

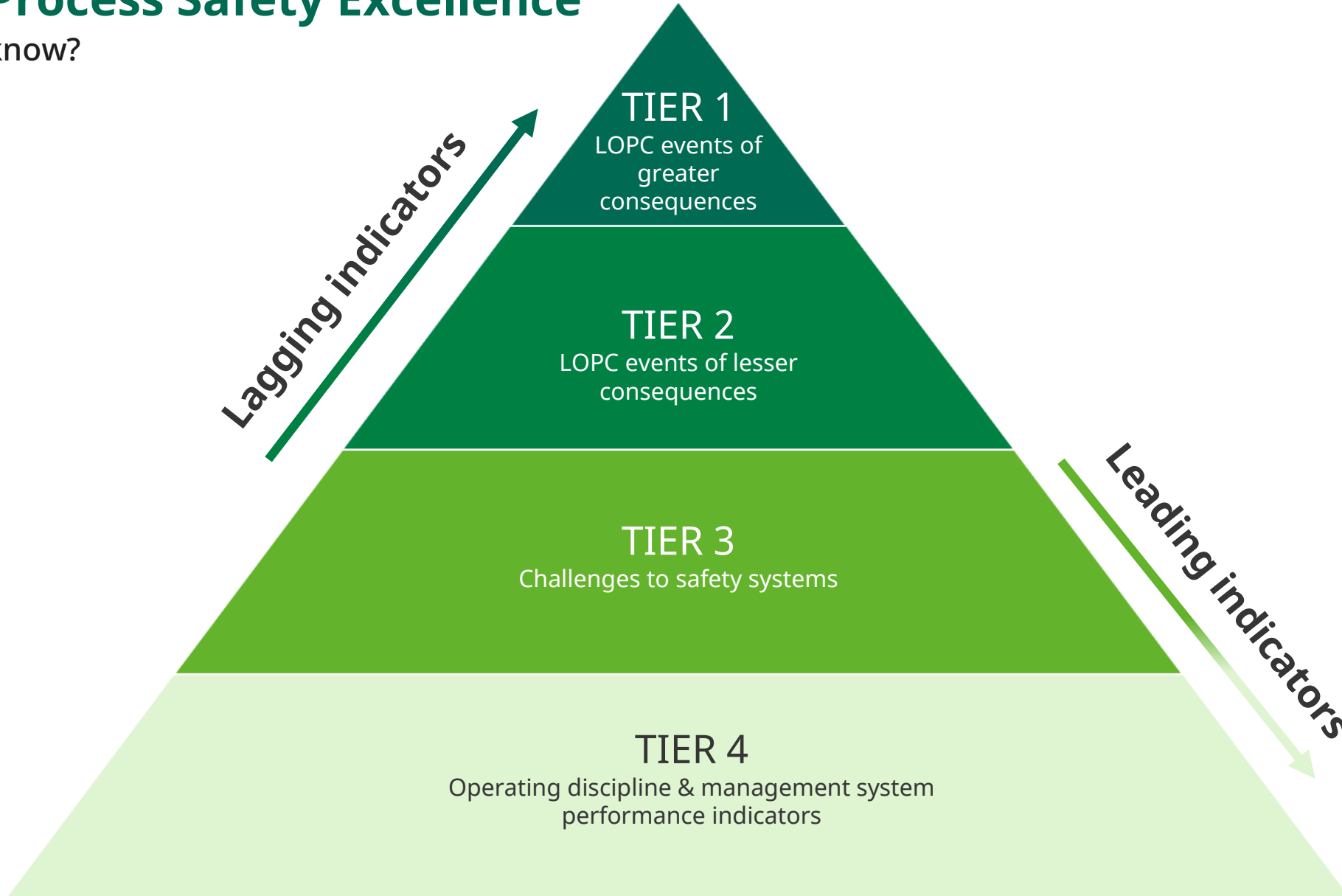
“Accidents are not due to lack of knowledge but failure to use the knowledge we have.”

Dr. Trevor Kletz (2009)



Driving Process Safety Excellence

What do we know?



