



DIGITAL

SUPERHERO

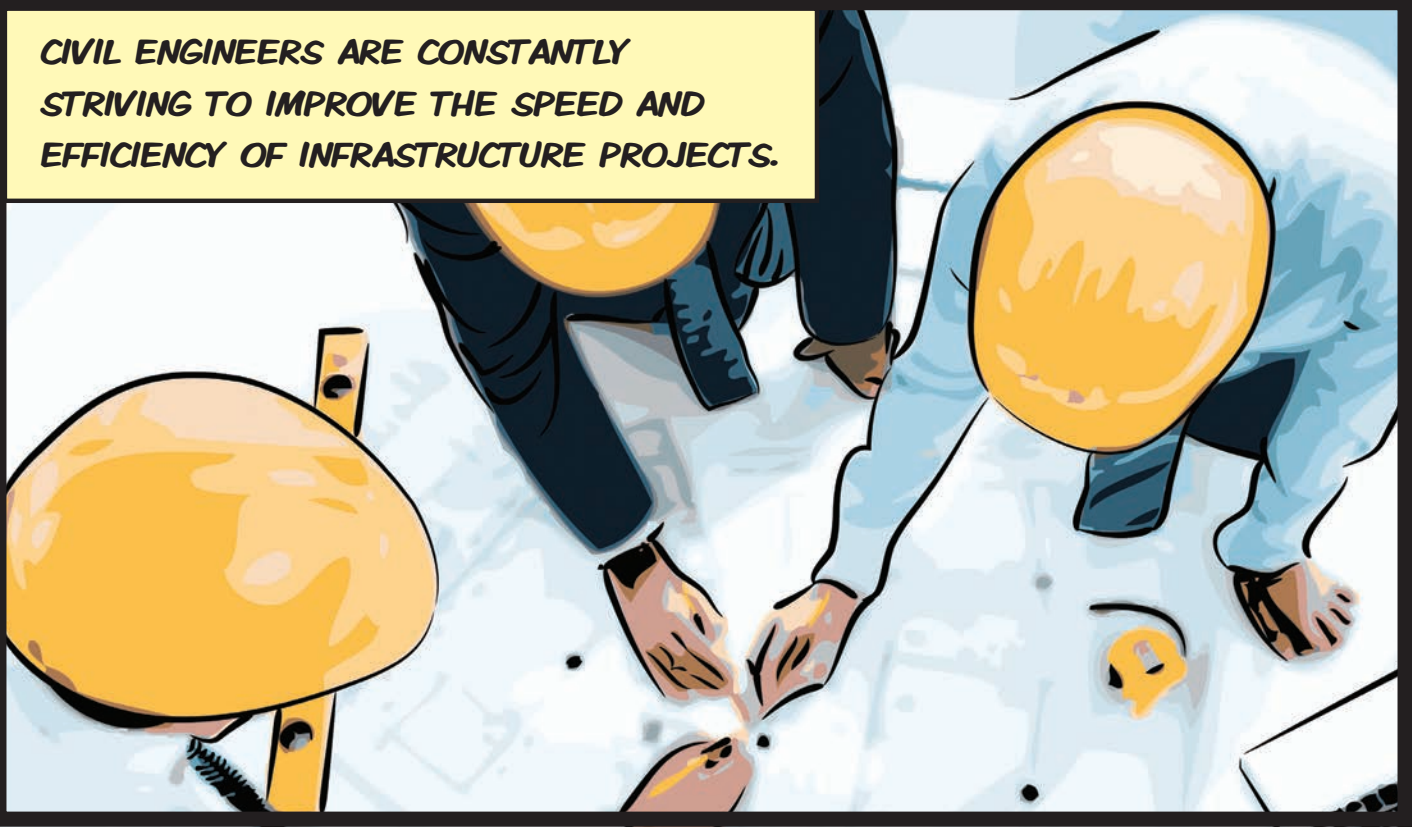
DR ANNE KEMP

'DIGITAL DYNAMO'

ARCH ENEMY

DISJOINTED COMMUNICATIONS

CIVIL ENGINEERS ARE CONSTANTLY STRIVING TO IMPROVE THE SPEED AND EFFICIENCY OF INFRASTRUCTURE PROJECTS.



