Data on European kitchen layouts belonging to vulnerable consumers (elderly people and young families with children or pregnant women) and risk-takers (young single men)

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Data Article

Data on European kitchen layouts belonging to vulnerable consumers (elderly people and young families with children or pregnant women) and risk-takers (young single men)

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ABSTRACT

The data presented here capture the structure of kitchen layouts belonging to consumers vulnerable to foodborne diseases and food risk-takers. Data were collected in the frame of the SafeConsume project by multidisciplinary research teams that visited consumers during preparing a meal and had the possibility to examine their cooking routines. Distances between sink and stove, sink and refrigerator, stove and refrigerator, sink and working place (countertop or table), stove and working place were analyzed to correlate food safety practices applied during cooking with kitchen arrangements. The results arising from analyzing the ergonomics of kitchens versus potential cross-contamination events are presented in Mihalache et al., [1]. These data contribute to a better understanding of real kitchen layouts and can be used as a starting point for future research regarding food safety-oriented arrangements instead of ergonomics-focused designs, for food safety risk assessments, as study cases for explaining specific measures that can be established to improve food handling and hygiene practices in homes and for sociological research pointing consumers' behavior during cooking.

Specifications Table

Subject	Social sciences
Specific subject area	Safety research, Kitchen design
Type of data	Table Figure
How data were acquired	Sixty-four households visits were performed in the SafeConsume project (HORIZON 2020, Grant Agreement No. 727580; www.safeconsume.eu) [2]. Three categories of consumers were observed: young families with infants and/or pregnant women (YF), elderly people (EP, 65+ years old), which are vulnerable groups, and young single men (YSM) which are seen as high-risk takers. The consumers were recorded during meal preparation which allowed analyses regarding their food handling and hygiene practices. Then, video-recording analysis using Noldus Observer XT and kitchen drawings were made for households from Norway (13), France (15), Romania (15), Portugal (13), and Hungary (8). Full description of the visits' results is provided in Skuland et al., [3].
Data format	Raw Analysed
Parameters for data collection	Kitchens' areas, distances between equipment forming the kitchen work triangle (sink and stove, sink and refrigerator, stove and refrigerator), distances between equipment forming the food safety triangle (sink and stove, sink and working place, countertop or table if a table was used as working place during cooking, stove and working place), perimeters of the kitchen working triangle and food safety triangle. To these data, demographic data of the persons to whom kitchens belong are presented. The data sets also contain numbers of potential cross-contamination events that occurred during meal preparation (cooking poultry meat and preparing a lettuce salad).

(*continued on next page*)

Description of data collection	Kitchen layouts were sketched during the household visits performed by researchers in SafeConsume who analysed consumers' routines during cooking poultry and preparing a lettuce salad. Kitchen layouts were then transposed in AutoCAD drawings. Dimensions for the main kitchen equipment and work sites were taken into consideration from a database of drawings, which also has dimensions guides for kitchen equipment [4]. Distances between the main work zones were then measured in the AutoCAD 15 software (Autodesk Inc., San Rafael, CA).
Data source location	Region: Europe Country: France, Hungary, Norway, Portugal, Romania Towns/cities: Angers (FR) (47° 28′ 22″N, 0° 33′ 20″W), Szekszárd (HU) (46°21′21″N 18°42′14″E), Szécsény (HU) (48° 04′ 51″N, 19° 31′ 10″E), Nagymaros (HU) (47° 47′ 12″N, 18° 57′ 31″E), Debrecen (HU) (47° 31′ 48″N, 21° 38′ 21″E), Budapest (HU) (47° 29′ 33″N, 19° 03′ 05″E), Oslo (NO) (59° 56′ 58″N, 10° 45′ 23″E), Viken (NO) (60° 49′ 24.5784"N, 7° 57′ 14.7672"E), Matosinhos (PT) (41° 11′N, 8° 42′W), Vila Nova de Gaia (PT) (41° 08′N, 8° 37′W), Maia (PT) (41° 14′N, 8° 37′W), Gondomar (41° 9′N, 8° 32′W), Porto (41° 9′ 43.71″N, 8° 37′ 19.03″W), Galati (RO) (45° 26′ 7.1556′′N, 28° 0′ 28.7784′′E), Targu Bujor (RO) (45° 52′ 26.4468′′N, 27° 54′ 58.41′′E) Villages: Segré (FR) (47° 41′ 14″N, 0° 52′ 15″W), Chemillé (FR) (47° 12′ 47″N, 0° 43′ 33″E), Saint-Léger-des-Bois (FR) (47° 27′ 37″N, 0° 42′ 32″W), Le Louroux-Béconnais (FR) (47° 31′ 18″N, 0° 53′ 11″W), Saint-Mathurin-sur-Loire (FR) (47° 24′ 47″N, 0° 19′ 08″W), La Possonnière (FR) (47° 22′ 31″N, 0° 41′ 11″W), Savennières (FR) (47° 22′ 58″N, 0° 39′ 27″W), La Membrolle-sur-Longuenée (FR) (47° 33′ 40″N, 0° 40′ 26″W), Szögliget (HU) (48° 31′ 22″N, 20° 40′ 28″E), Istenmezeje (HU) (48° 05′ 10″N, 20° 03′ 18″E), Szentgyörgyvölgy (HU) (46° 43′ 34″N, 16° 24′ 31″E), Virlezi (RO) (45° 53′ 58″N, 27° 51′ 0″E), Poiana (RO) (45° 59′ 32″N, 27° 15′ 21″E), Tulucesti (RO) (45° 53′ 58″N, 28° 2′ 37″E)
Data accessibility	Repository name: Mendeley Data Direct URL to data: https://data.mendeley.com/datasets/r55pbs5s8p/2
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Value of the Data

