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Improving the project service performance of companies producing and marketing kitchen systems: Stage of survey and analysis of the space



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ABSTRACT

Scope and objective of this work has been determined as revealing problems which occur/may occur at the stage of "making survey and analysis of the kitchen space" which has an important role in the proper progressing of the project service period of the companies producing and marketing kitchen systems development of suggestions for solving the cited issues. As the methodology in line with this defined scope and objective, a web-based survey, with the attendance of all dealers of the company has been conducted with an eye to determine at the first stage how the designers of the company taken as sample model (having 60 dealers at national and international level) have carried out works as to making survey and analysis of the kitchen space. In the following stage, the results obtained from this survey conducted were evaluated and issues were identified. Subsequently, a literature search for solving these issues and interviews with relevant departments of the company were carried out and a standard form and registration system were created in line with the obtained data. At the final stage, this form and registration system were presented to the company's design teams and management departments by virtue of a web-based survey. Furthermore, it has been practically tested in a store deemed important by the company and has taken its final form by revising it in line with all the feedbacks received. The form and registration system developed in this study will be a part of the software model designed in the research project entitled "A Holistic Process Management Model for Increasing the Design Performance of Companies which Produce and Distribute Kitchen Systems".

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1. Introduction

Kitchen design performance indicator companies producing and marketing kitchen systems, comprises numerous components such as satisfaction level of users as to the products and company's project service process; production and assembly times of the kitchen; aesthetic, quality and functional performance of the products as well as the total cost of the project and etc. Accordingly, issues such as proper progressing of the project service period and improvement of kitchen design performance in this context are very substantial for companies producing and marketing kitchen systems in the global competitive

environment of our day (Yazicioğlu and Kanoğlu, 2016a)

The design issue must be defined correctly for the success of the project service period of the companies producing and marketing kitchen systems. The problem, during the analysis thereof, needs to be separated into pieces, problems as to these pieces must be identified, the cited problems must be discussed with different perspectives and different solution proposals must be developed. To this end, boundaries of the design have to be known from the very beginning. Data as to changeable and non-changeable items must be carefully identified, and the technical conditions as well as quality requirements for the project should be fully described. It is very important that the data gathered during the preliminary preparation stage must be transferred to the designer without loss and can be accessed through the entire design team (Arditi and Günaydın, 1998; Yazicioğlu, 2012; Yazicioğlu and Kanoğlu, 2016b).

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The indoor project service process basically comprises five stages, disregarding the size and scope of the project. However the cited stages can sometimes continue by being intertwined with each other. In other words, various revisions can be made by going back to the design development process again due which has occurred in the application stage. Below is a brief definition as to what these five basic stages of the project service process are (Dodsworth, 2009; Piotrowski, 2011; Yazicioğlu, 2012; Yazicioğlu and Kanoğlu, 2016b):

- Stage I (Preliminary Preparation): This stage is the pre-design stage. A good interior design can only be possible if the preliminary preparation stage is concluded properly. Reaching precise and accurate data will greatly reduce the rate of error subsequently in the process and avoid time lost. The works to be done at this stage comprise mainly determining demands and requirements of the users, taking measurements, drawing plans and sections of the place and making space analysis.
- Stage II (Schematic Design): Schematic design is the stage in which ideas as to creativity start to be formed. The designer makes sketches and takes the main decisions regarding the project. These sketches roughly show the areas of circulation areas and activity as well as layouts of the equipments. Schematic design can also be supported through supplementary drawings such as balloon diagrams, matrices and tables describing the concept of the design (Piotrowski, 2011, Tangaz, 2006).
- Stage III (Development of The Design): In the stage of development of the design, all decisions with respect to the project have already been given. These decisions are reflected by virtue of the drawings of the plan, sections and application details in a way that the user can fathom. Furthermore, colorful perspective drawings describing the project are made. Lighting, heating, ventilation, clean and dirty water installation and all other mechanical drawings are completed. Moreover, the offer price for the entire project is determined (Piotrowski, 2011, Mitton, 2011).
- Stage IV (Preparation and Approval of Official Documents): At this stage drawings of the accepted project, all details as regards the project agreement including the job description, work schedule, price quotation file and etc. are confirmed by the customer. Furthermore, agreements are made with the subcontractors and official permits are obtained from the desired places. If necessary, consultants are assigned from experts such as engineers and architects (Piotrowski, 2011, Dodsworth, 2009).
- Stage V (Implementation): At this stage, the design is carried out in accordance with the concluded project and work schedule (Piotrowski, 2011).