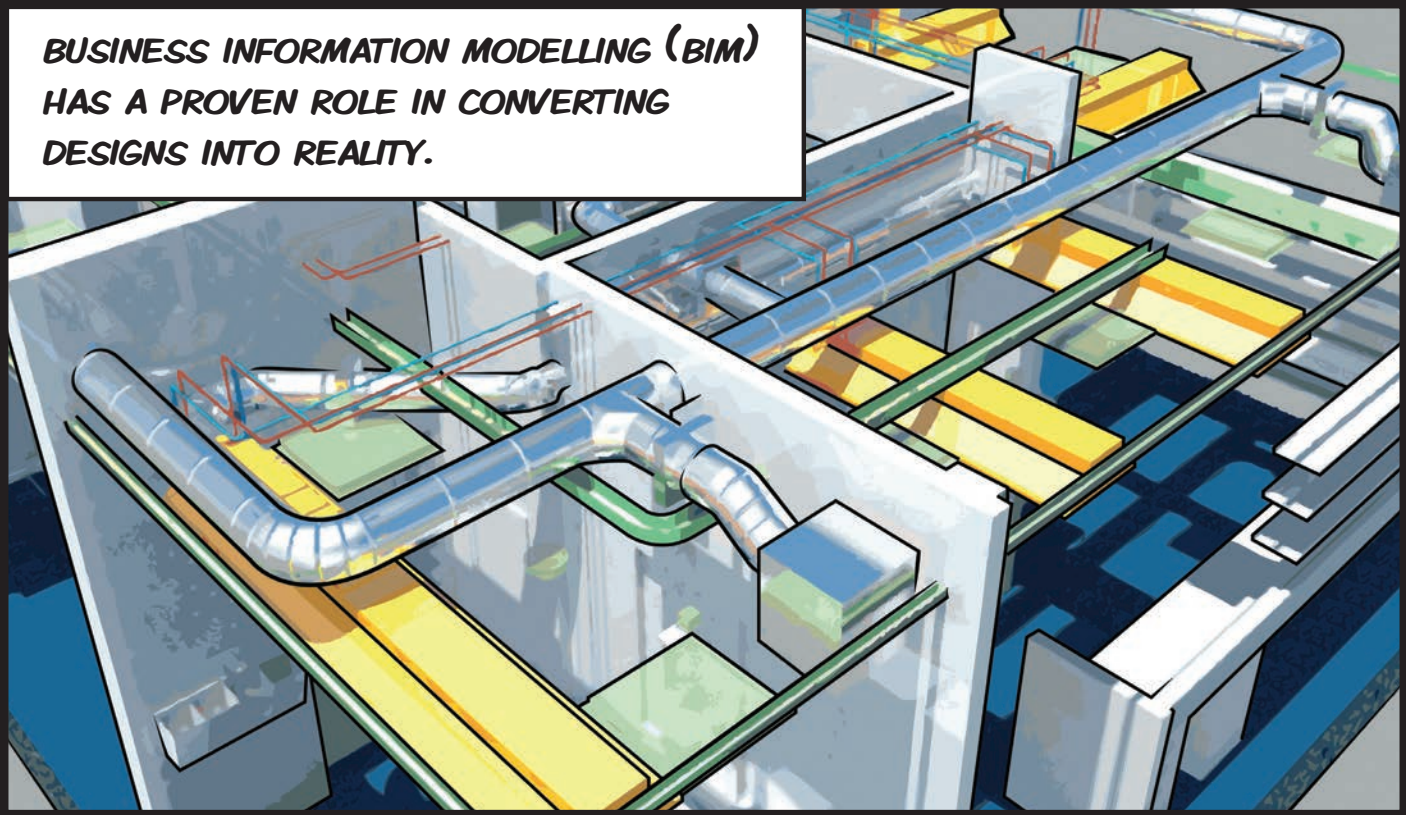
THEY USE THE LATEST MOBILE TECHNOLOGY FOR BETTER COMMUNICATIONS IN REMOTE LOCATIONS.



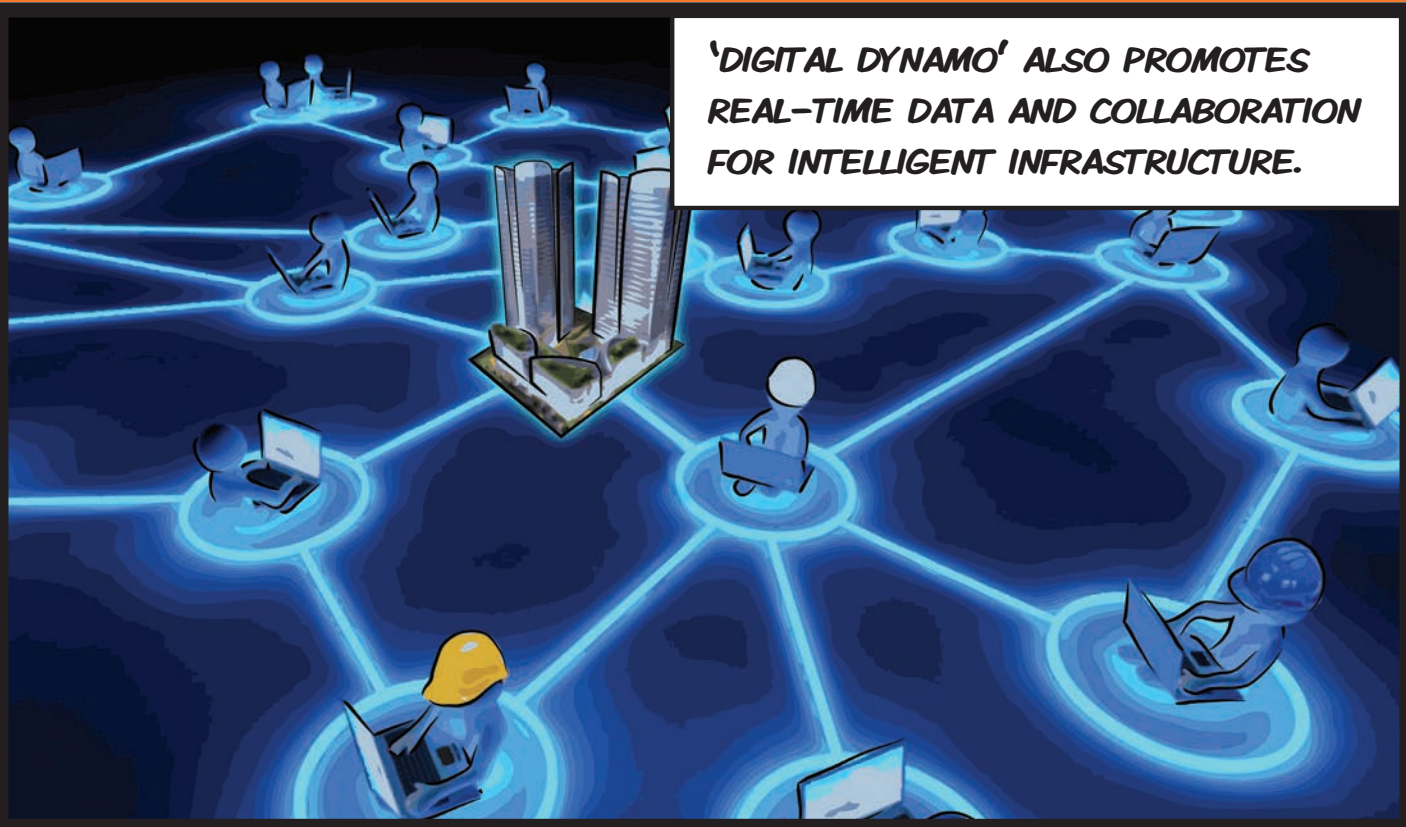
'DIGITAL DYNAMO', DR ANNE KEMP, IS PROMOTING THE USE OF DIGITAL ASSETS, BIM AND BIG DATA TO IMPROVE THE DELIVERY OF THESE CIVIL ENGINEERING PROJECTS.