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Role of KPIs on Process Industry

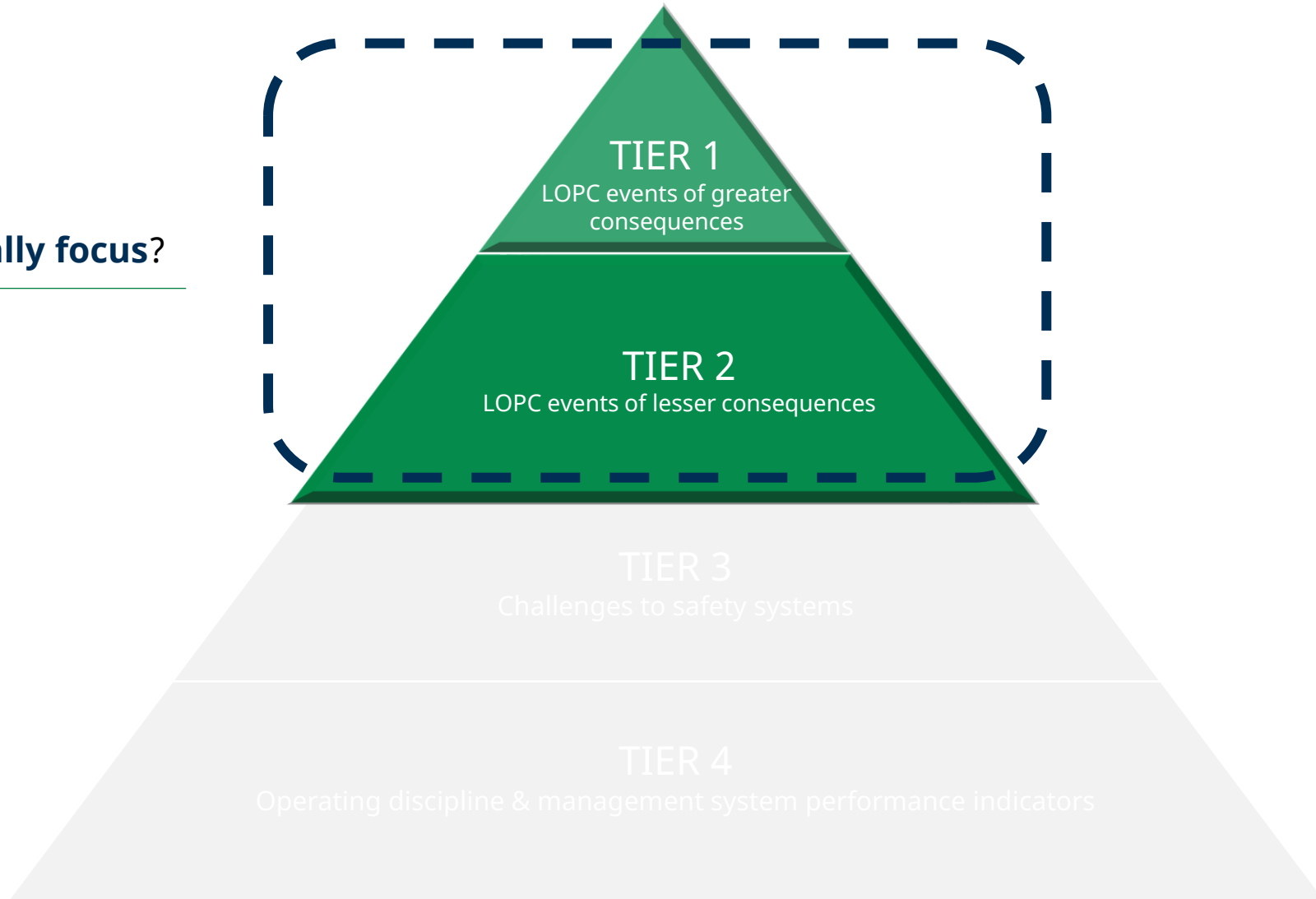


▶ Deepwater Horizon – 11 deaths

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