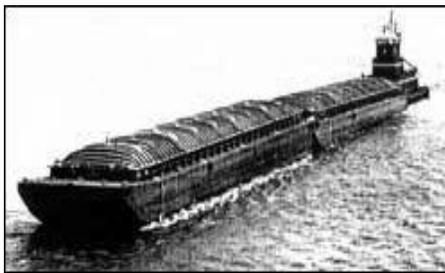




U.S. Department of Transportation
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Guide to Market Research for Marine Transportation Services



Guide to Market Research for Marine Transportation Services

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Introduction

This guide contains market research procedures for the determination of market potential (or potential sales) for new or enhanced marine transportation services. The market research procedures contained in the manual may be applied to consumer services or business-to-business services. The difference is the number of potential customers surveyed. For example, a ferry company will conduct research involving a large sample of potential customers for its service, while a lift-boat company with a small number of business customers will conduct interviews with all or most of the firms that can use its service.

Market potential is the volume of sales that would result if the market for the service were fully developed.

Market research also provides project managers with customer feedback on a proposed service at a time when changes that enhance market potential can still be made. That is, market research is the critical first step in developing a new service.

Market research is the critical first step in developing a new service.

At the outset, it is important to state that the existence of market potential does not by itself guarantee project success. It is also critical to establish a service that fully meets customers' expectations.

Skillful execution and marketing of a new service "wakes up" potential sales.

Furthermore, there is always some amount of time between the determination of potential sales and the introduction of a service designed to absorb the sales. Many things can happen during this interval that could affect customer attitudes -- additional competition could emerge, economic conditions could change for the worse, new and better technology could appear.

Market research is important not only in terms of initial success, but if performed in a regular systematic fashion, it provides customer feedback which is important for ongoing business success. Customer feedback surveys repeated at regular intervals measure and track how well the firm is doing in meeting customers' expectations. Over time, expectations change. By maintaining a regular program of research, the risk of being "blindsided" by the market is significantly reduced.

This is not to say that "gut feel" and management experience are of no value. However, in competitive markets where executing a project requires significant financial resources and where the costs of failure are high, there is a need for decision-making based on more rigorous data.

Introduction

Paul Oliver, writing in *Research for Business and Marketing Education*, says the following.¹

Perhaps the most basic use of research is to provide a clear description of phenomena. We often observe events in everyday life without really looking and seeing clearly. Perhaps understandably, we often miss the minutiae of events because we are preoccupied, or do not train ourselves to be observant. We tend to see either what is significant at the time, what we want to see, or what we have time to see. This results in an incomplete picture, upon which it is very difficult to base conclusions. Precise observation and description are the basis of research.

It has been well documented that the three most prevalent reasons that businesses fail are: falling in love with the idea and not seeing any of the pitfalls and problems; under-capitalization; and believing in success just because someone else is successful -- so called market by inference. If any one or a combination of the above exists, it is a recipe for failure. Research cannot solve the problem of under-capitalization directly, but it offers a very convincing picture of the real world that does much to offset the effects of these "deadly sins".

When applied to the data gained from the research, management experience creates a synergy for success.

¹ Paul Oliver, *Research for Business and Marketing Education*, Chicago: NTC/Contemporary Publishing Company, 1997, p. 19.

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Research Tasks

The listing of tasks shown in Figure 1 are a distillation of the tasks and thinking used by successful researchers for many years, and follows the usual chronological order of determining market potential for new services. Market research is a combination of secondary (desk) research which is the collection and thorough evaluation of existing data on the market for a class of services, and primary (direct) research which is the collection of new data on the market for a specific service. Even if the desk research appears favorable, primary research is necessary to determine the best option(s) to meet customers' requirements.

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Appendix 1 contains a list of books and other resources on the market research process.

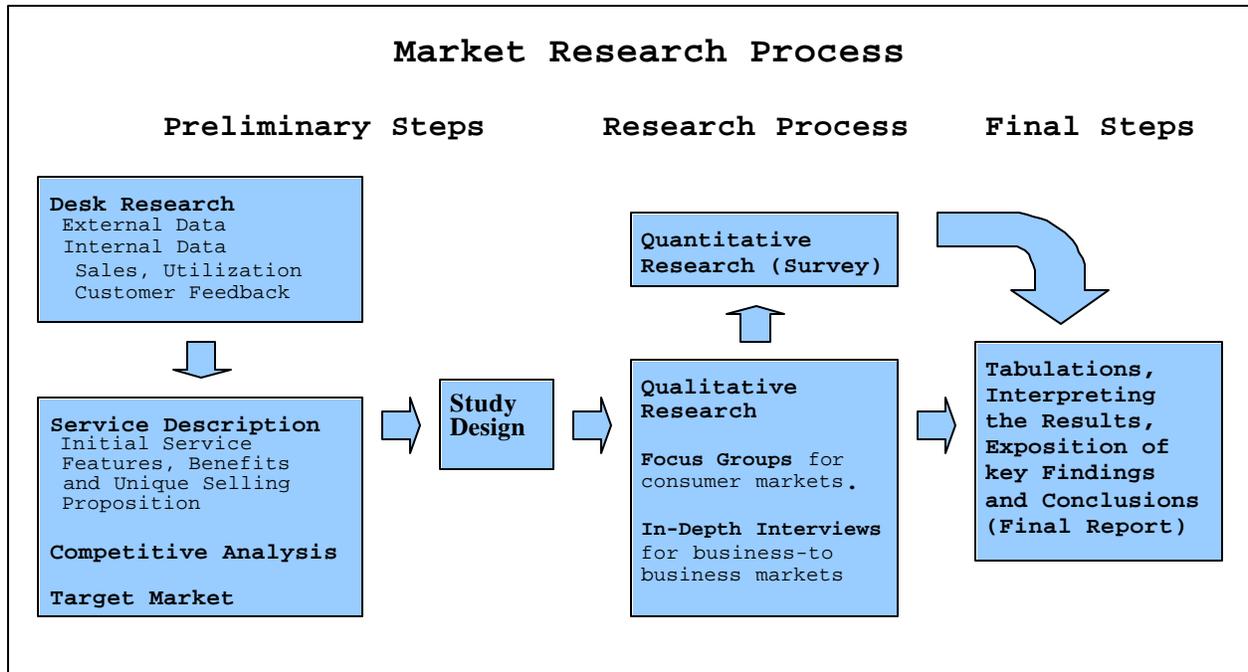


Figure 1. The Research Tasks Flow Chart

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Preliminary Steps

Desk research

Desk or secondary research provides the empirical foundation and justification for primary research. Secondary research refers to data that was originally collected for a purpose other than determining the market potential for the new service. For example, to evaluate the need for U.S. waterway improvements, the U.S. Army Corps of Engineers collects data on domestic tank vessel capacity and traffic, which are also market indicators for U.S. tank vessel services. Appendix 2 contains a sample list of secondary data sources for marine transportation services.

