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Challenge! Open Governance 2017 Application Form for Citizens & Students

Title of Regional Issue*	No.	Title	Name of Municipality
	– （事務局用）	Promotion of Regional Comprehensive Care System	Nakano Ward, Tokyo-to
Name of the Idea (disclosure)	Visualization of data that includes area characteristics for early identification and care of frail individuals		

（*Enter the title of regional issue of the applying municipality as described in COG2017 website.

1. Applicant Information

Name of the team (disclosure)	Street Design Research Organization x Meiji University Graduate School	
Team attribution (disclosure)	○ 1. 市民によるチーム　　○ 2. 学生によるチーム　　◉ 3. 市民、学生の混成によるチーム	
Number of members	6	
Team leader (only the name will be disclosed)	Name (disclosure)	Ryota Kikuchi

※Conditions for information disclosure

Information provided in "2. Description of Idea" beginning on the next page will be disclosed under the Creative Commons Attribution 4.0 International license (CC BY 4.0) after confirmation of its contents. At the request of the applicant, however, such information will be disclosed under the CC BY-NC (Attribution – Noncommercial) 4.0 International license. Please let us know your preference at the time of application. In both cases, the name of the applying team will be used.
(See the specific licensing conditions at https://creativecommons.org/licenses/by/4.0/legalcode.ja, or https://creativecommons.org/licenses/by-nc/4.0/legalcode.ja. You can also see licensing information from Creative Commons at https://creativecommons.jp/licenses/)

(Notes)
<Name of the file for application and addressee>
1. Send the file with the filename COG2016_applicationform_teamname_municipalityname to the address below. You can also access this address via the application registration column on the COG2016 website of the Graduate School of Public Policy, The University of Tokyo: admin_padit_cog2016@pp.u-tokyo.ac.jp
<Public or private information>
2. The name of the idea, name of the team, team attribution, name of the team leader, and "description of idea" will be open to the public.
3. The contents above will be reviewed before disclosure (anything which is harmful to public order, unethical, or making use of a plagiarized idea will not be disclosed).
4. The "self-evaluation" column of the application form will not be disclosed. However, if the content is excellent and deemed useful for other applicants, it may be disclosed after consultation during the advice stage after the open review.
5. If any element associated with an intellectual property right whose holder is not a member of the applying team, such as texts, photographs, and graphics, is included in the "description of idea," it should be demarcated stating that it is quoted according to the relevant laws and regulations or that its use has been approved by the right holder. Please do the same for the "self-evaluation" column.
<List of the team members>

Submit the list of the team members in the attached Excel file (Any information about members other than the team leader as specified

in 2. above will not be disclosed except to the COG Secretariat. Please see the attachment for details).

2. Description of the Idea

Fill in three items: (1) content of idea, (2) rationale for idea, and (3) how to realize it.

(1) content of the idea

Please show the contents of the idea by putting these elements in the idea as to who, what, where, when, and how it is a public service (activity) to do.

【Overview】

Nakano Ward has a long North-South structure with differences in living environment and community facilities between its various areas. Further, it is strengthening the preventative care operations as part of its comprehensive care policy.

In this context, we will collect data and information relating to the characteristics of frail individuals and turn it into a heat map. The visualization of such data will clarify the prioritization of areas to be visited and where care should be provided.

By proactively calling on people, holding seminars, and conducting outreach in the priority areas it will be possible to identify frail individuals earlier, provide more targeted treatment and preventative care.
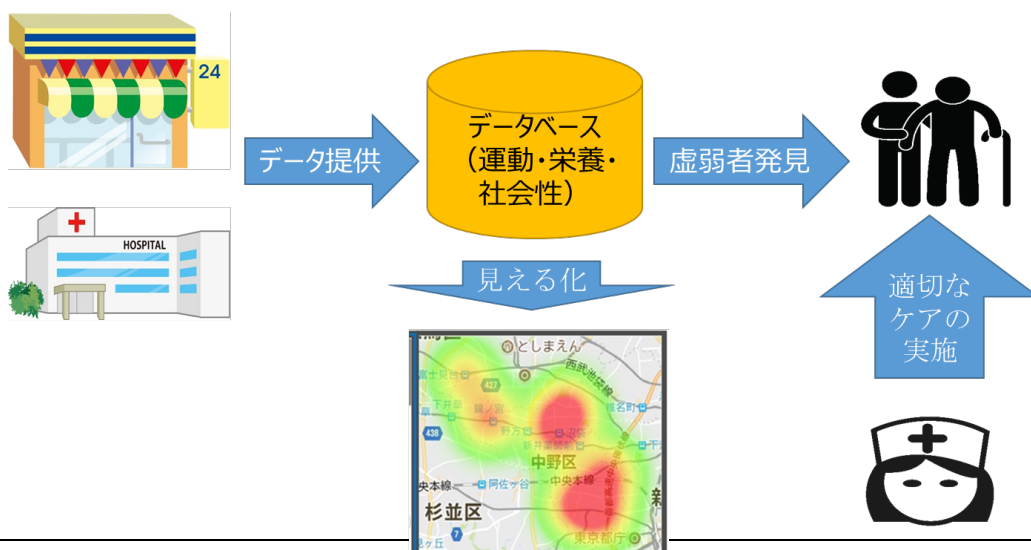
【Organizers】