**BUSINESS INFORMATION MODELLING (BIM)
HAS A PROVEN ROLE IN CONVERTING
DESIGNS INTO REALITY.**



**'DIGITAL DYNAMO' ALSO PROMOTES
REAL-TIME DATA AND COLLABORATION
FOR INTELLIGENT INFRASTRUCTURE.**



**CIVIL ENGINEERING
PROJECTS ARE BEING
STREAMLINED, WITH
EFFICIENT DESIGNS AND
FASTER CONSTRUCTIONS.**



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What is Civil Engineering?

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COMMUNICATIONS

SUPERHEROES

THOMAS TELFORD

'COLOSSUS'

ISAMBARD KINGDOM BRUNEL

'CAPTAIN INNOVATION'

ARCH ENEMIES

LONG DISTANCES & OUTDATED ROADS

AT THE BEGINNING OF THE 19TH CENTURY THE POST OFFICE HAD A FLEET OF HORSE-DRAWN COACHES DELIVERING POST ACROSS BRITAIN.



IMPROVEMENTS IN ROADS AND COACH DESIGN SPED UP THE SERVICE TO ABOUT 10MPH.



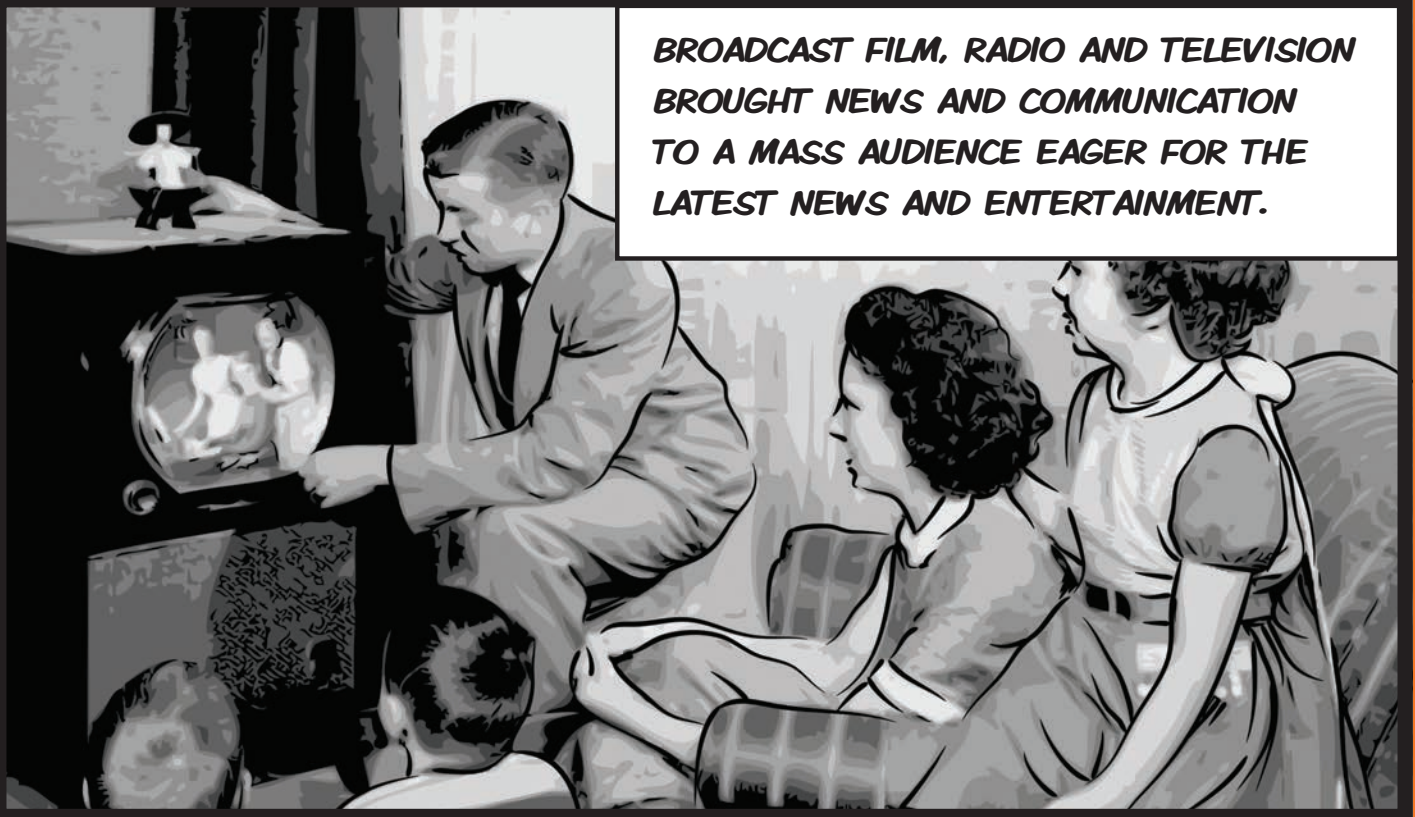
THE DEVELOPMENT OF RAILWAYS IN THE 1830S AND 40S LED TO THE REPLACEMENT OF THE SERVICE AND MAIL WAS CARRIED BY TRAIN.



THE TELEGRAPH REVOLUTIONISED LONG-DISTANCE COMMUNICATION IN THE MID-19TH CENTURY REDUCING TRANSATLANTIC COMMUNICATION FROM 10 DAYS TO A FEW MINUTES.



