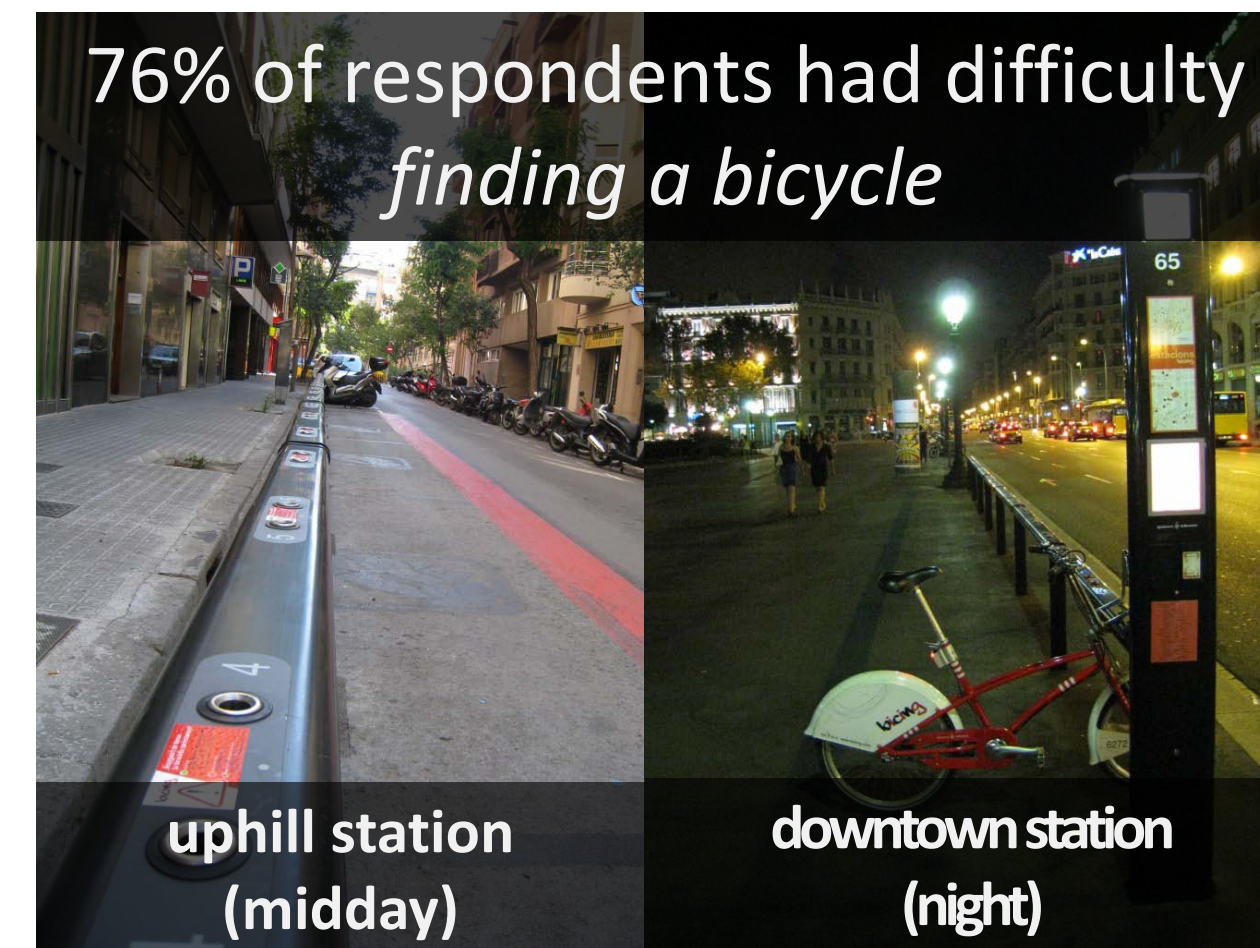


# understanding and motivating shared bicycling

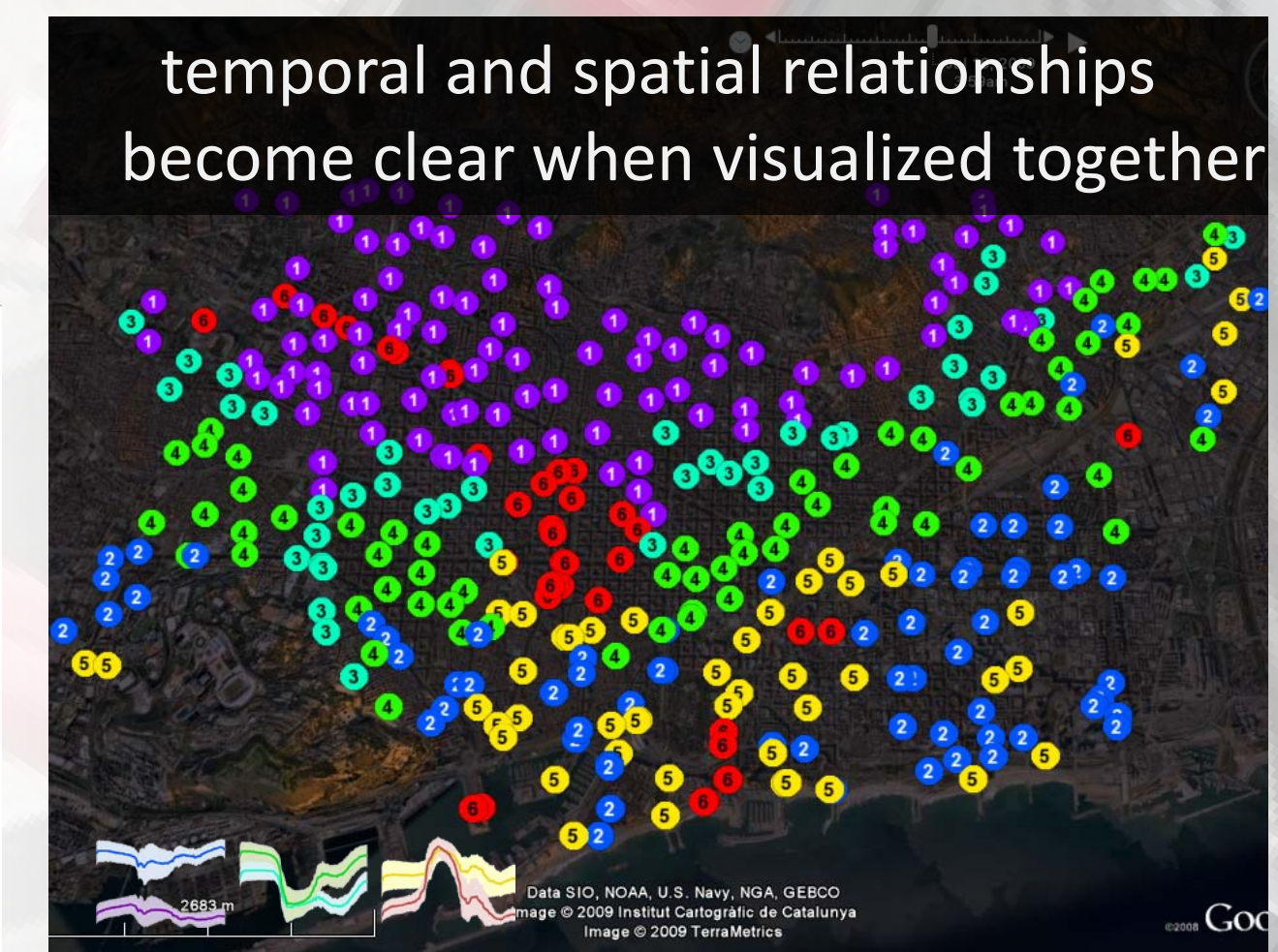
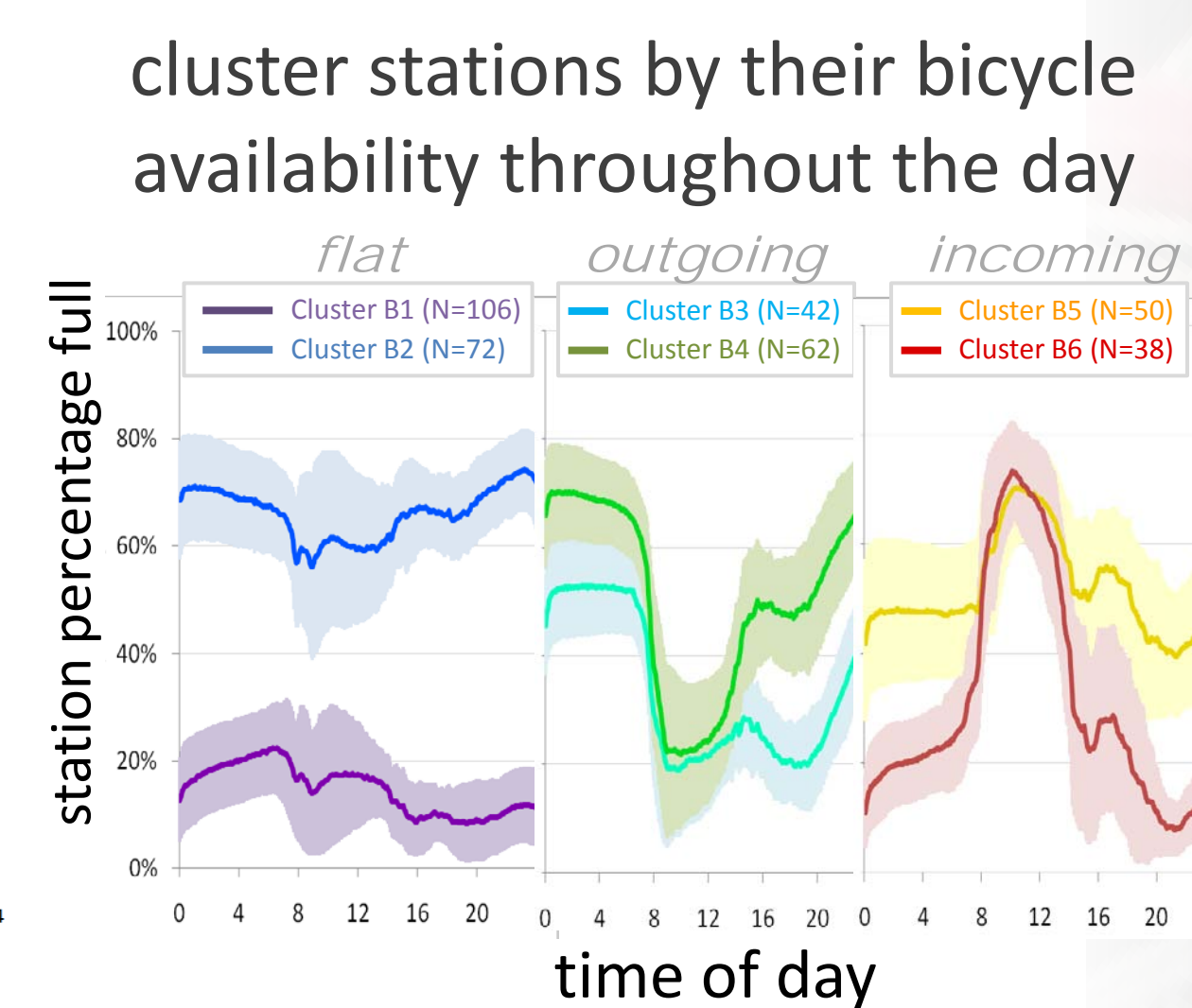
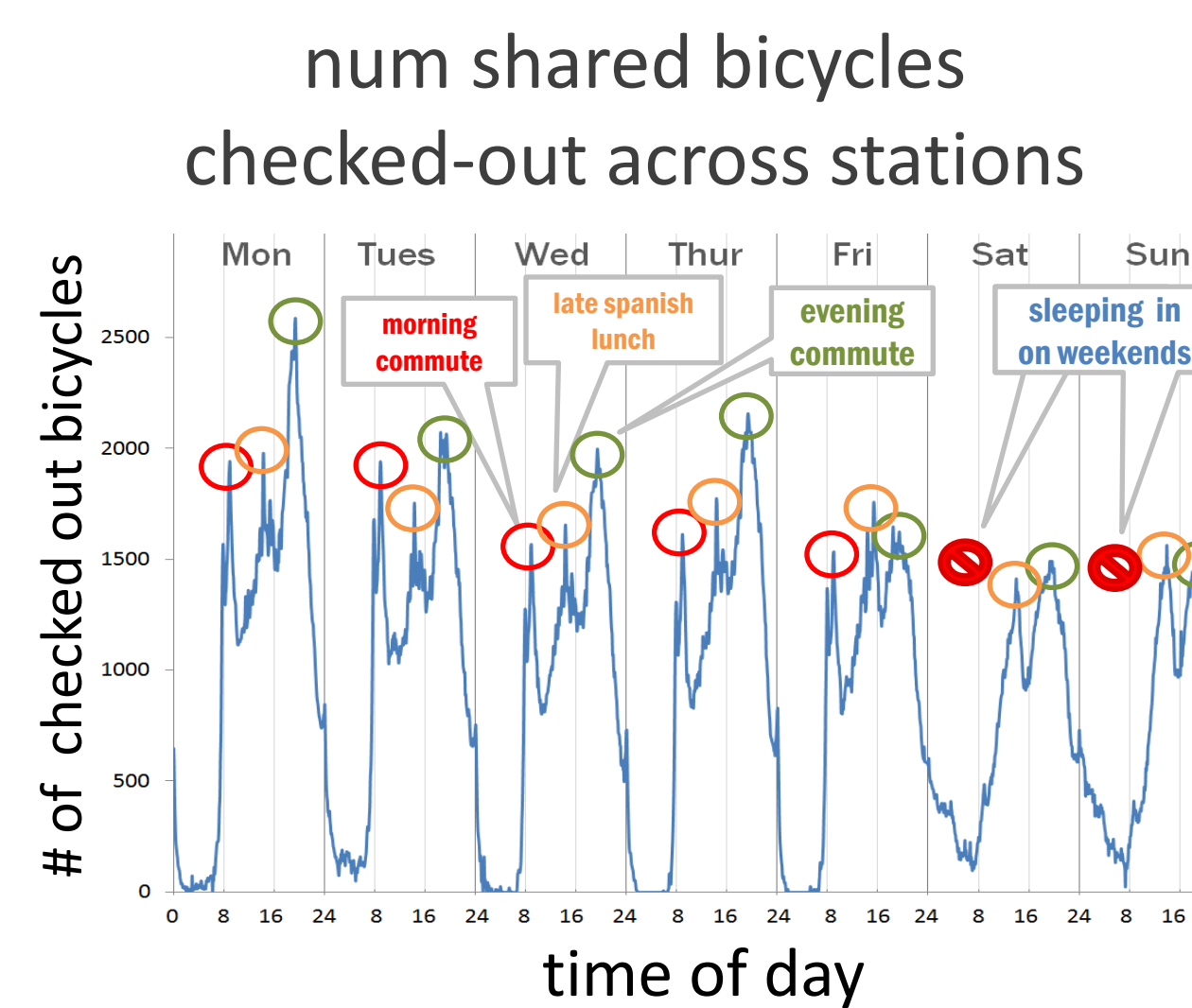
Recent technological advances have led to a whole **new generation of shared bicycling systems**. Bicycles can now be **checked out using mobile phones or RFID smart cards** enabling real-time tracking of bicycle usage. Currently, there are over **forty** such programs **in the world** including Vélib' in Paris, which has **20,000 bicycles** and **1,450 stations**, Bicing in Barcelona (3,000 bicycles and 400 stations) and the recently introduced Bixi program in Montreal (in May 2009).

Our research focuses on how **technology can be used to promote shared bicycling** usage. In particular, we have built **predictive models** of station usage, which can be used to **automatically suggest a station** with available bikes or free parking slots along the user's expected route. We are also exploring how **social media** (e.g., Facebook, Twitter) can be used to **encourage shared bicycling** (e.g., via social competition, fitness tracking and feedback).

we surveyed 252 bicing users about shared bicycling in spanish, catalan & english



we used digital traces of bicing usage to uncover temporal and spatial patterns



we created predictive models to help users find available bicycles or empty parking slots

prediction engine capable of predicting station usage down to 2 bicycles

model	avg error*	stdev of error*
random	11	8.1
historic mean	5	4.8
last value	3	4.2
historic trend	3	3.9
<b>bayesian network</b>	<b>2</b>	<b>3.6</b>

\*normalized for a station size of 30

