

Sharing Regional Information with Spatial Information between Public and Proactive Citizens Based on Technology of Hybrid Cloud

～Contribution for Disaster Reduction by G-motty of City of KITAKYUSHU～

地図のまち（都）北九州！



Information Technology Promotion Division General Affairs
Bureau City of KITAKYUSHU, Japan
Atsushi SHIOTA

- 1 Background of this research and issues
- 2 The purpose of this research
- 3 Cases of shared use GIS in City of Kitakyushu and the surrounding municipalities
- 4 Residents cooperation utilizing “G-motty” in Kitakyushu
- 5 Conclusion



1-1 Background of this research and issues

● The occurrence of large-scale disasters in Japan

1 Damage caused by the Great East Japan Earthquake and tsunami.

2 Flood damage caused by levee breaches of Kinugawa-river City of Joso in Ibaraki-Pref in 2015.

3 Damage caused by Kumamoto-Earthquake.



The affected local governments are prompted to disaster response operations for the early reconstruction of victims and the affected areas within the limited human resources and material resources.



It is essential that local governments and residents build the relationship to think that regional together from normal times.





1-2 Background of this research and issues

●ICT has been developing rapidly

1 Realization of hybrid cloud according to the development of cloud computing technology

2 Realization of new connection of person-to-person and efficient information collection according to penetrate smartphone.

3 Popularization of the concept of combining the existing products and services(COTS: Commercial-Off-The-Shelf)



Local governments have sought to improve the residents services such as the provision of new services while reducing the cost of the information system.



It is necessary to construct the system with the required minimum of cost by standardizing the operations from the time of normal up to the time of the disaster by utilizing the latest technology in accordance to the concept of COTS.

- 1 Background of this research and issues
- 2 The purpose of this research
- 3 Cases of shared use GIS in City of Kitakyushu and the surrounding municipalities
- 4 Residents cooperation utilizing “G-motty” in Kitakyushu
- 5 Conclusion

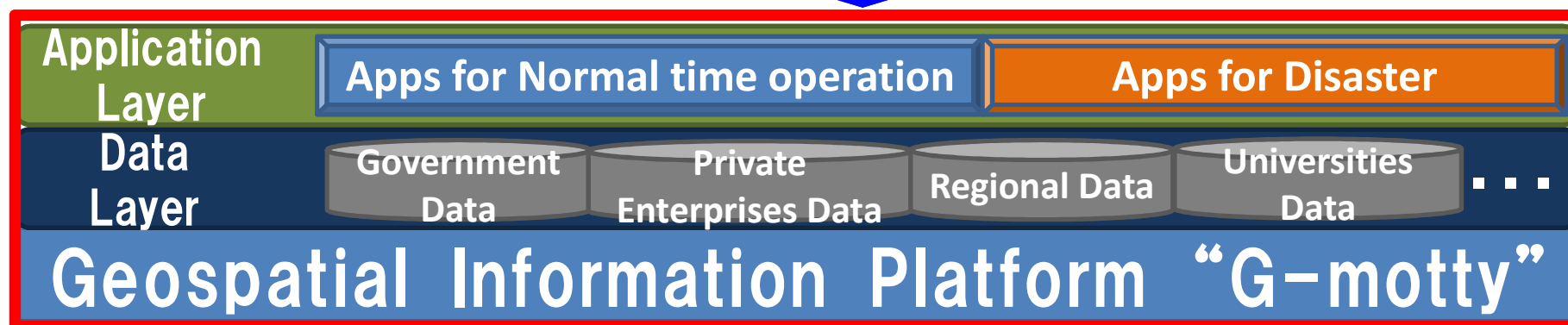
In this study, it has been considered the solution of two issues from the following case of City of Kitakyushu.

● Spatial information regarding to relationships between Public and Proactive Citizens contribute to enhance regional disaster reduction.

● Construction of “Geospatial Information Platform” by utilizing hybrid cloud and based on the concept of COTS.

- 1 Background of this research and issues
- 2 The purpose of this research
- 3 Cases of shared use GIS in City of Kitakyushu and the surrounding municipalities
- 4 Residents cooperation utilizing “G-motty” in Kitakyushu
- 5 Conclusion

Disaster operations (Local governments and private sectors)



Local residents have created attractive information of the locations on the map by volunteers.

Transmit the information for residents using Regional information outgoing media "G-motty".

