

Beyond Shift Planning

Integrated information providing complying performance



Learning Outcomes

- Understand maturity levels of processes
- Recognise weaknesses vs maturity of system
- Awareness of how Improved processes and tools used for shift planning can impact on compliance and productivity
- Awareness of the use of visual platforms to demonstrate, automate, verify compliance status pre task commencement
- Understand the key success drivers for success of integrated systems



Presenters - Bruce Birchall

NSW coal mining background, 30yrs experience (12yrs maintenance, 18yrs operations management).

Mine Manager for 8 years. Experienced in operations management and improvement, major projects, Greenfield development and system implementation.

Pathway - Trades, Engineering, Supervision, Management, Consulting

Key Qualifications:

NSW Manager of Mining Engineering and OCE
CERT IV - Training / assessing
Mechanical Engineering



Presenters - Andrew Whalan

Started in Risk Management with HMS Consultants in 2000, worked for Rio Tinto Coal Australia, now running DevFU since 2009 developing tools with a focus on performance improvement, compliance and reducing manual entry with tools for shift planning, document control, and more.

Key Qualifications:

Bachelor Computer Science

Bachelor Mechanical Engineering (Hons)

Bachelor Mechatronics Engineering (Hons)



Planning Maturity

WHERE IS YOUR BUSINESS ON THE MATURITY PATH?

Manual/
Person Dependent

Automated/
Intelligent



Paper-based systems
Whiteboards

Excel Based
Some automation
Limited History available
Multiple data lists

Fully database driven
Processes embedded in tools
Integration of information sources
Consolidated sources of
information



Shift Planning Tool Maturity

- Whiteboards
 - Supported by mine planning spreadsheets/ outputs
 - Limited ability to keep history to know why performance/ events happened
 - Highly manual, relies on staff knowledge of workforce
- Excel Workbooks
 - Keep a history
 - With effort can be made to perform some compliance checking
 - Can be fragile and stop working with multiple users/ editors
 - Can result in "spreadsheet hell"
- Database Driven System
 - Full history
 - Automated compliance checking across multiple systems (fatigue, training, etc)
 - Automated support processes (Overtime management etc.)



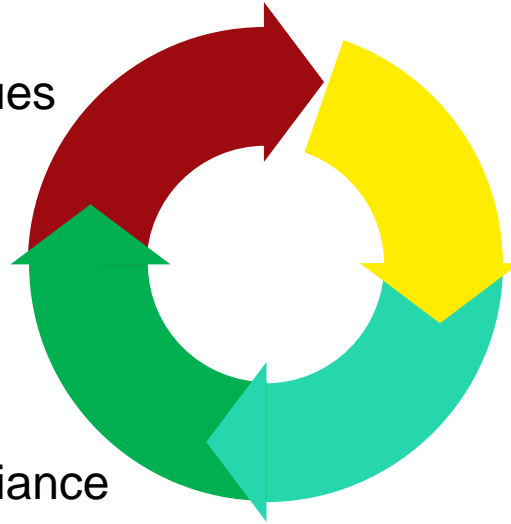
Typical Shift Planning Process (P-D-C-A)

ACT
Remedy issues

PLAN
Develop a process

CHECK
Verify compliance

DO
Execute Process



Shift Planning Process-Weaknesses

- Plan inputs rely on manual referencing or supervisors knowledge- various sources of truth
- Process commences – potentially with conformance error
- Verifications (end or mid process) – Risk escalation opportunity for error (possible cultural damage)
- Action (& Check) - consumption of valuable resources on preventable issues, reduce other focus

ACT

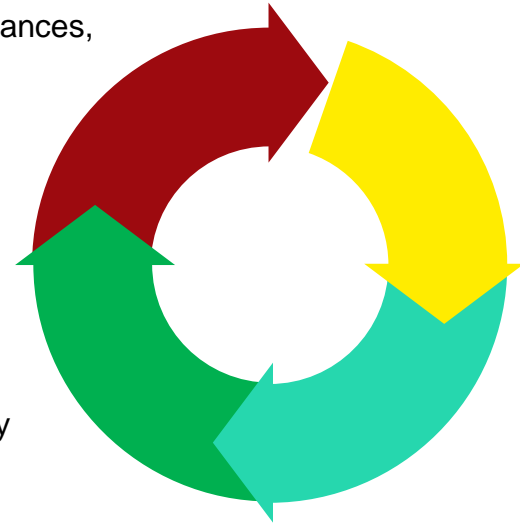
Non-conformances,
improvement
opportunities