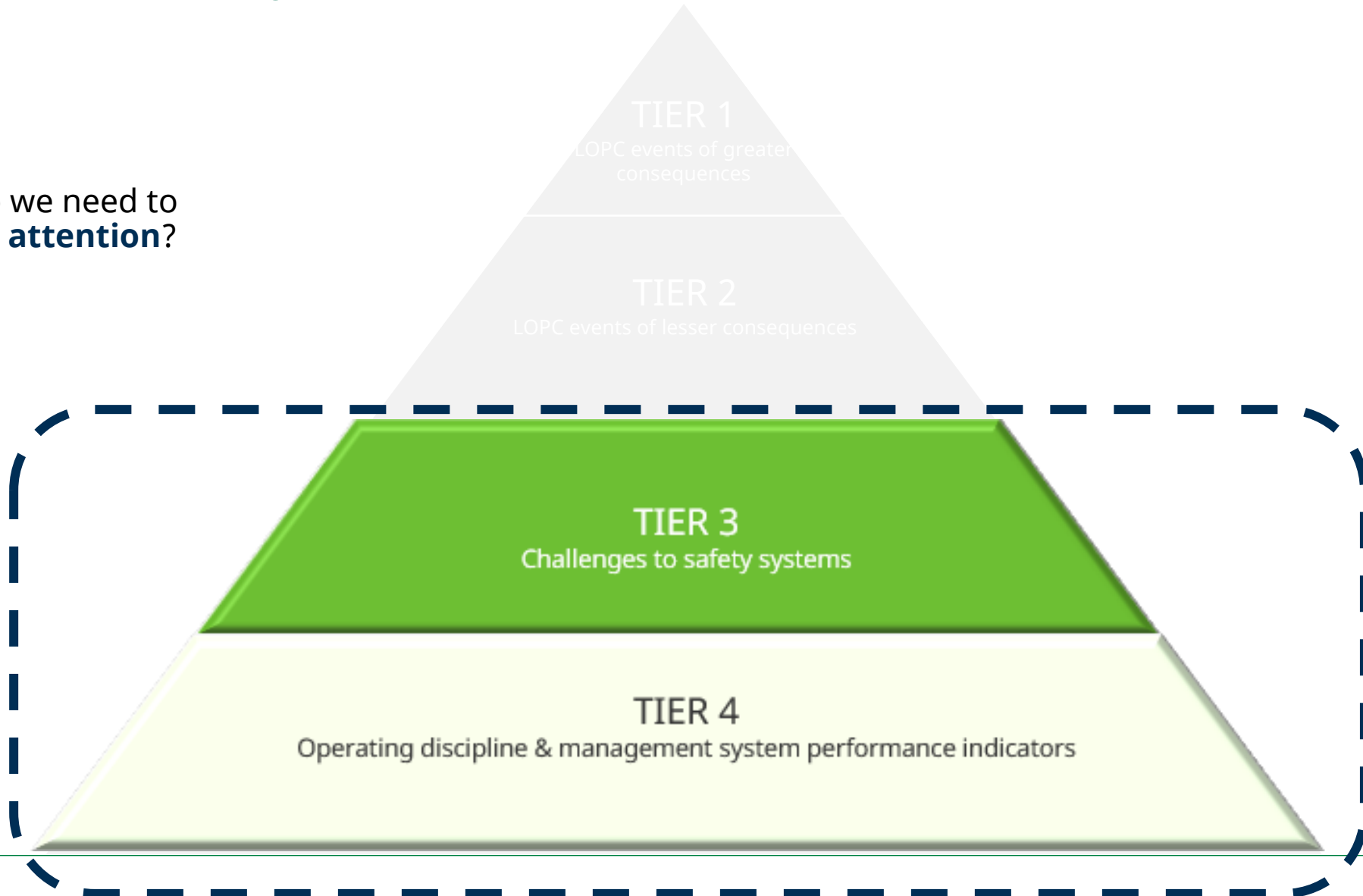
Where do we **usually focus**?



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Where do we need to put **more attention**?



