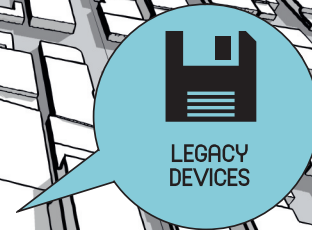
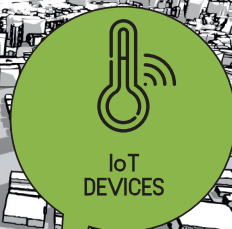
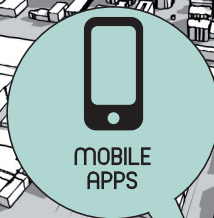
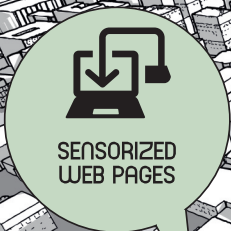
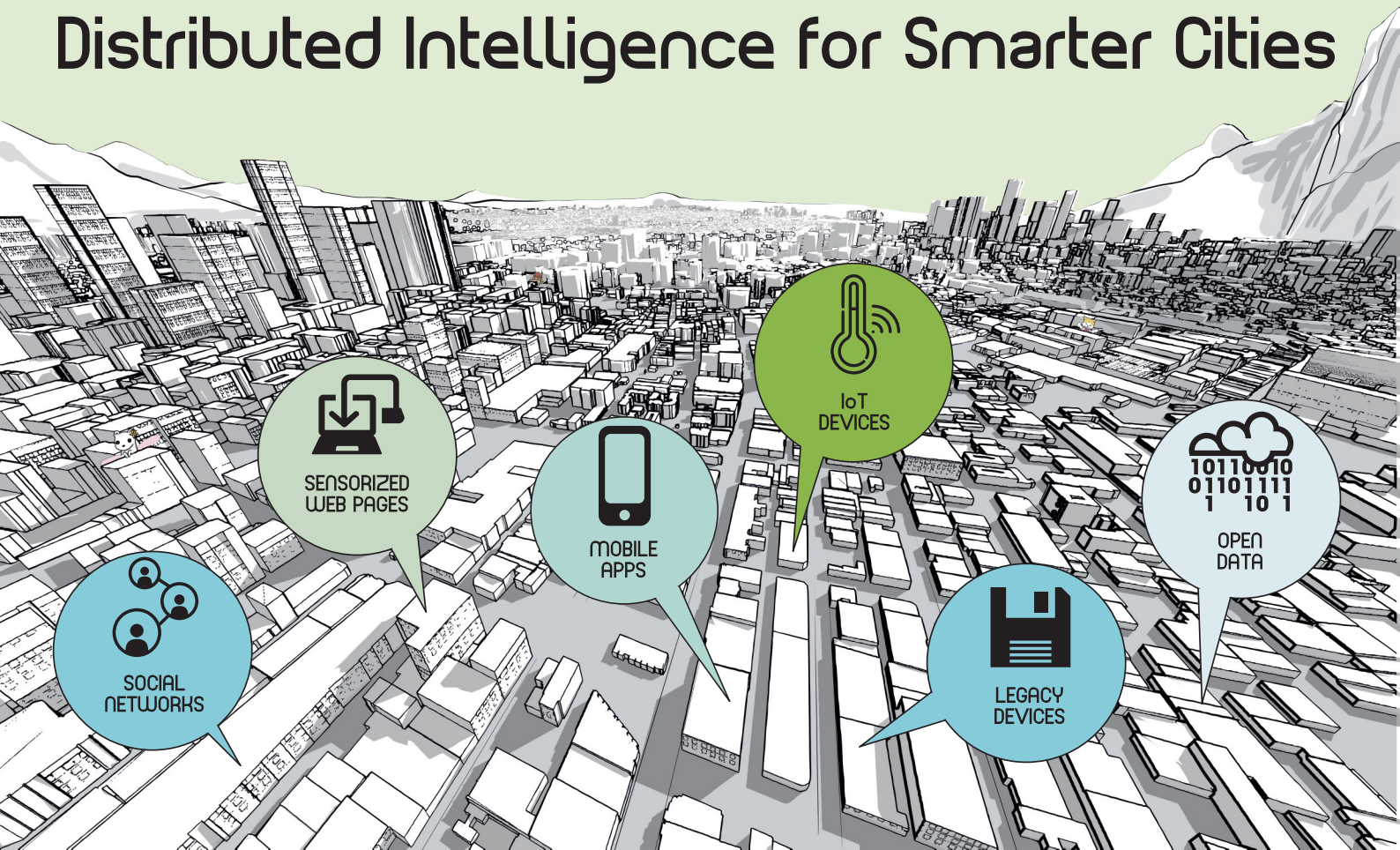


BIGCLOUD

Distributed Intelligence for Smarter Cities



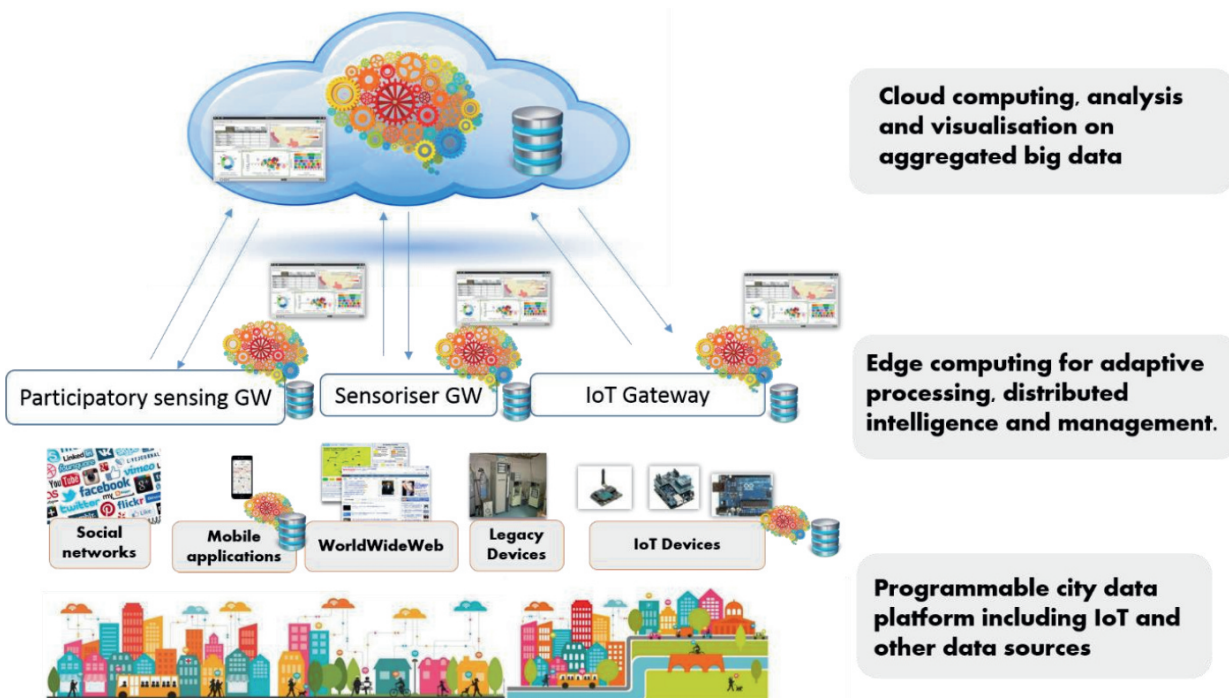
BigClouT context and overall objectives

As we approach 2020, the world is facing a number of critical challenges such as global warming, economic crisis, security threats, inequality, natural disasters and ageing society. Urban areas are particularly affected, given that the world population is increasingly concentrated in cities. ICT solutions have the potential to change the world and improve the quality of life and security of its citizens. In particular, IoT, cloud and big data are today's key enablers for increasing the efficiency in using shared urban infrastructure, economic and natural resources.