PLAN

CHECK

Verify, identify

EXECUTE

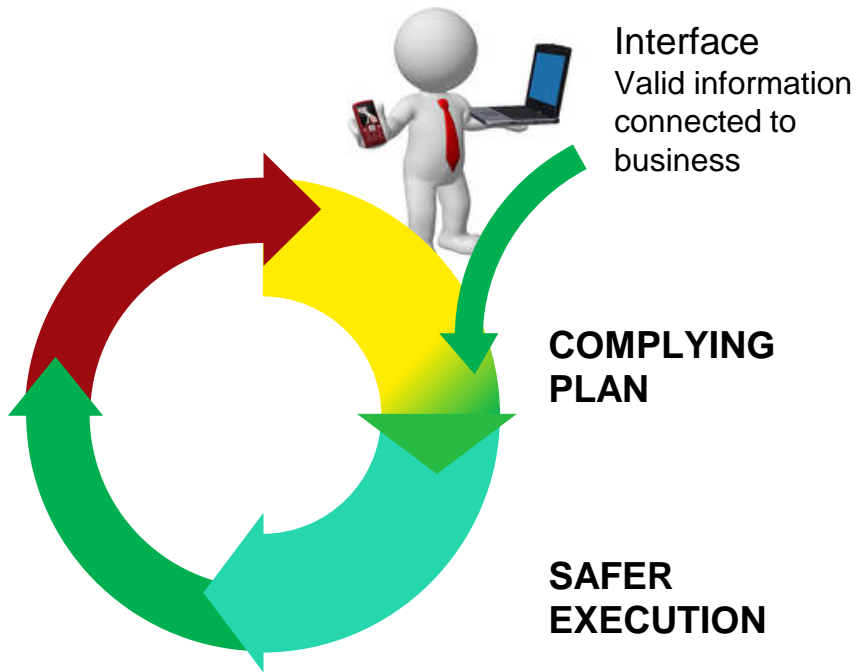


Shift Planning Process- Integrated information

- Plan inputs automated, with check actions integrated (displayed with Visualisations)
- Process commences with planned elements validated before task reduces RISK / increases efficiency
- Verifications more focussed
- Actions focused on improvement

CHECK & ACT

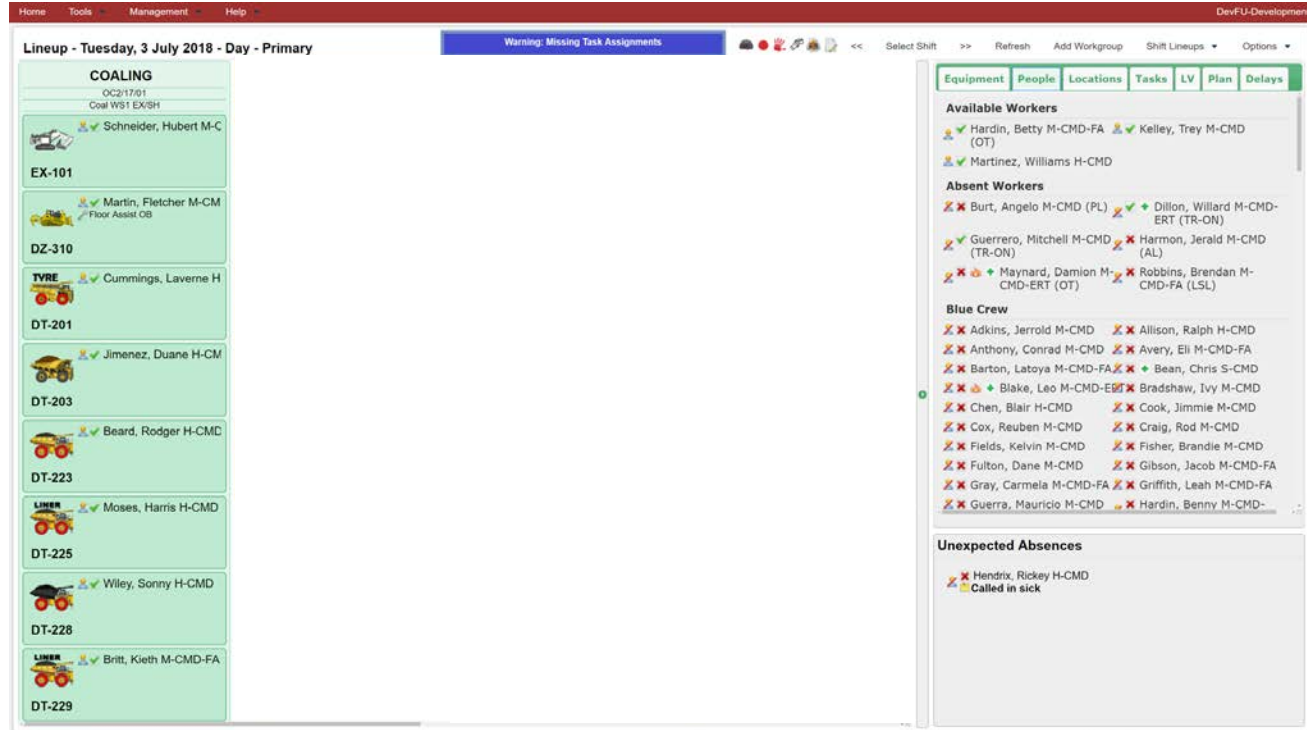
Less - Non-conformances,
More - attention higher risks and improvement opportunities



