

BIG DATA POLICING 大數據警政

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WHAT IS BIG DATA? 什麼是大數據

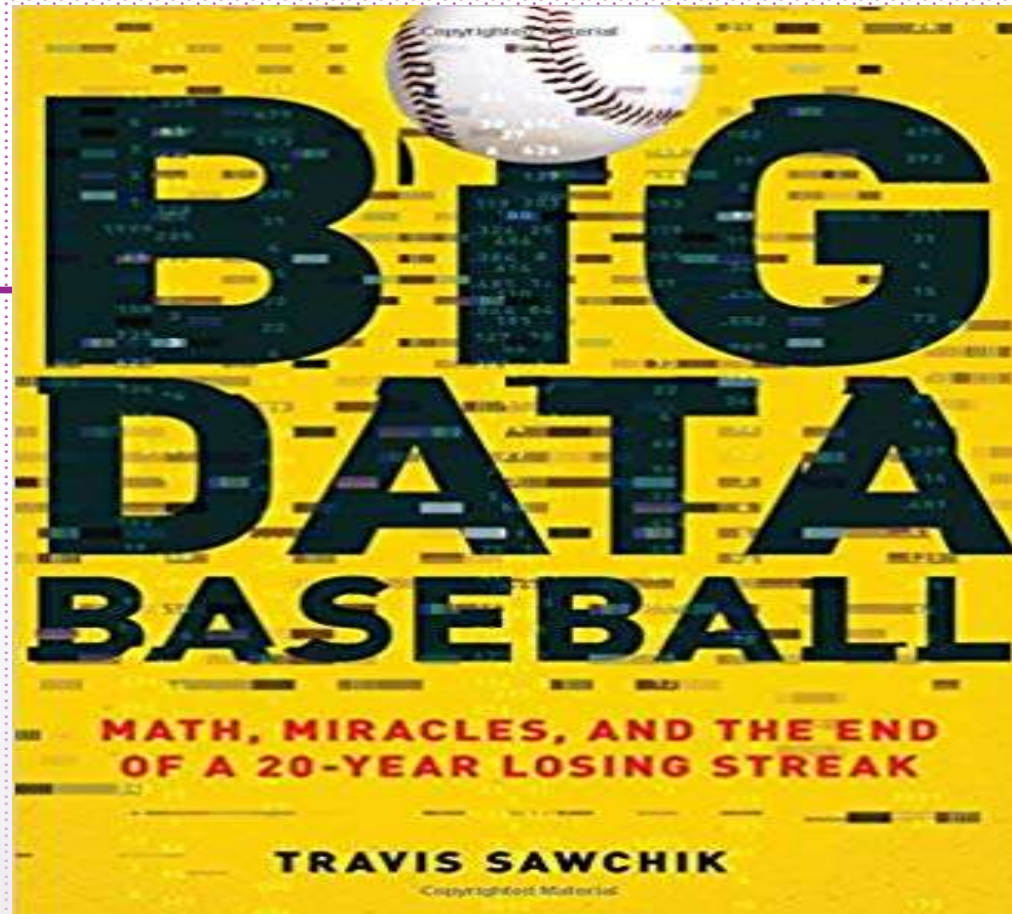
- Big data is about “WHAT” and not “WHY”. It is not theoretical.
- 大數據是關於 “什麼” 而不是 “為什麼” 。這不是理論上的。
- Big data involves: (1) Volume (the amount of data); (2) Velocity (speed at which the data is processed, and (3) Variety (data may come from multiple sources.
- 大數據涉及：（1）數量（大量的資料）；（2）速度（處理資料的速度）（3）多樣性（數據可能來自多個來源）
- Big data creates a radical shift in how we think about research.
- 大數據使我們對研究的看法發生了根本轉變

THE USE OF BIG DATA大數據的使用

Will Democracy Survive Big Data and Artificial Intelligence?民主是否能夠生存大數據和人工智能？

Singapore is a perfect example of a data-driven society. What started as a program to protect citizens from terrorism has ended up influencing economic and immigration policies. 新加坡是數據驅動型社會的完美典範。最初的保護公民免受恐怖主義侵害的計劃最終影響了經濟和移民政策。