- The data allow the study of consumers' behaviour in relation with kitchen arrangements. If food safety-targeted strategies may be required for different groups of consumers, our data can serve as starting point of discussions as they reveal how the consumers' kitchen environment looks like.
- Sociologists, food safety risk evaluators, hygiene experts, and kitchen designers may base their studies on these data to conduct research (estimate the magnitude of cross-contamination in kitchens when performing quantitative microbiological risk assessment, assess the strengths and the vulnerabilities of consumers related to different kitchen arrangements, test different scenarios based on real kitchen layouts when evaluating the efficacy of hand cleaning procedures).
- The layouts from these data can be used as case studies in explaining why kitchen designs should incorporate not only ergonomics but safety and food safety features as well.
- Specific measures and means can be established in correlation with real kitchen designs to assist vulnerable consumers in improving their food handling and hygiene practices.

1. Data Description

This paper presents kitchen layouts drawn following the visits performed by the SafeConsume researchers from December 2017 to June 2018 in European households belonging to vulnerable consumers (EP - elderly people and YF - young families with children or pregnant women) and risk-takers (YSM - young single men) from either urban or rural residencies (https://data.mendeley.com/datasets/r55pbs5s8p/2).

The figures' names have the following format: country abbreviation ALPHA-2 (ISO-3166-1)_consumer pseudonym_category of consumer (EP, YF, YSM). In each figure there are drawn two triangles, one representing the kitchen work triangle and the other one representing the food safety triangle.

Originating in the 1940s, the kitchen work triangle aimed to help designing a utilitarian work area for housewife when cooking. Being an ergonomic-based concept, the kitchen work triangle is still used by designers to optimize kitchen layouts. The food safety triangle is a new concept revolving around food safety in kitchen, which is proposed by Mihalache et al., [1] with the aim to create premises for reducing food cross-contamination in kitchens, one of the leading causes of foodborne outbreaks. Significant correlations were observed between the arrangement of the kitchens and the occurrence of cross-contamination events. While the kitchen work triangle was not associated with food safety, consumers were more likely to adopt proper hygiene practices when the perimeter of the food safety triangle was $\leq$4 m and the distance between sink (washing area) - countertop (preparation area) was $\leq$ 1 m [1].

Although designers are ready to provide kitchen layouts for those accessing their services and furniture shops provide a variety of kitchen arrangements as models for their customers, in real life most of the people act as their own designers for their kitchens and they often have to adapt the layouts to the space they have and not by following the recommended guidelines. In some figures it can be seen that due to the lack of space the flat owners extended their kitchens to the balcony, while people living in countryside perform some of the cooking outdoors. These observations and the arrangements that consumers have in their real kitchens should be of value for sociologists, risk assessors, and food safety educators.