BROADCAST FILM, RADIO AND TELEVISION BROUGHT NEWS AND COMMUNICATION TO A MASS AUDIENCE EAGER FOR THE LATEST NEWS AND ENTERTAINMENT.



TODAY WE THINK NOTHING OF REAL-TIME NEWS, INSTANT MESSAGING, THE INTERNET, MOBILE SMART PHONES AND COMMUNICATION FROM REMOTE LOCATIONS.



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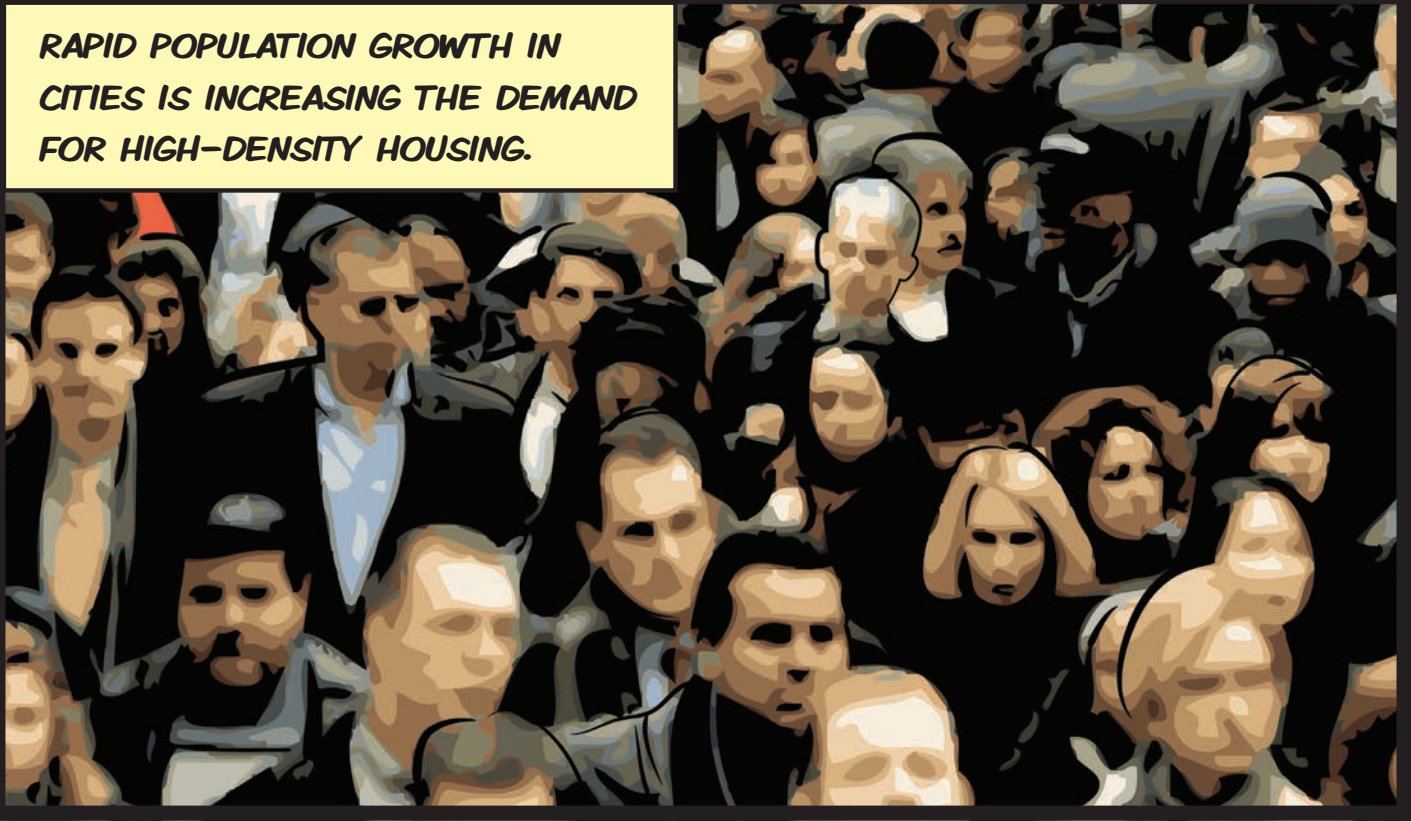


