

Hui Zhang and Tao Chen

Institute of Public Safety Research, Tsinghua university

Together with Department of Public Security, Tsinghua University

#### Contents

- **Background of Campus Safety**
- **2** Safe Campus Information System Design
- **3** Platform for Campus Safety and Resilience

# "Two Universities and One City" Demo Projects for National Education Comprehensive Reform Initiatives

#### **Objectives:**

- Systematically review campus risk and identify the key problems
- Establish monitoring and warning system using new technologies, e.g., video/camera, smart phone, face/license plate recognition system
- ☐ Connect to the neighborhood and to the city
- Establish campus safety protection system

Tsinghua University is one of three major pilots of national "two schools and one city" education comprehensive reform initiative. Some of campus safety incidents: chemical laboratory fire, building fires due to charge of motorcycle battery, food poison, influenza, threat of exploration, traffic accident, flood, etc.

#### **Background Analysis of Campus Safety**



**Unsafe behaviors** 

Unsafe state

Unsafe environment

Natural disasters

**Hazard** 

Human vulnerability

Material vulnerability

Vulnerability of operational system

Vulnerability of buildings

Vulnerability



Unsafe state



Equipment equipping



Unit use and maintenance



Monitoring system

Management

RISK

Organizational structure and competence

Rules and regulations

Resources

Training and drills



### **Security Management Challenge of Tsinghua Campus**

There

are

many

visitors

and

=

S

are difficult to monitor

difficult to

control the persons

Many Many to monitor and contro Network public opinion is fier and communication control is difficult to handle safely Miscellaneous Dangerous difficult to track and manage difficult. association experimental chemicals experimental waste activitie equipments are difficult

overall enhancement is Security awareness S. difficult weak, and

Network public opinion is fierce,

We need to integrate information resources, establish a unified management platform, and strive to achieve:

There are basic knowledge and plan for everything.

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#### Construction target of campus security platform

Take the risk as the main line, take the stability as the goal.