・Data Supply: Commercial and industrial actors in Nakano Ward, health professionals, public institutions (facilities)

・System Design: Street Design Research Organization, Meiji University Graduate School

・Data Collection: Officer for the promotion of comprehensive care in the Nakano Ward area

・Preventative Care: Officer for the promotion of comprehensive care in the Nakano Ward area, residents （neighborhood/residents associations, child welfare commissioner, shopping streets, etc.）

【Aims】

・Early identification of frail individuals to provide more targeted treatment and improve preventative care.

・Preventative care will result in residents retaining a sense of pride and allow them, to the greatest extent possible, to continue to live in the area that they are used to in the future.

・Decrease social security costs by delaying the onset of a state which requires nursing care.

【Overview Diagram】

<mark>(2) Rationale for the idea</mark>

Describe the Rationale for the idea (why have you chosen this idea?) with numerical data (achievements, statistics, or questionnaire results) and evidence (materials, plans, or existing measures) that support the idea (collectively, the "data").

【Characteristics of Nakano Ward】

On October 30, 2017 we held a hearing with Vice-Secretary Sakai and Kobayashi-sama of the Nakano Ward Area Comprehensive Care Promotion Unit concerning the characteristics of Nakano Ward and the state of its comprehensive care operations. The following characteristics became clear.

・Nakano Ward has a long North-South structure with differences in living environments and community facilities between areas.

・Nakano Ward is making an effort to strengthen preventative care, particularly with regard to the prevention of frailty.

【Analysis of the Ministry of Health, Labour and Welfare Nursing Prevention Fundamental Checklist (hereafter, checklist) carried out in Nakano Ward in 2014】

1. Analysis Overview

Based on the results of the checklist which was administered to 33,012 senior citizens in Nakano Ward in 2014, a principal component analysis identified differences between areas in the following three aspects: frail individuals; people tending toward cognitive disease; and people who do not exercise.

2.Target Data for Analysis

Data exists on the following items for 33,012 elderly residents of Nakano Ward.
Age, gender, area of residence, results of a 25-item checklist.

3.Principal Component Analysis

Using normalized values of the above, a principle component analysis for three components was conducted. Results revealed a cumulative contribution ratio of 0.73 down to the third component, with factor loadings for each component as follows.

Results showed that the questions for each of the components below had high factor loadings.

First Component (Contribution Ratio: 0.37)

Q2 I purchase daily necessities; Q4 I go to visit friends at home; Q18 People say that I always ask the same things

Second Component（Contribution Ratio: 0.22）

Q3 I deposit and withdraw money from my bank account; Q5 My family and friends discuss things with me about their lives; Q8 I walk continuously for about 15 minutes; Q16 I go out once or more a week