Secondary data is also available from companies' internal records. These include: customer lists, sales, vessel utilization, affreightment contracts, charter fixtures, and customer feedback surveys. A major shortcoming of internal data is that it only describes existing customers, and may not accurately describe the market as a whole.

The following are the major categories of secondary market data used to evaluate marine transportation projects. All of the secondary market indicators need to be considered in the project evaluation process.

Potential customers (Lists). For consumer-driven services the lists are usually drawn from commercially available data bases which contain names, telephone numbers, income, spending patterns, age and location of potential respondents.² For business-to-business services, the lists show company name and contact details, and a measure of each company's size in the market for

Supply/Demand Myth (Shortages!).

The analyses go something like this: fleet capacities are adequate for today's traffic levels, but fleet attrition and/or traffic growth will result in a shortage of vessels. Based on these perceived shortages, the analysts usually call for increased investment or some sort of government intervention in transportation markets, e.g., relaxation of regulations.

The major flaws in these analyses are:

- ✓ An incomplete evaluation of secondary market indicators;
- ✓ A restrictive view of competitive alternatives (see discussion of competition below); and most importantly,
- ✓ No primary research to determine customer needs and requirements.

² Standard Rate and Data Services (SRDS), Lifestyle Market Analyst, Des Plaines, IL : SRDS, (www.srds.com), 2002.

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the service. These lists are the sample frames (list of potential respondents for focus groups, in-depth interviews and surveys).

Competition. This category includes descriptions of competitors' services, market concentration and market shares. This data identifies threshold standards of service.

Traffic. These series show market growth, both services demanded and services supplied over time, i.e. ability of the market to absorb new or idle services.

Fleet age profiles. As a general rule ships last 20-25 years and barges last 25-30 years. Estimation of economic life is a not an exact science. In a growth market, an old fleet, 25+ percent older than 20-years, generally signals demand for new vessels/services. In dynamic segments such as North America cruises, vessels older than 10 years may not be competitive. The decision to replace vessels should ultimately be driven by customer needs and expectations (See questionnaire design section.).

Orderbooks. Orderbooks list vessels scheduled for delivery over the next 2 years. Orderbooks in excess of 10 percent of the existing fleet may signal a soft market 2-3 years forward. The 10 percent threshold assumes fleet attrition and traffic growth of 2-3 percent per year.

Regulations. Regulatory requirements can accelerate fleet obsolescence and/or significantly affect the cost of providing new services.

Newbuilding price, second-hand price, charter rates (fares, freights), and operating costs. The relation between these indicators (breakeven analysis) infers profit/loss for new services.

Utilization. The company's internal records of its sales, service contracts and fleet utilization can be used to determine if additional fleet capacity is needed to meet customers' service requirements.

Surveys. Regular customer feedback surveys can provide initial indications of the need for service improvements including new vessels and/or vessel features to meet customers' needs and expectations. However, primary research is still needed to translate these indications into specific vessel and service features.

Regular customer feedback surveys and primary research are complementary.

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Service Description

The service description is the critical first step in primary research. A proper service description should include a detailed description of the proposed service features and benefits, and unique selling proposition(s). Primary research measures how likely potential customers are to use the proposed service, and the relative importance of each feature/benefit in the customer's decision to use the service.

Every service has distinctive features. These features may be tangible (such as vessel size) or intangible (such as reputation). In order to measure the value of the proposed service, it is necessary to list its features and to attach a specific benefit to each feature.

While it is easy to list the features, it is sometimes difficult to connect a benefit to every feature. One way of looking at the relationship between features and benefits is to consider how the feature will make the potential user's situation better, gain their respect, or differentiate the service. Another way of looking at the feature/benefit relationship is to try to connect the feature to some desired end. Some illustrative examples to reflect upon are shown in Figure 2. A Unique Selling Proposition (USP) is a feature that is unique to a proposed service. Simply stated the USP is the single most important reason for customers to choose the proposed service.

Feature (Means)	Benefit (Ends)
Dynamic Positioning System	Anchorless station-keeping, eliminates risk of anchor damage to subsea structures.
GPS	Tracks cargoes from origin to destination.
Z-Pod Propulsion	Improves maneuverability for assist tugs.
Frequent Sailings	Reduces dwell times and inventory costs relative to fewer sailings.

Figure 2. Examples of Features and Benefits

Competitive Analysis

Successful companies are continually conscious of their competition. While competition is usually thought of as similar products doing the same thing as the proposed service, it is wise to stretch the concept to include other "competitors" as well. For example, a prospective domestic product tanker service would not only contemplate existing coastal product tanker services as competitors, but should also include services from foreign product tankers (imports), coastal tank barges, and pipelines as competitors.

The rule of thumb when considering competition is to reflect on the fact that competition is everything that could accomplish the same benefit as the proposed service.

Once the competition is defined, the proposed service should be compared with competing services in terms of pricing, quality of service (features), geographic area and financial resources. The comparisons will uncover

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strengths/weaknesses of competing services that can be used to enhance the proposed service.