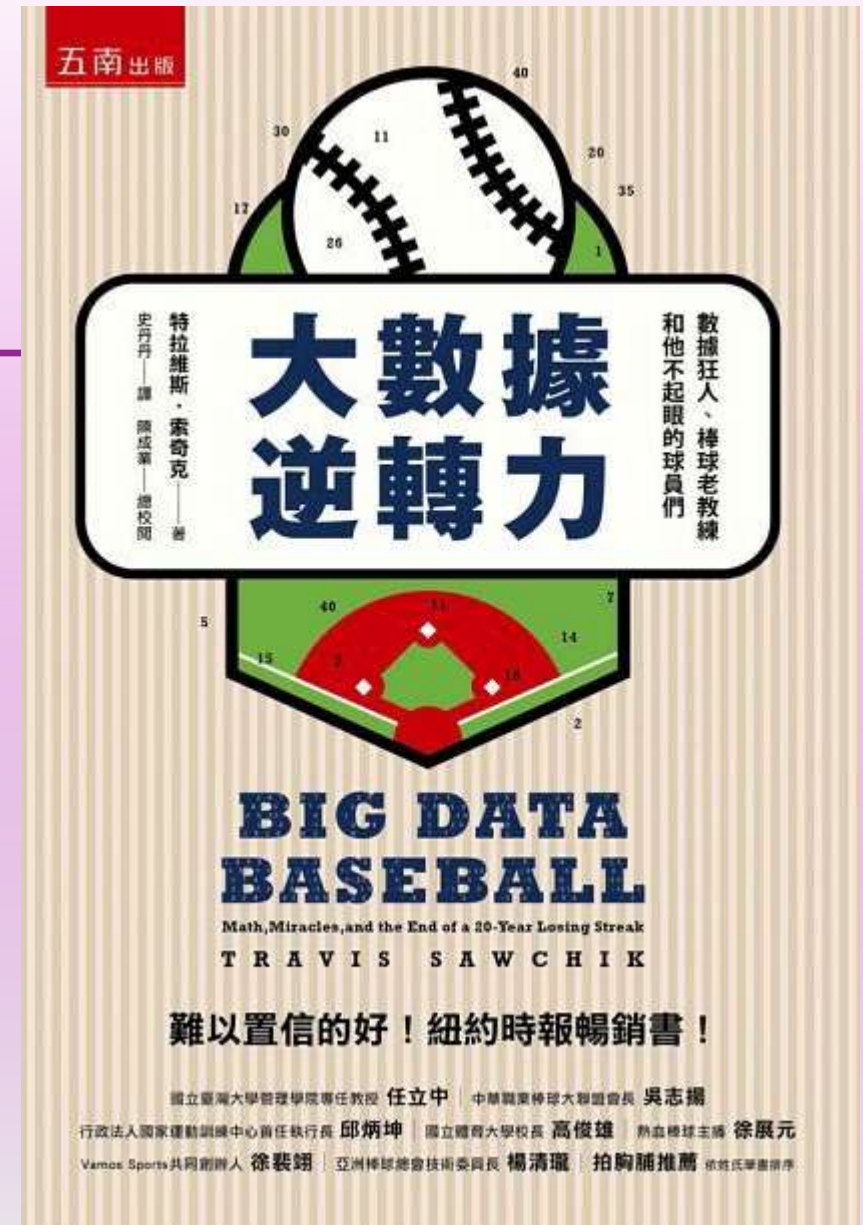
China is taking a similar route. China is one of the leading countries using big data and artificial intelligence (AI). 中國正採取類似的方式。中國是使用大數據和人工智能（AI）的主要國家之一。



BIG DATA BASEBALL大數據逆轉力

BIG DATA FOR BASEBALL大數據逆轉力 (BASEBALL IS BIG IN TAIWAN)

- “Big Data Baseball” is the story of the Pittsburgh Pirates who adopted big data to end the longest losing streak in baseball history.大數據逆轉力是匹茲堡海盜隊的故事，他採用大數據來結束棒球歷史上最長的連敗。The collaboration between new-age analysts and old-school field operatives. The Pirates collected millions of data points on every pitch and ball in play that revealed groundbreaking insights.新時代分析師與舊有工作人員之間的合作。海盜隊在每個球場和球上收集了數百萬數據資料，揭示了突破性的洞察力。Results: **Most batters struggled to hit two seam fastballs.**結果：大多數擊球手都在努力擊中兩個接縫快球