The overall concept of the BigClouT project is to give an analytic mind to the city by creating distributed intelligence that can be implanted in the whole city network (see Figure below). The unprecedented number of connected things and the associated big data naturally raise new technical challenges in terms of interoperability, scalable and online data processing, actionable knowledge extraction, self-management, security and privacy.

The BigClouT project is bringing together resources and knowledge necessary from prestigious European and Japanese institutions for tackling those challenges. BigClouT will leverage the results of the ClouT project and bring them several steps further and add, in particular, distributed intelligence with edge computing principles, big data analytics capability and self-awareness property. The BigClouT platform will be deployed and validated in 4 pilot cities in the project, Grenoble, Bristol, Tsukuba and Fujisawa. BigClouT gives a particular importance to the involvement of citizens during the whole lifetime of the project, from use case definitions to validation.

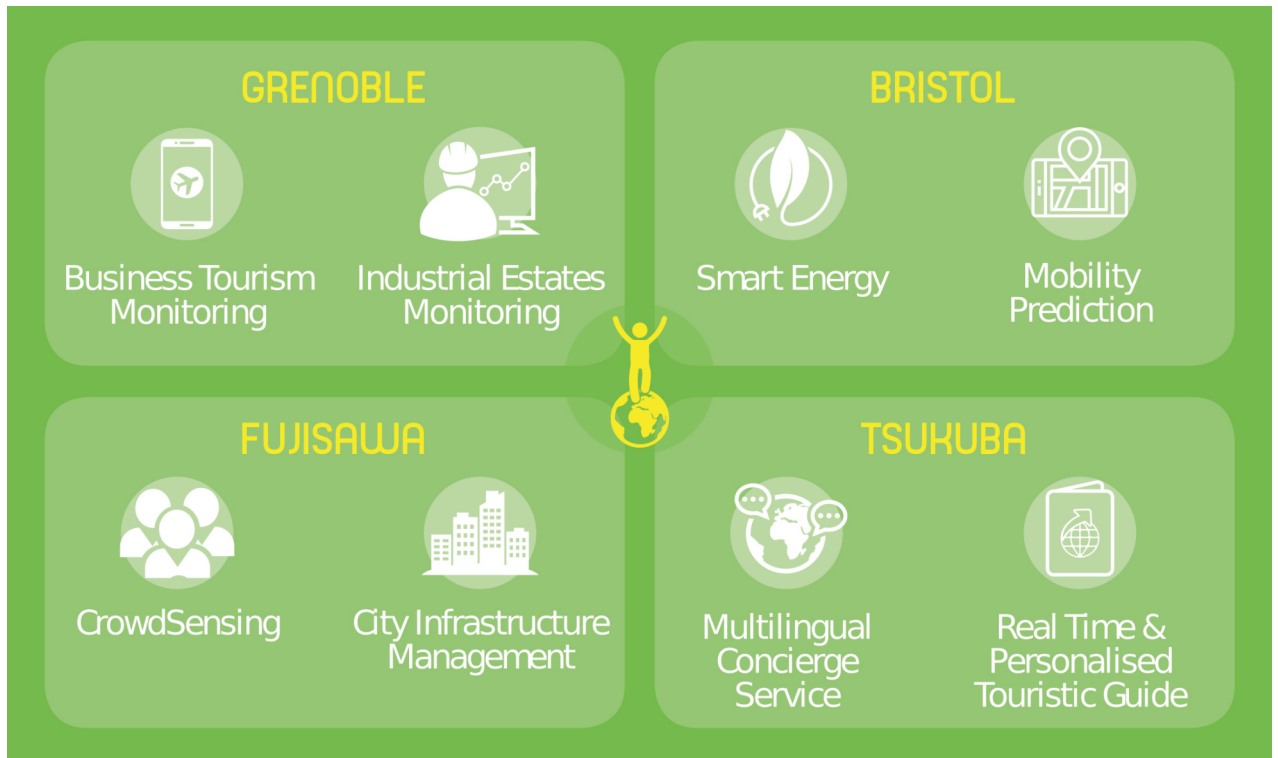
BigClouT overall concept



BigClouT city trials

One of the core work of the BigClouT project is a set of real-world trials that will be running in the participant cities, i.e. Bristol, Fujisawa, Grenoble and Tsukuba City. These trials are designed to test the BigClouT architecture and platforms to ensure that technological developments meet the needs of cities allowing them to exploit BigClouT results to develop and deliver new Smart City applications and services.

BigClouT pilot cities and trial scenarios

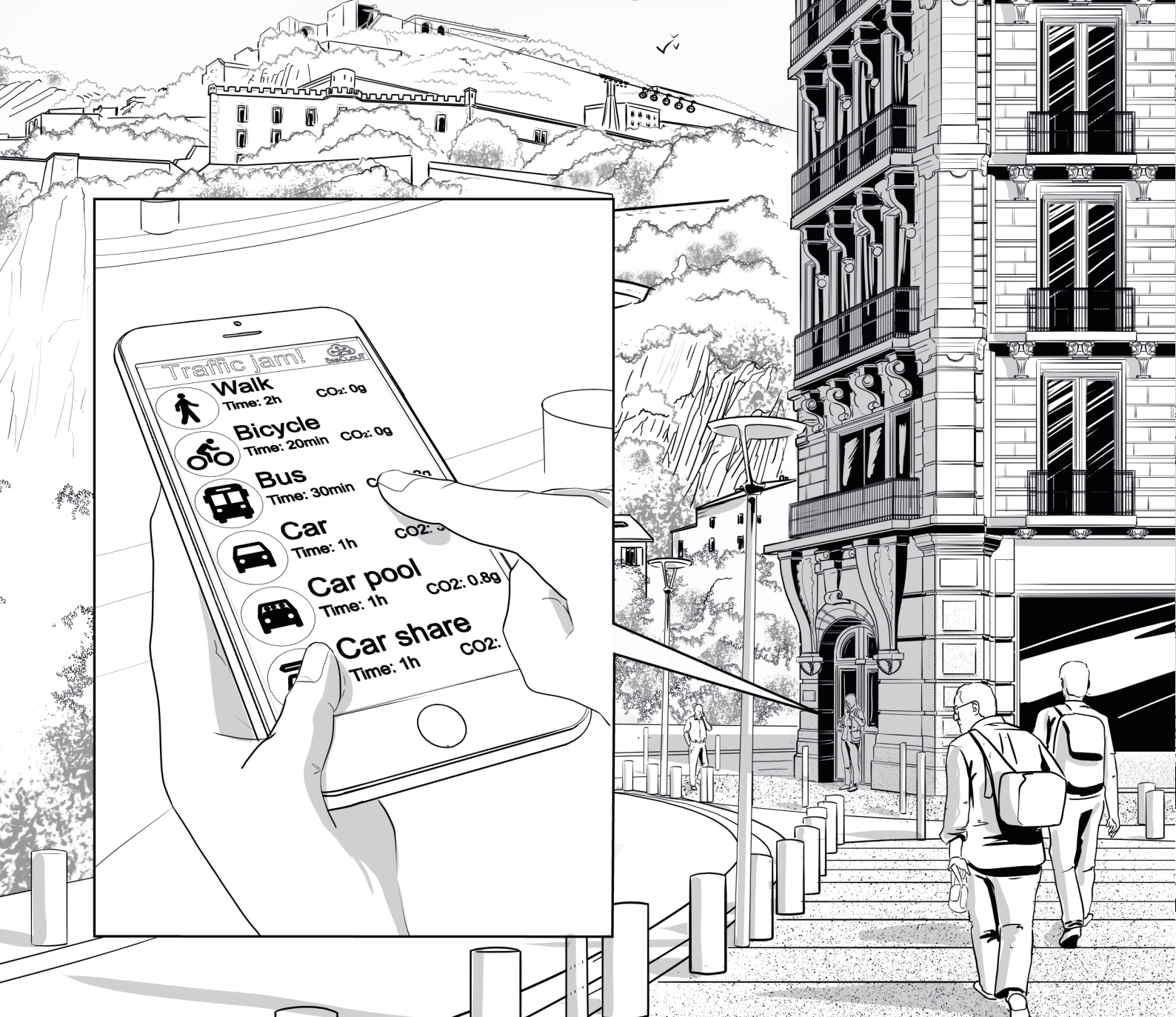


These trials will be a means to validate the BigClouT architecture and to fulfil the project objectives. The following comic presents these use cases and shows the possibilities offered by the BigClouT platform.

