# 城鎮作戰訓練力求更接近實戰

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美軍於前往伊拉克前，須接受為城鎮作戰嚴格考驗作好準備的戰鬥訓練。但任務結束後，受訓單位抱怨目前的訓練設施，未能複製出大型城鎮作戰的挑戰。這樣的需求，激發訓練裝備產業界修正訓練裝備，以求更符合部隊需求。

Before units are deployed to Iraq, they undergo “close quarter” combat training that is designed to prepare them for the rigors of urban warfare. But after completing their tours, troops have complained that current training facilities fall short in replicating the challenges of fighting in large cities. Such demands have spurred companies in the training industry to modify the equipment and make it more relevant to troops’ needs.

近年來，業界已可設法將城鎮訓練系統裝於貨櫃內。這些貨櫃可以迅速輸運，組裝後非常逼真而近似城鎮環境之訓練系統。除了活動牆及測試部隊戰力的特殊效果裝置外，這些機動訓練器材也配備照相機、麥克風、擴音器及電腦，以捕捉經驗供訓練後評鑑之用。

In recent years, they have managed to package urban training systems in shipping containers that can be quickly transported, configured, stacked and decorated to look like city dwellings. Along with moveable walls, fixtures and special effects equipment to test troops’ abilities, these mobile trainers also are equipped with cameras, microphones, speakers and computers to capture the experience for post-training evaluations.

通用動力資訊科技的業務主任皮肯斯表示，業界正將這些訓練系統加入最新的儀器，以創造近似實戰的城鎮狀況。

Industry is trying to insert the latest instrumentation into those training systems to create realistic urban conditions, said Fred Pickens, senior director for business development at General Dynamics Information Technology.

該公司開發出一套稱為「城鎮地形作戰」（MOUT）的移動式設施，有從巷弄轉角突然出現或突然站起來的人像靶，以挑戰部隊的射擊技術。皮肯斯表示，為因應部隊的要求，所有目標均加入電腦程式，可以在遭到多次射擊後才會倒下。美軍在伊拉克與叛亂分子作戰時就是採用此一模式。

The company developed a mobile MOUT (military operations in urban terrain) training system with simulated human targets that swing out from around corners or pop up from sitting positions to challenge trainees' firing techniques. In response to troops' requests, the targets were programmed to fall down only after they had taken multiple hits — a pattern that troops have encountered with insurgents in Iraq, said Pickens.

負責模擬、訓練及儀器開發的副總裁塔興說，除此之外，目標的外觀已經補強，可以讓部隊官兵於配戴夜視鏡及其他光學儀器時區分目標。

Additionally, the appearance of the targets have been enhanced so that troops can learn to discriminate them when using night vision goggles and other optics, said Jerry Tussing, vice president and general manager for simulation, training and instrumentation solutions.

在伊拉克，部隊發現要攀登上屋頂時一般都需要放置於門後的梯子，而在屋頂上通常會遇到陷阱門。

In Iraq, troops discovered that gaining access to rooftops typically required climbing ladders that are found behind the houses. At the top, there was usually a trap door.

負責儀器整合的副總裁迪克柯曼說：「許多陸戰隊員於爬梯時，由於屋頂上有手持機槍的叛亂分子而喪生。」因此，機動式城鎮地形作戰系統於整合時，一般會納入暗藏陷阱的門。

"A lot of Marines got killed trying to climb up those ladders only to find an insurgent at the top with a machine gun," said Dick Coltman, vice president for integrated instrumentation. As a result, trap doors are routinely included as part of the configuration of the mobile MOUT.

陸軍上校退伍的皮肯斯表示，在訓練演習時，當部隊打開機動式城鎮地形作戰系統時，會突然遭到實戰時聲音與氣味並陳的襲擊。

In training exercises, when troops breach the door to a mobile MOUT, their senses are immediately assaulted by an assortment of realistic sounds and smells, said Pickens, a retired Army colonel.

他說：「戰場上的味道很難以適應，不管是垃圾、血液、或是槍砲火藥味等五味雜陳。部隊於訓練時需要暴露於這些味道中，這樣於實戰時才不會被聲音、味道或視覺所震撼，能夠迅速投入戰鬥而不至於喪失戰鬥力。」

"The stink of the battlefield is something that's hard to get used to," he said. Whether it's raw sewage, blood, or gunpowder, "there's a whole host of smells on the battlefield. And you want them to be exposed to that in training, so that when they do it for real, they're not shocked by the smell or the sight or the sounds, and they're able to immediately go into combat without losing effectiveness."

機動式城鎮地形作戰系統可產生各種的味道，包括汽油與食物；聲音方面包括婦女的尖叫、嬰兒的哭聲、狗吠，及人的咒罵聲。此外，製霧機可放出煙霧至室內，以製造混亂及妨礙部隊的感官。

The system produces a range of smells, including gasoline and food, and sounds, including

women screaming, babies crying, dogs barking and people cursing. In addition, fog machines can release smoke into a room to create confusion and hamper troops' senses.