Third Component（Contribution Ratio: 0.14）

Q14 I sometimes choke on tea or soups; Q17 I go out less compared to last year

【Analysis Results（Extract）】

	1. 一人で外	2. 日用品	3. 預貯金	4. 友人の	5. 家族や	6. 手すり・	7. 座った状	8. 15分位	9. ここ1年	10. 転倒に
江古田	0.831486	0.851909	0.866021	0.964923	0.980851	0.924759	0.934145	0.968194	0.952757	0.9481
鷺宮	0.978635	0.93054	0.978317	0.989649	0.934297	1	0.948001	0.913722	0.948608	
上鷺宮	0.860825	0.919701	0.871205	0.996756	0.857013	0.897657	0.863151	0.845158	0.928199	0.904576
中野	1	0.889383	0.928687	0.971698	0.979451	0.932021	0.907704	0.940736	0.975835	0.952306
中野北	0.820525	1	1	0.969658	0.949914	0.928494	0.925268	0.905658	0.918973	0.941707
東中野	0.890339	0.922426	0.848513	1	0.902829	0.89311	0.919328	0.875268	0.963431	0.986507
南中野	0.848791	0.930604	0.995323	0.97257	1	0.959751	0.904468	1	1	1
本町	0.809384	0.908415	0.886324	0.936994	0.948779	0.92436	0.900836	0.901693	0.958999	0.94706

	1. 一人で外出し	2. 日用品の買い	3. 預貯金の出し	4. 友人の家を訪	5. 家族や友人の
第一主成分	−0.26448234	0.04440435	−0.25572809	0.01244081	−0.22077875
第二主成分	−0.48583476	0.15264437	0.21809664	−0.06193657	0.15057854
第三主成分	0.09868308	0.10026446	0.1810865	0.12720115	−0.20709804

4.Analysis Results
・There was a difference in frequency of going out between areas in the north and south of the ward, but no other differences were observed.
・It is difficult to identify frail individuals solely from the information in the checklist.

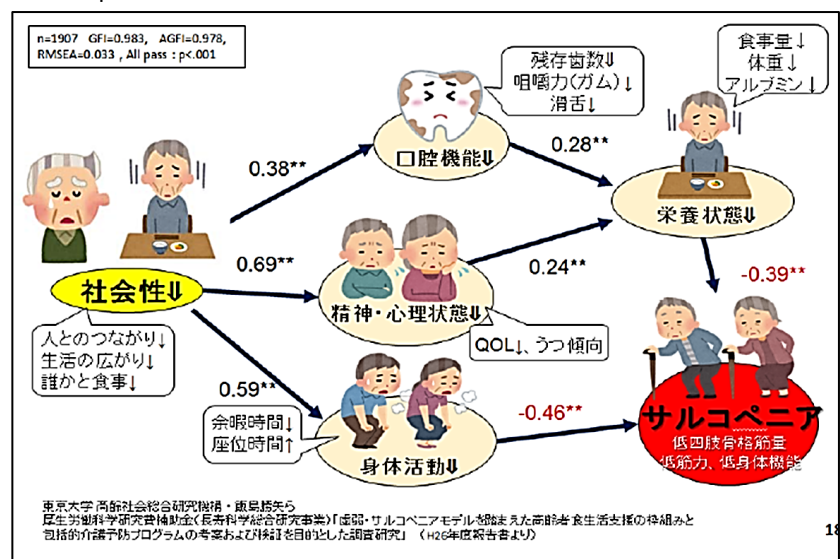## 【Characteristics of People who Become Frail】
From the interview with the Nakano Ward Comprehensive Care Officers the following pattern became apparent.

1.Difference between sarcopenia and frailty
・Sarcopenia: Loss of muscle mass, and a decrease in muscle strength and physical function.
・Frailty: Decrease in physical capacity consistent with aging, a state where ill health becomes increasingly probable.
*Sarcopenia is one cause of frailty

2.Causes of sarcopenia
Declining sociability leads to decreases in oral function, psychological state, and physical activity, resulting in sarcopenia.

（Source: Supplied by officer for promotion of comprehensive care in Nakano Ward）

3.Measures for preventing frailty
Exercise for maintaining basic physical strength, getting sufficient nutrition, and maintaining social relations can slow the progression of frailty.

【Summary of Data Category Analysis】
・It is difficult to identify frail individuals or the necessity for nursing due to area characteristics with the existing data checklist.
・We need to collect data on exercise, nutrition, and sociability in order to be able to identify frail individuals.
・Data regarding the above are not currently being collected by Nakano Ward.

(3) How to realize it.

Describe the process and milestones, etc.

【Gantt Chart】

	Item	Responsible Party	2017	2018 1st Half	2018 2nd Half
1	Data Design	Street Design Research Organization	▒		
2	Data Collection	Nakano Ward		▒	
3	Data Visualization	Street Design Research Organization, Meiji University Graduate School, Nakano Ward		▒	▒
4	Carry Out Preventative Care	Nakano Ward, Residents			▒

1.Data Design

Ideathons will be held in order to develop ideas as to what data on exercise, nutrition and sociability can be collected to aid early identification of frailty.