Defining the Target Market (Population)

The target market or population can be thought of as potential customers for the proposed service. It is also the pool of potential respondents to research questions. Thus, it is critical at the outset to clearly identify the target population(s). If the target population is defined too broadly, sampling costs will increase and sample results will not reflect the views of the potential customers. For example, a proposed car carrier service that targets any U.S. shipper is not likely to get useful information on the preferences of vehicle shippers. It is possible that a proposed service could have multiple or segmented target markets. For example, a ferry could target business commuters for morning and afternoon routes and tourists for mid-day routes.

If the target population is defined too broadly, sample results will not reflect the views of the potential customers.

Study Design

The most appropriate study design (or research methodology) for new services usually involves qualitative research followed by quantitative research. For services with large target populations there should be a combination of focus groups (customer panel discussions) followed by survey research. For services with small target populations, typically business-to-business situations, there should be in-depth interviews (customer visits) with open-response questions to develop or hone a survey questionnaire followed by a detailed survey (or census) with closed-response questions conducted face-to-face or by telephone.

In marine transportation, large target populations are generally associated with passenger services and common carriers.

Research Process

Qualitative Research, Focus Groups

Focus groups are critical to the construction of a well-designed and purposeful survey questionnaire. Furthermore, focus group discussions improve and enhance the project manager's knowledge about the relationship between the proposed service and its potential users. It should be clearly understood that focus groups and the output of the group discussion (sometimes called the "teachings" of the group) are directional rather than definitive. That is, the output of the focus group points the way but does not provide final answers such as the proportion of the target population likely to buy the service.

Products and services that "fail" at the focus group stage almost always fail in the marketplace.

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Focus groups (3-4 groups are typical) are structured discussions (lasting 90 to 120 minutes) between the participants (usually eight to twelve) and a group moderator (leader). The moderator follows a well thought out agenda and uses discussion techniques that cause the participants to reveal their true habits, attitudes, opinions and feelings about the proposed marine transportation service. The group feedback (teachings) are used to refine the components of the quantitative research: target population/population segments, service description and the questions to be used.

The groups are typically conducted in a room that has been designed for the purpose. An acceptable focus group facility room accommodates eight to twelve people around a table with the moderator at the head of the table facing the respondents. The wall behind the moderator is a one-way mirror that allows observers to view the proceedings and permits videotaping for future reference.

Moderators. For most companies using focus groups, especially companies that have had little experience with the process, it is best to retain a professional moderator or full service research company that can not only conduct the groups but can also arrange for the selection of the facility, and recruit respondents.³

The use of professional moderators is both a strength and a weakness. Professional moderators contribute objectivity and interviewing skills. The downside may be his/her inability to quickly assimilate knowledge about the proposed marine transportation service. Absent that knowledge, the moderator may not be able to effectively probe topics raised in the sessions.

Focus group facilities. If the proposed project is going to be marketed only at the local level, then focus group sessions should be held as near as possible to the target market area. Proximity is the critical point since the respondents will (usually) travel from home/work to the groups.

Multiple facilities should be used for services that will be marketed to a regional/national population. The rule of thumb is to select representative market areas that will account for between 70% and 80% of the potential sales. These decisions are usually based on where the competition is getting its sales. These market areas usually correspond to those used for the quantitative phase.

Dates and times. Most focus groups are done between Tuesday and Thursday. Monday is acceptable if no other dates are available, but Friday should be

³ Quirk's Marketing Research Review's database <http://www.quirks.com> or the American Marketing Association's Greenbook <http://www.greenbook.org> offer listings of focus group recruiters, moderators and facilities.

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avoided. Usually one or two focus groups will be conducted per day at the facility, preferably at 6pm and 8pm.

Group selection. The participants in the focus groups should have the characteristics, e.g. age, income, gender, of the target population. In addition, the participants should not be opposed to the type of service.⁴ An interesting fallout of this screening process is that a comparison of the number of recruitment calls to obtain participants to the number of calls to individuals with target population characteristics generates a rough estimate of service acceptance. Participants are generally paid a \$50-75 cooperation fee.

Agenda. The moderator and project managers should translate the research objectives into a set of relevant questions. The moderator will translate these questions into a discussion guide (agenda). The discussion guide should move from a general discussion (class of services) to characteristics of the proposed service. At the end of each session, the project manager and moderator should review the most salient points made in the session in order to fine-tune the agenda for the next session.

Report. The report, or "teachings of the groups" should be done in narrative form. The sections of the report should mirror the agenda. If modifications to the agenda were made, then these modifications should be included in the report. Because the focus groups are also used to firm up the product description, it is always possible that a different product description will emerge from what is learned from the groups. The focus group teachings form the basis for the Quantitative (Survey) Research.

Qualitative Research, In-Depth Interviews

Focus groups are inappropriate for business-to-business services, where features and benefits are well known and understood by potential customers. Furthermore, in terms of business-to-business research, the target market may be so small that two or three focus groups might include all of the potential users. For business-to-business services, the best qualitative approach is "customer visits" or in-depth interviews. This technique envisions a situation almost comparable to a sales presentation without asking for the order. The product or service concept is presented to a few carefully selected customers. Objections are noted, but there is no attempt to argue these objections -- they represent critical information that is necessary in order to improve the product and design a survey questionnaire. For this reason, it is sometimes advisable to send a team to address different aspects of the product with the customers.

⁴ The recruitment is usually done by phone using a short questionnaire (screener). The screener insures that the participants are drawn from the target population and that the desired mix of participants (e.g., male, female) are recruited for each group.

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Quantitative Research, Surveys

The determination of potential sales, which is the heart of the issue, is a matter for survey research. For those that have done survey research before and have the resources, this section of the workbook will provide guidance. For others, it will provide guidance for procuring outside assistance.

Quantitative research is based on rigorous sampling methods which assume that the samples represent within estimated levels of certainty (confidence intervals) the target populations from which they are drawn. The resulting data, therefore, can be taken to stand for the population, and a basis for "grossing up" (projecting potential sales), which can be used as a basis for pro-forma revenue projections.

Surveys provide market indicators, not "truth".