GRENOBLE, FRANCE, 07:45 AM



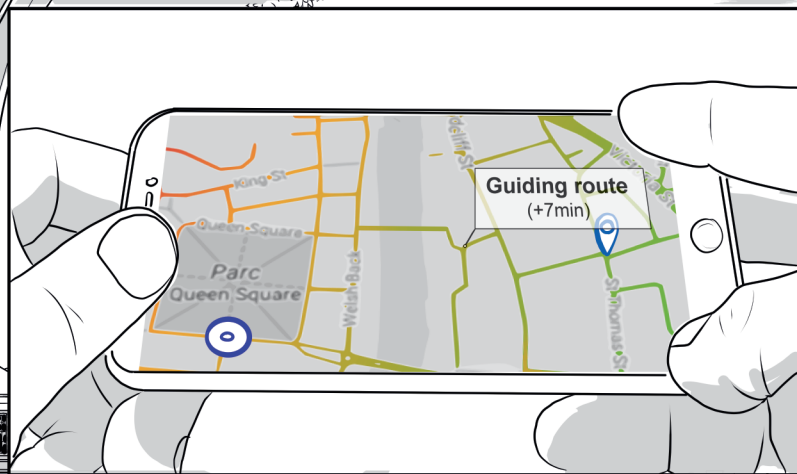
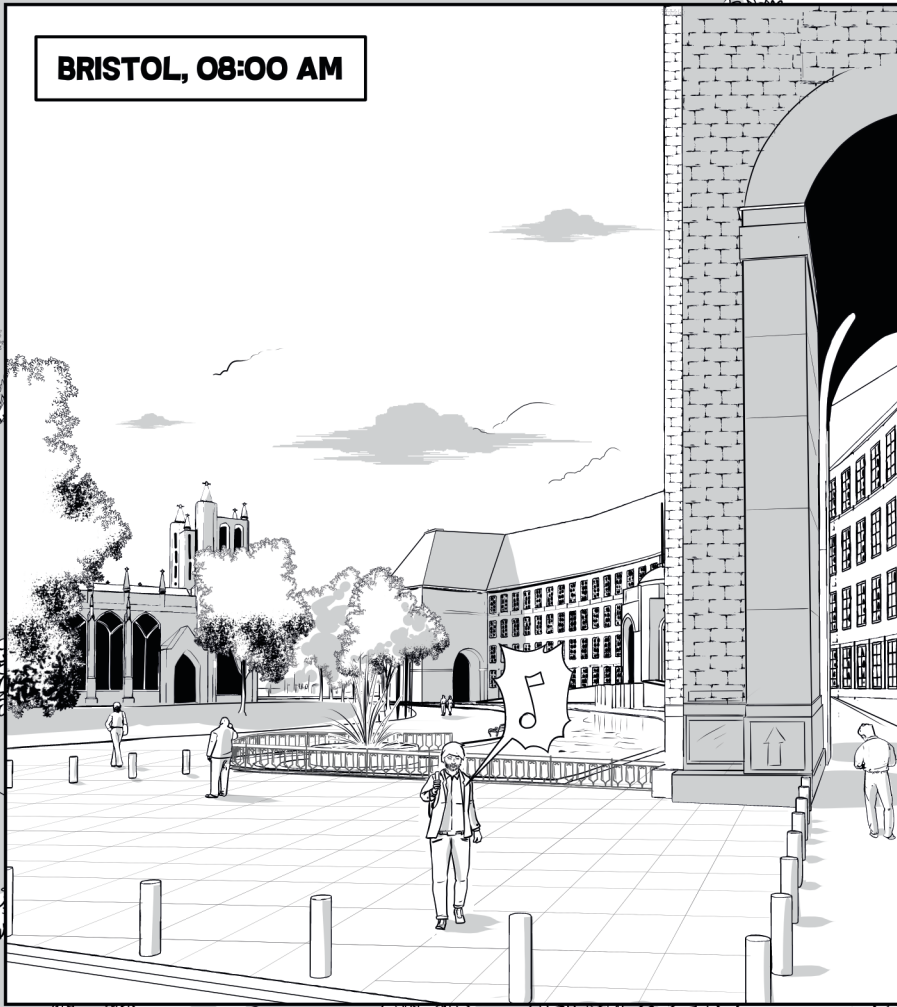
KATE'S LEAVING FOR WORK. SHE WONDERS WHAT THE BEST WAY TO GET THERE IS. SHE CONSULTS THE BIGCLOUT APP WHICH ANALYSES PUBLIC TRANSPORT SCHEDULES, TRAFFIC CONDITIONS, CAR-SHARING AVAILABILITY, CARPOOL SEATS, AND MANY OTHER SOURCES OF INFORMATION TO PROVIDE THE QUICKEST AND GREENEST SOLUTION.



Traffic jam!

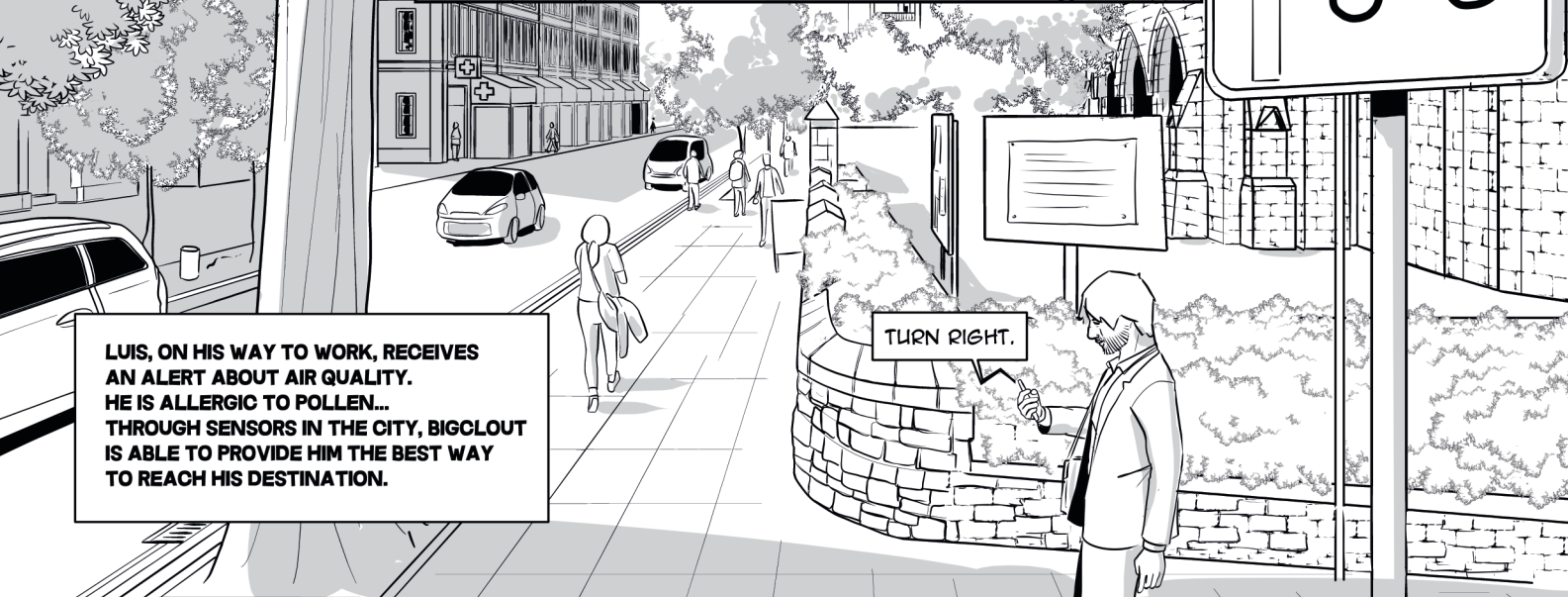
	Walk	CO ₂ : 0g
	Time: 2h	
	Bicycle	CO ₂ : 0g
	Time: 20min	
	Bus	CO ₂ : 0g
	Time: 30min	
	Car	CO ₂ : 0.8g
	Time: 1h	
	Car pool	CO ₂ : 0.8g
	Time: 1h	
	Car share	CO ₂ : 0.8g
	Time: 1h	