Website

Apps

magazine

TV

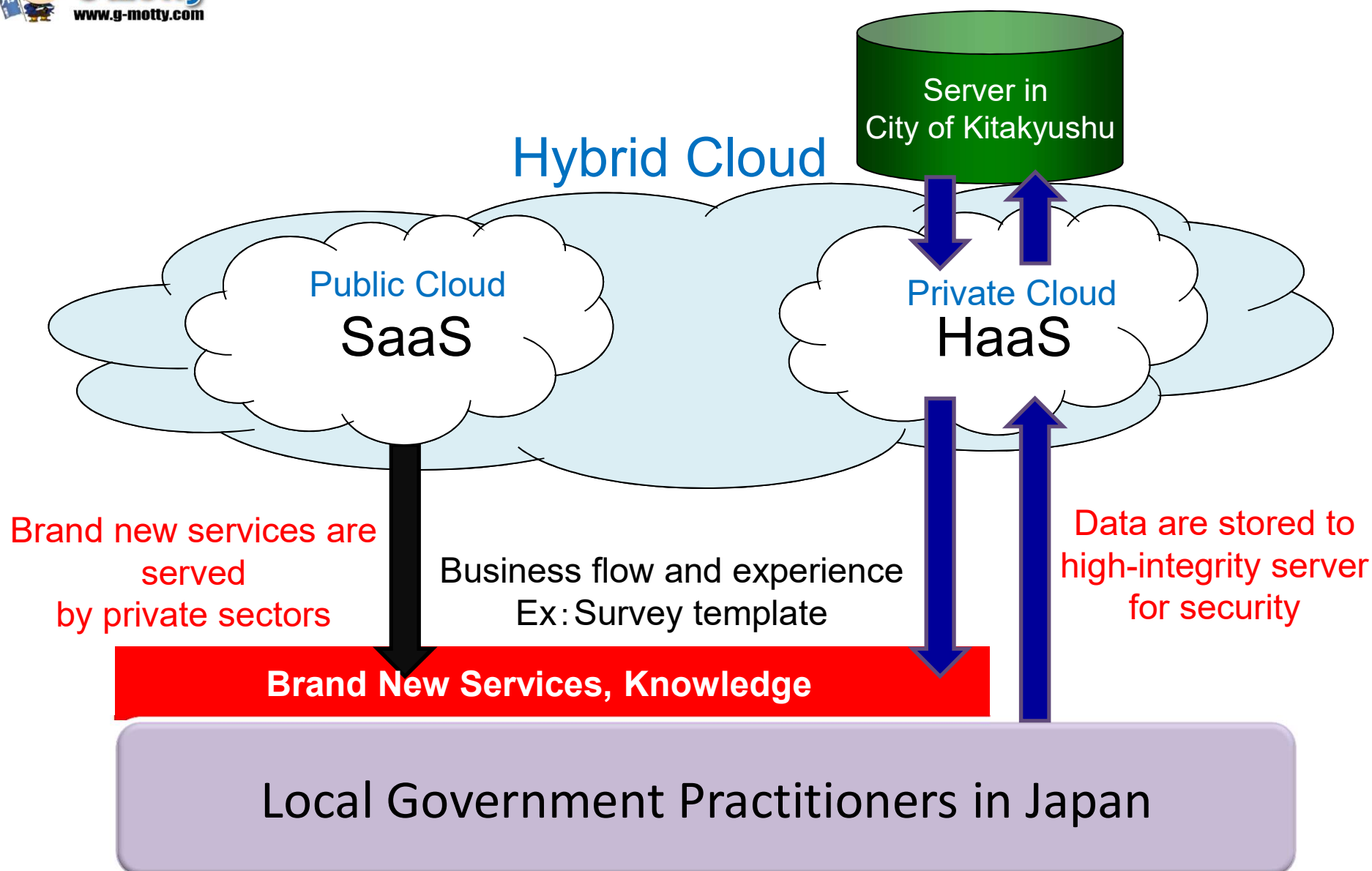
Constructed on the concept of COTS ⇒ **Cost Reduction**

Traveler

Local resident

Business traveler







① It has been created the mobile terminal application for disaster field survey for each municipality.

② The survey items in all of the municipalities have been using the same.

③ It has been constructed the mechanism that can attach files such as photos



Aggregate results of the demonstration in City of Kitakyushu and that surrounding municipalities.



●The function for compilation and graphed Number of survey, Kind of disaster, Damage to houses, Damage to humans, Damage to vehicles, Traffic situation of the road, the Need for evacuation of residents and so on, directly.

●Disaster Countermeasures Headquarters can recognize the status of damage in real time.

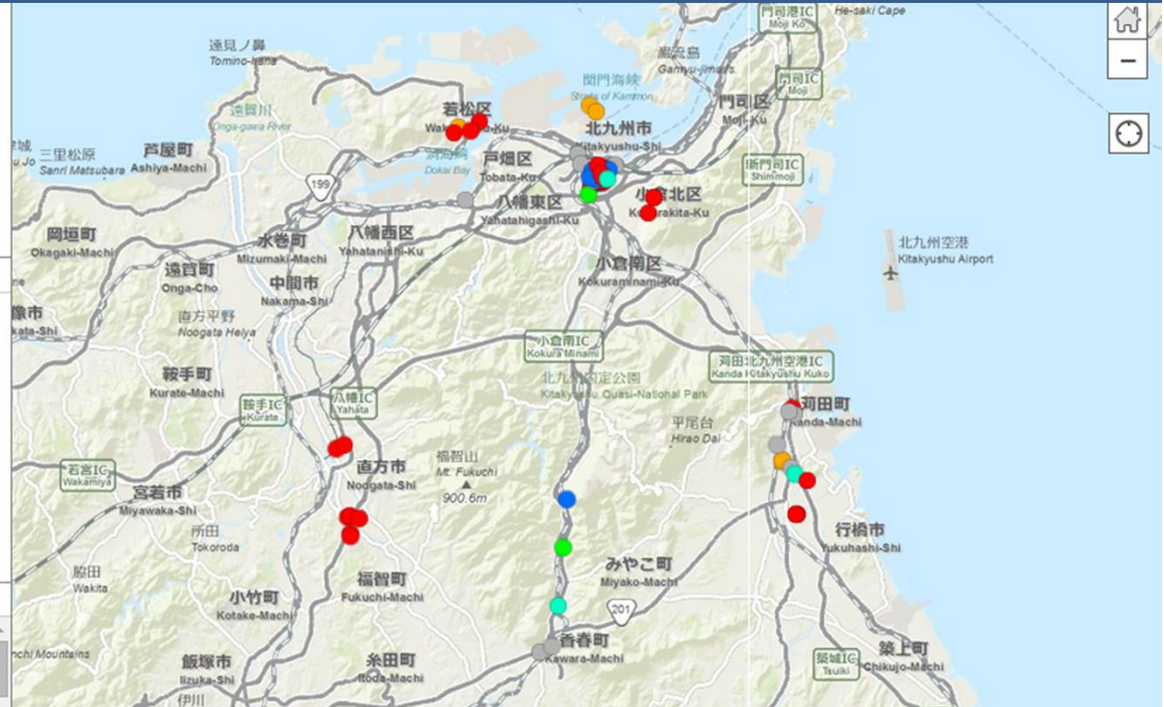
●The people who correspond to the disaster can recognize common information.



3-5 Real-time aggregation function of disaster information ②

● The damage situation in City of KITAKYUSHU, City of NOGATA, City of YUKUHASHI, Town of KAWARA, Town of KANDA.