For example, if a sample of 500 was drawn from a target population of 300,000, and 10 percent of the sample indicated that they would likely use a new ferry service at the proposed fare, the project manager could be 95 percent sure that 7.4-12.6 percent of the population (22,200 - 37,800 passengers) would likely use the proposed service. The confidence interval formula is:

$$\text{True range of likelihood} = \% \text{Likely} \pm 1.96 \times \sqrt{\frac{\% \text{Likely} \times (1 - \% \text{Likely})}{N}}$$

The sampling error at the 95 percent confidence level is the expression after the \pm sign in the formula above.

Where:

$\%$ Likely = Percent likely to use service
N = Sample Size, and
Z value (number of standard deviations from the mean) at the 95 percent confidence level = 1.96

Given:

$\%$ Likely = 10
N = 500
Confidence level (%) = 95

Then:

$$\begin{aligned} \text{True range of likelihood} &= 10 \pm 1.96 \times \sqrt{\frac{10 \times 90}{N}} \\ &= 10 \pm 1.96 \times 1.34 \\ &= 10 \pm 2.6 \\ &= 7.4 \text{ to } 12.6 \end{aligned}$$

Equation 1. Confidence Interval Formula

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If the likely users also indicated how often they would use the service, then the results could be used to estimate potential sales (See questionnaire design and tabulations sections).

Surveys can be administered face-to-face, by telephone, by mail, by e-mail, or by other electronic means. The Green Book or Quirks are excellent directories for available services.⁵

There are several reasons for using telephone interviews. There are hundreds of interviewing services throughout the U.S. so it is possible to obtain competitive bids; most telephone interviewing services use computer driven dialing systems which makes them very efficient; and most offer CATI (Computer Assisted Telephone Interviewing), which uses a computerized (as opposed to pencil and paper) survey form that shows each question in the survey in the proper order on the screen, allows the answer to be input via the computer keyboard (as opposed to marking the answer by pencil), and creates the appropriate electronic database necessary for the computer tabulation of the results. Face-to-face interviews (customer visits) using in-house resources may be appropriate for business-to-business surveys involving small target populations which are not geographically disperse. This technique is excellent for learning about the customers' business. Mail interviews are relatively inexpensive, but have lower response rates than other methods and do not allow for clarifications.

The vast majority of marine transportation market segments involve business-to-business services.

There are two major steps (and several minor steps within these) that must be followed in order to obtain statistically accurate results: sample selection and questionnaire design.

Sample selection and sampling. The basic premise of a sample survey is that the responses from a properly drawn sample of the total population would be the same as every other similar sized sample of the same population (\pm ? percent) and therefore is representative of the entire population from which it is drawn.

Samples are drawn from target populations using sample frames. A sample frame is a list of sample units in the target population. For example, a sample frame for a ferry service would be residents of the domicile area served by the ferry. Because telephone interviewing is the method of choice, the sample frame of qualified respondents is a listing of the telephone numbers of residents who have the required characteristics (e.g. age and income, workers who reside and work in the dormitory area to be served by the ferry service).

⁵ Quirk's Marketing Research Review's database <http://www.quirks.com> or the American Marketing Association's Greenbook <http://www.greenbook.org> .

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For consumer surveys, mailing list houses and professional interviewing services can provide telephone numbers for residents of a geographic area who have the necessary characteristics for inclusion in the sample. This reduces the number of telephone calls necessary to contact qualified respondents. However, because our society is so mobile, it does not eliminate the necessity of qualifying each respondent since the lists are usually not completely current.

The determination of sample size is based on the maximum acceptable sampling error. Sampling error is a statistical phenomenon that decreases as sample size increases or as the proportions of the sample answering a question move away from 50-50. That is, for a desired sample size (N) the maximum sampling error occurs when there is an even split with 50 percent of the respondents choosing one answer and 50 percent choosing a different answer. As the percentage moves away from the midpoint, the sampling error becomes less. The recommended sample size for a large target population should be about 500 respondents. This sample size keeps the the maximum possible sampling error below 4.5 percent. As shown in Figure 3 and equation 2, once a sample is greater than 500, even modest gains in accuracy require significant increases in sample size and sampling costs (sampling charges are generally on a completed interview basis).

Sample Percentage, Sample Error, and Sample Size at the 95 Percent Confidence Level.				
% Likely	Sample Size for Selected Sampling Errors			
	2%	3%	4%	5%
5	456	203	114	73
10	864	384	216	138
15	1,224	544	306	196
20	1,536	683	384	246
30	2,016	896	504	322
35	2,184	971	546	349
40	2,304	1,024	576	369
45	2,376	1,056	594	380
50	2,400	1,067	600	384

Figure 3. Sample Size Relationships

$$\text{Sample Size (N)} = 3.84 \times (\% \text{Likely} \times (1 - \% \text{Likely})) / (\text{sampling error})^2$$

Given:

- %likely = 50
- Acceptable sampling error (%) = 4.5
- Confidence level (%) = 95

Then:

$$\begin{aligned} N &= 3.84 \times (50 \times 50) / (4.5)^2 \\ &= 3.84 \times (2,500) / 20 \\ &= 480 \end{aligned}$$

Equation 2. Sample Size Formula

If the sample is segmented, e.g., commuters and non-commuters, then the overall sample size should be increased significantly to test the significance of differences between segments and get sub-sample errors with about the same precision as that for the overall 500 sample. For example, assume an overall sample size of 500 with an even split of commuters and non-commuters (250 of each). At 10 percent likelihood of use, the sampling error

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for the whole sample (500 respondents) is ± 2.6 percent; but the sampling error for each segment of 250 respondents (assuming 10 percent likelihood for each segment) is ± 3.7 percent because the sample size is smaller (500 for the whole sample versus 250 for the commuter segment).

For a more complete discussion of sampling error for large samples, consult the college level marketing research texts listed in Appendix 1.

For business-to-business research for marine transportation services, target populations generally don't exceed 50 businesses. In such cases, the entire population should be surveyed (census).

In the case of a small target population, it would be prudent to combine a census with long-term contractual agreements from potential customers. In marine transportation, spot market rates tend to be highly volatile, leading to significant short-term earnings (losses). Unfortunately, the markets are subject to elastic expectations.⁶

Elastic expectations are basing long-term investment decisions on short-term earnings.