These five basic stages of the existing project service process provided hereinabove have to be

based on and evaluated systematically in order to identify all problems that may affect the design performance of the company producing and marketing kitchen systems taken as sample model and development of solution proposals. Elimination of the issues occurring/which may occur at each stage will provide superiority as to competition at the business level, will be able to support administrative decisions at the tactical level and increase productivity at the operational level and minimize time losses and conflicts (Yazicioğlu and Kanoğlu, 2016b).

One of the most important actors in kitchen design and implementation and one of the most important factors affecting the performance of the designer is that the preparation stage has to be done in a complete and correct manner. To this end, first and foremost priority is given to determination of problems which occur/may occur in works as to "determination of user demands and requirements" which is an important part of Stage I of project service period of companies that produce and market kitchen systems and to develop suggestions for solution of these problems. The cited work has been conducted by Yazicioğlu and Kanoğlu (2016a) presented in full detail to the article titled "Improving the Project Service Performance of Companies Producing and Marketing Kitchen Systems to Provide Sectoral Competitiveness"

Problems which occur/may occur in works as to "making survey and analysis of the space" which is also another important part of Stage I of project service period of companies that produce and market kitchen systems will be determined of and suggestions for solution of these problems will be developed.

2. Purpose and methodology

Scope and objective of the work has been determined as revealing problems which occur/may occur at the stage of "making survey and analysis of the kitchen space" which has an important role in the proper progressing of the project service period of the companies producing and marketing kitchen systems development of suggestions for solving the cited issues. As the methodology in line with this defined scope and objective, a web-based survey, with the attendance of all dealers of the company will be conducted in order to determine at the first stage the designers of the company taken as sample model (having 60 dealers at national and international level) have carried out works as to making survey and analysis of the kitchen space. In the following stage, the results obtained from this survey conducted will be evaluated and issues were identified. Subsequently, a literature search for solving these issues and interviews with relevant departments of the company will be carried out and a standard form and registration system will be created in line with the obtained data. At the final stage, this form and registration system will be presented to the company's design teams and management departments by virtue of a web-based survey. Furthermore, it will be practically tested in a store deemed important by the company and will take its final form by revising it in line with all the feedbacks received.

3. Problems at the stage of survey and analysis of the kitchen space

A web-based survey, with the attendance of all the designers of the company taken as sample model has been conducted in order to reveal problems which occur/may occur at the stage of making survey and analysis of the kitchen space. At the end of this study, the similarities of the answers given by the designers were brought together and the results in Table 1 were reached (Yazicioğlu and Kanoğlu, 2016b).

When the data in Table 1 is evaluated, it is observed that a systematic approach has been followed in the process of making survey and analyzing the kitchen space. It has also been found that an insufficient number of data was collected, in particular as regards the analysis of the space.

Table 1: Questions asked for determination of problems occurring at the stage of making survey and analysis of the kitchen

