

What can sports teams learn from the manufacturing industry? Plenty

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What can sports teams learn from the manufacturing industry? Plenty, according to Timothy Chan of the University of Toronto (U of T) and Douglas Fearing of the Harvard Business School.

Using statistics from the 2012 [Major League Baseball](#) season, Chan and Fearing found that positional flexibility – the ability of a player to play multiple positions – is valuable, responsible for up to 15 per cent of the team's runs, as was the case with the Chicago Cubs. Other teams like the Washington Nationals and the Tampa Bay Rays were less robust to injuries.

"Flexibility is important because it provides a team with options and allows a team to field a good line-up even if some players are injured," said Chan, an engineering professor at U of T.

They compared this flexibility with that of automotive manufacturing networks that help companies continue to operate efficiently even when changes occur in supply and demand. Similarly, they say, a baseball team wants to keep winning games if players are injured.

Chan and Fearing presented their insights at the 2013 MIT Sloan [Sports Analytics Conference](#), where their paper, "The value of flexibility in baseball roster construction," took first place.

Chan's primary focus is operations research in health care. However, he is enthusiastic about using the tools from that research to study sports.

"The [mathematical tools](#) I develop to solve healthcare engineering problems have broad application in other domains. It is exciting to be able to combine my interest in sports with my methodological research."

For example, at the 2012 MIT Sloan Sports Analytics Conference, he and U of T colleague David Novati proposed a new methodology for quantifying the value of a hockey player.

They are developing a novel classification system for junior [hockey players](#) using advanced mathematical methods, in order to find patterns in performance data that may be otherwise hard to detect. The proposed project represents the first effort to analyze junior hockey players, using similar mathematical models that he developed for the NHL.

"Eventually, we may be able to relate performance at the junior level to the professional level," said Chan. "Such research may inform strategies for drafting or targeted recruitment of high-potential [players](#)."

Provided by University of Toronto

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