BRISTOL, 08:00 AM



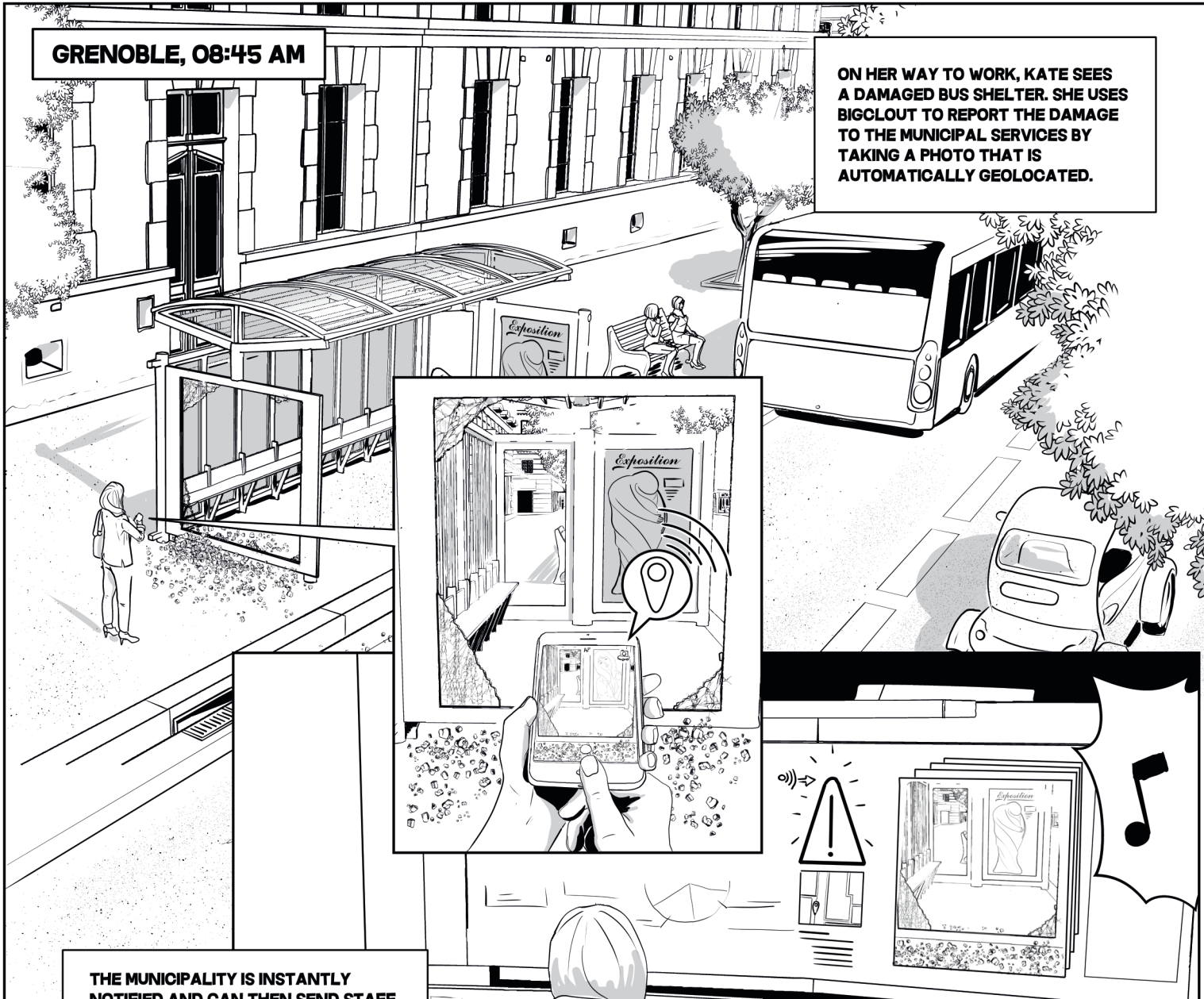
LUIS, ON HIS WAY TO WORK, RECEIVES AN ALERT ABOUT AIR QUALITY. HE IS ALLERGIC TO POLLEN... THROUGH SENSORS IN THE CITY, BIGCLOUT IS ABLE TO PROVIDE HIM THE BEST WAY TO REACH HIS DESTINATION.

TURN RIGHT.