New concepts for security, new modes for management

Management systemization

**Grid management** 

**Data dynamization** 

**Site transparency** 

**Comprehensive** management

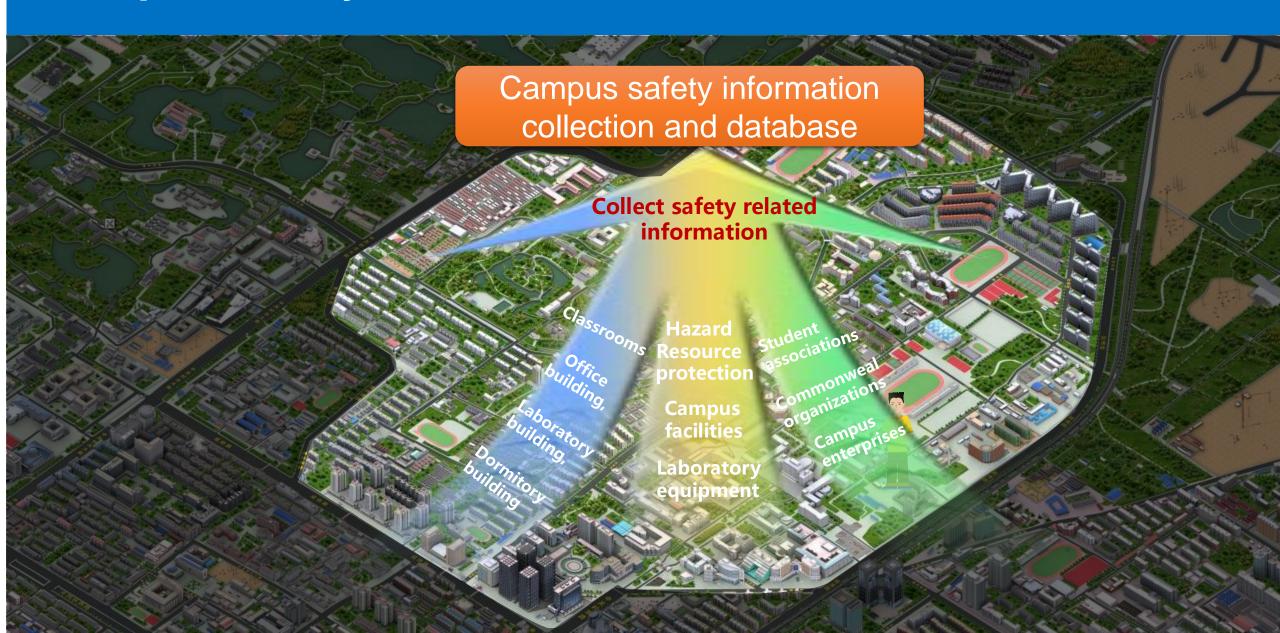
Monitoring the full process

Information all converged

Full control of the school situations

Hidden risk all excluded

Strive to achieve







**Information** collection classroom building, dormitory, staff, student, inhabitant, office building, residential transient personnel, special building, stadium, hospital personnel personnel houses experimental area, radioactive and biohazard zone compon incident full process information ent organiz and public opinion ation information of various security incidents in school campus facility, laboratory equipment, lifeline, hazard, protection university owned corporation,

student association, non-profit

organization

object

**Full control of the** school situation

Fire extinguishing system



fire extinguishing mainframe

fire extinguishing water supply monitoring system **Campus security** comprehensive protection platform

security system



Video





monitoring

grid patrol

door access system

#### **Information monitor and reporting system**



IoT monitor



crowds collect image and report



voice call



public opinion monitor



related organization information system

#### **System Userage**



Intuitive understanding of campus operation Quickly respond campus emergency decision

student and staff



Enhanced public security awareness
Easy access to security information



Public safety knowledge training

Conveniently report security information

safety grid manager



routine patrol



monitoring warning



emergency response coordination



resource management

#### **System Framework**

Campus BIM, GIS modeling









function information modelling



geographic information modelling



risk identification and analysis

identification of campus security risk incident

omplete rick index system construction

Dynamic risk information collection



Identification of risk assessment index Classification of monitoring elements Sensors installation and deployment Information collection and access