That is, service providers tend to expect periods of high spot earnings to continue. These expectations tend to lead to over investment and redundant services. Therefore, every effort should be made to focus on long-term customer relationships in which shippers share market risk (industrial shipping) through long-term contracts for marine transportation services. The reasoning is that the providers are making significant 25-year investments to meet the needs of only a few customers. As such, they need to have reasonable assurances in the form of transportation agreements that their customers will not encourage other investors to develop redundant services.

Questionnaire design. A survey questionnaire fulfills four purposes:

- draws information from respondents,
- provides a consistent survey structure (each respondent is asked the same questions),
- provides a form on which facts, comments, and attitudes can be recorded,
- facilitates data processing.

⁶ See Albert Veenstra, Quantitative Analysis of Shipping Markets, Delft, Netherlands: Delft University Press, 1999, p. 27-29. The book contains a review of quantitative analysis of elastic expectations in marine transportation markets.

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Questionnaires should have the components listed in Figure 4.

The introduction identifies the interviewer and the survey sponsor (may be disguised), states the purpose of the survey, requests participation, and screens respondents. The following is a pro forma introduction.

"Good (morning, afternoon, or evening), my name is (name of interviewer) and I work for (name of interviewing service or research company), a national opinion polling company. We are doing a survey about (description of service) and need your help, if you qualify. May I ask... (screening question)."

<u>Component</u>	<u>Purpose</u>
Introduction	Gets the cooperation of respondent. Screens respondents
Question focus:	
Behaviors	Qualifies/segments respondents.
Attitudes	Gets feedback on the proposed features of the service.
Intentions	Determines likelihood and frequency of use.
Classifications	Segments potential customers.

Figure 4. Questionnaire Components

Screening the respondent is critical to the success of the research. Respondents must have the characteristics of the target population. For a proposed ferry service, respondents must be frequent travelers between the target areas. The respondents could be further screened to commuters. By screening the respondents, the survey is focused on the most likely prospects for the service and generates realistic projections of potential sales.

If the respondent does not meet the screening criteria, the interview is terminated with a polite "Thank you for your time."

Survey questionnaires generally contain closed-response questions with fixed responses (e.g. yes/no, 1-5, likely/unlikely 1-100 percent ...). Open-response questions, which are used in focus groups and in-depth interviews, allow respondents to formulate their own answer (e.g., Are there any other features you would like to have in the service?).

Survey questions focus on behaviors, attitudes, intentions and classifications. Behavior questions focus on what the respondent owns or does; attitude questions focus on what the respondent thinks about the features of the service; intention questions determine the likelihood of using the service, and classification questions focus on the respondent's basic characteristics. Behavior and classification questions are generally used to segment survey results (e.g., 50 percent of commuters are likely to use the service, while only 25 percent of non-commuters are likely to use the service). The survey questions should be consistent with the report outline, and required data tabulations. The following is an example of a consumer questionnaire for a ferry service.

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Behaviors

- (a) How many trips (one way) per month do you make between (Point A) and Point B) for shopping, ...?
- (b) What mode of transportation do you use?
- (c) How many of these trips are made on weekdays...one-fourth, one-half, three-quarters or all?

	(a)	(b)	(c)
	# of trips	Mode of transport	Weekday trips
Shopping		<input type="checkbox"/> Car <input type="checkbox"/> Bus <input type="checkbox"/> Rail <input type="checkbox"/> Other _____	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> All
Work		<input type="checkbox"/> Car <input type="checkbox"/> Bus <input type="checkbox"/> Rail <input type="checkbox"/> Other _____	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> All
Visit friends or relatives		<input type="checkbox"/> Car <input type="checkbox"/> Bus <input type="checkbox"/> Rail <input type="checkbox"/> Other _____	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> All
Social events (dinner/movies, etc.)		<input type="checkbox"/> Car <input type="checkbox"/> Bus <input type="checkbox"/> Rail <input type="checkbox"/> Other _____	<input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> All

Which of the following best describes your weekday travel pattern between (Point A) and (Point B)?

- Early morning (6 am - 9 am)/late afternoon (3 pm - 6 pm)
- Midday (10 am - 2 pm)

Which of the following best describes your weekend travel pattern between (Point A) and (Point B)?

- Early morning (6 am - 9 am)/late afternoon (3 pm - 6 pm)
- Midday (10 am - 2 pm)

Attitudes

Please divide 100 points among the following service features to reflect the relative importance of each feature to you in the decision to use a ferry service.

- Speed
- Reliability
- Parking
- Smooth Ride
- Frequency
- Total 100

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Intentions

The following questions about the respondent's intentions are designed to generate data which can be used (grossed-up) to estimate potential sales. The questions should be preceded by a detailed description of the proposed service (features and unique selling points). The sequence of questions follows a "funnel approach", moving from general to specific responses, which emulates purchase decisions.

If a ferry service similar to the one I described were available today, would you be interested in finding out more about it? For interviewer: If "yes" or "no" ask ... And do you feel strongly about that?

Response		Directions for Interviewer
Yes, strongly	[]	continue
Yes	[]	continue
Don't know	[]	go to end
No	[]	go to end
No, strongly	[]	go to end

If the one-way fare were \$5.00 per person, would you consider using the service? For interviewer: If "yes" or "no" ask ... And do you feel strongly about that?

Response		Directions for Interviewer
Yes, strongly	[]	continue
Yes	[]	continue
Don't know	[]	go to end
No	[]	go to end
No, strongly	[]	go to end

If this service were available today, do you think this is something you would be likely to use this month? For interviewer: If "yes" or "no" ask ... And do you feel strongly about that?

Response		Directions for Interviewer
Yes, strongly	[]	continue
Yes	[]	continue
Don't know	[]	go to end
No	[]	go to end
No, strongly	[]	go to end

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How often would you be likely to use the service in terms of trips per month?

Less than 10	[]
10-19	[]
20-29	[]
30-39	[]
40-49	[]
50 or more	[]

Classifications

Gender?

Male	[]
Female	[]

Which grouping contains your age?