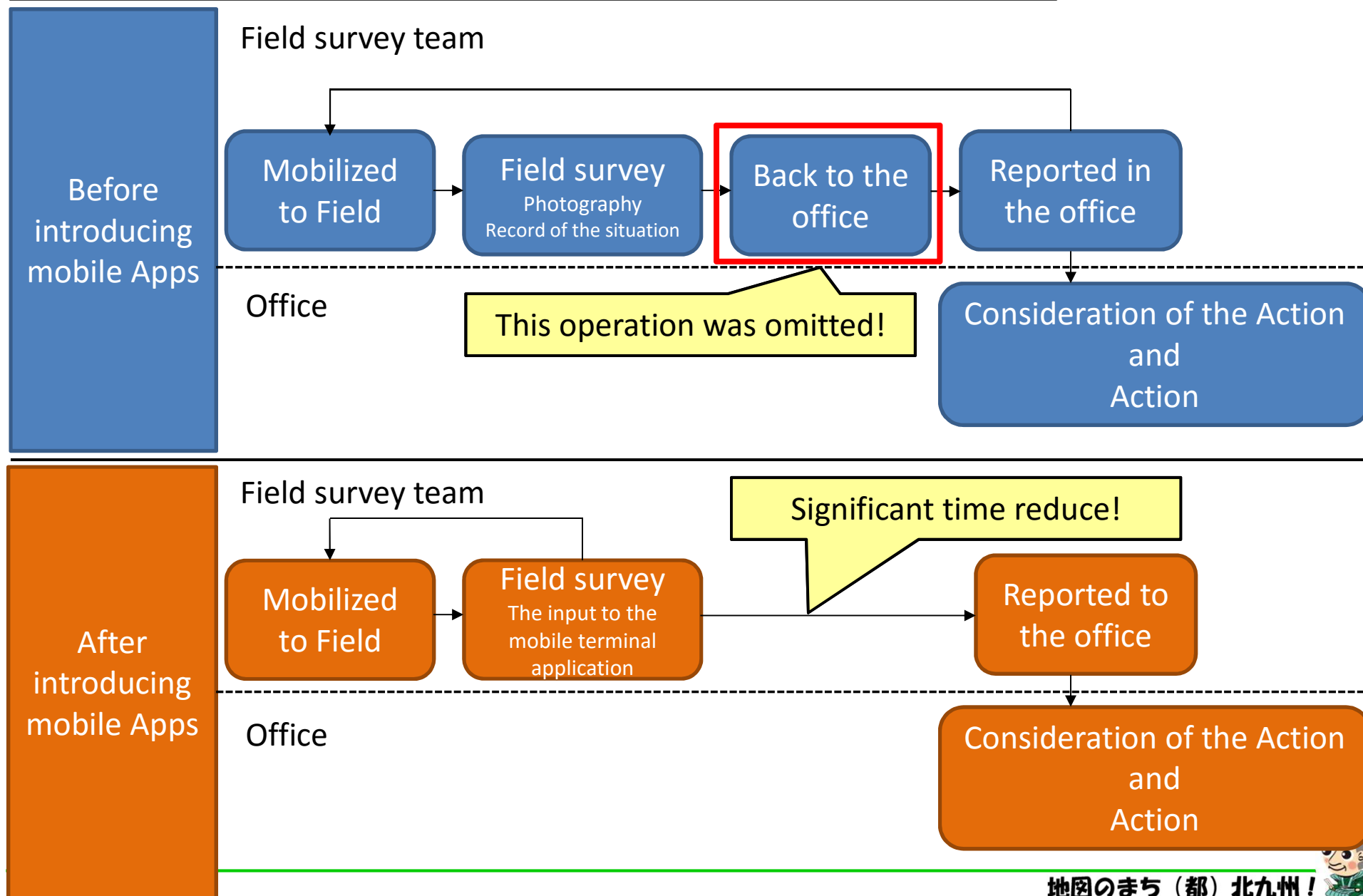
3	29
City of YUKUHASHI	City of KITAKYUSHU
調査件数(菊田町)	調査件数(直方市)
9	7
Town of KANDA	City of NOGATA
調査件数(香春町)	凡例
	災害情報現地報告_香春町
	● 共通
	● 道路
	● 河川



- Local government officials while confirming the status of the surrounding municipalities, have been able to correspond disaster.
- Since the local government officials are using the same mechanism, it has been possible to support the peripheral municipalities occurred intensive damages of localized heavy rain and so on.

3-6 Effect the introduction of the mobile terminal application

Comparison of the operational flow



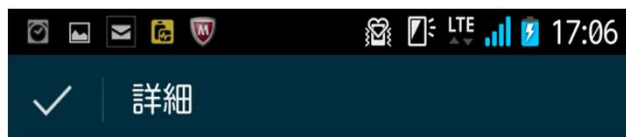
No	Local governments name	Reduced time (The number of survey points)
1	City of KITAKYUSHU (Kokurakita-ku)	51minutes (3 places)
2	City of KITAKYUSHU (Wakamatsu-ku)	40minutes (4places)
3	City of NOGATA	60minutes (7places)
4	City of YUKUHASHI	60minutes (3places)
5	Town of KAWARA	85minutes (5places)
6	Town of KANDA	60minutes (9places)

- City of Kitakyushu took advantage of this app in the corresponding for typhoon No. 15 on August 25, 2015.
- It was possible to perform the communication between the field staff and Disaster Countermeasures Headquarters quickly.



3-8 App use of the patrol inspection service of the river

● Application for the patrol inspection of the river (City of KITAKYUSHU)



変状規模／幅 (M)
入力が必要なし

変状規模／深さ (M)
入力が必要なし

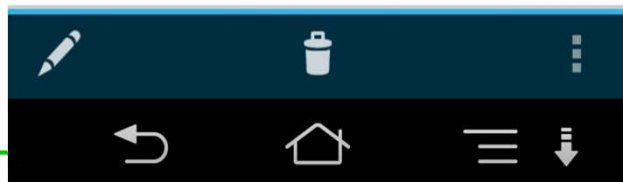
変状規模／面積 (㎡)
入力が必要なし

変状規模／堆積の深さ (M)
入力が必要なし

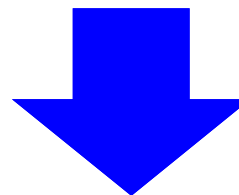
コメント

調査日 (必須)
12月 06, 2014

添付ファイル



Because this mobile terminal application is created on the concept of COTS, application to different survey was realized by simply changing the layer with the survey items.