hazard factor

detection



human behaviour monitor

multi-source information

access technique

classification of

monitoring information

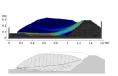
multi-source heterogeneous

information integration and

access



equipment monitor



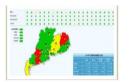
environment elements monitor

coordination platform



campus security platform

front platform



risk

dynamic analyzed

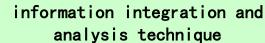


Campus risk prevention, control and emergency

situation of emergency incident coordinati on scheme







combination of IoT and GIS/BI

cross impact chain analysis

Real-time risk assessment and visualization

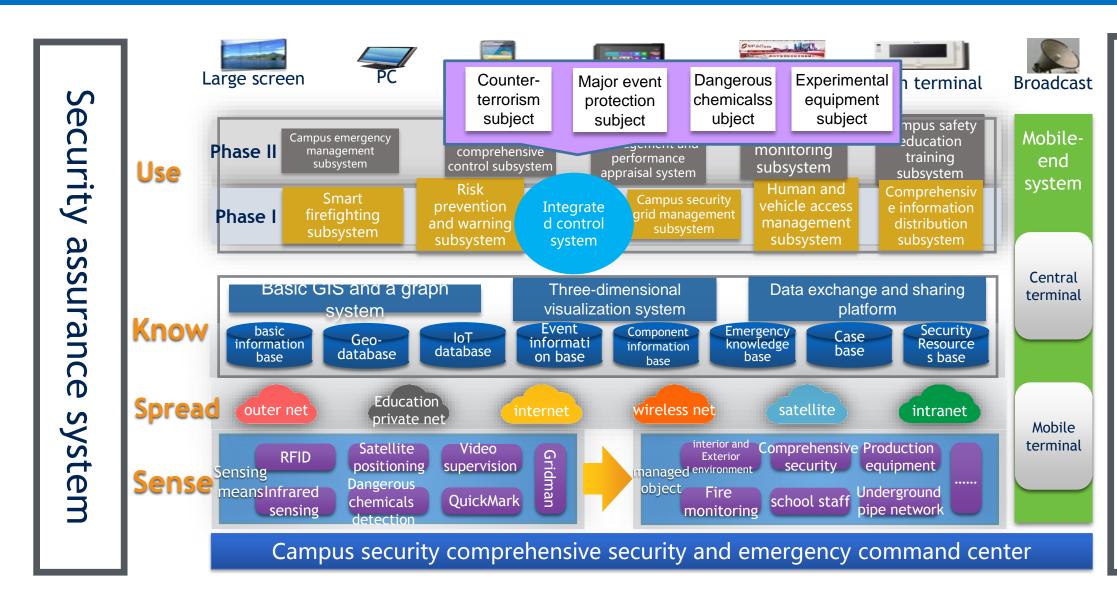
#### emergency coordination

situation comprehend

emergency coordination and command

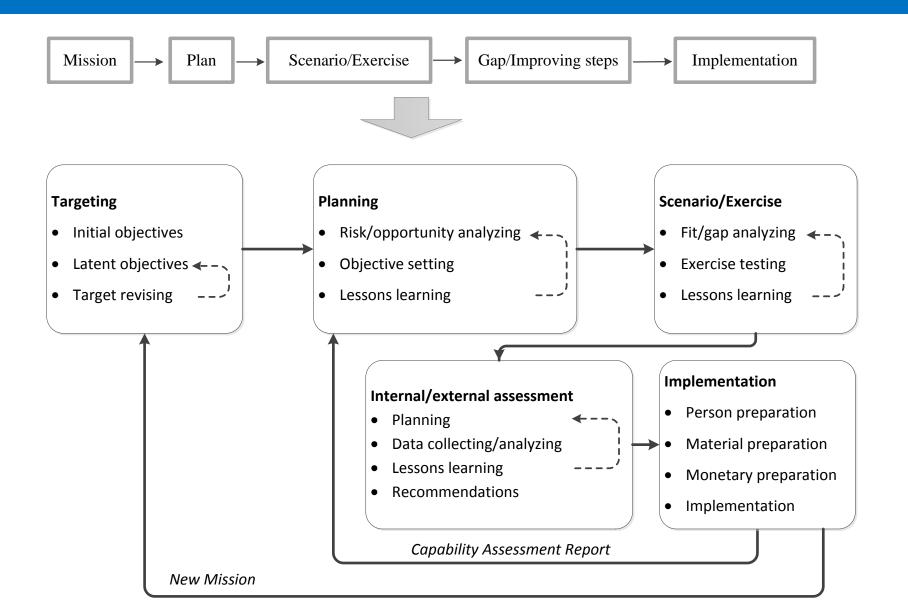
resource management and scheduling

#### **System Framework**



Standard Specification System

#### **Scenario Development**



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### **Campus Plan and Management**