Less than 20	[]
20-29	[]
30-39	[]
40-49	[]
More than 49	[]

Last year was your family income more or less than \$75,000?

More	[]
Less	[]

If more than \$75,000, ask: was it more or less than \$125,000?

More	[]
Less	[]

If less than \$75,000, ask: was it more or less than \$25,000.

More	[]
Less	[]

First name _____ (for call-backs/verification)

Zip Code ____ _

End Consumer questionnaire

For business-to-business questionnaires, behavior questions should focus on the customer's business, use of marine transportation services (including trends), products shipped, and types of marine transportation contracts; attitude questions should focus on expected future use of marine transportation and feedback on the features of the proposed service, and intention questions should focus on the the likelihood/extent of use of the

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proposed service. The following is an example of a business-to-business questionnaire for a Chesapeake Bay tank barge service.

Behaviors

What volume (metric tons) of petroleum products do you ship per year on the Chesapeake Bay?

Less than 50,000	[]
50,00-99,999	[]
100,000-150,000	[]
More than 150,000	[]

What percent of your shipments are under each of the following?

Contracts of affreightment	[]
Time charter	[]
Voyage charter	[]
Proprietary vessels	[]
Total	100%

Attitudes

If your current shipment volumes are 100, what do you expect them to be in 3 years? _____%

In three years what will be the proportion of your shipments moving under each of the following?

Contracts of affreightment	[]
Time charter	[]
Voyage charter	[]
Proprietary vessels	[]
Total	100%

Please divide 100 points among the following features to reflect importance to your company in deciding to use a tank barge service.

Number of tanks	[]
Pumping capability	[]
Cargo Tracking	[]
Speed	[]
Reliability	[]
Double-hull	[]
Total	100%

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Intentions

The following questions are designed to generate data which will be used to estimate potential sales. The questions should be preceded by a detailed description of the proposed service (features and unique selling points).

If the service described above were available today would you be interested in using it for your shipments on the Chesapeake Bay?

Response	Directions for Interviewer
Yes []	
No []	go to end.

At today's charter/voyage rates, what percent of your annual shipments would you likely move on the tank barge service described above?

Less than 5 percent	[]	51 - 60 percent	[]
5 - 10 percent	[]	61 - 70 percent	[]
11 - 20 percent	[]	71 - 80 percent	[]
21 - 30 percent	[]	More than 80 percent	[]
31 - 40 percent	[]	Can't say at this time	[]
41 - 50 percent	[]		

Classifications

Company name _____
Company address _____
Contacts name _____
Position _____

End business-to-business questionnaire

Generally, phone interviews should not take longer than 10 minutes. The respondent's attention to critical market potential issues may be lost if there too many questions before the crucial attitude and intention sections of the survey.

First drafts of questionnaires are generally too long, contain ambiguities, and lack focus.

It is prudent, therefore, to pre-test draft questionnaires on respondents from the sample frame. The interviewers and respondents should be informed of the pre-test and their cooperation requested to identify deficiencies. The following critical points should be tested:

- Are the interviewers having difficulty reading the questions?
- Are the questions easily understood by the respondents?
- Is the questionnaire too long?

At the end of the pre-test, interviewers should be debriefed on content, length and clarity of the questionnaire.

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If changes need to be made based on the feedback from the pre-test, then the questionnaire will have to be re-drafted and then pre-tested again. Although this seems like a lengthy and burdensome process, it is important to realize that a "bad" questionnaire will result in inaccurate results and misleading conclusions.

Although pre-testing questionnaires seems like a lengthy and burdensome process, it is important to realize that a bad questionnaire will result in inaccurate results and misleading conclusions.

The pre-test also provides an opportunity to train and evaluate interviewers.

Final Steps

Tabulations

Figure 5 shows a tabulation of possible responses to the potential sales questions in the sample consumer questionnaire. For the question, "likely at the proposed fare," only 150 of the sample remained as prospects and were queried. The other 350 indicated that they didn't know or were not interested and therefore were dropped from the pool of prospects. The base, however, stays the same (at 500) since the object is always to determine the proportion of the total qualified sample that is partial to the proposed service. The "yes" respondents to the fare question amounted to 14 percent of the original sample size. As shown, 50 respondents, the pool of potential riders, indicated that they would be likely to use the service this month at the proposed fare. In percentage terms, they represent 10 percent of the original sample size.

	Number of respondents			Avg. Trips/Mo.
	Consider	Likely @ Fare	Likely @ Fare This Month	
Yes, strongly	50	30	25	10
Yes	100	40	25	10
Don't know	25	10	10	
No	250	35	5	
No, strongly	75	35	5	
Total	500	150	70	

Figure 5. Sample Tabulation, Consumer

Other cross-tabulations using combinations of attitude, behavior, intention and classification data can be used to develop a marketing plan for the proposed service. For example, likely users segmented by income, gender, age or even zip code.

Company	000 Metric Tons (MTs)		Likely for Service % Mid-000 MTs	
	2001	2004	range*	Mid-range
1	< 50	100-150	7.5	9
2	100-150	100-150	0	0
3	100-150	150-200	15.0	26
4	150-200	150-200	15.0	26
5	200-250	250-300	35.0	96
6	150-200	200-250	0	0
7	< 50	< 50	35.0	18
8	200-250	150-200	25.0	44
9	100-150	200-250	25.0	56
10	< 50	100-150	15.0	19
Total	1,000-1,500	1,400-1,900		294

* Non responses assigned a zero.

Figure 6. Sample Tabulation, B-to-B

A sample tabulation for the business-to-business census is shown in Figure 6.

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Potential Sales

Tabulation of the results of the large survey indicates that 10 percent of those surveyed would be likely to use the proposed service this month. In fact, the range of sampling error at the 95 percent confidence level for a sample size of 500 and a response percentage of 10 percent is ± 2.6 percent. That is, if the survey were to be done in exactly the same way 100 times (using a different sample, of course), then in 95 of the 100 samples the percentage of respondents that say they would be likely to use the proposed service would be between 7.4 percent and 12.6 percent (See Equation 1.). For the purposes of determining the potential sales, it is best to take the most conservative view. Therefore, the proportion of those likely to use the service will be interpreted as 7.4 percent, the lower end of the range. This figure will be used in all future calculations.