SMART CITIES

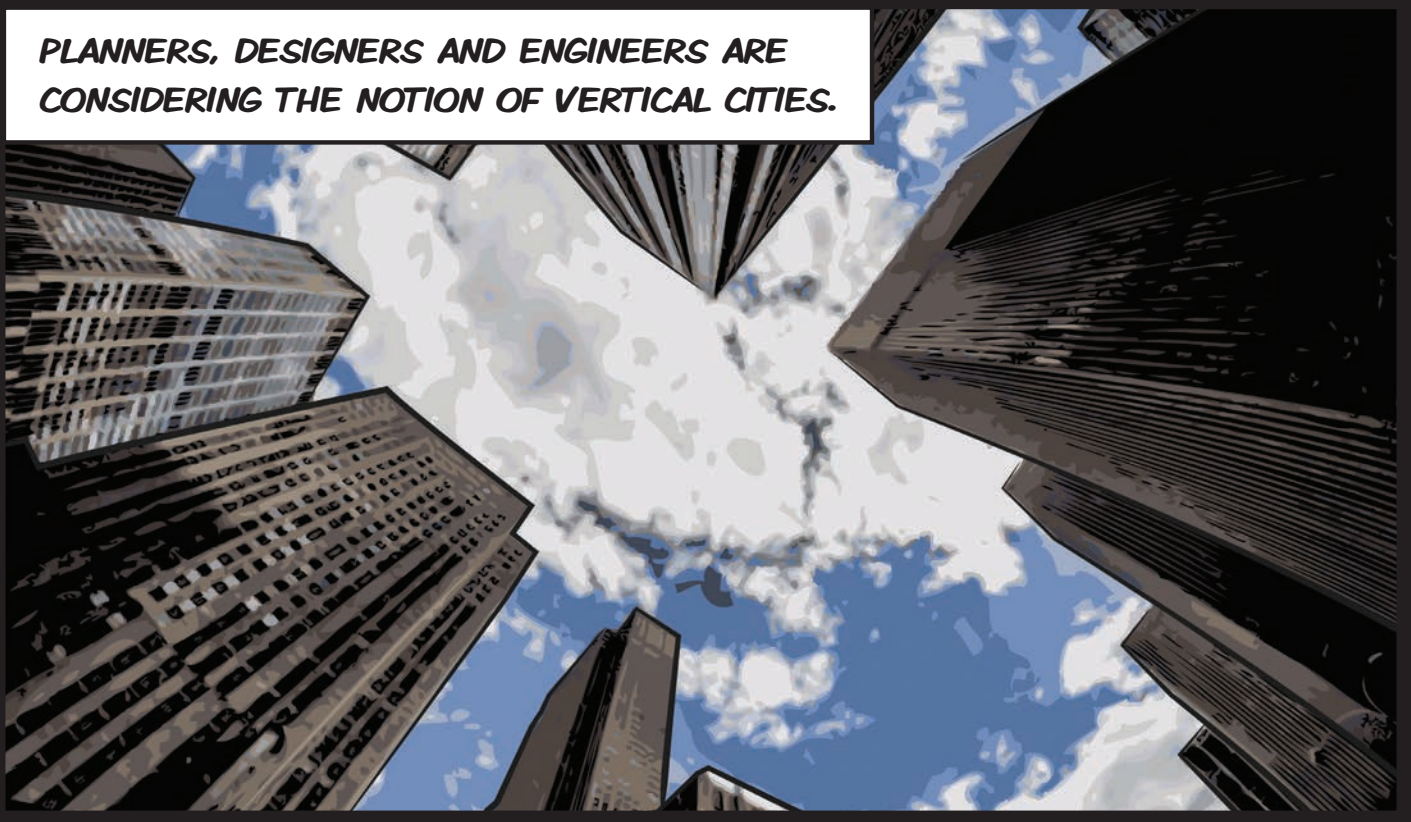
SUPERHERO
LLOYD CLOUGH
'SUPER STRUCTURES'

ARCH ENEMY
OVERPOPULATION

RAPID POPULATION GROWTH IN CITIES IS INCREASING THE DEMAND FOR HIGH-DENSITY HOUSING.



PLANNERS, DESIGNERS AND ENGINEERS ARE CONSIDERING THE NOTION OF VERTICAL CITIES.



'SUPER STRUCTURES', LLOYD CLOUGH, IS A STRUCTURAL ENGINEERING TECHNICIAN AND ACCUTELY AWARE OF THE NEED FOR AFFORDABLE RESIDENTIAL DEVELOPMENT.



HE IS INVESTIGATING THE BEST FORM OF STRUCTURE FOR NEW INDIVIDUAL DEVELOPMENTS.



HE IS ALSO WORKING WITH TEAMS OF STRUCTURAL ENGINEERS TO ADAPT EXISTING BUILDINGS FOR OPTIMUM USE.



LLOYD CLOUGH PROMOTES THE FIELD OF CIVIL ENGINEERING TO STUDENTS, TO ENCOURAGE THE NEXT GENERATION OF PROFESSIONAL ENGINEERS.