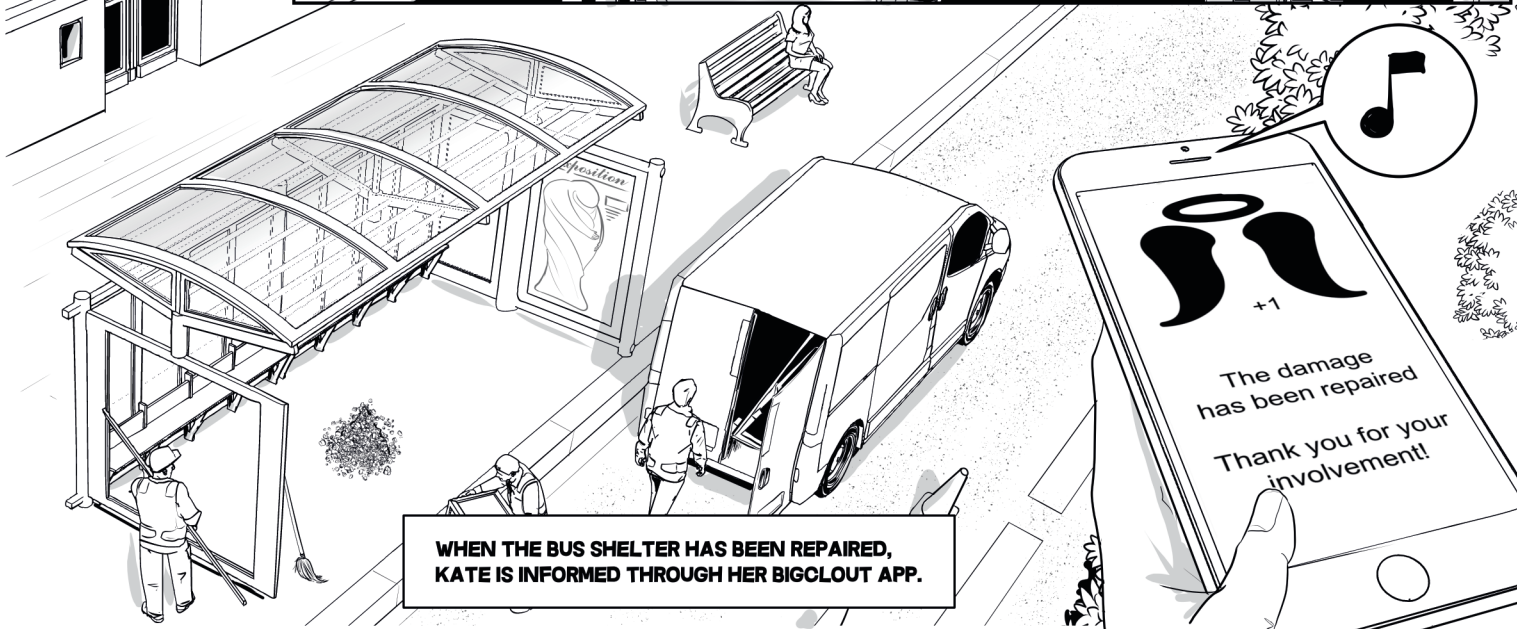


GRENOBLE, 08:45 AM

ON HER WAY TO WORK, KATE SEES A DAMAGED BUS SHELTER. SHE USES BIGCLOUT TO REPORT THE DAMAGE TO THE MUNICIPAL SERVICES BY TAKING A PHOTO THAT IS AUTOMATICALLY GEOLOCATED.



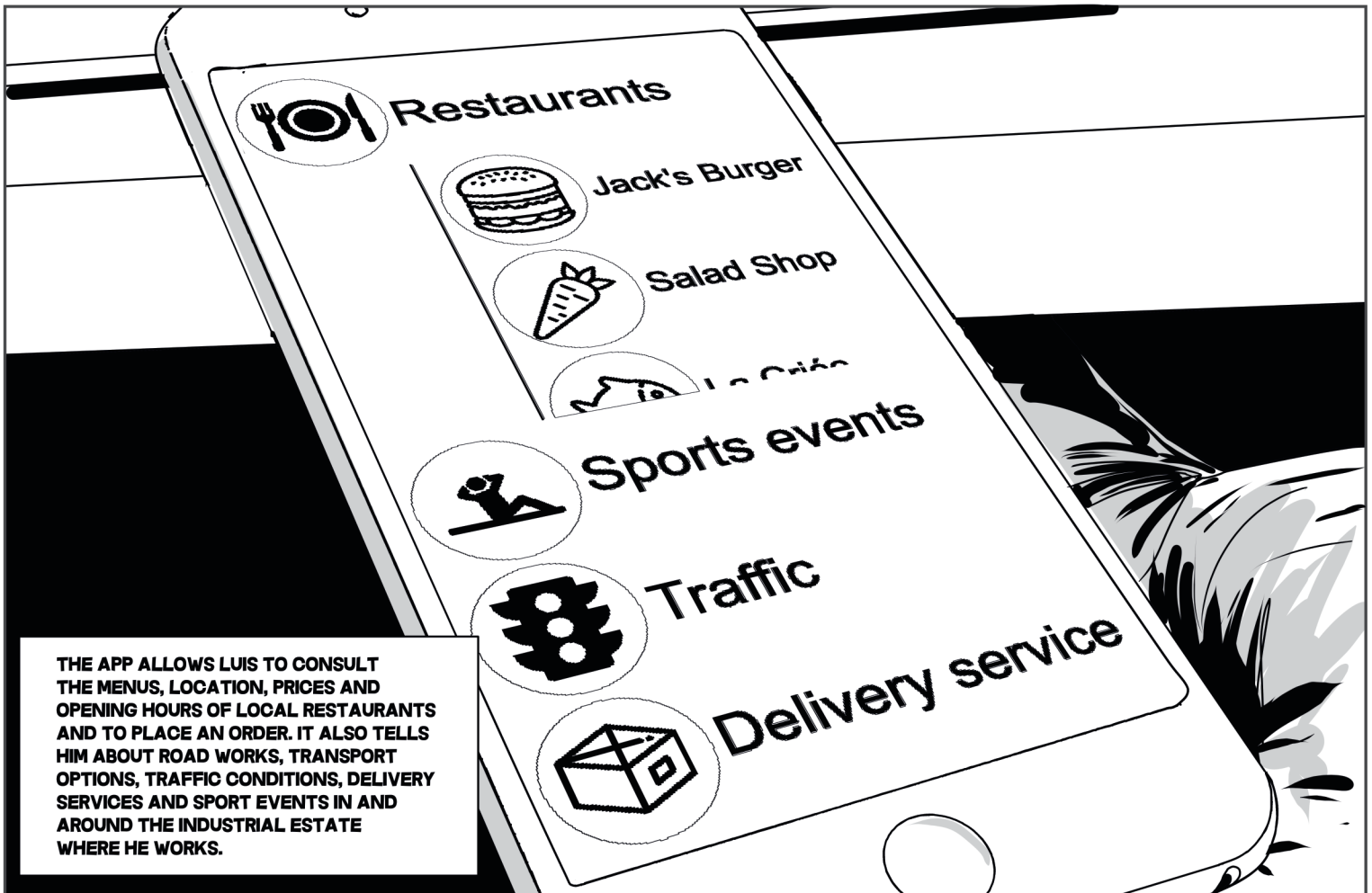
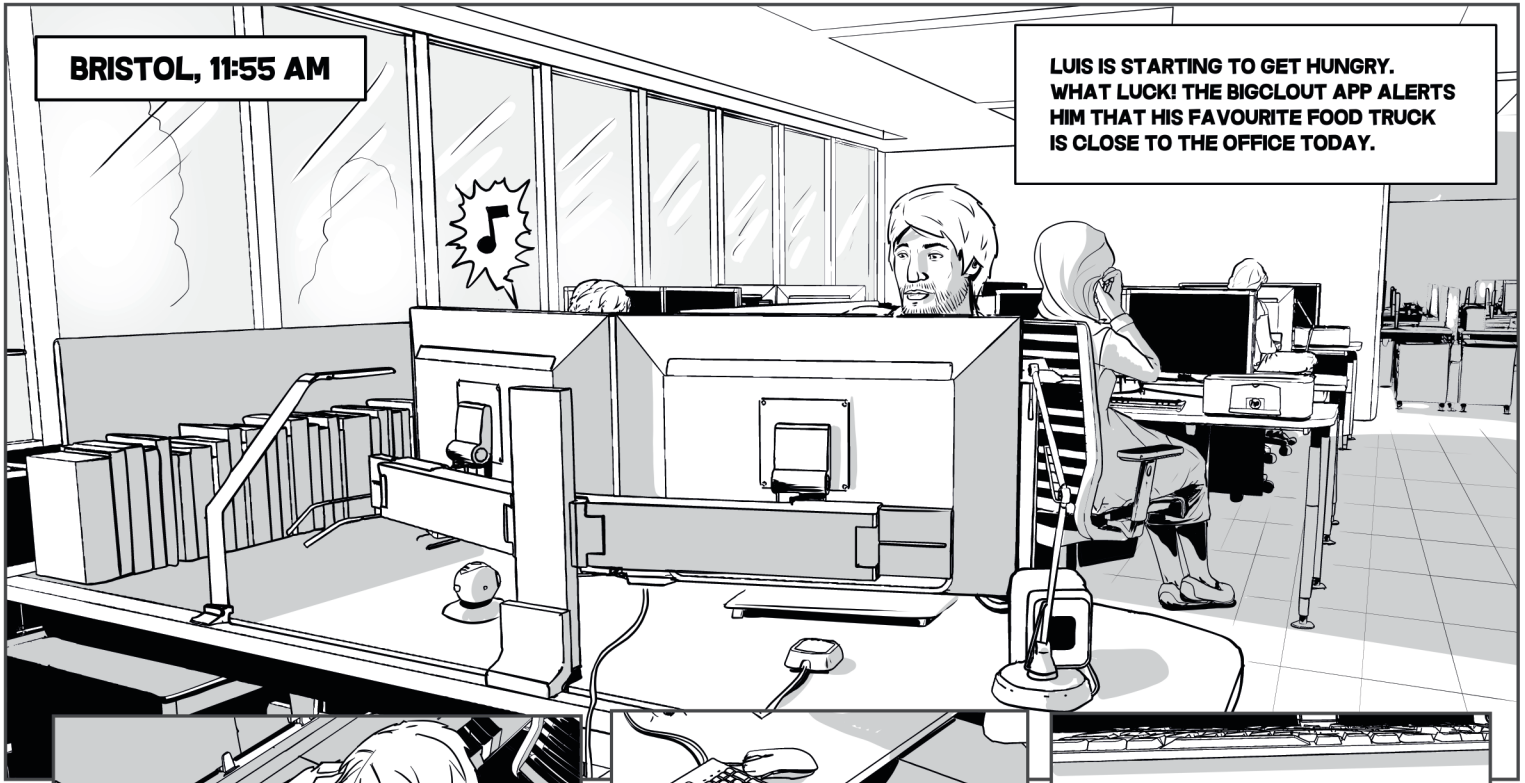
THE MUNICIPALITY IS INSTANTLY NOTIFIED AND CAN THEN SEND STAFF TO CARRY OUT THE REPAIR.