- It is easy to apply to the different operation.
- It has been able to reduce consignment costs. ⇒ 4.6 million JPY



巡視・点検オペレーションビュー

北九州市 GISセンター

調査ポイント数

6,579

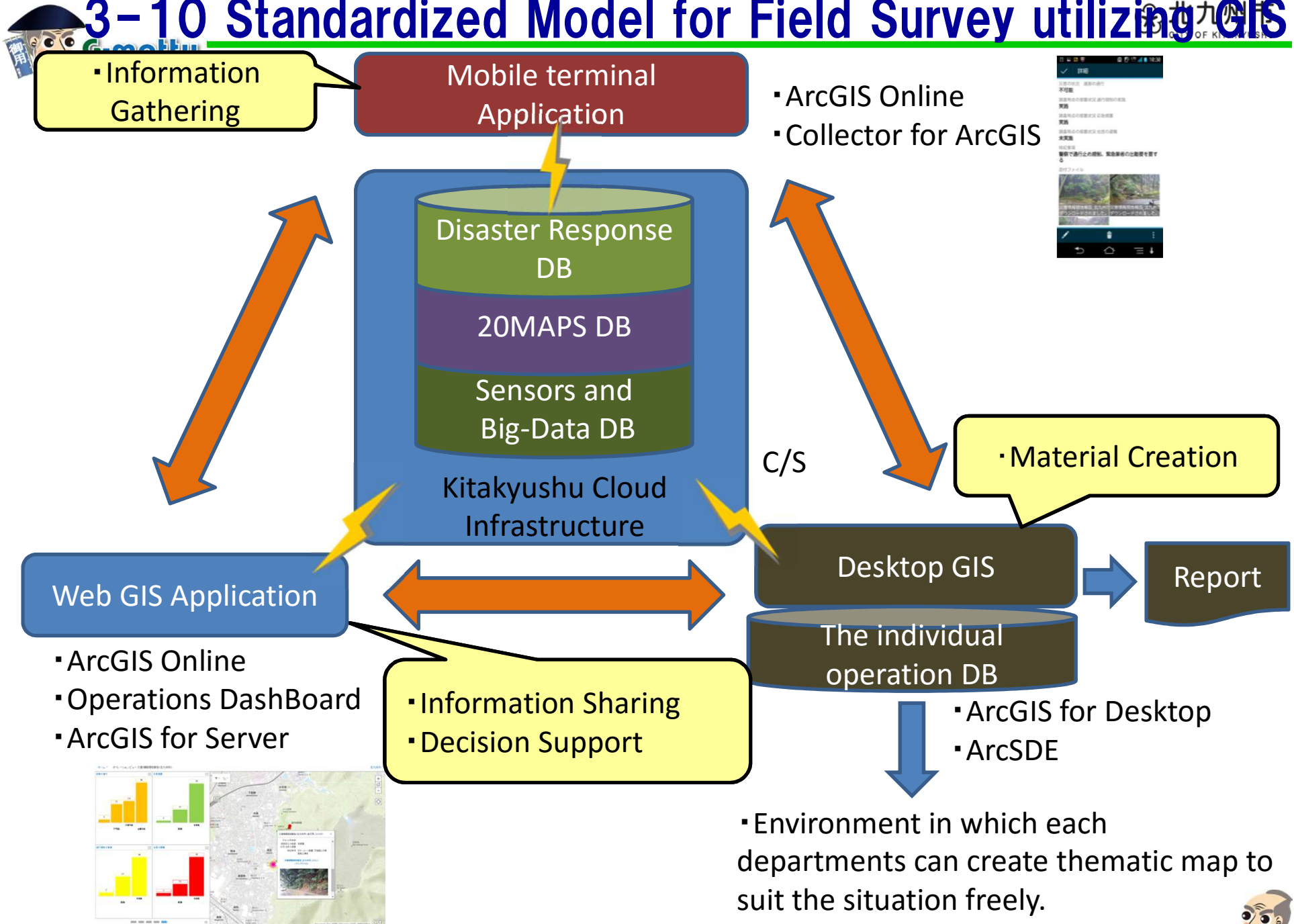
調査種類別ポイント数



- Progress management operations administrator of the consignment operation is also easily!
- It has been possible to share the progress management information between the city and the contractor.