The parameters defining the kitchens (areas, distances between equipment forming the kitchen work triangle, distances between equipment forming the food safety triangle, perimeters of the kitchen working triangle and food safety triangle), their owners (demographic data) as well as the number of the cross-contamination events that occurred in kitchen during a cooking session that involved the preparation of a lettuce salad and poultry dish with poultry meat are presented in five tables (one table per country). The order, in which the consumers and their kitchens are presented in Tables 1–5, corresponds to the order of the figures in the repository. Presenting the length of the distances between the kitchen equipment allow not only calculation of triangles' perimeters but noticing the distance that favors the occurrence of a cross-contamination event. Perimeters are used to assess if a kitchen is working efficiently (perimeter of the working triangle between 4–7.9 m) and supports hygiene routines (food safety triangle $\leq$ 4 m) discouraging the occurrence of cross-contamination events. Providing the kitchen areas allows their classification in small, medium and large, if such a category should be taken into account in studies. The number of cross-contamination events occurring in each kitchen can be associated with the arrangement of equipment and with the category of consumer (vulnerable consumers and high risk-takers).

Table 1
Kitchen parameters and cross-contamination (CC) events for French consumers.

		Kitchen work triangle, m*				Food safety triangle, m**					CC events that occurred during handling of…		
Consumer	Residency	S1	S2	S3	Perimeter	S1	S2	S3	Perimeter	Kitchen area, m^2	raw chicken	raw vegetables	lettuce
FR_Mathilde_YF (Fig. 1)	U	1.5	1.5	1.4	4.4	1.5	2.4	0.6	4.5	14.82	2	3	6
FR_Amandine_YF (Fig. 2)	R	1.55	2.88	1.56	5.99	1.55	1	0.96	3.51	20	0	4	2
FR_Julie_YF (Fig. 3)	U	1.1	0.85	2	4.05	1.1	0.8	0.9	1.98	20	3	4	2
FR_Mylene_YF (Fig. 4)	U	1.2	1.9	0.7	3.8[B]	1.3	0.3	1	2.6[D]	11.06	3	4	1
FR_Elodie_YF (Fig. 5)	R	2	2.5	0.5	5	2	1.3	0.9	4.2	11.08	4	2	5
FR_Bernard & Helene_EP (Fig. 6)	U	2.12	1.8	1.77	4.97	2.12	1.06	1.06	4.24[D]	12	4	10	11
FR_Yvette & Francois_EP (Fig. 7)	U	1.7	2.36	2.83	6.89	1.7	0.65	2.3	4.65	14.1	3	3	2
FR_Gerard & Odile_EP (Fig. 8)	R	2.3	2.86	0.7	5.86	2.3	0.6	1.95	4.77	30	0	2	1
FR_Sylviane_EP (Fig. 9)	R	2.76	1.37	3.93	8.06	2.76	1.08	1.64	5.48[D]	30	3	6	2
FR_Charles & Annie_EP (Fig. 10)	R	3.1	1.31	0.2	2.64[A]	3.1	2.3	0.98	6.38[C]	9	7	2	4
FR_Fabrice_YSM (Fig. 11)	U	1.16	1.5	2.4	5.06	1.16	2.98	1.8	5.94[C]	10.11	2	0	1
FR_Aurelien_YSM (Fig. 12)	R	1.56	1.25	2.82	5.63	1.56	0.65	2.21	4.42	23.7	3	4	1
FR_Vincent_YSM (Fig. 13)	R	7	1.61	6.3	15.24[A]	7	1.16	6.8	14.96[C]	9.78	6	0	5
FR_Simon_YSM (Fig 14.)	U	1.05	1.4	1.96	4.41	1.05	2	0.95	4[D]	12.74	3	2	2
FR_Etienne_YSM (Fig. 15)	R	1.74	2.37	0.63	4.74	1.74	0.78	0.96	3.48[D]	25	0	1	2

* Kitchen work triangle sides: S1 = sink – stove, S2 = sink – fridge, S3 = stove – fridge;
** Food safety triangle sides: S1 = sink – stove, S2 = sink - countertop, S3 = stove - countertop; U = urban; R = rural
[A] perimeter formed with some of the equipment placed outside the kitchen;
[B] distance between key areas arranged in a line (specific to the work triangle);
[C] perimeter formed with some of the equipment placed outside the kitchen;
[D] distance between key areas arranged in a line (specific to the food safety triangle).

Table 2
Kitchen parameters and cross-contamination (CC) events for Norwegian consumers.