WHEN THE BUS SHELTER HAS BEEN REPAIRED, KATE IS INFORMED THROUGH HER BIGCLOUT APP.

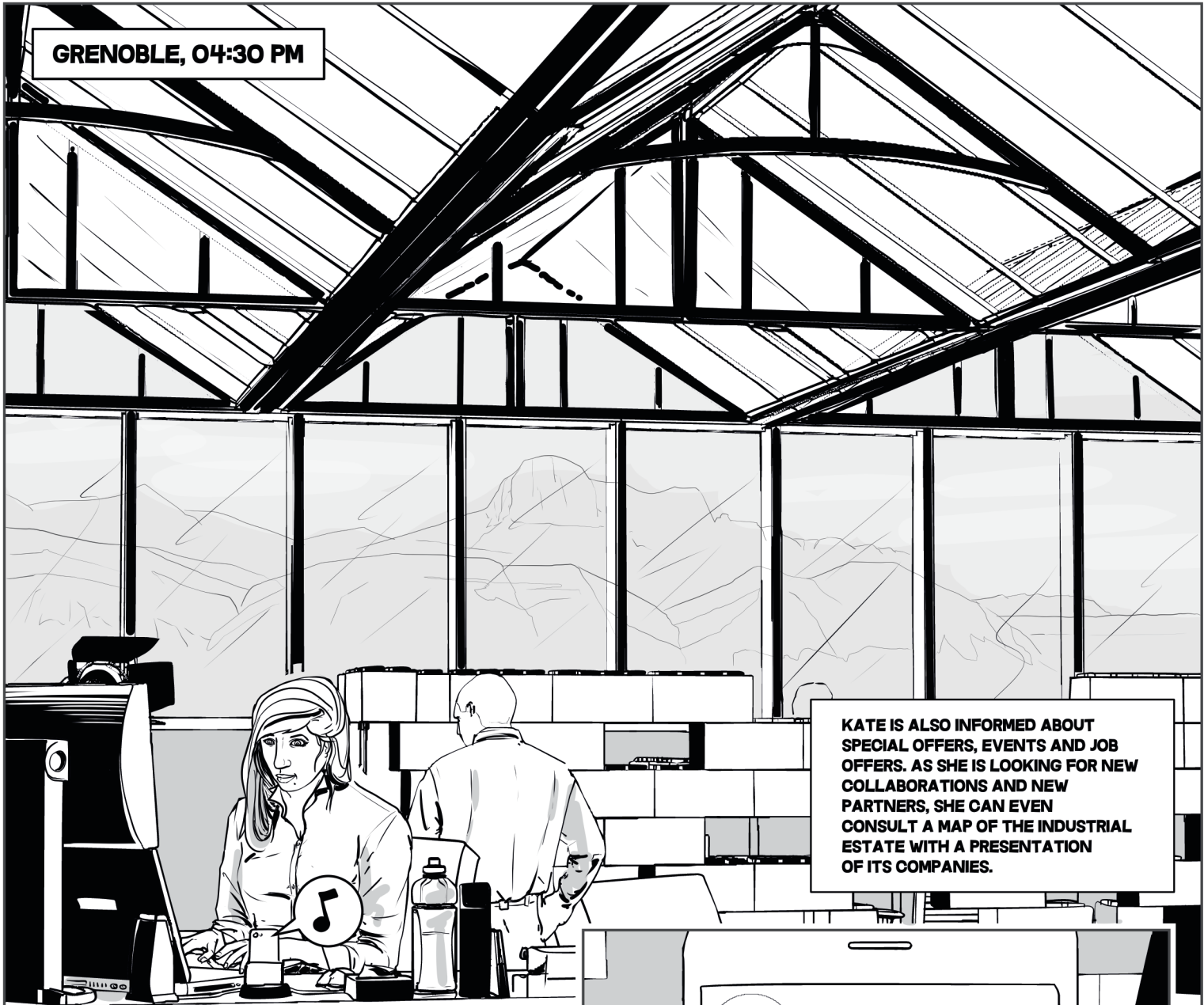
BRISTOL, 11:55 AM

LUIS IS STARTING TO GET HUNGRY. WHAT LUCK! THE BIGCLOUT APP ALERTS HIM THAT HIS FAVOURITE FOOD TRUCK IS CLOSE TO THE OFFICE TODAY.

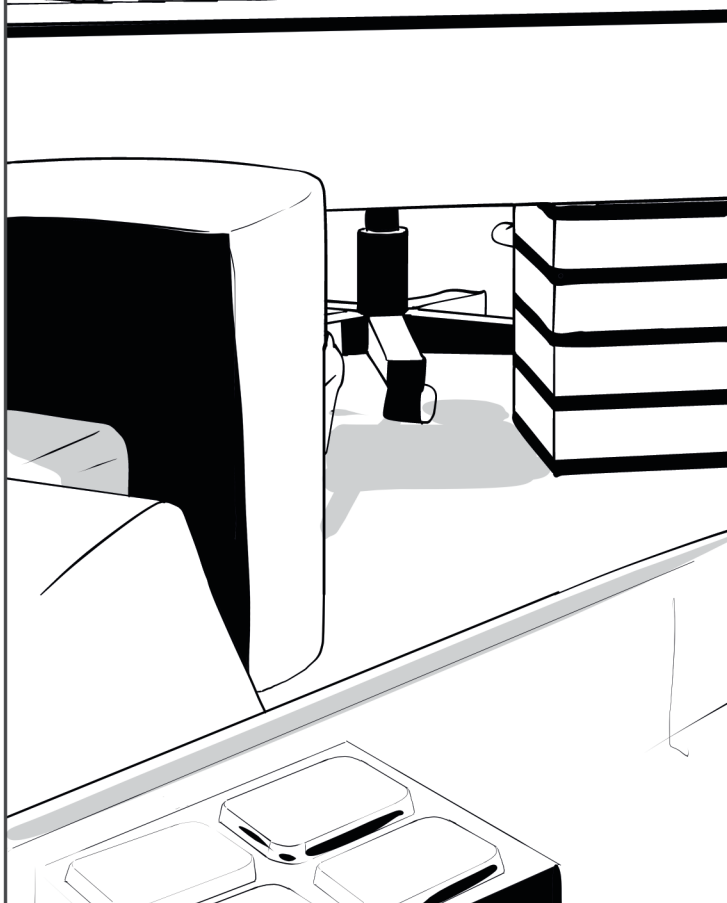


THE APP ALLOWS LUIS TO CONSULT THE MENUS, LOCATION, PRICES AND OPENING HOURS OF LOCAL RESTAURANTS AND TO PLACE AN ORDER. IT ALSO TELLS HIM ABOUT ROAD WORKS, TRANSPORT OPTIONS, TRAFFIC CONDITIONS, DELIVERY SERVICES AND SPORT EVENTS IN AND AROUND THE INDUSTRIAL ESTATE WHERE HE WORKS.