-	determination of problems occurring at the stage of making survey and analysis of the kitchen space and the answers given by the designers to these questions					
Questions	Answers					
In order to create an archive system for all of the projects you have done, what information must be recorded (user's name and surname, tel-fax no. residence address, Address where assembly will be made and etc.)?Please list.	 User's name and surname. User's Identity No. Communication contact details (telephone, postal address, residence address). Address where assembly will be made. Design style of the existing kitchen. User's profession. Color and cover types which the user likes, payment options, and product information. Survey, photos and visual project of the kitchen to be assembled. 					
Which measures of the place where the kitchen project will be applied do you take? Please list it in a complete way.	 Measures of existing chimney location and hole, measurements of locations of the electricity, water, natural gas installation and central heater boiler. All dimensions of the kitchen and/or space, wall dimensions, ceiling height, column, beam, curtain wall, window, door dimensions, opening way of doors and windows. Device measurements. Measurements of present accessories to be utilized in the new kitchen. 					
What would you pay attention to except for measuring the installation (clean water, dirty water, electricity, natural gas, etc.) in the kitchen? Please list.	 Depth and height relationship of the chimney with the beam. Places where the installation passes. Wall system (brick, concrete tunnel, gypsum board, insulation coating). Entry and exit locations to the space. If the installation is embedded in the wall and if it is intact. Locations of the socket, switch and central heater. Materials and colors of the countertop and floor. Where will the free space to be used during shipment be? If the walls are out of square or not. Openings and directions of windows and doors. If it is possible to make a compatible design possible to install with standard modules if the user does not wish to make any modifications, assuming that the entire installation will remain in its same place. By which minor intervention restoration can be done if there is a need to make restoration. Height and other obstacles on the ground. In case of open kitchen if there is height difference with the place where the kitchen is associated. If the user wishes to make restoration, conditions of carrying the installation within the existing structure. 					
What do you pay attention to except for measuring the outlet of the chimney in the kitchen? Please list.	 If each house is its own chimney. Chimney's relation with cooker, hood, natural gas. If the chimney works or not, its suction power, its connection with other houses, if smell comes from the chimney of neighboring houses. Conditions for changing the place of the chimney if necessary. 					
If existing devices will be used in a new kitchen, what do you note as to them? Please list.	 If they are solo or built-in. Device measurements. Since when they are used. Brands and codes of devices. Visual properties of devices. If the device is defective, why is it defective? How the needs of ventilation of devices needing ventilation are met. 					
If the existing kitchen sink will be used in a new kitchen, what do you note about this sink? Please list.	 Dimensions of the kitchen sink, its model and if dropper location and bottom connections are missing or not. If any damage occurred while disassembling from the old countertop and if all connection parts and its insulation are in good condition. If the existing kitchen sink is suitable for the new closet and countertop to be made. If the mounting type is under-bench or over-bench. 					
If the current armature is to be	Its brand and model					

If the current armature is to be

Its brand and model.

used in a new kitchen, what do you note about this armature? Please list.

- Width and height of the armature.
- Connection diameter in the new kitchen sink.
- In cases when the kitchen sink will be in front of the window, if the armature will prevent the window wing from opening or not.
- If the armature itself and all its connections are intact and if there will be a working problem in the
 place to be used.
- From the kitchen sink or from the wall.
- If it is suitable for the new kitchen sink.

Which furniture would your users usually like to keep in your current kitchen? Please list.

- Dining table and chairs.
- Upper cabinets.

Which method do you use to understand how the loadbearing system of the place where the kitchen project will be built is? Please explain.

- By reviewing the static project of the existing structure, or by scraping the plaster on the wall and seeing if it is concrete or brick, gas concrete and etc.
- By getting information from the site manager if the building is new and y getting information from the former property owner if the building is old.
- By having it controlled by the master will do the construction.

What do you note about the load-bearing system of the place where the kitchen project will be made? Please list.

What else do you note about the

measure in the house where the

space after you have taken

kitchen project will be done?

kitchen has a balcony of not, if

the kitchen is an open or closed

(Interior design style, if the

space, etc.)? Please list.

- Dimensions of the load-bearing system.
- Type of load-bearing system and when it was made.
- Material of the load-bearing system.
- Locations of the load-bearing system in the space.
- If the wall needs to be strengthened to place the cabinets on it.
- The location of the kitchen in the house.
- If the kitchen sees the sun.
- If the existing kitchen is an open kitchen, what kind of top closet can be used if it is an open kitchen?
- Floor covering material and color.
- The style of the furniture in the place the kitchen is together with if the kitchen is open.
- The area of the place the kitchen is together with if the kitchen is open.
- If island kitchen can be made or not.
- Door and window opening directions.
- If the balcony can be joined to the kitchen and if the beam will come out if the balcony can be joined to the kitchen.
- If the kitchen can be joined with a space adjacent to the kitchen.
- If there are walls to be demolished, opened or put up and closed.
- If there is a dining table in the kitchen.
- Which rooms are adjacent to the kitchen?

