3.2%	3	.1%	187	3.2%
Volume Too Low	166	2.8%	4	.1%	162	2.7%
Volume Too High	75	1.3%	1	.0%	74	1.3%
Speaker Out-of-Order	15	.3%			15	.3%
Inarticulate, Language Barrier	101	1.7%	2	.0%	99	1.7%
Other	59	1.0%	2	.0%	57	1.0%
TOTAL	5,910	100.0%	342	5.8%	5,568	94.2%

Note: In all tables, the Base = Total Respondents = 5,910