GRENOBLE, 04:30 PM



KATE IS ALSO INFORMED ABOUT SPECIAL OFFERS, EVENTS AND JOB OFFERS. AS SHE IS LOOKING FOR NEW COLLABORATIONS AND NEW PARTNERS, SHE CAN EVEN CONSULT A MAP OF THE INDUSTRIAL ESTATE WITH A PRESENTATION OF ITS COMPANIES.



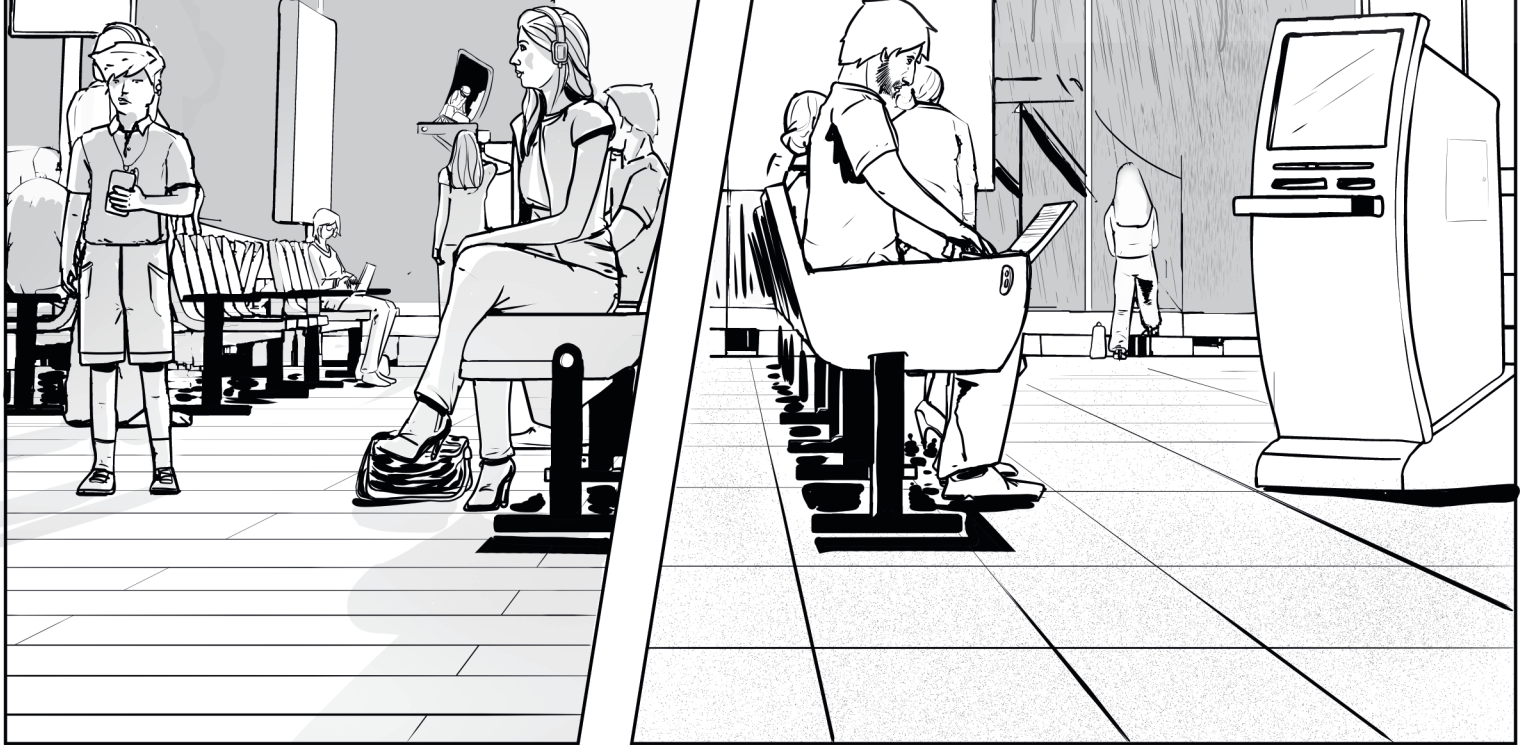
-  **Shopping**
-  **Special offer 50% discount**
-  **Live shows**
-  **Exhibitions**
-  **Job offers**

Madrid	5
Glasgow	2
Vilnius	8
Paris	12
Reykjavik	7
Tsukuba	3

Berlin
Paris
London Heathr
Dubai
Tsukuba

KATE AND LUIS ARE BOTH ON THEIR WAY TO A CONGRESS IN TSUKUBA. BIGCLOUT WILL CONTINUE TO HELP THEM DURING THIS TRIP.

Check-in

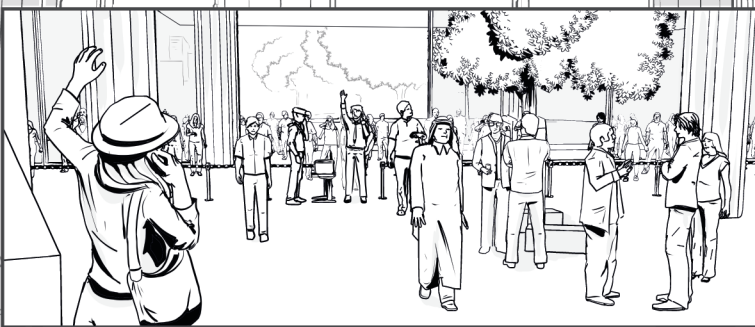




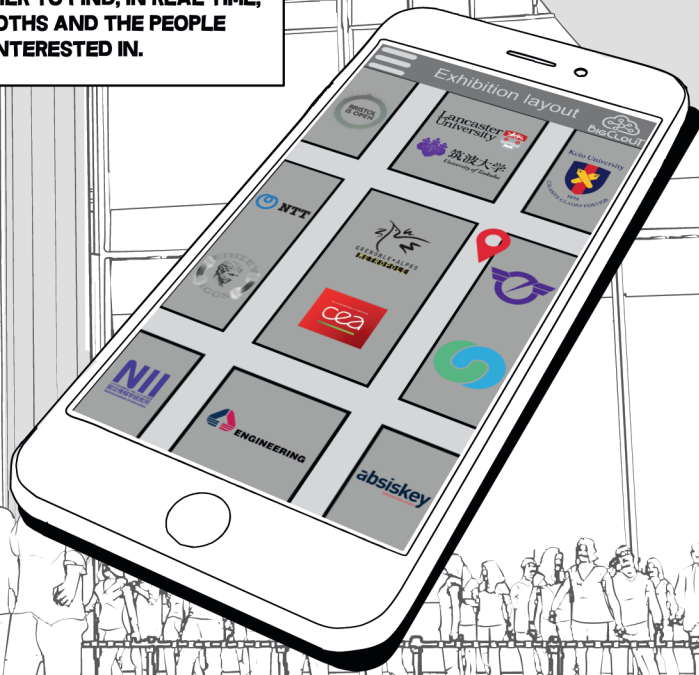
TSUKUBA, JAPAN 08:30 AM



KATE IS IN A CITY SHE DOESN'T KNOW, IN A COUNTRY WHERE SHE DOESN'T SPEAK THE LANGUAGE. THE BIGCLOUT APP HELPS HER BY PROVIDING INFORMATION SUCH AS THE CONFERENCE AGENDA AND ITS ATTENDEES, AS WELL AS THE DIFFERENT TRANSPORT OPTIONS. ONE OF THESE OPTIONS IS THE SHUTTLE BUS SERVICE, DIRECTLY FROM THE HOTEL TO THE EVENT, SET UP BY THE EVENT ORGANISERS.