Do you need to take photos of the space where the kitchen design will be done?

- Yes
- No
- $\ ^{\bullet}$ The photo of the kitchen from the inside corners and the facade to which it is directed
- Floor, ceiling and walls.
- Locations of plumbing, heater cores, natural gas and central heater boiler.
- Different views of walls from every angle on which installation will be made.
- The photo of the kitchen from the door showing all the walls of the kitchen.
- The balcony, if any, and the place the kitchen is together with if the kitchen is open.
- The window and the view seen from the window.
- Kitchen entrance door.
- Columns and beams.

will be done? Please list.

What do you take photos of the

space where the kitchen design

4. Elimination of problems at the stage of survey and analysis of the kitchen space

The problems that occurs/may occur at the stage of making survey and analysis of the kitchen space were determined as not usage of a standard set of questions in which a systematic approach is followed, insufficiency of data collected as to the analysis of the space and therefore not fulfillment of "full completion of the preliminary preparation stage". In order to overcome these problems, it is necessary to create a standard form and a registration system that designers will use during making the survey and analysis of the space. To this end, firstly a literature search was conducted to determine how the form and registration system should be created (Baden-Powell, 2005; Beamish et al., 2013; Beazley, 1999; Bouknight, 2004; Child, 1914; Calley, 2007; Cerver, 2006; Goldbeck, 1994;

Dodsworth, 2009; Edic and Edic, 1999; Jankowski, 2001; King, 2006; Lester and McGuerty, 2010; Lovett, 2003; Panero and Zelnik, 1979; Pheasant, 1996; Piotrowski, 2011; Rand and Perchuk, 1991; Roney, 2008; Spurling, 2010; Stephenson and Stephenson, 1960; Sweet, 2003; Yazicioğlu, 2010; Ward, 1974). It was decided that the form and registration system should consist of three main parts in line with the data obtained as a result of these searches. The cited parts and their purpose of usage are as follows:

- Part I: This part will be created for the purpose of collecting data about user information, devices, equipment inventory, armatures and the furniture which use of which is desired to be continued in the new kitchen.
- Part II: This part will include questions to be asked if modifications about the space are desired.

• Part III: This part will like a check list showing what to check before leaving the space.

While Part I of the creation of the form and registration system as to making the survey and analysis of the kitchen space care was taken to ensure that they were created in a manner to allow the collection of data as quickly and as completely as

possible registration system. Three different form options created to this end were tried in practice in one of the stores which the sample model considered important and the form which was determined to be most functional in line with the obtained results was revised and Part I of the registration system was completed (Table 2).

Table 2: 11	he form and	d registrat	ion system as	to making	the survey	and analysis	s of the kite	chen space-Pa	ırt I
ISER INFORMATION									
Name and surname									
Home phone									
Office phone									
E-mail									
Installation address									
DEVICES									
	Existir	ng New	7 Brand	Model	Solo	Built-in	Width	Depth	Height
Refrigerator									
Deep freeze									
Oven									
Bakery									
Countertop mini oven									
Microwave									
Coffee machine									
Dishwasher									
Washing machine Hood									
Aspirator									
Waste shredder									
Water dispenser									
TV									
Tablet									
GSM charger									
NVENTORY OF KITCH	EN HTENSH	S							
	2.1 0 1 2.1012							Usage fi	requency
							Piece	Very often	Very often
Coffee machine								very orten	very orten
Tea machine									
Tea-coffee maker									
Boiler									
Toaster									
Bread making machine	<u>,</u>								
Bread slicing machine									
Toast machine									
Food processor									
Mixer									
Blender									
Fruit juice extractor									
Deep fryer									
Egg cooker									
Mincing machine									
Popcorn machine									
Electric knife									
Dough opener									
Salad Dryer									
Thermos									
BBQ-Grill									
Kitchen scale									
Hand cleaner									
ARMATURES									
Availa	ble Ne	ew	Brand	1		Model		He	ight
armature									
								Yes	No
Does the house have a									
If there is no home wa									
URNITURE AVAILAB	LE AND DESI	RED TO BE	KEPT IN THE N	IEW CUISINE	<u> </u>				
	A :1.1.1	NI	Number of	XA7: 1:1	r .1	77 . 1 .		34 1	
	Available	New	feet	Width	Length	Height		Material	
Dinner table									
	Available	New	Piece		Seat height			Material	
Chairs					Dout Height				
	Armilal-1-	Ma	Ctrrl-	M-r- ·	.1	Colon	1A7; J.1.	De al-	11 - : -1- ·
	Available	New	Style	Materia	П	Color	Width	Depth	Height
Armchair									
TV wall unit									