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SMART CITIES

SUPERHERO

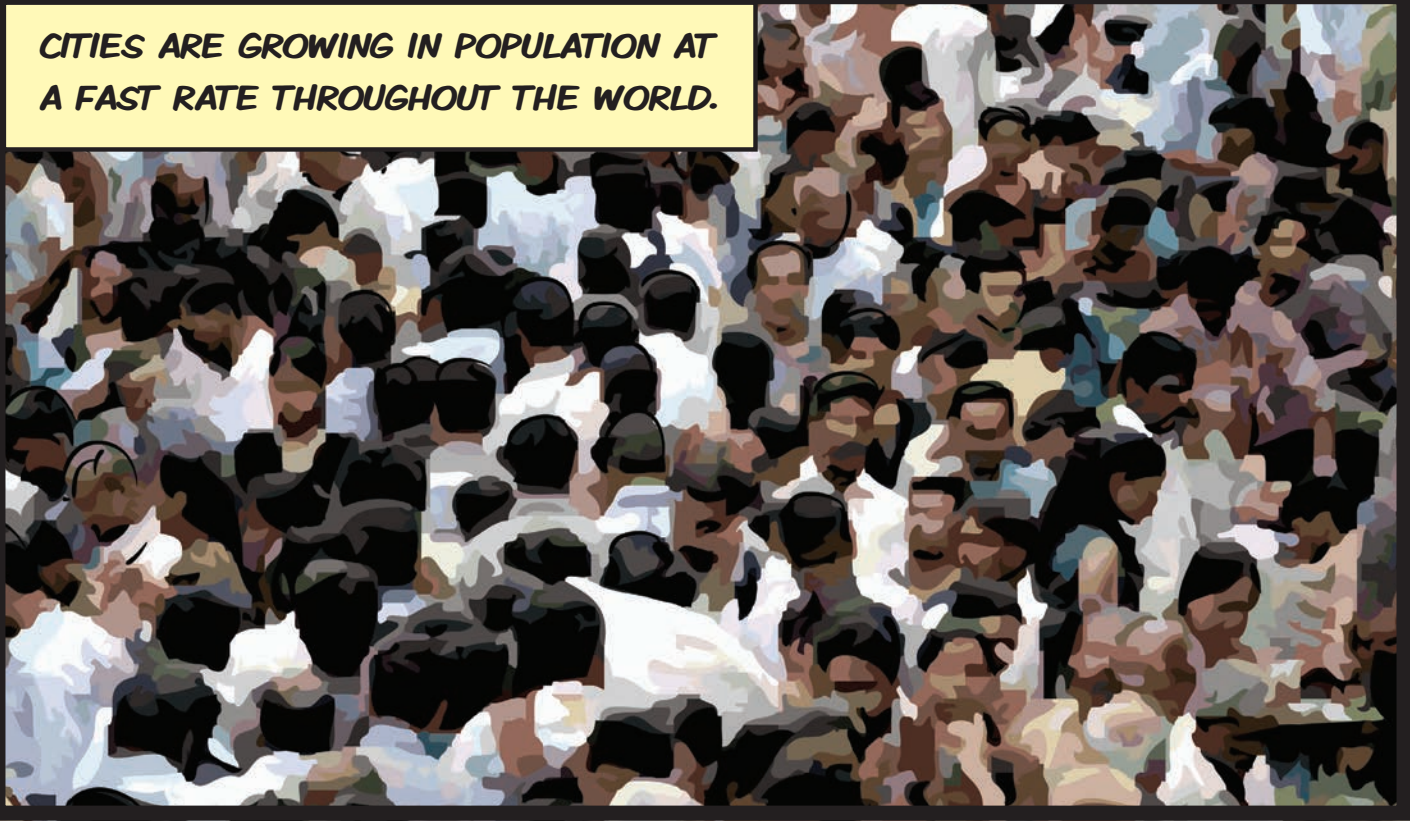
DR ELLIE COSGRAVE

'URBAN ANGEL'

