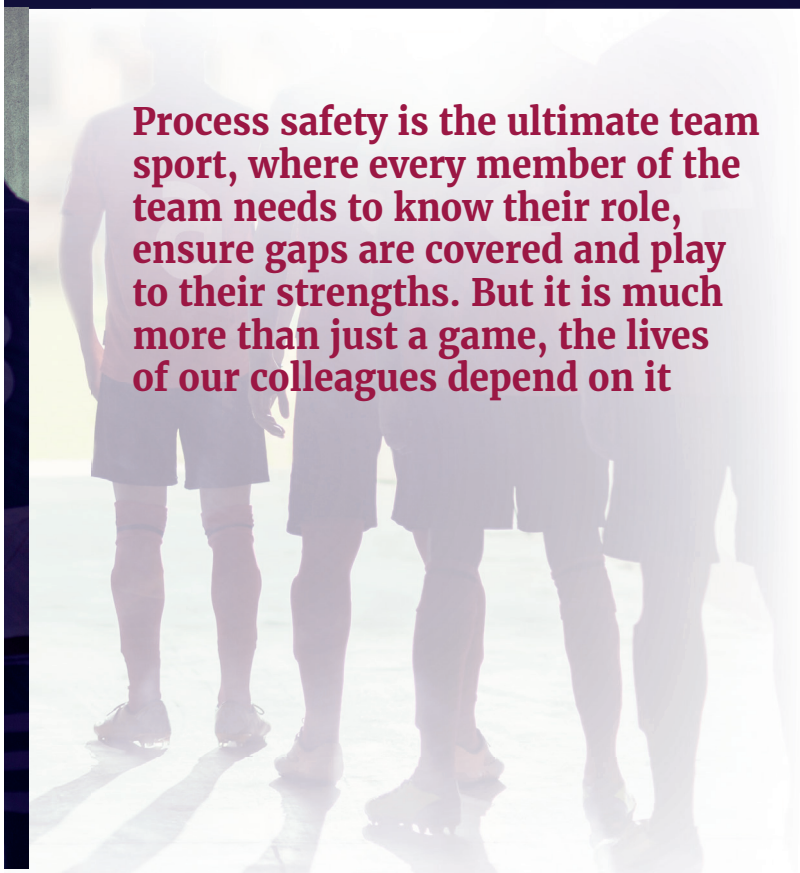
Viewpoint: Safety is a Team Sport

A massive gap that wasn't filled, key players in the wrong positions and no one taking overall responsibility. Flixborough was an own goal waiting to happen, argues ***Trish Kerin***

WHEN we think about a football team, there are many different roles and skill sets needed to deliver success. There is the sporting director, the coaches (head and speciality), the players (different positions), and the support functions, such as medical, nutrition, fitness etc. Each of these roles is distinct, and not immediately interchangeable. For example, if the goalkeeping coach is removed, you can't just put the nutritionist in their role, even though both are focused on optimum performance of the players.

It is similar to how we operate in high-hazard industries. We have the sporting director, most likely to be a CEO, the coaches who are akin to facility or area managers, and team leaders who metaphorically don the captain's armband. The support functions are made up of the process safety team and



Process safety is the ultimate team sport, where every member of the team needs to know their role, ensure gaps are covered and play to their strengths. But it is much more than just a game, the lives of our colleagues depend on it

technical authorities. Our goals are safe production.

A key part of achieving the right result is to make sure we have the correct people in the right roles at the right time. This is organisation capability. You can be the best at your role, but when moved into a different position, may struggle. Consider when David Beckham went from Manchester United to Real Madrid. Having always played on the right, he was being asked to play on the left. He struggled in this new position. He was still a capable player, but he was not performing to his full potential. Even superstar players have a natural position.

As we remember the tragedy in Flixborough in June 1974, it is worth reflecting on the positions and who were filling those roles. There were competent chemical engineers at the facility and in leadership positions. The services engineer was electrical by background, while the mechanical engineer had left the company. When the time came to consider a change to the piping it was done to the best abilities of those there, but there was a gap. A mechanical engineer would have focused on understanding the twisting moment on a non-axial loaded pipe under pressure. This is not the normal calculation of a chemical engineer, let alone an electrical engineer. This calculation was missed, and the temporary pipe was exposed to excessive moments, eventually resulting in failure.

We now have roles defined as technical authorities in a number of industries, ensuring there is someone competent to give a go or no-go decision on plant changes. These roles can be equated to club doctors in football, the doctor being the only person who can overrule a head coach's (plant manager's) decision when (player) safety is in question. Technical authorities need to cover a wide range of competencies. For example, a chemical engineer would focus on the chemistry of the process, the mechanical engineer would concentrate on the containment systems, the civil engineers immerse themselves in the support structures and the instrument/electrical engineers home in on the control systems and so on. The challenge here is how to recognise when you don't know something and ask for help.

The Flixborough investigation found that "none of the senior personnel in the company, who were chemical engineers, were capable of recognising...what is in essence a simple engineering problem".

They went on to recommend: "All engineers should therefore learn at least the elements of other branches of engineering...in both their academic and practical training."

This is akin to everyone in a football team having a clear understanding of the rules of the game and the team strategy. As engineers we don't need to be competent in other disciplines, but we need to understand enough of the fundamentals to know when we are outside of our scope and seek help. No single discipline holds a monopoly over process safety, it needs to be a true multidisciplinary approach. This also needs to include various support functions like procurement, finance, and human resources. Even these specialisms can have an impact on the process safety outcomes due to the decisions they make.

The IChemE Safety Centre has published some guidance on process safety competency, defining a range of roles in an organisation, from front line to board, and many different roles in between. This guidance describes the competency needed for each role, and the level of expertise. It can be downloaded online[1] and you can use it to plan your competency development activities to ensure you build a title-winning team.

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Trish Kerin CEng FIChemE is an award-winning international expert and keynote speaker on process safety leadership, and the inaugural director of the IChemE Safety Centre

REFERENCE

1. https://bit.ly/3Wt3u1Q