塔興表示，所有這些特殊效果都是由管制室內的人員所操控。控制人員透過一套攝影機連結電腦，以觸控螢幕全程監督部隊的進度。控制人員也可以利用電腦圖像的較大指管畫面，以部署目標及戰場感官效果。

All of these special effects are inserted by an operator sitting in a control room. He monitors a team's progress through the exercise via a suite of cameras that can be called up at the computer using touch-screen monitors. He can also deploy the targetry and battlefield sensory effects using the icon-based system, which gives users a bigger command-and-control picture, said Tussing.

柯特曼說，他的公司所設計的電腦程式適用於各種硬體，所以遠紅外線系統及新力兩家公司的攝影機，都可以由機動式城鎮地形作戰系統的硬體所控制。他說：「坐在管制室內的人並不會在乎是那一品牌的設備，只要能使目標出現。」

The company has built software that is impervious to brands, so that a pan-tilt camera built by FLIR Systems and another built by Sony can both be controlled by the MOUT facility's hardware, said Coltman. "A person sitting in a control room doesn't care whose it is. He just wants to make it pop up," he said.

由於城鎮訓練設施日益普遍地運用於數位訓練演習中，他的公司必須使軟體彼此相容以利資料互換。例如，機動式城鎮地形作戰系統的受訓人員，可與打擊部隊一同參加網路演習。

As urban training facilities increasingly are being incorporated into digital training exercises, and vice versa, the company must work to make its software interoperable with others so that data can be exchanged. Trainees in the MOUT, for example, may participate in a networked exercise with Stryker forces.

柯特曼說：「我們目前的挑戰，是要將其他以圖像為主的系統加以整合。」未來，該公司計畫推出一套新版軟體，可以使硬體部分更充分的整合。他表示：「我們要做的並非改變軟體，而是要做裝備的改變。」在過去，該公司曾將系統做六、七次的更改以接納新硬體。要做的事仍然很多。

"Being able to integrate with other icon-based systems is one challenge we're taking on," said Coltman. In the near future, the company plans to release a new version of the software that will allow better integration of hardware that may come later. "What we're trying to do is not have to change software because we have an equipment change," he said. In the past, the company altered the system six to seven times to accommodate new hardware.But there is more to be done.

在陸軍訓練場地內的機動式城鎮地形作戰系統，只是伊拉克戰場上的縮小模型。在伊國境內如摩蘇爾等人口數百萬的大城市，建築物可是數以千計。

MOUT facilities at the Army's pre-deployment training sites are but a microcosm of what troops find in Iraq. In cities such as Mosul, which are populated by millions of people, there can be thousands of buildings.

皮肯斯說：「大多數機動式城鎮地形作戰系統，無法實際模擬出大型城鎮的地形，我們目前正在設法解決此一問題；因為大多數的分析顯示，未來的敵人會轉進至大都會地區。」

"Most MOUT sites aren't big enough to realistically replicate the size of a major urban center," said Pickens. "That's something we've got to get our hands around, because most threat analyses indicate that future adversaries are going to withdraw into major urban centers."

退役的訓練官員說，機動式城鎮地形作戰系統可讓部隊官兵學會如何踢門、進入室內並在有限的空間內接觸目標。但美軍在伊拉克大部分的傷亡都發生在建築物與街道之間。

Retired training officers say MOUT sites help troops learn how to kick down doors, enter and clear rooms and engage targets inside a confined area. But most of the casualties in Iraq are occurring while troops are operating in between buildings and out on the streets.

皮肯斯說，這一點無法在訓練中模擬，除非取得某一城鎮並在其中施以訓練。

"There's just no way you can replicate that in training, unless you go and take over a town somewhere and train inside a town," said Pickens.

在軍方內部，官員們正討論如何設立城鎮地形環境的場所，好讓部隊接受訓練或為作戰做好準備。

Within the military, officials are discussing how to better capture the immense size of the urban environment so that combat units can train and be better prepared for operations.

有一個可能的解決方法就是整合實戰訓練與視覺訓練。如果一支旅級部隊在大型訓練中心，如位於加州厄文堡的國家訓練中心，則應建立一個機動式城鎮地形作戰系統，透過實戰與虛擬實境讓一整個師接受訓練。其他地點的旅級部隊，如波克堡的聯合戰備訓練中心，可利用電子方式與演習結合。從師部的觀點言，各旅級單位就像在厄文堡的機動式城鎮地形作戰系統演習一般。

A potential solution is to integrate live training with virtual training. If a brigade were exercising at a major range, such as the National Training Center at Fort Irwin, Calif., a MOUT site could be built up to accommodate a full division through constructive and virtual simulation. Additional brigades, potentially at other sites, such as the Joint Readiness Training Center at Fort Polk, La., could link into the exercise electronically. From the division headquarters perspective, the multiple brigades would appear to be fighting in the MOUT at Fort Irwin.

固然軍方擁有將不同層級的部隊結合在一起的能力，但諸般障礙仍待克服。如何以電子方式支持此種大規模演習，就是一項嚴格的考驗。皮肯斯說：「需求永遠存在，我們正設法改善科技因應需求。」

While the capability exists to connect such disparate groups together, there are still technical hurdles to overcome, not the least of which is how to support the electronic infrastructure of such a large operation. "That's always a requirement and a need, and we're trying to improve technology to allow that to happen," said Pickens.

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