### **Daily Supervision**



#### Daily Supervision and Early Warning

School teachers & students photo upload













#### **On-campus speed monitoring**





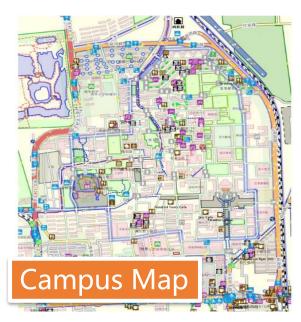


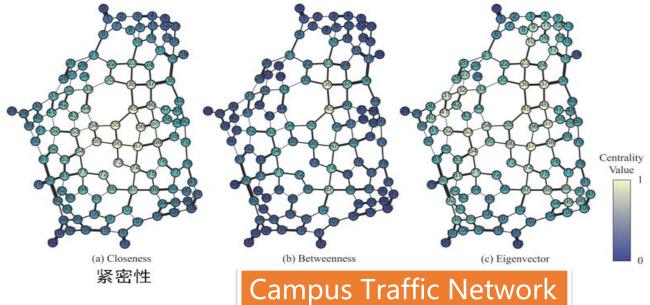
License plate recognition

### Important Event Management and Early Warning



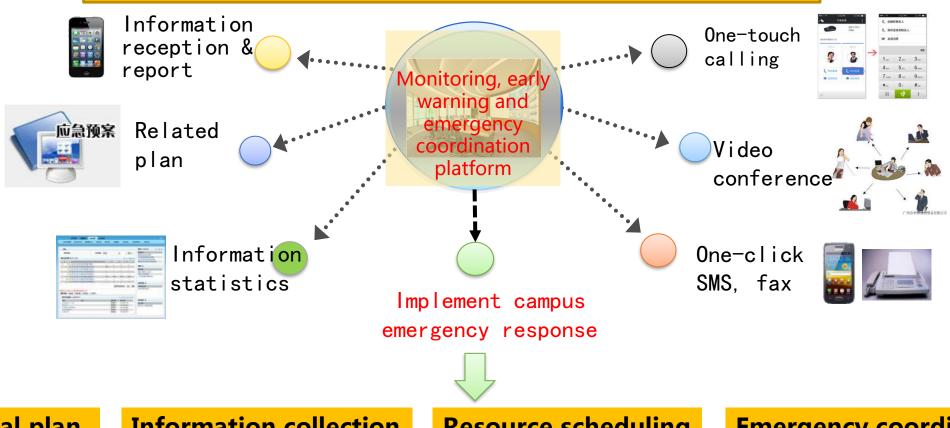






#### **Emergency Management**

### **Comprehensive management**



**Digital plan** 

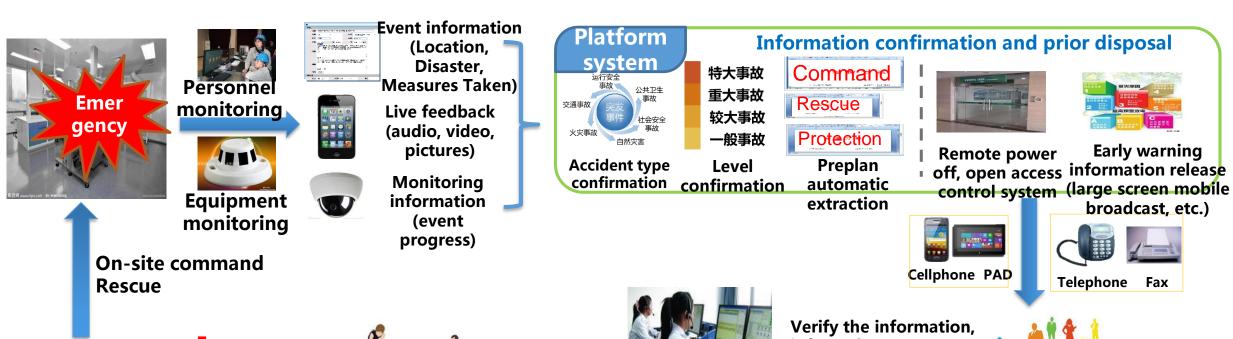
**Information collection** 

**Resource scheduling** 

**Emergency coordination** 

#### **Emergency Management**

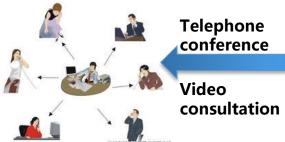
#### All stakeholders involved in emergency prevention and closed-loop information





**Emergency** information

Emergency disposal scheme



V in re



Verify the information inform the emergency response team

One-touch calling, text messaging, fax



Relevant leaders and responsible persons

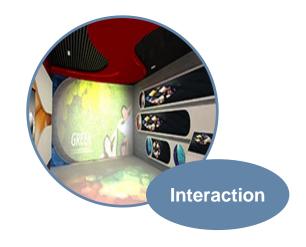
#### Campus Public Opinion Analysis and Management

Grasp the first three opinion analysis; play three force roles; maintain social harmony and stability



#### **Public Safety Education and Training**

Provide comprehensive, multi-level, and three-dimensional security training for different types of users and different types of security incidents on campus to improve campus security awareness as a whole.



WeChat, Microblog, APP
Social Classroom Activities
Open science practice



Personal Safety Education
Public Safety Education
Fire Safety Education
Disaster Safety Education
Traffic Safety Education
Cyber Security Education



Risk Hidden Consultation
Fire Knowledge Consultation
Emergency Drill Consultation.

#### **Campus Safety Information Client**

Cellphone APP Leadership exclusive page Info portal







## Thank you!