Basic Shift Plans

Normal planning captures

- Equipment work grouping
- Worker assignments
- Capacity matching



The screenshot displays a software interface for shift planning. The main window is titled "Lineup - Tuesday, 3 July 2018 - Day - Primary". It shows a list of equipment assignments with worker names and roles. The equipment types include COALING, EX-101, DZ-310, TVRE, DT-201, DT-203, DT-223, LINER, DT-225, DT-228, and DT-229. Workers are assigned to these equipment, such as Schneider, Hubert M-C; Martin, Fletcher M-CM; Cummings, Laverne H; Jimenez, Duane H-CM; Beard, Rodger H-CMD; Moses, Harris H-CMD; Wiley, Sonny H-CMD; and Britt, Kieth M-CMD-FA.

On the right side, there is a sidebar with tabs for "Equipment", "People", "Locations", "Tasks", "LV", "Plan", and "Delays". The "People" tab is active, showing a list of workers categorized into "Available Workers", "Absent Workers", "Blue Crew", and "Unexpected Absences".

Available Workers

- Hardin, Betty M-CMD-FA (OT)
- Kelley, Trey M-CMD
- Martinez, Williams H-CMD

Absent Workers

- Burt, Angelo M-CMD (PL)
- Dillon, Willard M-CMD-ERT (TR-ON)
- Guerrero, Mitchell M-CMD (TR-ON)
- Harmon, Jerald M-CMD (AL)
- Maynard, Damion M-CMD-ERT (OT)
- Robbins, Brendan M-CMD-FA (LSL)

Blue Crew

- Adkins, Jerrold M-CMD
- Allison, Ralph H-CMD
- Anthony, Conrad M-CMD
- Avery, Eli M-CMD-FA
- Barton, Latoya M-CMD-FA
- Bean, Chris S-CMD
- Blake, Leo M-CMD-ERT
- Bradshaw, Ivy M-CMD
- Chen, Blair H-CMD
- Cook, Jimmie M-CMD
- Cox, Reuben M-CMD
- Craig, Rod M-CMD
- Fields, Kelvin M-CMD
- Fisher, Brandie M-CMD
- Fulton, Dane M-CMD
- Gibson, Jacob M-CMD-FA
- Gray, Carmela M-CMD-FA
- Griffith, Leah M-CMD-FA
- Guerra, Mauricio M-CMD
- Hardin, Benny M-CMD-

Unexpected Absences

- Hendrix, Rickey H-CMD
- Called in sick



The “Beyond Plan”

Current integrated validations:

- Operator competency
- Fatigue management
- Visibility of first aider / ERT personnel
- Visibility of prestart attendees
- Overtime limits
- Take 5 execution
- Deviation alarms / overrides

All of this elements are now measurable in the planning process, deviations can be understood, tracked

Overtime Allocation

- Once nominated, the system will assist in allocating overtime in such a way that fatigue rules are not breached
- Auto-allocation allows automatic assignment given priority to workers who have worked fewer overtime shifts (shown in parenthesis)