OTHER POSSIBLE USES OF BIG DATA IN CRIMINAL JUSTICE

在刑事司法中可能使用大數據

- Can the use of big data be helpful in deciding who is released from prison (parole)?大數據的使用是否有助於決定誰從監獄釋放（假釋）？
- Can it be used to decide on probation versus incarceration?是否可以用來決定緩刑與監禁？
- Can it be used to set amount of bail?它可以用來設定保釋金額嗎？
- Can it be used to separate inmates or to decide if they will serve time in a maximum, medium or minimum security prison?是否可以用來分隔囚犯或決定他們是否會在最高，中等或最低安全監獄服刑？

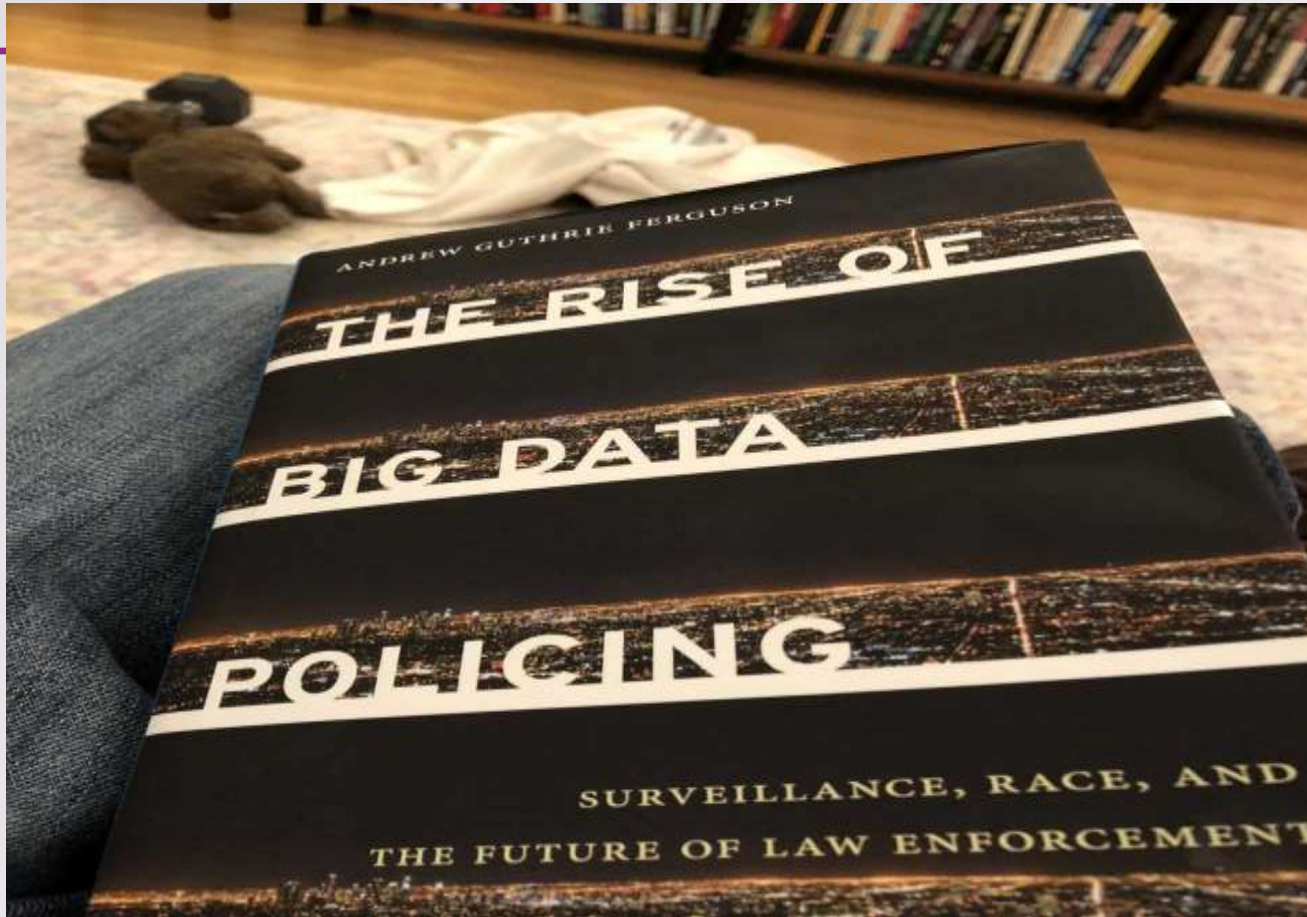
USE OF BIG DATA IN CRIMINAL JUSTICE AND CRIMINOLOGY 在刑事司法和犯罪學中使用大數據