3-10 Standardized Model for Field Survey utilizing GIS



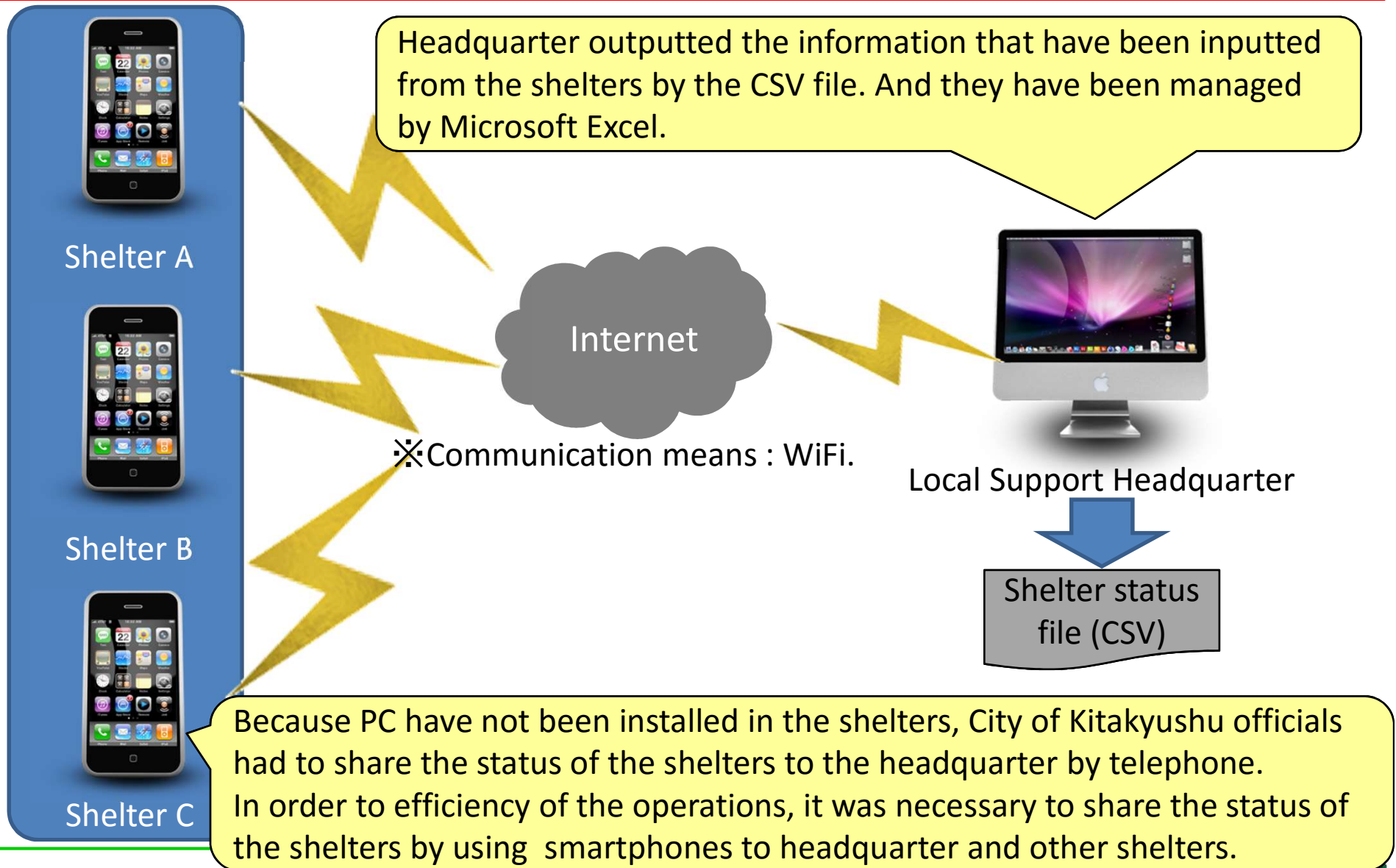


3-11

Case Study of this mechanism in the response for Kumamoto-Earthquake

北九州市

City of KITAKYUSHU supported the shelter management of City of KUMAMOTO affected by the disaster in Kumamoto-Earthquake.(April, 2016)



Local Support Headquarter

City of Kitakyushu has developed these applications.
It has been used by City of Kitakyushu and City of Kawasaki.

Shelter



Application
for Smart Phone



Application for PC (Web GIS)

Outputted by
the CSV File

ID	場所名	記事内容等	食事	仮眠・休憩場所	通達手段	入浴施設
94	熊本工業高校	物資搬入・食事配給の手(避難者と同じ)	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
95	熊本県立女子体育館・青年会館	物資の受け入れ・配給	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
96	熊本商業高校	物資の受け入れ・配給	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
97	砂敷小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
98	熊本国府高校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
99	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
100	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
101	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
102	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
103	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
104	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
105	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
106	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
107	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
108	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
109	出水小学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)
110	出水中学校	学校及び熊本市との調整	体育館	Wi-Fi	熊本市公共施設	近くに銭湯(徒歩10分)





Remote support case of response for Kumamoto earthquake using GIS and “G-motty”

- ① Water stations Map
- ② Opened Shelters Map
- ③ Mobile phone charger spots Map
- ④ Bathhouses during Business Map
- ⑤ Free Wifi spots Map

Information for Evacuees
~ 3 August, 2016

Information for Support
workers and volunteers
~ 3 August, 2016

- ⑥ Damage place Movie Map
- ⑦ Landslide damage Location Map
- ⑧ Damage points map by using Mobile terminal Application

Information for grasping
Damage situation and
researchers

- ⑨ Spots of collecting Relief goods Map

Information for supporters
~ 3 August, 2016



- 1 Background of this research and issues
- 2 The purpose of this research
- 3 Cases of shared use GIS in City of Kitakyushu and the surrounding municipalities
- 4 Residents cooperation utilizing “G-motty” in Kitakyushu
- 5 Conclusion



4-1 What is G-motty?

The screenshot shows the G-motty website interface. The top navigation bar includes links for '場所を探す' (Find location), '目的で探す' (Find by purpose), '楽しみ方で探す' (Find by how to enjoy), '写真で探す' (Find by photo), '特集' (Special), 'ラボ' (Lab), and 'ブログ' (Blog). The left sidebar contains a list of categories: '場所を探す', '目的で探す', '公共施設を探す', '行政情報' (highlighted with a red box), '広報を探す', '転入者', '暮らす', '食べる', and '学ぶ'. The main content area features a large red banner for '付設情報' (Attached Information) regarding the '平成 28 年熊本地震' (Great East Japan Earthquake). Below this, there's a section for '防災情報' (Disaster Information) with a red box around it. The right sidebar includes a 'ログイン' (Login) button, a '新規登録' (New Registration) button, and a '操作マニュアル' (Operation Manual) link. The bottom section contains a 'G-motty Blog' (highlighted with a red box) and a 'Story map' (highlighted with a red box). The 'G-motty Blog' section displays a list of recent posts, including '【特設情報】熊本地震関連の情報をアップしました' and '【小倉地区駐車場満空状況】サービス終了のお知らせ'. The 'Story map' section features a 'CLICK HERE' button and a 'グルメ・マニア 古地図' (Gourmet Mania Old Map) link.

Administration Information

Disaster Information

The maps created by volunteers

G-motty Blog

Story map

“G-motty” is regional information platform that communities can participate in creating, sharing regional information.