However, in order to make this determination two additional inputs are necessary: the percent of the adult population that travels at least once a month between the target areas and the average number of trips per month expected from the potential riders (10).

If 50 respondents were screened out of the sample because they didn't travel regularly between the target areas, then roughly 90 percent ± 2.5 percent of the adult population of 300,000, or 262,500 - 277,500 adults could be expected to travel regularly (at least once per month). For estimating potential sales the lower limit of the confidence interval will be used. The formula for estimating potential sales (grossing-up) is:

$$\begin{aligned} \text{Potential sales (passenger trips per month)} &= \text{percent likely} \times \text{target} \\ &\text{population} \times \text{average trips per month.} \\ &= 0.074 \times 262,500 \times 10 \\ &= 194,250 \end{aligned}$$

Equation 3. Grossing-Up Formula

If there were an existing ferry service with a monthly capacity of 25,000 passenger trips between the target areas, then the market potential for the proposed service would fall to 169,250 passenger trips per month.

If the proposed service offers 25,000 passenger trips per month, the coverage (potential sales/capacity) would be 6.8 (with competition). For new consumer services, it is prudent to have coverage ratios of 5 or more. In the sample, respondents were introduced to the concept via a detailed product description, all of the pertinent aspects of the service that would be required to make a purchase. In the real world, there is no assurance that potential customers will know enough about the service to make a purchase.

In the B-to-B survey, the responses suggested a potential market share of 18 percent for the new service. However, with only 10 potential customers, it

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would be desirable to have a substantial part of the market potential committed to long-term customer agreements (see question on term agreements) prior to commencement of the new service.

The project-evaluation questions in both consumer and business-to-business surveys are designed to generate focused customer feedback on the proposed services early in the planning process at a time when improvements to enhance the market potential of the proposed services can still be made.

Conclusion

The market research tools outlined in this guide can be used to estimate potential sales, obtain customer feedback, and measure customer attitudes over time. Market research is a critical first step in the investment decision process, but it is also a means to establish an ongoing relationship with customers to insure that they receive the best possible service and that their service expectations are being met.

Appendices

Appendix 1

Marketing Research Texts and Sources

American Marketing Association, Greenbook, Worldwide Directory of Marketing Research Companies and Services, Vol. 1, New York: American Marketing Association, (www.greenbook.org), 2001. This source contains a director of market research firms arranged alphabetically, geographically and by industry segment.

American Marketing Association, Greenbook, Worldwide Directory of Focus Group Companies and Services, Vol. 2, New York: American Marketing Association, (www.greenbook.org), 2001. This source contains a directory of market research firms arranged alphabetically, geographically and by industry segment.

BRS Inc. Quick Insight™, business software, Austin, Texas: BRS, (www.businessplansoftware.org). This source contains an interactive computer driven questionnaire based on Harvard's Michael C. Porter's "Five Forces Model" of competitive interaction. The application of this program enables the user to assess the preliminary acceptability of a new product or a product to be added to an existing array of similar products. The issues covered by the program are applicable to both consumer and business-to-business products and services.

Burns, Alvin C. and Bush, Ronald F., Marketing Research, Upper Saddle River, New Jersey: Prentice Hall, (www.prenhall.com), 2000. This source is a comprehensive textbook of market research techniques.

CACI Marketing Systems, Inc., (www.caci.com), Arlington, VA : CACI, Inc. This source contains demographic lists for phone surveys.

Claritas, Inc., (www.claritas.com) San Diego: Claritas. This source contains demographic data for phone surveys and defining target populations.

Greenbaum, Thomas L., The Handbook for Focus Group Research, (Second Edition), London: Sage Publications, (www.sagepub.co.uk), 1998. This source is a guide to conducting effective focus groups.

Hague, Paul, and Jackson Peter, Market Research, A Guide to Planning, Methodology and Evaluation, London: Kogan Page, (www.kogan-page.co.uk), 1999. This source is a practical guide to market research from the practitioner's perspective.

McQuarrie, Edward F. The Market Research Toolbox, A Concise Guide for Beginners, London: Sage Publications, (www.sagepub.co.uk), 1996. This source is a guide for market research techniques with emphasis on those for new services.

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Oliver, Paul, Research for Business and Marketing Education, Chicago: NTC Publishing, (company.classifiedplus.aol.com/monster.com/ntccont), 1997. This source is a self-guided introduction to market research with emphasis on scientific/empirical aspects.

Quirks, Marketing Research Review, Minneapolis: Quirks, (www.quirks.com). This source is a comprehensive directory of market research resources.

Standard Rate and Data Services (SRDS), Lifestyle Market Analyst, Des Plaines, IL : SRDS, (www.srds.com), 2002. This source contains demographic lists for phone surveys.

U.S. Census Bureau, (www.census.gov). This source contains U.S. demographic data.

Appendices

Appendix 2

Secondary Data Sources for Marine Transportation Services

Agricultural Marketing Service, Grain Transportation Report, Wash., D.C.: U.S. Department of Agriculture, (www.ams.usda.gov). This source contains inland dry cargo barge market data.

Agricultural Marketing Service, Grain Transportation Prospects, Wash., D.C.: U.S. Department of Agriculture, (www.ams.usda.gov). This source contains inland dry cargo barge traffic data.

Blenkey, Nicholas ed., Marine Log, monthly, New York: Miller Freeman, (www.marinelog.com). This source contains an orderbook for vessels under construction in the United States.

Clarkson Research Studies, Vessel Registers, quarterly, London: Clarkson Shipbrokers, (www.clarksonresearch.com). This source contains fleet and orderbook data for tankers, dry bulk carriers, containerships, ro-ro vessels and offshore oil exploration support vessels.

Clarkson Research Studies, Shipping Intelligence Weekly, weekly, London: Clarkson Shipbrokers, (www.clarksonresearch.com). This source contains market data for international tanker, dry bulk and container trades.