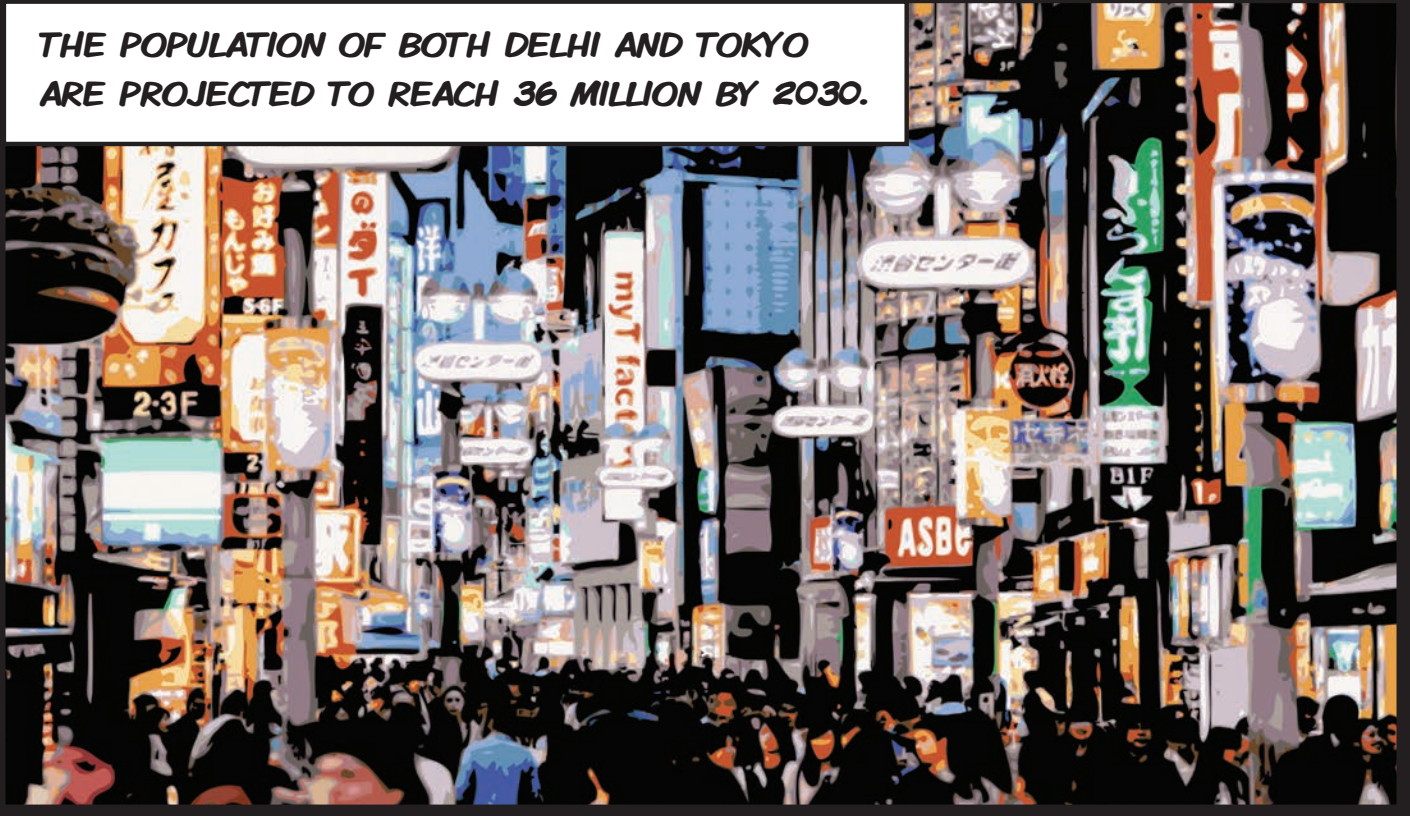
ARCH ENEMY

RAPID URBANISATION

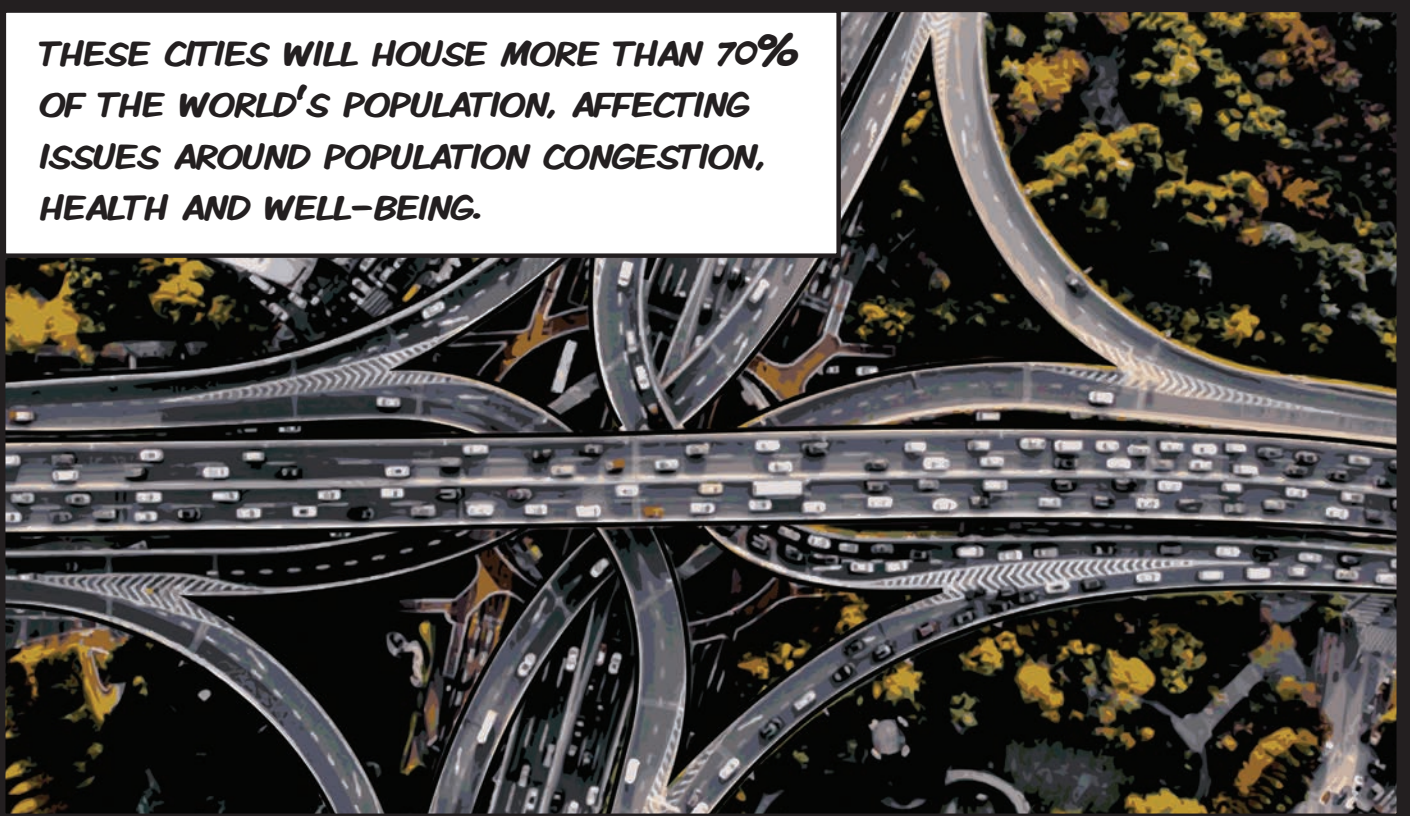
CITIES ARE GROWING IN POPULATION AT A FAST RATE THROUGHOUT THE WORLD.



THE POPULATION OF BOTH DELHI AND TOKYO ARE PROJECTED TO REACH 36 MILLION BY 2030.



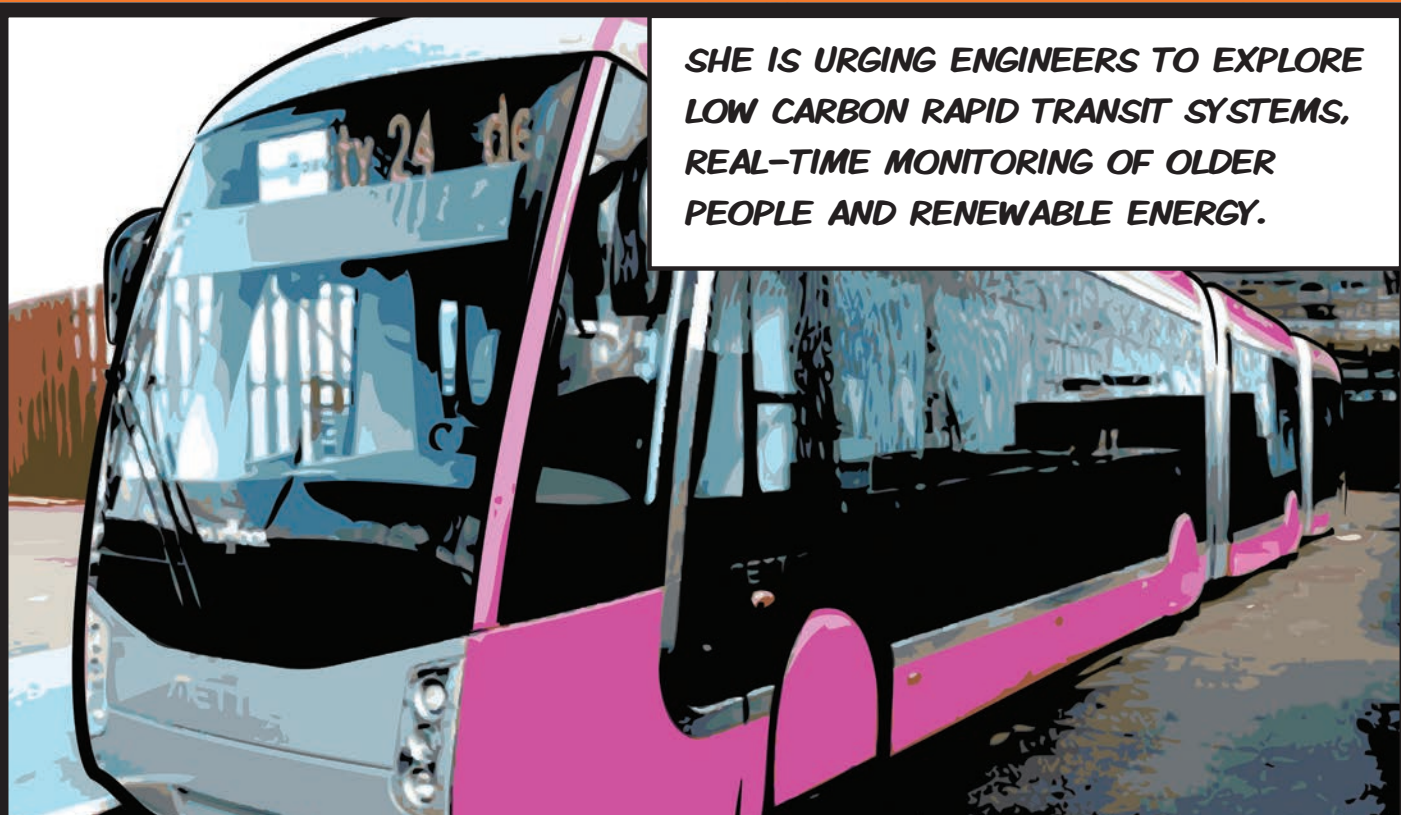
THESE CITIES WILL HOUSE MORE THAN 70% OF THE WORLD'S POPULATION, AFFECTING ISSUES AROUND POPULATION CONGESTION, HEALTH AND WELL-BEING.