4-2 The map created by volunteers

G-motty タコ公園を探そう！（投稿情報）

全国には通称「タコ公園」と呼ばれる公園があります。みんなでタコ公園を探してみま

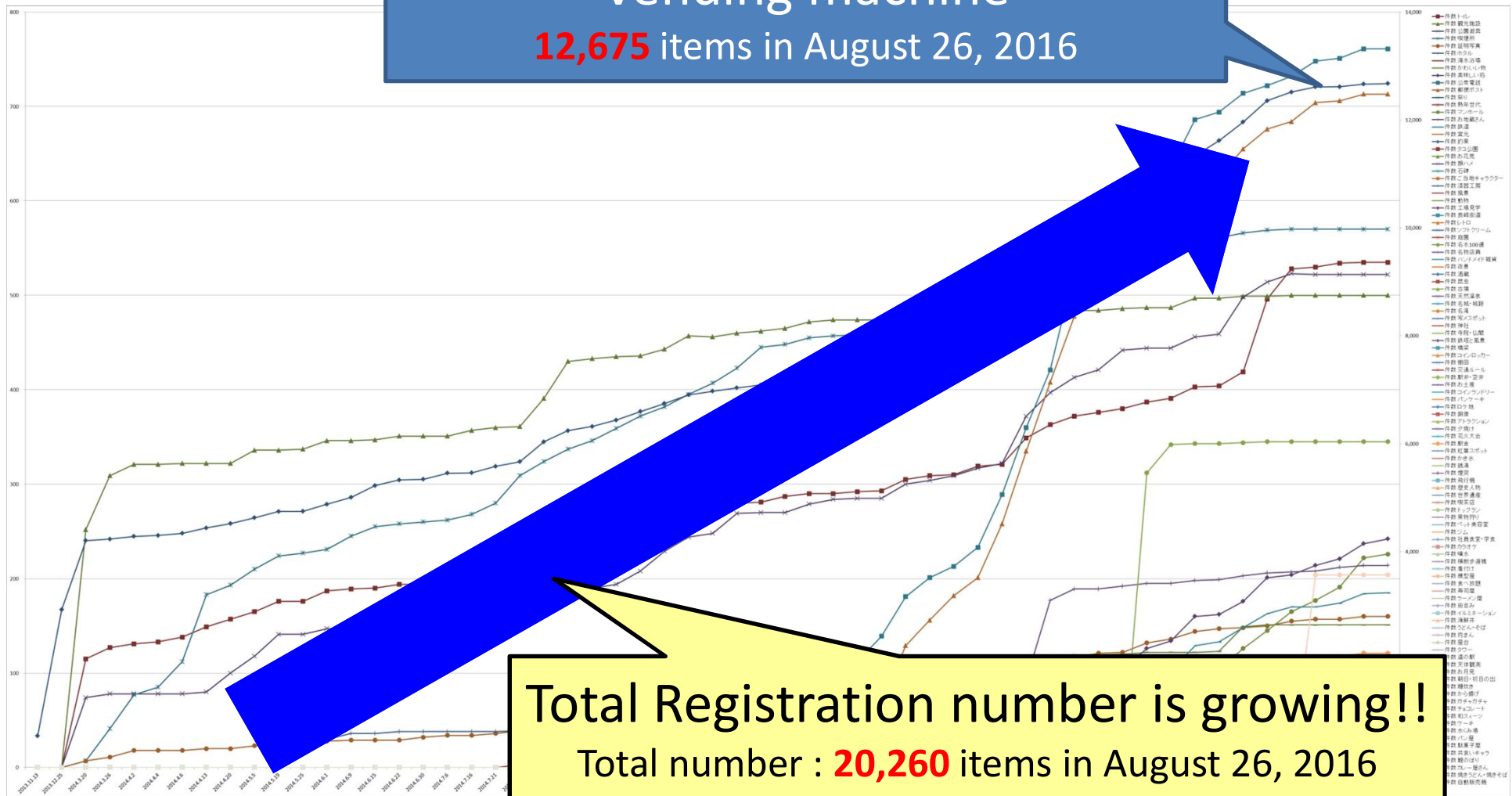


“Taco” parks are the park with a slide
in the shape of octopus!
They are loved by Children in Japan.

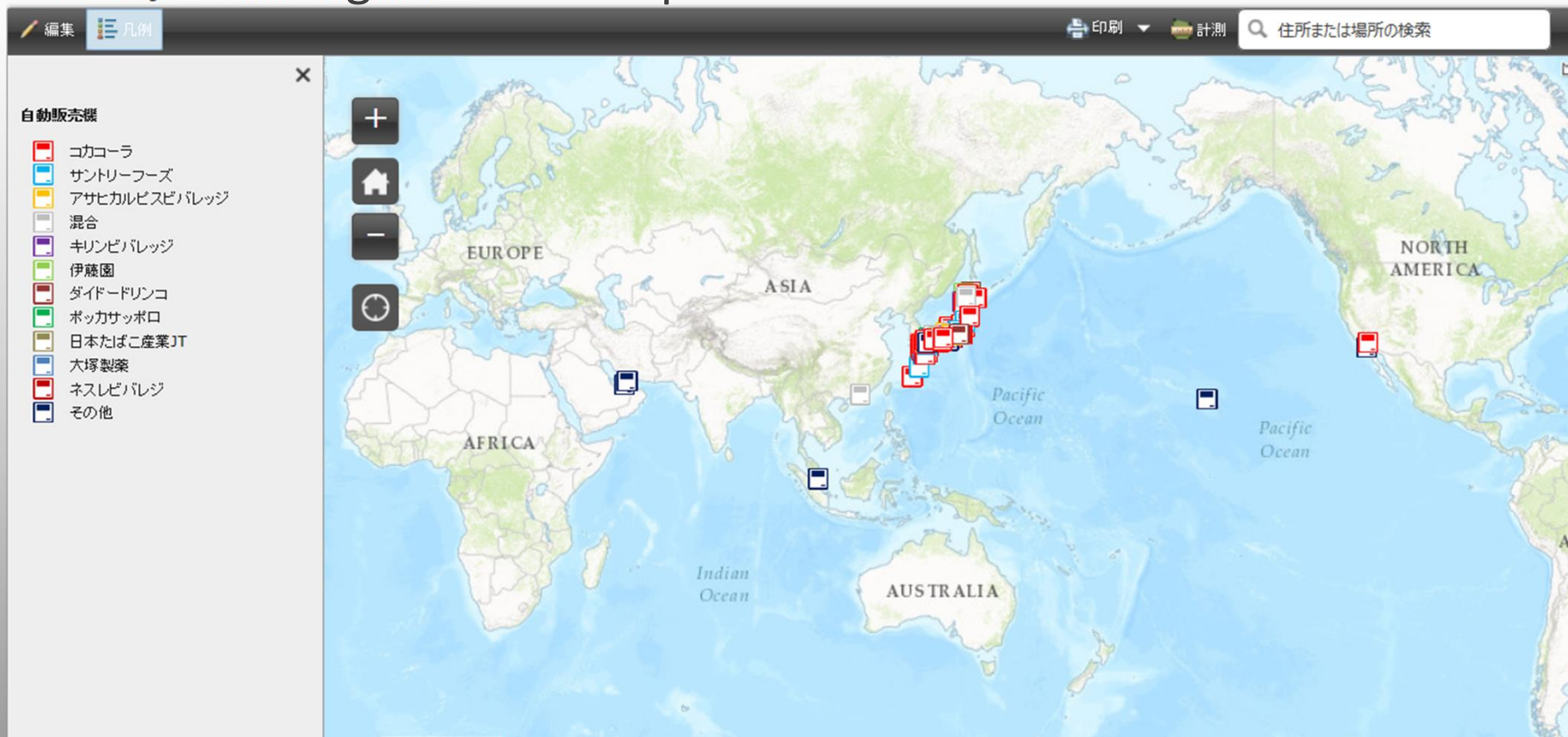


Vending machine

12,675 items in August 26, 2016



G-motty Vending machine Map



Vending machines have been registered in also Hong Kong, Singapore, Dubai, Hawaii and California not only Japan.