Clarkson Research Studies, Container Intelligence Monthly, monthly, London: Clarkson Shipbrokers, (www.clarksonresearch.com). This source contains market data for international container, ro-ro, car carrier and general cargo trades.

Clarkson Research Studies, Oil & Tanker Trades Outlook, monthly, London: Clarkson Shipbrokers, (www.clarksonresearch.com). This source contains market data and outlook for international tanker trades.

Clarkson Research Studies, Shipping Review & Outlook, semi-annual, London: Clarkson Ship Research Studies, (www.clarksonresearch.com). This source contains market data for international tanker dry bulk, gas, chemical, ro-ro, car carrier, containership, general cargo and offshore oil exploration trades.

Drewry Shipping Consultants, Drewry Monthly, London: Drewry Shipping Consultants, (www.drewry.co.uk). This source contains market data on tanker and dry bulk trades.

Energy Information Administration, Annual Energy Outlook, 2002, Wash., D.C.: U.S. Department of Energy, (www.eia.doe.gov). This source contains trends on production, consumption imports and distribution of petroleum products throughout the United States.

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Energy Information Administration, Petroleum Marketing Annual, Washington, D.C.: U.S. Department of Energy, (www.eia.doe.gov). This source contains market data related to distribution of petroleum products throughout the United States.

Energy Information Administration, Petroleum Supply Annual, Washington, D.C.: U.S. Department of Energy, (www.eia.doe.gov). This source contains historical data on production, consumption, imports, distribution and transportation of petroleum products in the United States.

Fearnresearch, Review, annual, Oslo: Fearnleys AS, (www.fearnleys.com). This source contains market data (fleet, traffic, rates) for international bulk trades. It also contains global waterborne traffic for all trades.

Fearnresearch, Oil and Tanker Market Quarterly, Oslo: Fearnleys AS, (www.fearnleys.com). This source contains market data (fleet, traffic, rates) for international tanker trades.

Fearnresearch, Dry Bulk Market Quarterly, Oslo: Fearnleys AS, (www.fearnleys.com). This source contains market data (fleet, traffic, rates) for international dry bulk trades.

G. P. Wild, Ltd., Cruise Industry Statistical Review, annual, Haywards Heath, England: G. P. Wild, Ltd., (www.gpwild.com). This source contains fleet, traffic data, and other economic drivers for world cruise markets.

Lloyd's Register Fairplay, Lloyd's Vessel Itineraries, updated daily, London: Informa, (www.informamaritime.com and www.seasearcher.com). This source contains worldwide vessel calls.

Lloyd's List, Lloyds Shipping Economist, monthly, London: Informa, (www.shipecon.com). This source contains market data for tankers, dry bulk carriers and common carriers.

Marcon International, Marcon International Newsletter, quarterly, Coupeville, Washington: Marcon International, (www.marcon.com). This source contains market data for U.S. coastal tugs.

Maritime Administration, U.S. Waterborne Foreign Trade, Washington, D.C. Maritime Administration, (www.marad.dot.gov/marad_statistics). This source contains data on U.S. Foreign Waterborne Trade by type service. The data has excellent geographic coverage.

Mathisen, Oivind, Cruise Industry News Annual, New York: Cruise Industry News, (www.cruiseindustrynews.com). This source contains fleets, cruise offerings, traffic for major world cruise markets.

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- MDS Transmodal, Containership Databank on Disk, Chester, England: MDS Transmodal, (www.mdst.co.uk). This source contains data on global containership fleet, deployments, itineraries, and joint services.
- Minerals Management Service, Online Platform Structures Data Base, Wash., D.C.: Minerals Management Service, (www.mms.gov). This source contains data on U.S. Gulf offshore oil platforms. The age and status for these of these platforms is a major driver in the market for liftboat services.
- Minerals Management Service, U.S. Gulf Lease Sales, Washington, D.C.: Minerals Management Service, (www.mms.gov). This source contains data on U.S. Gulf lease sales, a leading indicator for offshore oil exploration and development, and rig and support vessel services.
- Navigation Data Center, Waterborne Commerce of the United States, annual, Alexandria VA: U.S. Army Corps of Engineers, (www.iwr.usace.army.mil/ndc). This source contains U.S. domestic waterborne traffic data.
- Navigation Data Center, Waterborne Commerce of the United States, vessel support file, annual, Alexandria VA: U.S. Army Corps of Engineers, (www.iwr.usace.army.mil/ndc). This source contains U.S. domestic fleet data.
- Navigation Data Center, Waterborne Commerce of the United States, operator support file, annual, Alexandria VA: U.S. Army Corps of Engineers, (www.iwr.usace.army.mil/ndc). This source contains U.S. domestic vessel operator data.
- ODS-Petrodata Group, Offshore International Newsletter, weekly, Houston: ODS-Petrodata Group, (www.ods-petrodata.com). This source contains market data (day rates and utilization) for offshore rigs and support vessels.
- ODS-Petrodata Group, World Rig Forecast, quarterly, Houston: ODS-Petrodata, Group, (www.ods-petrodata.com). This source contains market data (day rates and utilization) and drivers for offshore rigs.
- ODS-Petrodata Group, Polaris Data Base, quarterly, Houston: ODS-Petrodata Group (www.ods-petrodata.com). This source contains fleet and contract data for offshore rigs.
- Port Import/Export Reporting Service, U.S. Trade Data Base, New York: Journal of Commerce/PIERS, (www.piers.com). This source contains detailed data on U.S. international trade. PIERS data is particularly good for U.S. containerized trade.
- Shippax, Cruise/Ferry Data Base, quarterly, Halmstad, Sweden: Shippax, (www.shippax.se). This source contains fleet and deployment data for international ferry, cruise, and ro-ro fleets.

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Templeton and Associates, Online Liftboat Data Base, Houston: Templeton and Associates, (www.liftboats.com). This source contains characteristics of the U.S. Gulf liftboat fleet.

Veenstra, Albert W., Quantitative Analysis of Shipping Markets, Delft, Netherlands: Delft University Press, 1999. This source contains in-depth quantitative analyses of ocean shipping markets.