		Kitchen work triangle, m*				Food safety triangle, m**					CC events that occurred during handling of...		
Consumer	Residency	S1	S2	S3	Perimeter	S1	S2	S3	Perimeter	Kitchen area, m^2	raw chicken	raw vegetables	lettuce
NO_Anna_YF (Fig. 16)	U	1.48	1.26	2.7	5.44	1.48	0.8	0.9	3.14	8.78	0	5	4
NO_Emma_YF (Fig. 17)	R	1.2	3	3.3	7.5	1.2	0.96	0.5	2.55	14.58	1	7	2
NO_Hanne_YF (Fig. 18)	U	1.3	2.3	0.97	4.57[B]	1.3	0.7	0.6	2.6[D]	18.01	1	5	1
NO_Bente_EP (Fig. 19)	U	1.42	1.65	2.28	5.35	1.42	0.74	0.66	2.82	12.73	1	6	2
NO_Inger_EP (Fig. 20)	R	1.23	2	1	4.23	1.23	1	1.33	3.56	11.62	2	4	2
NO_Kari_EP (Fig. 21)	U	1.8	1.48	1.22	4.5	1.8	0.94	0.98	3.72	6.44	1	6	2
NO_Nils_EP (Fig. 22)	R	1.47	1.78	2.1	5.35	1.47	1.3	1	3.77	14.31	0	5	6
NO_Ove_EP (Fig. 23)	R	1.35	1.97	0.87	4.19	1.35	0.63	0.87	2.85	9.56	2	5	0
NO_Fredrik_YSM (Fig. 24)	U	3.1	2.4	2.22	7.72[A]	3.1	3.9	0.9	7.9[C]	14.2	3	12	2
NO_Georg_YSM (Fig. 25)	U	4.5	4.5	0.2	9.2[A]	4.5	4.5	0.2	9.2[C]	10.1	4	9	1
NO_Jon_YSM (Fig. 26)	U	1.4	0.86	1.36	3.62	1.4	0.95	0.45	2.8	11.21	0	2	1
NO_Petter_YSM (Fig. 27)	R	0.7	1.43	2	4.13	0.7	1.3	0.9	2.9	8.93	3	8	0
NO_Roger_YSM (Fig. 28)	U	5.1	3.7	1.16	9.96[A]	5.1	5.7	0.6	11.4[C]	11.84	0	7	0

* Kitchen work triangle sides: S1 = sink – stove, S2 = sink – fridge, S3 = stove – fridge;
** Food safety triangle sides: S1 = sink – stove, S2 = sink - countertop, S3 = stove - countertop; *U* = urban; *R* = rural
[A] perimeter formed with some of the equipment placed outside the kitchen;
[B] distance between key areas arranged in a line (specific to the work triangle);
[C] perimeter formed with some of the equipment placed outside the kitchen;
[D] distance between key areas arranged in a line (specific to the food safety triangle).

Table 3
Kitchen parameters and cross-contamination (CC) events for Portuguese consumers.

Consumer	Residency	Kitchen work triangle, m*				Food safety triangle, m**				Kitchen area, m^2	CC events that occurred during handling of...		
		S1	S2	S3	Perimeter	S1	S2	S3	Perimeter		raw chicken	raw vegetables	lettuce
PT_Marta_YF (Fig. 29)	U	1	1.4	1	3.4	1	0.5	0.5	2[D]	6.72	1	3	8
PT_Vanessa_YF (Fig. 30)	R	1.1	1.96	0.95	4.01	1.1	0.55	0.55	2.2[D]	8	0	4	0
PT_Filipa_YF (Fig. 31)	U	0.83	2.83	2	5.66	0.83	1.52	0.69	3.04[D]	17	0	6	0
PT_Andreia_YF (Fig. 32)	U	1.5	1.7	3	6.2	1.5	0.9	0.6	3[D]	9.12	1	2	4
PT_Sonia_YF (Fig. 33)	R	1.57	0.7	2.27	4.54[B]	1.57	0.9	0.7	3.17[D]	8	0	1	3
PT_Silvia_YF (Fig. 34)	R	1.58	0.55	2.13	4.26[B]	1.58	0.81	0.77	3.16[D]	9	3	1	4
PT_Emilia_EP (Fig. 35)	U	1.18	2.8	1.76	5.74	1.18	0.59	0.59	2.36[D]	8.35	7	1	6
PT_Augusto_EP (Fig. 36)	R	0.98	2.11	1.32	4.41	0.98	0.47	0.51	1.96[D]	8.58	0	4	6
PT_Manel_EP (Fig. 37)	U	1.05	1.8	2.85	5.7[B]	1.05	0.5	0.55	2.1[D]	9.65	6	6	4
PT_Celeste_EP (Fig. 38)	U	1.2	1.67	2.64	5.51	1.2	0.55	0.65	2.4[D]	11.4	1	5	4
PT_Odete_EP (Fig. 39)	U	1.36	1.77	3.13	6.26	1.36	0.58	0.78	2.72[D]	7.46	0	3	2
PT_Andre_YSM (Fig. 40)	U	1.05	2	0.95	4[B]	1.05	1.5	0.45	2.1[D]	9.2	4	6	7
PT_Bernardo_YSM (Fig. 41)	U	0.8	1.8	1	3.6	0.8	0.34	0.46	1.6[D]	6.2	0	0	0