G-motty 私が行った美味しい処

皆さんが行った美味しいお店などを紹介してください！写真も投稿してください！写真の投稿については、説明をお読みください。

A story map   



Photos (Visual Information)

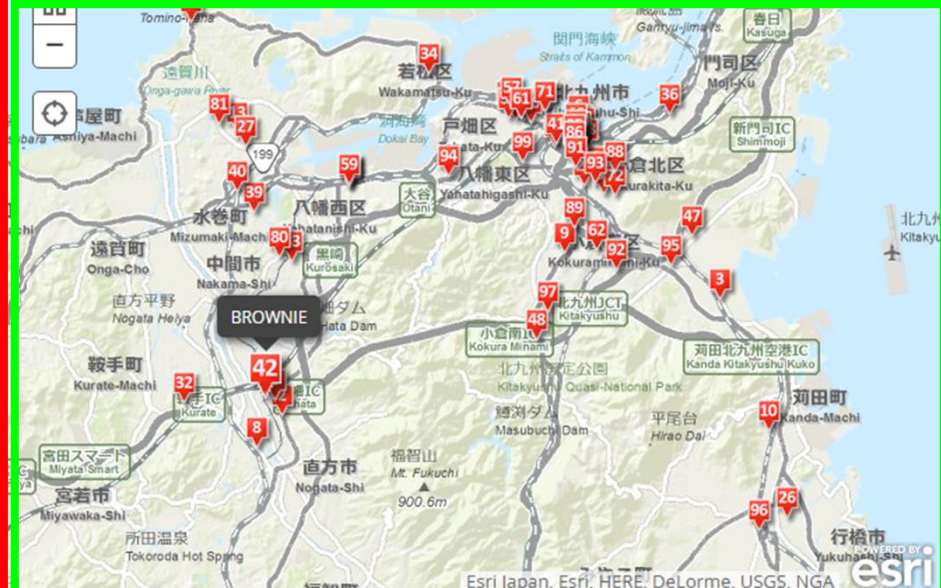


BROWNIE

イタリアンのお店。カルボナーラのスープセット。1400円。トマトの冷製スープも美味しいですよ。

Comment (Character Information)

Map (Location Information)



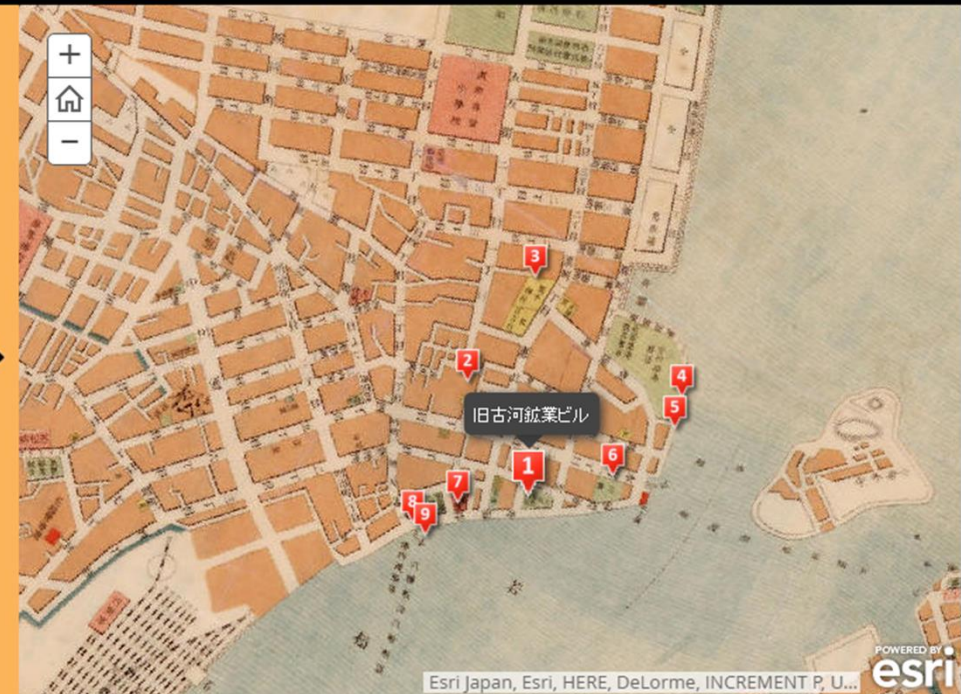
● Because Story map has photos and location information, it is easy that foreigners understand Japanese Gourmet, Culture, history and so on!





4-6 Collaborative case with proactive citizens

City of Kitakyushu carried out "Town walking" in collaboration with the local proactive organization.



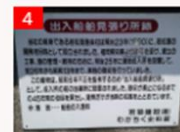
旧古河鉱業ビル



香念禪寺



若松恵比寿神社



出入船舶見張り所跡



朽木ビル



上野ビル



石炭会館



巖島神社

We have created the Town Walking map as a result.
This is a historic landmarks map at Wakamatsu in KITAKYUSHU.