The first ideathon was held on December 11, 2017.

・Organizer: Street Design Research Organization

・Participants: Residents of and commuters to Nakano Ward (26); Officer for promotion of preventative care in the Nakano Ward area.

・Location: Meeting room at Nakano Ward offices

The results of the ideathon produced the following possibilities for data:

(Exercise)

Install smart speakers inside rooms to understand the state of people's lifestyles; gain knowledge from the state of the buildings; medical checkup records.

(Nutrition)

Sales data from supermarkets, convenience stores and co-ops; dental checkup records.

(Sociability)

Participation in events; use of senior citizen pass; use of social media; use of hairdresser/beauty salons.

Of these, sales data from supermarkets, convenience stores, and co-ops are collected in the form of POS data for age and gender and as such can be relatively easy to use. For example, areas where instant noodles and snack-type bread products have a high sales ratio may indicate poor nutrition. Further, frequency of leaving the house may be discerned from a count of store visit frequency.

We plan to continue holding ideathons in our investigations into the types of data that may be of value.

2.Data Collection

Nakano Ward has a comprehensive linkage agreement with Seven-Eleven Japan (Source: Ward Chief Administrator press conference materials—October 18, 2016). We will request to use this relationship to gain access to POS data. If it appears to be useful, we will contact other companies to gain access to more

data.

3.Data Visualization

Members of Street Design Research Organization and Meiji University graduate school will develop a system for visualizing the collected data in the form of a heat map.

The system will be provided to Nakano Ward and will be made publicly available, with data in the form of a heat map.

（Heat map development schedule）

The system for displaying collected data in the form of a heat map is scheduled to be completed, in the form of a web service, in approximately one month. This may change according to the degree of processing the data require.

（Heat map development budget）

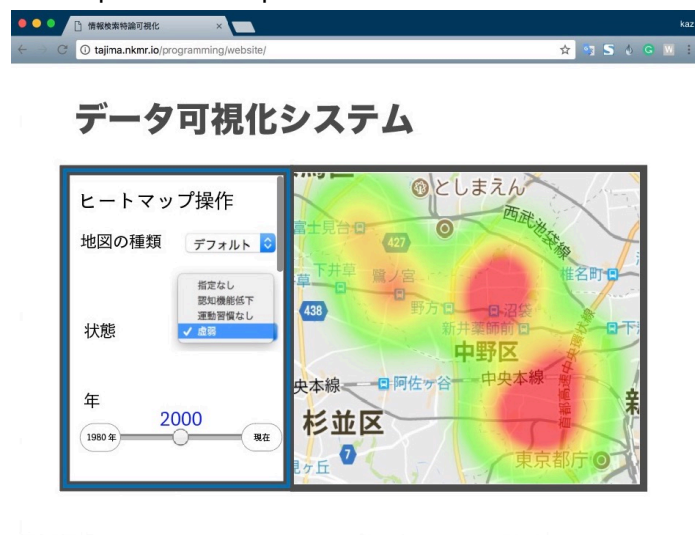Less than ¥500,000. The budget for this will be provided by Nakano Ward.

（Heat map development policy）

Google Maps API will be used to develop the heat map visualization. The main programming languages used will be JavaScript, PHP, and HTML.

JavaScript will be mainly used to post maps with the Google Maps API. Collected data will be turned into a database and PHP will be used to create the linkages to send and receive these data. HTML will be used to position the map on the website and to design the visual aspects.

The screen will be designed so that the user can change the look of the map and view different patterns in the condition of elderly residents, making it possible for users to efficiently get a grasp of conditions in the area.

（Sample heat map）

4. Carrying Out Preventative Care

The officer for the promotion of comprehensive care for Nakano Ward will be asked to handle professional preventative care aspects. Checking the heat map, outreach teams will be able to engage in activities such as increasing the frequency of their visits to priority areas and carrying out seminars.

Another strength is that Nakano Ward has a robust community. Residents (neighborhood/resident associations, child welfare commissioner, shopping streets, etc.） will be able to check the heat map and independently check on their neighbors. Street Design Research Organization will also work in this way by

inviting residents to events and other activities.