ONCE AT THE EVENT, BIGCLOUT HELPS HER TO FIND, IN REAL TIME, THE BOOTHS AND THE PEOPLE SHE IS INTERESTED IN.



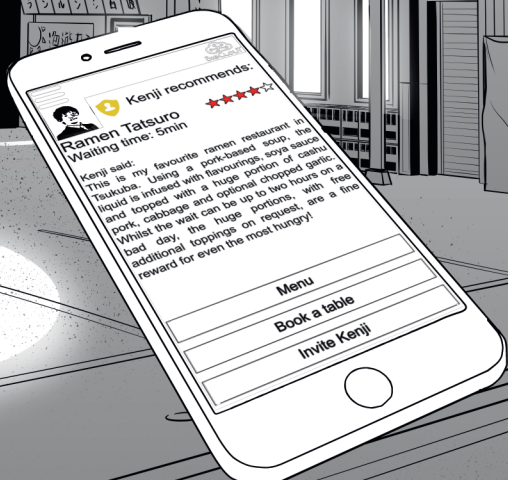
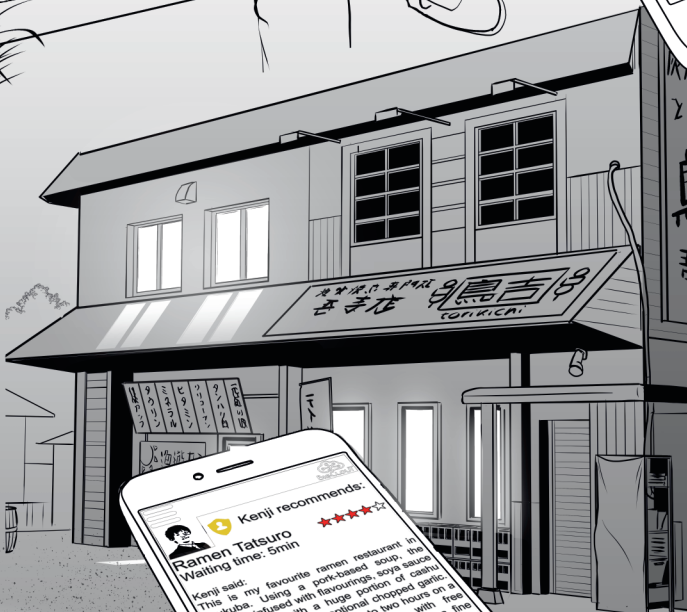
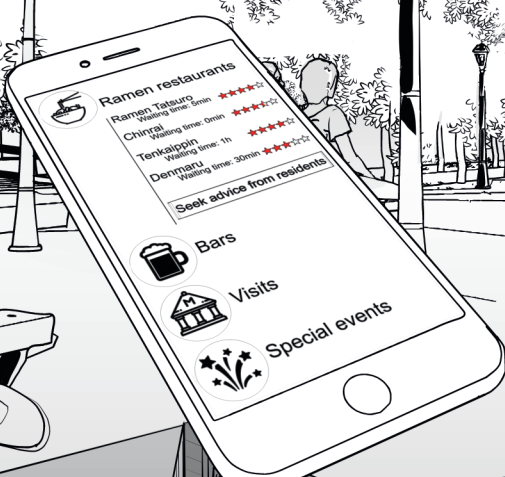
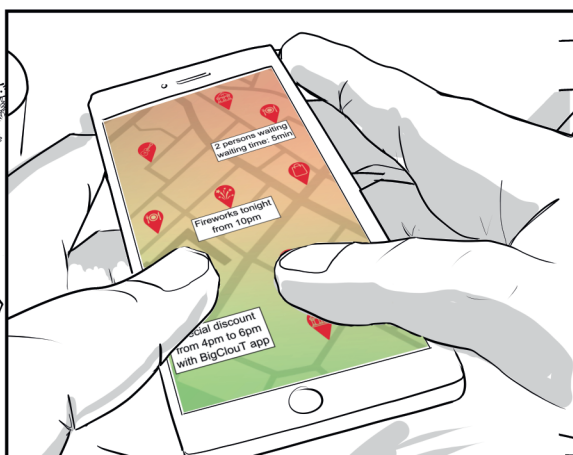
BIGCLOUT HELPS KATE AND LUIS, TWO OLD FRIENDS, TO MEET UP AT THE EVENT!

TSUKUBA, DOWNTOWN 07:40 PM

RAMEN ?!

KATE, LUIS AND THEIR COLLEAGUES MEET IN THE DOWNTOWN AREA TO ENJOY THE EVENING AFTER AN INTENSE WORKING DAY. BIGCLOUT HELPS THEM TO GET AROUND THE CITY, BY RECOMMENDING SHOPS, BARS, RESTAURANTS AND TOURIST ATTRACTIONS, BUT ALSO REAL-TIME INFORMATION LIKE SPECIAL OFFERS FOR BIGCLOUT USERS, EVENTS OR CROWDED ZONES.

BIGCLOUT'S KNOWLEDGE BASE IS FED BY LOCAL CITIZENS, WHO CONTRIBUTE BY PROVIDING ADVICE AND TIPS TO TOURISTS. FOLLOWING KENJI'S SPONTANEOUS RECOMMENDATION, THEY DECIDE TO GO TO AN EXCELLENT RAMEN RESTAURANT, CLOSE TO THEIR LOCATION, WITH A SHORT WAIT.



ANOTHER MEMORABLE MOMENT THANKS TO BIGCLOUT!

Acknowledgements

We would like to thank the European Commission and NICT for funding this project. We would also like to thank all the partners for their thoughts and ideas on the comic scenario, especially Dr Levent Gurgen and Koichi Takahashi, European and Japanese BigClouT coordinators of the project, and also Keiko Doguchi, Kate Margetts, Luis Pena, Kenji Tei, Takuro Yonezawa and Matthew Broadbent for their participation and feedback throughout the development of this document. Finally, we would like to thank Etienne Giorgetti, from Chat Noir, for his great pencil stroke.

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Project coordinated by



www.cea-tech.fr



www.ntt-east.co.jp

Conception managed by



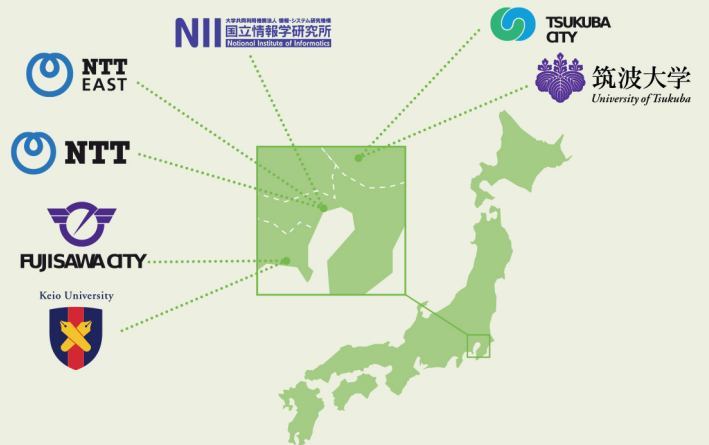
www.absiskey.com

Drawings by



Etienne Giorgetti
www.chat-noir.biz

BIGCLOUT PARTNERS



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