The Big Data Jury – *Notre Dame Law Review* (2016). 大數據評審團 - **Notre Dame** 法律評論 (2016年) 。 – *Can big data replace how juries are selected?* 大數據可以取代陪審團的選擇方式嗎？
Can it be used to create juries “exactly matching” the demographics of the community? 是否可以用它來創建陪審團 “完全匹配” 社區的人口統計數據？ What role would lawyers have in the courtroom in selecting a jury? 律師在選擇陪審團時在法庭上會扮演什麼角色？

Big Data and Police Stops, 大數據和警察攔截，賓夕法尼亞大學法律評論（2015年）
University of Pennsylvania Law Review (2015). *Can big data be used to justify police stops of citizens?* 大數據是否可以被用來證明警察對公民的攔截？ *If so, is it constitutional?* 如果是這樣，它是憲法嗎？

THE RISE OF BIG DATA POLICING

大數據警政的興起



BIG DATA POLICING

大數據警政

- 1. **What is “big data” policing?**什麼是“大數據”警政？
- 2. Can we predict **where** and **when** crimes will occur? 我們能預測犯罪發生的地點和時間嗎？
- 3. Can we predict **who** is at the greatest risk of becoming a victim or an offender? 我們能否預測誰成為受害者或罪犯的風險最大？
- 4. What **new strategies** can police utilize to reduce crime? 警方可以利用哪些新策略來減少犯罪？
- 5. What are the **unintended consequences** of big data policing? 大數據警政可能會有什麼的意外後果？

BIG DATA AND ARTIFICIAL INTELLIGENCE 大數據和人工智能

Big data and artificial intelligence are important innovations. 大數據和人工智能是重要的創新。 They have enormous potential to change societies. 他們具有改變社會的巨大潛力。 However, it must be used appropriately and the rights of citizens must always be considered! 但是，必須適當使用，必須始終考慮人民的權利！

CHICAGO MURDERS – 2018

芝加哥謀殺 - 2018

In 2018, *555 people* have been murdered in Chicago. 2018年，芝加哥有555人被謀殺。

New York City had only **298 murders** although it is 3 times larger than Chicago. 紐約市只有298起謀殺案，雖然它比芝加哥的3倍。

CHICAGO POLICE “THE HEAT LIST”

芝加哥警察局“熱門名單”(治安顧慮人口名冊)

A. Use of algorithm to select young men on Chicago’s heat list.

使用演算法篩選出芝加哥治安顧慮的年輕人。

B.The list uses **11 variables** to create a “**risk score**” from 1 to 500.

該列表使用11個變量建立一個“風險評分”從1到500。

C.The higher the number, the greater the risk of being a victim or offender.

數字越高，成為受害者或犯罪的風險就越大。

D. Selection to the heat list is accompanied by a “police home notification” visit.

篩選出轄區治安顧慮人口之同時進行“警察家庭通知”查訪。

WHAT FACTORS ARE ON THE HEAT LIST?

列入“熱門名單”有哪些因素？

- **A. Past criminal history or arrests.** 過去的犯罪歷史或逮捕。
- **B. Being stopped by police.** 曾經被警察攔下。
- **C. Parole or probation.** 假釋或緩刑
- **D. Gang member.** 幫派成員
- **E. Criminal activity has escalated.** 犯罪活動不斷升級
- **F. victim of a past shooting.** 過去槍擊事件的受害者

RESULTS

結論

- 70% of the people shot were on the “heat list”. 70%被槍殺的人都在“熱門名單”內
- 80% of the people arrested for shootings were also on the list. 80%涉嫌槍擊事件的人也榜上有名。