* Kitchen work triangle sides: S1 = sink – stove, S2 = sink – fridge, S3 = stove – fridge;
** Food safety triangle sides: S1 = sink – stove, S2 = sink - countertop, S3 = stove - countertop; *U* = urban; *R* = rural
[A] perimeter formed with some of the equipment placed outside the kitchen;
[B] distance between key areas arranged in a line (specific to the work triangle);
[C] perimeter formed with some of the equipment placed outside the kitchen;
[D] distance between key areas arranged in a line (specific to the food safety triangle).

Table 4
Kitchen parameters and cross-contamination (CC) events for romanian consumers.

Consumer	Residency	Kitchen work triangle, m*				Food safety triangle, m**				Kitchen area, m^2	CC events that occurred during handling of...		
		S1	S2	S3	Perimeter	S1	S2	S3	Perimeter		raw chicken	raw vegetables	lettuce
RO_Amalia_YF (Fig. 42)	U	2	2.2	1	5.2	2	1	1	4[D]	11.62	4	12	5
RO_Minodora_YF (Fig. 43)	R	8.8	10.9	1.9	21.6[A]	8.8	6.5	2.3	17.6[C]	12.96	6	3	2
RO_MariaMirabela_YF (Fig. 44)	U	3.5	1	3.3	7.8	1.25	0.5	1.35	2.65	10.56	0	5	4
RO_Sorina_YF (Fig. 45)	R	1.2	6	7.2	14.4[A]	1.2	2.4	1.5	5.1	8	5	6	3
RO_Serena_YF (Fig. 46)	R	5.8	7.3	1.5	14.6[A]	5.8	7	1.2	14[C]	8	2	3	2
RO_Dumitra_EP (Fig. 47)	R	5.2	8	7.9	21.1[A]	5.2	4	1.2	10.4[C]	7.5	6	7	1
RO_Domnica_EP (Fig. 48)	U	0.6	2.8	2.5	5.9	0.6	1	1.3	2.9	9	2	5	1
RO_Fanel&Fanica_EP (Fig. 49)	U	0.6	1.8	1.7	4.1	0.6	1.5	0.8	2.9[D]	18	4	9	3
RO_Damian&Damiana_EP (Fig. 50)	R	2.7	2	4	8.7[A]	2.7	7.9	10.6	20.2[C]	9.24	4	2	4
RO_Linalia_EP (Fig. 51)	R	5	2.5	2.5	10[A]	5	4.4	1.1	10.5[C]	15	6	3	2
RO_Balanel_YSM (Fig. 52)	U	1.97	1	2.36	5.33	1.97	1.58	1.25	4.8	6.98	5	8	3
RO_Ionel_YSM (Fig. 53)	U	1.5	3.5	3.76	8.76	3.5	0.4	2.6	6.9	12.78	0	0	4
RO_Bogdan_YSM (Fig. 54)	U	0.5	0.76	1.44	2.7[B]	0.5	1.5	1.5	3.5	10.5	1	9	0
RO_Florinel_YSM (Fig. 55)	U	2.7	1.8	0.8	5.3[B]	2.7	0.9	1.7	5.3[D]	9.2	2	4	2
RO_Zoltan_YSM (Fig. 56)	U	0.5	3.7	4.2	8.4	0.5	2.1	2.2	4.8	22	1	13	2

* Kitchen work triangle sides: S1 = sink – stove, S2 = sink – fridge, S3 = stove – fridge;
** Food safety triangle sides: S1 = sink – stove, S2 = sink - countertop, S3 = stove - countertop; U = urban; R = rural
[A] perimeter formed with some of the equipment placed outside the kitchen;
[B] distance between key areas arranged in a line (specific to the work triangle);
[C] perimeter formed with some of the equipment placed outside the kitchen;
[D] distance between key areas arranged in a line (specific to the food safety triangle)

Table 5
Kitchen parameters and cross-contamination (CC) events for Hungarian consumers.