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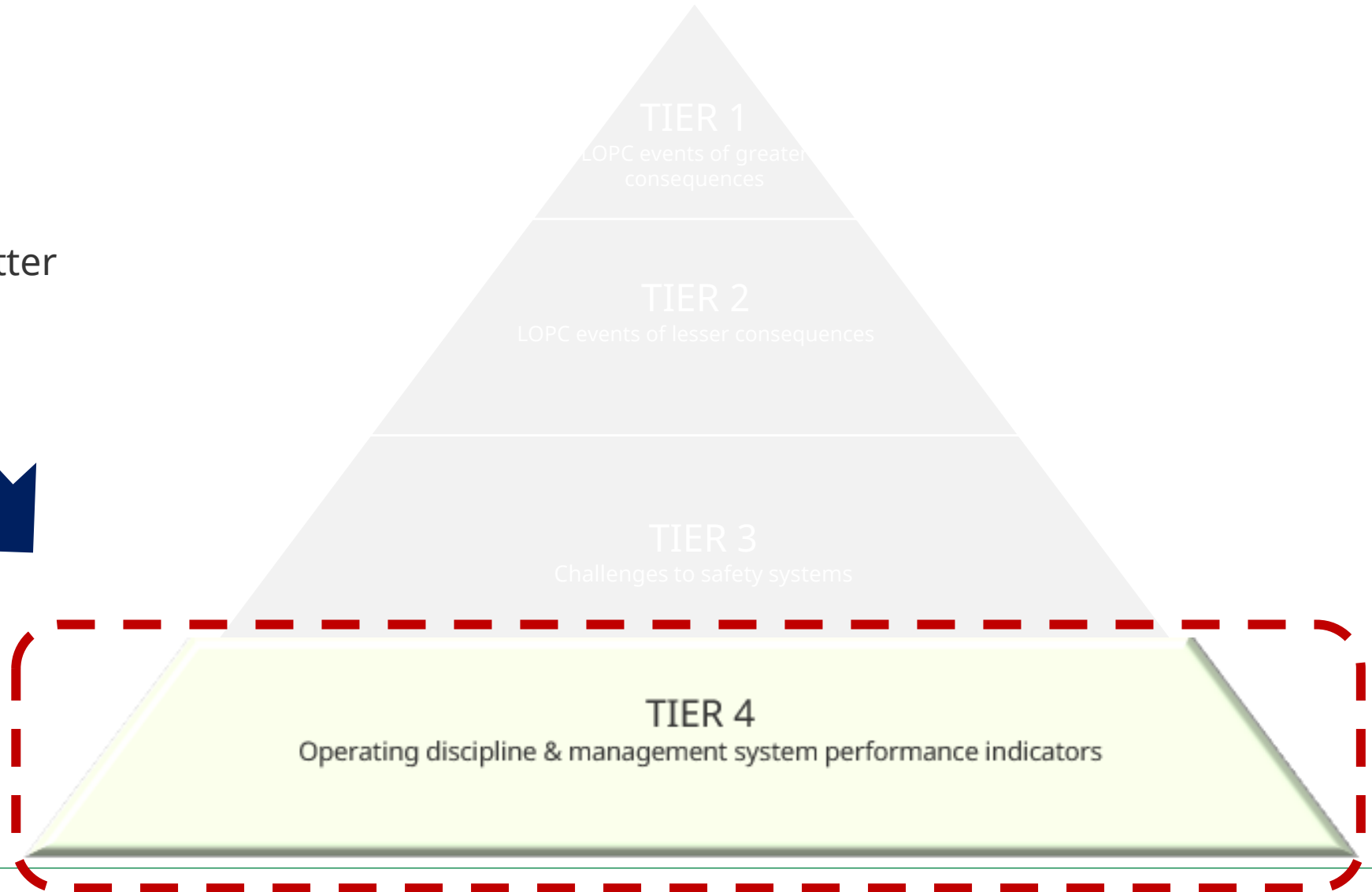
Where do we need to put more attention?



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What **actually** matter



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Hitting the nail



- 1 **Design:** introduce inherently safer design to enhance the protection layers
- 2 **Process Safety Systems:** implement and evaluate efficiency of administrative controls to make them efficient (MoC, PMP, Equipment and Asset Integrity, Hazards Identification, Training, Audits, etc.)
- 3 **Basic Process Control Systems:** Controls designed to ensure quality products and operates the process safely
- 4 **Instrumentation and Alarms:** Controls designed to detect deviations from normal and generate a response automatic or human interfaced



- 5 **Safety Instrumented Systems:** Independent controls designed as last line of defence before occurrence of a LOPC
- 6 **Active Mitigative Engineering Controls:** Controls designed to mitigate or lessen the consequences of a hazardous release (PRV, flares)
- 7 **Passive Mitigative Engineering Controls:** Controls designed to mitigate or lessen the consequences of a hazardous release (dikes, catch tanks)
- 8 **Emergency Response:** Engineering and administrative controls designed to contain, reduce and mitigate the consequences of a hazardous release (foam systems, ERP)

QUESTIONS?