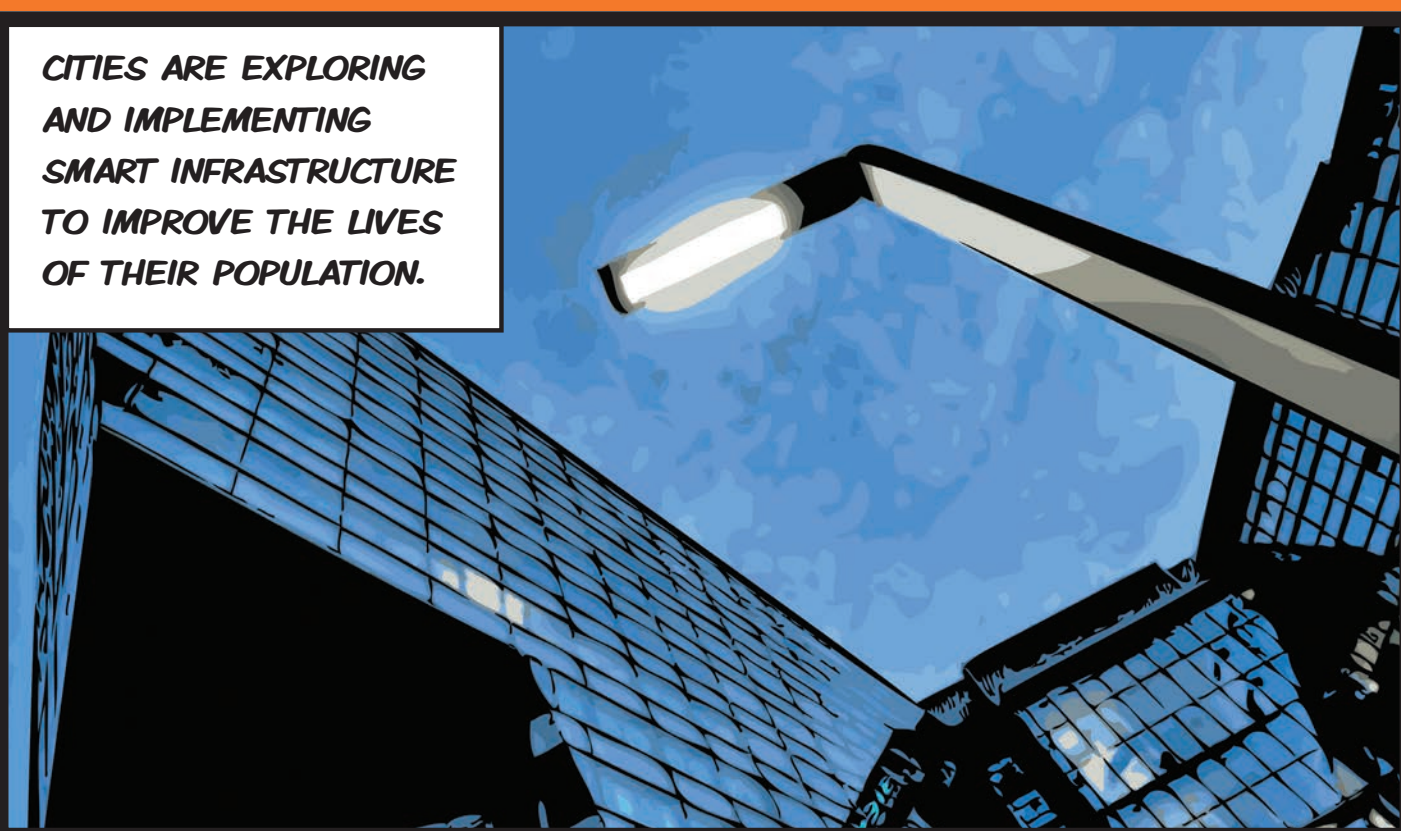
ELLIE COSGRAVE, 'URBAN ANGEL', IS PROMOTING THE NOTION OF THE SMART CITY TO COUNTER RAPID URBANISATION.



SHE IS URGING ENGINEERS TO EXPLORE LOW CARBON RAPID TRANSIT SYSTEMS, REAL-TIME MONITORING OF OLDER PEOPLE AND RENEWABLE ENERGY.



CITIES ARE EXPLORING AND IMPLEMENTING SMART INFRASTRUCTURE TO IMPROVE THE LIVES OF THEIR POPULATION.



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a Civil Engineer?**

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