Allocate Overtime

Overview

	Fri, 26 Feb	Sat, 27 Feb	Sun, 28 Feb	Mon, 29 Feb	Tue, 01 Mar	Wed, 02 Mar	Thu, 03 Mar
Night	Allocated: 5 of 6 Crosswell, Luke (2) ✕ ✓ Farthing, Mark (23) ✕ ✓ Moore, Ross (8) ✕ ✓ Parker, David (19) ✕ ✓ Stoffers, Norman (15) ✕ ✓ Walsh, David (12) ✕ ✓	Allocated: 1 of 2 Large, Shane (9) ✕ ✓ Shoemark, Jake (14) ✕ ✓ Thompson, Patrick (7) ✕ ✓	Allocated: 1 of 2 Thompson, Patrick (8) ✕ ✓	Allocated: 0 of 1	Allocated: 1 of 1 Doherty, Jeremy (9) ✕ ✓ Hart, Lachlan (10) ✕ ✓ Hennessy, John (9) ✕ ✓ Wilson, Keith (2) ✕ ✓	Allocated: 0 of 0	Allocated: 0 of 0 Wood, Justin (7) ✕ ✓
Day	Allocated: 5 of 2 Farthing, Mark (24) ✕ ✓ Gossage, Barry (32) ✕ ✓ Green, Wayne (11) ✕ ✓ Hamilton, Jason (1) ✕ ✓ Harding, Ken (19) ✕ ✓	Allocated: 3 of 2 Farthing, Mark (24) ✕ ✓ Gossage, Barry (33) ✕ ✓ Hamilton, Jason (2) ✕ ✓ Harding, Ken (20) ✕ ✓	Allocated: 4 of 5 Farthing, Mark (25) ✕ ✓ Gossage, Barry (34) ✕ ✓ Hamilton, Jason (3) ✕ ✓ Nelson, Kevin (10) ✕ ✓	Allocated: 1 of 0 Condon, Tim (4) ✕ ✓ Shoemark, Jake (14) ✕ ✓ Thompson, Patrick (8) ✕ ✓	Allocated: 1 of 0 Dennis, Tim (10) ✕ ✓ Garland, Craig (1) ✕ ✓ McCarthy, Adam (9) ✕ ✓ Patterson, Bronwyn (6) ✕ ✓ Scott, Peter (12) ✕ ✓ Thompson, Patrick (9) ✕ ✓	Allocated: 1 of 0 Doherty, Jeremy (9) ✕ ✓ Gould, Mick (23) ✕ ✓ Meyers, Dean (3) ✕ ✓ Scott, Peter (13) ✕ ✓ Zanella, Donna (9) ✕ ✓	Allocated: 1 of 0 Bell, Anthony (10) ✕ ✓ Collins, Rhys (5) ✕ ✓ Gould, Mick (23) ✕ ✓ Zanello, Donna (9) ✕ ✓

Save Auto Allocate Clear All

Competency Indicators





Benton, Anne M-C

DZ-313

Fully Competent for equipment.



Has First-Aid and ERT Competencies



Tolhurst, Dean M

DT-214



Equipment competency will expire within 30 days. Planning action required for training.



Condon, Tim M-FA

DT-210

Equipment competency has expired. Must not operate without training action.





(BLS-T) Fitzgerald, Brett

EX-101

Operator has never had competency for this equipment.
Do not operate



Prestart Attendees



Tucker, Benito M-CMD

DT-210

Worker presented themselves to prestart and is ready to operate equipment



Velazquez, Lynn M-CM

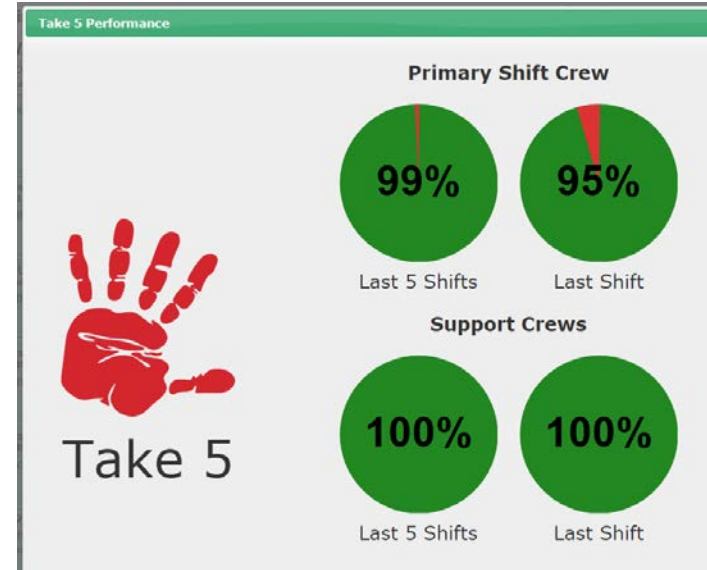
DT-223

Worker **not ready** for prestart, equipment may remain idle or unmanned

Take 5 Reporting

FEEDBACK loop to workers

- Integrates Take 5 completion by workers to be recorded
- Encourage compliance through accountability and visibility
- Green/ Red dot on Lineup corresponds with previous shift for crew.



Next integrations

- TARP conditions for work areas (dumps / Faces)
- Work group Hazard notices
 - Logon to JSA's
- Key role mapping / validation - Capacity/ Adequacy of
 - Statutory representation (expiring certificate)
 - NUMBERS of first aiders / ERT



Key requirements to success

- Road mapping of current systems required
- Dedication to Single sources of truth, Understand which system owns what information
- Avoid duplication of data in multiple systems, Maintain Data in one system
- Push data regularly to other systems
- Timeliness of information processes to be compatible to expectation
- Commitment to strategy of integrated systems, change manage change!!



Key Benefits

- Compliance at a glance
- Resources focused on key tasks/ risks
- Full history available for review
- Deployment leading measures
- In-lieu of lagging measures (reports)





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