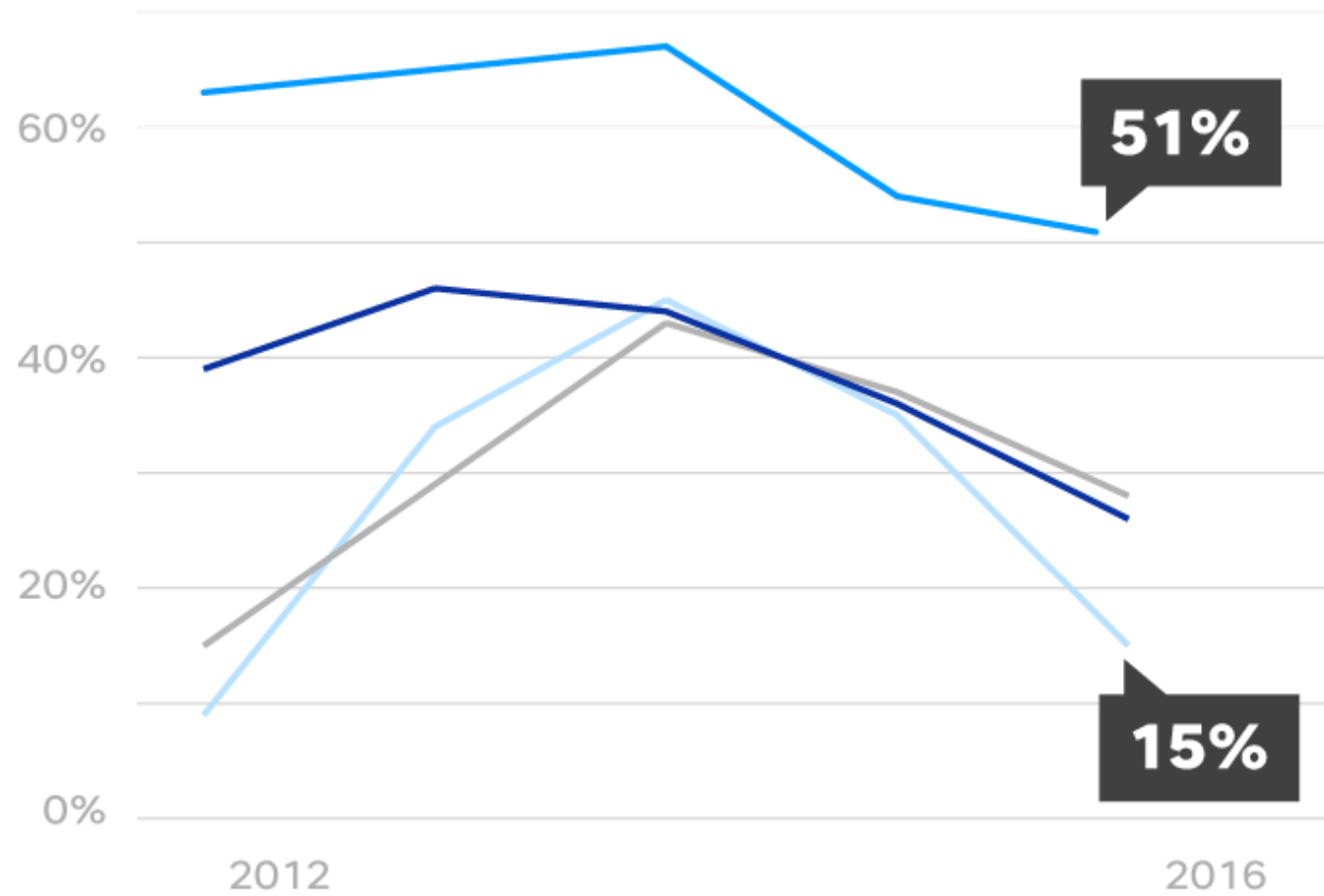
THE RESULTS OF CHICAGO HEAT LIST

芝加哥“熱門名單”的結果

- However, violence in Chicago has remained constant since the use of the list.然而，自使用“熱門名單”以來，芝加哥的暴力事件一直保持不變。
- The heat list does not remedy social and economic risks.”熱門名單”解決不了社會和經濟風險。
- What is done after “high risk” citizens are identified? 確定了犯罪“高風險”對象後，然後呢？

Percentage of homicide cases solved

● Indianapolis ● Chicago ● Detroit ● New Orleans



SOURCE: FBI Uniform Crime Report compiled by Murder Accountability Project;
University of Chicago Crime Lab
JIM SERGENT/USA TODAY