In-depth interviews with the company design and modification teams were conducted in addition to

the literature researches for creation of "questions that should be asked if modification as to the space is

desired" which is Part II of the form and registration system. Then, the obtained data were compiled and similar ones were eliminated and it was decided that the question set should be as follows. The answers to these questions will be either "Yes", "No" or "No idea":

- Do you desire to enlarge the kitchen?
- Do you desire to combine the kitchen with another space?
- If the kitchen is open, do you desire it to be converted into a closed kitchen?
- If there is a balcony, is it desired to combine it with the kitchen?
- If there will be a door in the new kitchen, do you desire to change the dimensions of the existing door?
- If there will be a door in the new kitchen, is it desired to change the location of the existing door?
- If there is more than one door in the current kitchen, is it desired to close some of the doors in the new kitchen?
- If there will be a door in the new kitchen is it desired to change the opening direction of the existing door?
- Is going to be opened, do you desire to change the form of the existing door (Sliding, one-way opening, two-way opening, etc.)?
- Do you desire to change the opening way of the window (sliding, guillotine etc.)?
- Is a service window desired?
- Do you desire to renew the natural gas installations?
- Do you desire to renew your clean and dirty water system?
- Do you desire to renew your electrical installation?
- Is the ventilation system desired to be renewed?
- Do you desire to renew your heating system?
- If there is no suspended ceiling, is it desired to be done?
- Do you desire to remove the suspended ceiling if there is one?
- If there is a suspended ceiling, is it desired to be renewed?
- If there is no drywall, is it desired to be made?
- If there is a drywall, is it desired to be removed?
- If there is a drywall, is it desired to be renovated?
- Is the floor covering desired to be renovated?
- Do you desire to renew the wall surface material?
- Is it necessary to renew the countertop material?

By asking these questions about the determination of the planned alterations planned for the space, the designer will be able to communicate with the restoration teams in advance of the prepreparation stage of the project and make the purchases of necessary materials and minimize the unforeseen situations that could disturb the work program in the application stage. And this will ensure the delivery of the work in a timely and complete manner.

In-depth interviews with the company design and modification teams were conducted in addition to the literature researches for determination of "issued to be checked prior to leaving the space "which is Part II of the form and registration system. Then, the obtained data were compiled and similar ones were eliminated and a check list containing the items in Table 3 was created.

It will be possible to ensure that all the details as to taking the dimensions of the space are checked again very quickly, all necessary photos are taken during the designing stage and determine the basic problems that may cause the modification and assembly team to encounter unexpected situations during the application stage thanks to the check-list including the items in Table 3.

5. Conclusions

It will be possible to receive the information necessary to make survey and analysis of the kitchen space thanks to the form and registration system created within the scope of the study in a complete and fast manner. This will enable the project process to progress more accurately. Furthermore, these data will be able to be converted into a set of information (a database) from which various statistical results can be obtained inasmuch as they are collected by each and every designer using a standardized form and registration system. Statistical results as to finding out mostly which restoration are made in the space, what kind of equipment and furniture are desired to be maintained in the kitchen, in which settlement areas kitchen sales are performed mostly and project services are given mostly for which kitchens dimensions and etc. will be able to be reported and these reports will be able to be used by the related departments of the company (sales, marketing, R&D and etc.) to improve kitchen design performance thanks to this database.

The form and registration system developed in this study will be a part of the software model designed in the research project entitled "A Holistic Process Management Model for Increasing the Design Performance of Companies which Produce and Distribute Kitchen Systems".