		Kitchen work triangle, m*				Food safety triangle, m**					CC events that occurred during handling of...		
Consumer	Residency	S1	S2	S3	Perimeter	S1	S2	S3	Perimeter	Kitchen area, m^2	raw chicken	raw vegetables	lettuce
HU_Ágota_YF (Fig. 57)	U	1.9	2.98	6	10.88[A]	1.9	1	0.9	3.8[D]	5.25	3	1	1
HU_Babett_YF (Fig. 58)	R	0.81	1.78	1.38	3.97	0.81	2.38	2.5	5.69	13.35	2	1	0
HU_Berta_YF (Fig. 59)	U	1.1	2.1	2.4	5.6	1.1	0.5	0.6	2.2[D]	10	9	5	4
HU_Edvárda_EP (Fig. 60)	R	1.31	3.3	2	6.61[A]	1.31	2.19	0.88	4.38[D]	8	5	2	2
HU_Júlia_EP (Fig. 61)	R	0.6	2.38	2.1	5.08	0.6	1.57	1.14	3.31	13.5	4	4	3
HU_Karolina_EP (Fig. 62)	U	1.3	3.3	2.3	6.9[A]	1.3	0.7	0.6	2.6[D]	13.5	9	4	4
HU_Margó_EP (Fig. 63)	U	2.64	0.64	2.85	6.13	2.64	2.6	0.7	5.94	16	11	7	6
HU_Márta_ EP (Fig. 64)	R	4.1	4.23	0.57	8.9	4.1	1.6	2.75	8.45	18	3	3	2

* Kitchen work triangle sides: S1 = sink – stove, S2 = sink – fridge, S3 = stove – fridge;
** Food safety triangle sides: S1 = sink – stove, S2 = sink - countertop, S3 = stove - countertop; *U* = urban; *R* = rural
[A] perimeter formed with some of the equipment placed outside the kitchen;
[B] distance between key areas arranged in a line (specific to the work triangle);
[C] perimeter formed with some of the equipment placed outside the kitchen;
[D] distance between key areas arranged in a line (specific to the food safety triangle).

2. Experimental Design, Materials and Methods

Different layouts of kitchens belonging to vulnerable consumers and risk-takers were noticed by researchers from the SafeConsume project during studying consumers' routines when cooking poultry and preparing a lettuce salad. Households' recruitment (64) was performed by professional agencies being active in each country participating in the research [3].

As such, preliminary sketches regarding equipment placement and the dimensions of the kitchens were drawn by the members of the research groups for households from Norway (13), France (15), Romania (15), Portugal (13), and Hungary (8). Afterwards AutoCAD 15 software (Autodesk Inc., San Rafael, CA) was used to transpose the sketches into AutoCAD drawings. The standard dimensions for the work zones, furniture, equipment, and appliances were also taken into consideration from a database which has dimension guides for kitchen appliances [4].

The accuracy of the AutoCAD software allowed us to draw the final kitchen layouts (centimeters used as unit of measure) and calculate the lengths and sides of the two types of triangles discussed in Mihalache et al., [1]: the kitchen work triangle with its main zones represented by sink-stove-refrigerator and the food safety triangle with its main zones represented by sink – countertop – stove.

The kitchen work triangle was drawn with red, while the food safety triangle was drawn with green. Dash lines were used when an equipment was placed outside the kitchen, therefore exceeding the recommended perimeter of the kitchen work triangle ($>$ 7.9 m) or the perimeter recommended by us for the food safety triangle ($>$ 4 m).

The AutoCAD drawings were exported as images and sorted based on the participating countries.

Ethics Statement

All consumers signed an informed consent form. Ethical approvals for the study were granted by the Norwegian Centre for Research Data (Norway, 55256/3/AMS), Commission Nationale de l'Informatique et des Libertés (France, 152182 REC 0717 T001), the Ethical commission of the Dunarea de Jos University of Galati (Romania, RCF1548/31.08.2017), the National Data Protection Commission (Portugal, 13914/ 2017), and the National Food Chain Safety Office (Hungary).

CRediT Author Statement

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

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