4-7 Collaborative case with local Universities

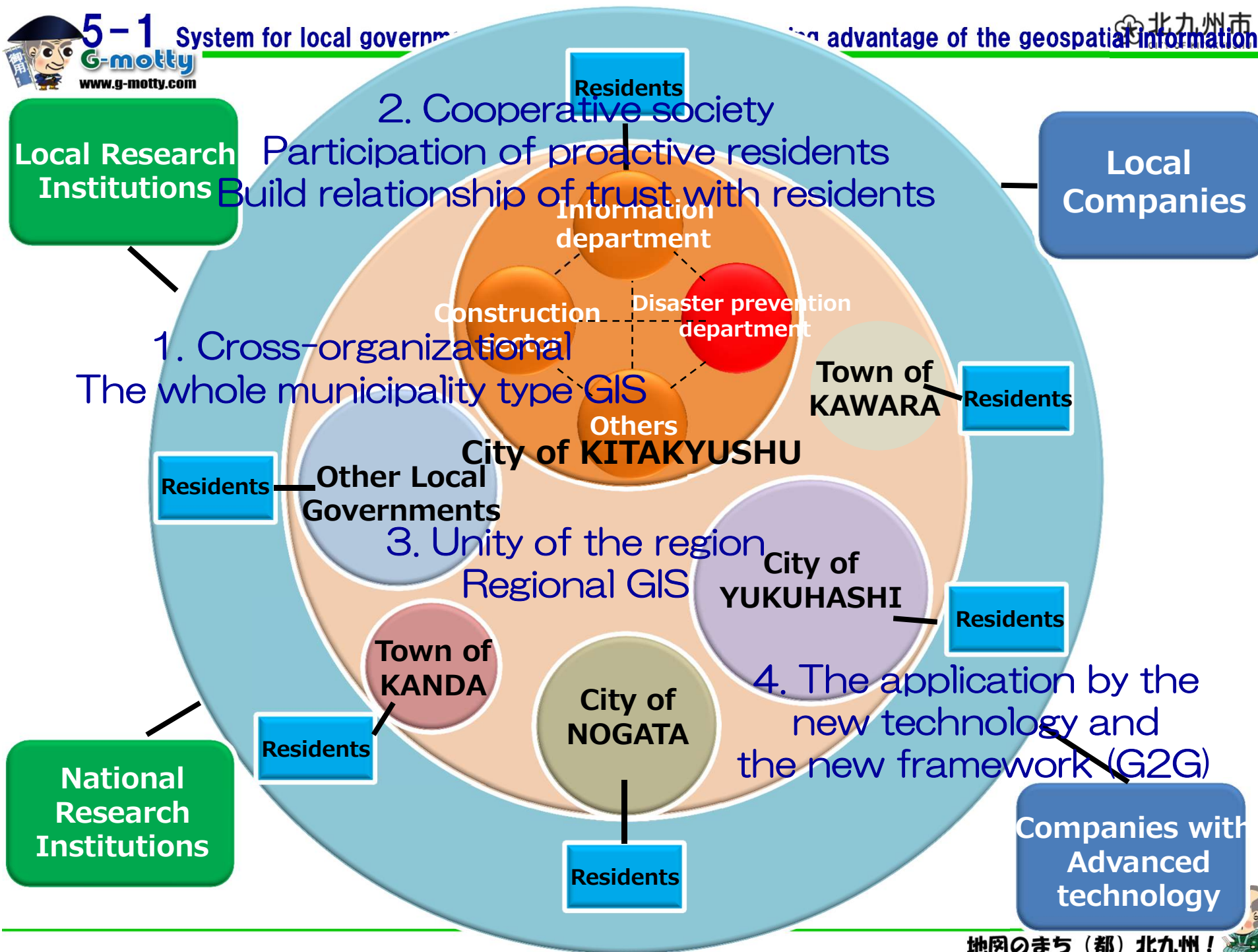
Collaboration with The University of KITAKYUSHU.
Issue : Crime Prevention



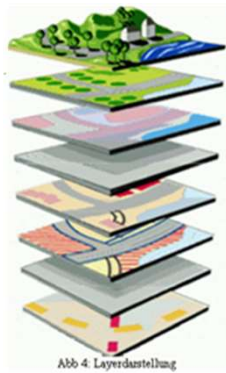
Collaboration with Seinan Jo Gakuin University.
Issue : Tourism



- 1 Background of this research and issues
- 2 The purpose of this research
- 3 Cases of shared use GIS in City of Kitakyushu and the surrounding municipalities
- 4 Residents cooperation utilizing “G-motty” in Kitakyushu
- 5 Conclusion



- It is introduced the case of City of Kitakyushu using a hybrid cloud that combines the local government cloud and public cloud.
- City of Kitakyushu has been built a system based on the concept of COTS on performing the standardization of local government operation.
- In addition, City of Kitakyushu has been operating seamlessly between daily operations and disaster operations by utilizing “G-motty”.
- It is important that the local residents and the local government build a relationship. Moreover, they should continue to resolve efforts of charm outgoing and regional Issue of the region in cooperation.
- By continuing its efforts, it is possible to realize a regional disaster prevention and mitigation society in which local residents and the local government in cooperation.



GITA-JAPAN UPDATE 2016

1. GITA-JAPAN'S 27th ANNUAL CONFERENCE

Conference Theme:

“Future possibility of Geospatial Information-IoT supported by GIS-”

Conference Date & Place:

September 29-30, 2016, Kaiun Club 2F (Chiyoda-ku, Tokyo)

#Keynotes Address:

“Contribution to Platform for Information Service in Society 5.0”

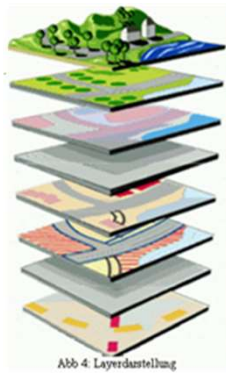
Haruo Hayashi, President, the National Research Institute for Earth Science and Disaster Resilience (NIED)

#Delegates from GITA International :

Matthew Thomas, President-Elect, GITA North America

Antoine Burdett, Immediate Past President GITA ANZ





GITA-JAPAN UPDATE 2016

2. Activities

g-Woman project :

Special Seminar for women in Geospatial business industry
to promote a human network and GIS specialties

g-Fresh project :

Special Seminar for newcomers to Geospatial business industry
to promote business skills and a human network

Delegate to GITA International

Mr. Shiota, Kitakyushu-City in Western Japan, is a delegate
to GITA North America, PIPELINE WEEK.



Thank you for your Kind Attention!



「Inou-Kun」



City of Kitakyushu's efforts using GIS
<http://www.g-motty.com>

City of Kitakyushu

Information Technology Promotion Division General Affairs Bureau

Atsushi SHIOTA

tel: +81-93-582-2847

mail: atsushi_shiota01@city.kitakyushu.lg.jp