Acknowledgement

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Table 3: The form and registration system as to making the survey and analysis of the kitchen space-Part III

Existing projects needed to be provided by the user

Measures to be taken related to

architectural components

- Architectural project
- Installation projects
- Wall lengths and heights.
- If the roof of the house is inclined (penthouse, etc.), locations and measures of all the breaking points forming the inclination in the plan and cross section.
- Measurements of vertical and horizontal curvatures in walls.
- If a material has been applied between the counter and its thickness together with the bonding mortar and its height from bottom and top.
- If there is a plaster in the ceiling or if it is planned to be done later, its height.
- Baseboard thickness.
- Measurements of windows, service windows, doors and other spaces, and their distance from the wall.
- Openings directions of windows and doors and their opening distances.
- Window parapet height.
- Sill dimensions.
- Niche and jamb dimensions if any
- If a service window will be opened or if its location will be changed, how will this effects the space.
- Measures and locations of bearing systems (column, beam, curtain).
- $Determination\ of\ situations\ requiring\ structural\ change\ (wall\ demolition,\ wall\ erection,\ location\ change\ of\ the\ door\ and$
- Determining what the bearing system allows in case of situations requiring structural change.
- Dimensions of other space in the case of an open kitchen.
- Area of other space to be included to the kitchen in the case of an open kitchen.
- Depending on the floor material, if there is an open kitchen or if there will be an open kitchen level difference between
- Footprint of the furniture belonging to the other place and noting their locations on the plan if there is an open kitchen or if there will be an open kitchen.
- Determination of the design style of the furniture belonging to the other place if there is an open kitchen or if there will be an open kitchen.
- Measures of balcony, if any.
- Showing the relation with the kitchen of balcony, if there is any balcony.
- If the beam will come out or not if the balcony will be included in the kitchen and, if there is such a case, the height of beam from the ground.
- Measures to be taken in relation to the installation.
- Type of fuel used in cooking section.
- Clean water installation measurements.
- Waste water installation measurements.
- Electrical installation measures.
- · Checking if the location of clean water, dirty water and electrical wiring can be changed if necessary.
- Natural gas installation measurements.
- Distance of natural gas installation to the chimney.
- Measurements of horizontal and vertical place of the chimney.

Measures to be taken related to architectural installation

Photographs need to be taken

Information to be transferred

to the restoration and assembly

as to the space

- Chimney's diameter
- Determination of the relation of the stem to the beams.
- If the distance between the closets and the ceiling allows sufficient flow pipe diameter for the chimney connection.
- If each apartment has its own chimney, control of the connection of the chimney with other houses.
- Is the existing ventilation system adequate? Is there smell? Is there chimney draft? (asking the user).
- Control of the movability of the chimney outlet when necessary.
- The width, length and height of the radiator honeycombs along the vertical and horizontal positions in the space.
- Vertical and horizontal positions of the air conditioner with its width, height and height.
- The width, height and height of the boiler and their vertical and horizontal positions in the space.
- Controlling if the armature prevents the window wing from opening.
- Taking photos of the room by standing on all inner corners of the kitchen.
- Photographing the space from the entrance door of the kitchen in order that the largest number of walls can be seen.
- Taking photos of windows and doors.
- Taking a photo of the landscape seen from the window.
- Photographing the relation of the kitchen with the garden.
- Taking a photo of the space to be used together if it is an open kitchen.
- Taking a photo of kitchen from the space to be used together if it is an open kitchen. Taking a photo of the floor of the space to be used together if it is an open kitchen.
- Taking a photo of kitchen balcony, if any.
- Taking photos of the existing devices planned to be used in the new kitchen.
- Taking photos of the floor, wall and ceiling cover desired to be maintained.
- Taking photos of places that require special design.
- How much sun the kitchen get throughout the day (asking the user, photographing the current situation).
- · Humidity in the area where the house is located (asking the user, taking photos of the current situation related to humidity).
- If there is a car parking at the place where restoration and installation will be made.
- If there is car entry to the street where restoration and installation will be made.
- If there is a freight elevator at the place where restoration and installation will be made. The floor number of the place where restoration and installation will be made.
- If there is a district bazaar at the place where restoration and installation will be made and if there is a district bazaar on which days it is active

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team

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