CITY OF NEW ORLEANS

新奧爾良市

- In 2013, New Orleans, Louisiana averaged 1.5 shootings a day.
- 2013年，路易斯安那州的新奧爾良平均每天發生1.5次槍擊事件。
- It adopted large scale city systems and included the Fire Department, Schools, Health Department and Public Works repairing streetlights.
- 它採用了大規模的城市系統，包括消防部門，學校，衛生部門和修建路燈的公共工程。

NEW ORLEANS

新奧爾良

- From 2011 to 2014, New Orleans saw a 22% reduction in murders, a better statistic than in most other large American cities. The city saw a 55% reduction in gang murders!
- 從2011年到2014年，新奧爾良的謀殺案減少了22%，比其他大多數美國大城市都要好。該市幫派謀殺案減少了55%！

THEORIES OF PREDICTIVE TARGETING

預測目標理論

- By mapping social networks (offenders, victims and associates) police can identify those most at risk to be involved in violence.
- 通過繪製社交網絡（犯罪人、受害人者和同夥），警方可以識別出最有可能參與暴力的人。
- A subpopulation can be algorithmically identified as being at even higher risk.我們可以利用演算方式，識別出犯罪風險較高之次群體。
- By targeting those at highest risk, future criminal activities can be reduced.藉由辨別出犯罪風險最高者，以減少其未來犯罪活動之發生。

WHO GETS TARGETED?

將如何定位？

Blacks are more likely to be targeted. 黑人更有可能成為目標。 Young black males are more likely to be victims of violence and be suspects all across the United States of America. 年輕的黑人男性更容易成為暴力的受害者，並在全美國的美國的犯罪嫌疑人。

While race is not included in the algorithm, many factors (such as police street contacts, past arrests, gang membership) correlate with race. 雖然種族因素不包括在大數據演算法中，但許多因素（例如警察街道聯繫，過去的逮捕紀錄，幫派成員）皆與種族相關。 This can result in race discriminatory policing. 這可能導致種族歧視性警務。 The algorithm is going to “spit out” exactly what you put in! 演算法將“吐出”你輸入的內容！

CHALLENGES

挑戰

- Big Data must be used cautiously.使用大數據必須謹慎。
- Police must not use it as a reason to target minority members.
- 警方不得將其作為針對少數民族成員的理由。
- Minorities have more street contacts with the police than whites or Asians.與白人或亞洲人相比，少數民族與警察的街頭聯繫更多。Will “big data” give the **police an objective excuse to stop more Blacks and Hispanics?**大數據”是否會為警方提供一個客觀的藉口來阻止更多的黑人和西班牙裔？

CAUTION!!

警告！！

- While Big Data may be acceptable for baseball, or business, it must be carefully used when you are dealing with the freedom of individuals.
- 雖然大數據可能適用於棒球或商業，但在處理個人自由時必須謹慎使用。
- It is important that we do not engage in profiling people based on computer output.重要的是我們不要只根據計算機輸出數據，進行犯罪者描繪與剖析。Data problems occur in all systems.所有系統都會出現數據問題。Law enforcement is no different.執法機關也不例外。

OTHER LIMITATIONS

其他限制

- The USA has more gun murders and suicides than any other nation in the world. This year there have been over 300 mass murders (4 or more killed at one time). 美國的槍支謀殺和自殺事件比世界上任何其他國家都多。
- The worst case in USA was **59 murdered in Las Vegas** by a **single older white gunman**.
- 在美國最糟糕的情況是在拉斯維加斯被一名年長的白人槍手殺害了59人。
- **Most mass murderers are middle age, white males with no criminal history** (latest was 5 killed in Chicago area in Feb. 2019). 大多數大規模殺人犯是中年人，沒有犯罪史的白人男性（最近在2019年2月在芝加哥地區殺害了5人）。
- **What can big data do to reduce this form of gun violence?** 有什麼可以大數據做，以減少這種形式的槍支暴力的？ **Can we predict who will be a mass murderer?** 我們能預測誰將成為大屠殺者嗎？

SELECT REFERENCES

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- Perry, W., McInnis, B., Price, C., Smith, S., Hollywood, J. (2013). Predictive Policing : The Role of Crime of Crime Forecasting in Law Enforcement Operations. 預測性警政：犯罪預測犯罪在執法行動中的作用. Rand Corporation.

THE END



- 谢谢

QUESTIONS?

