



Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



The Last Planner® System - Path Clearing Approach (LPS-PCA)

- **Dr Emmanuel Daniel.**
Southampton Solent University.
- **Prof. Christine Pasquire, & Paul Ebbs.**
Centre for Lean Projects, Nottingham Trent University.



Balfour Beatty





Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



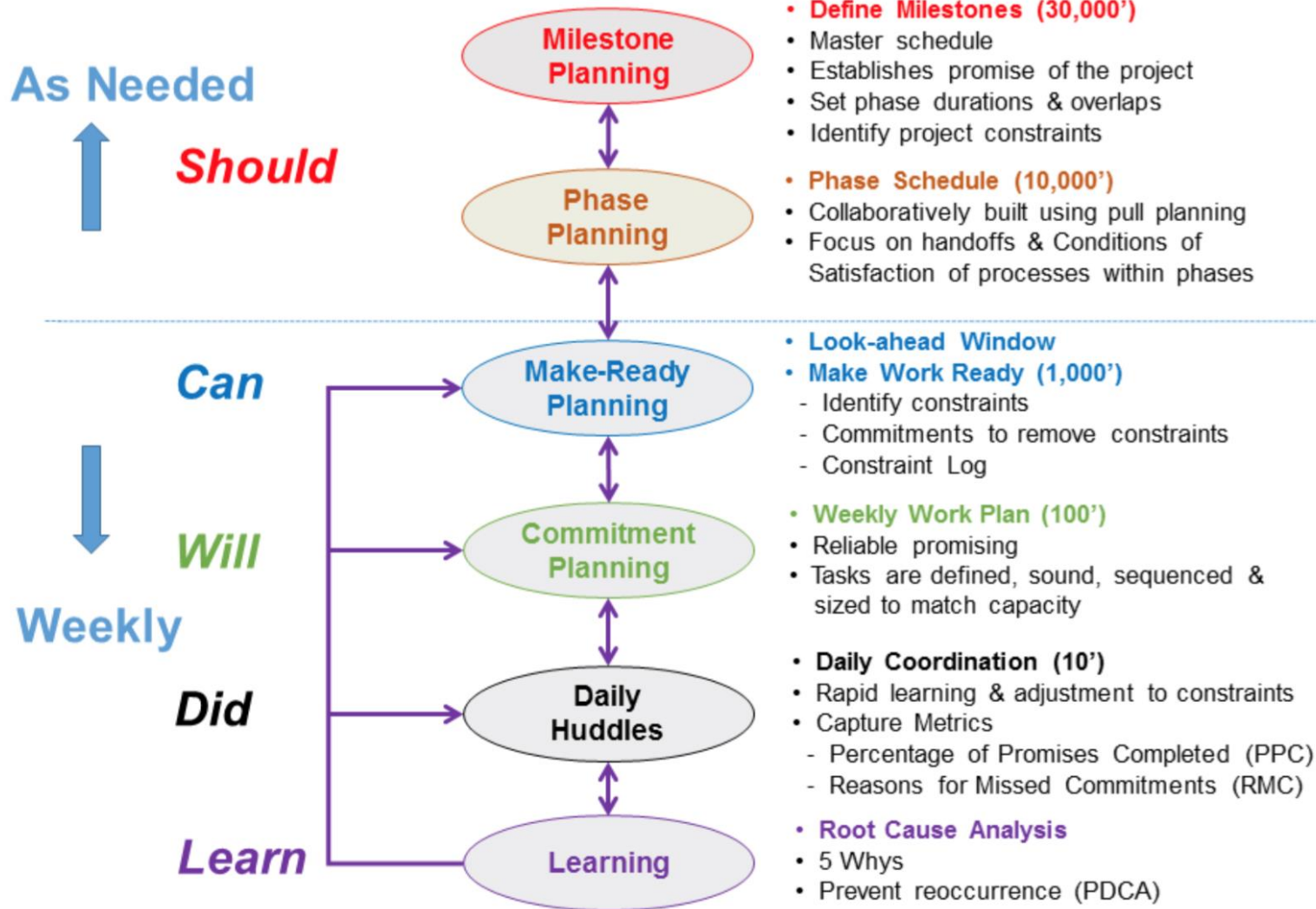
What is the Last Planner System?



Balfour Beatty



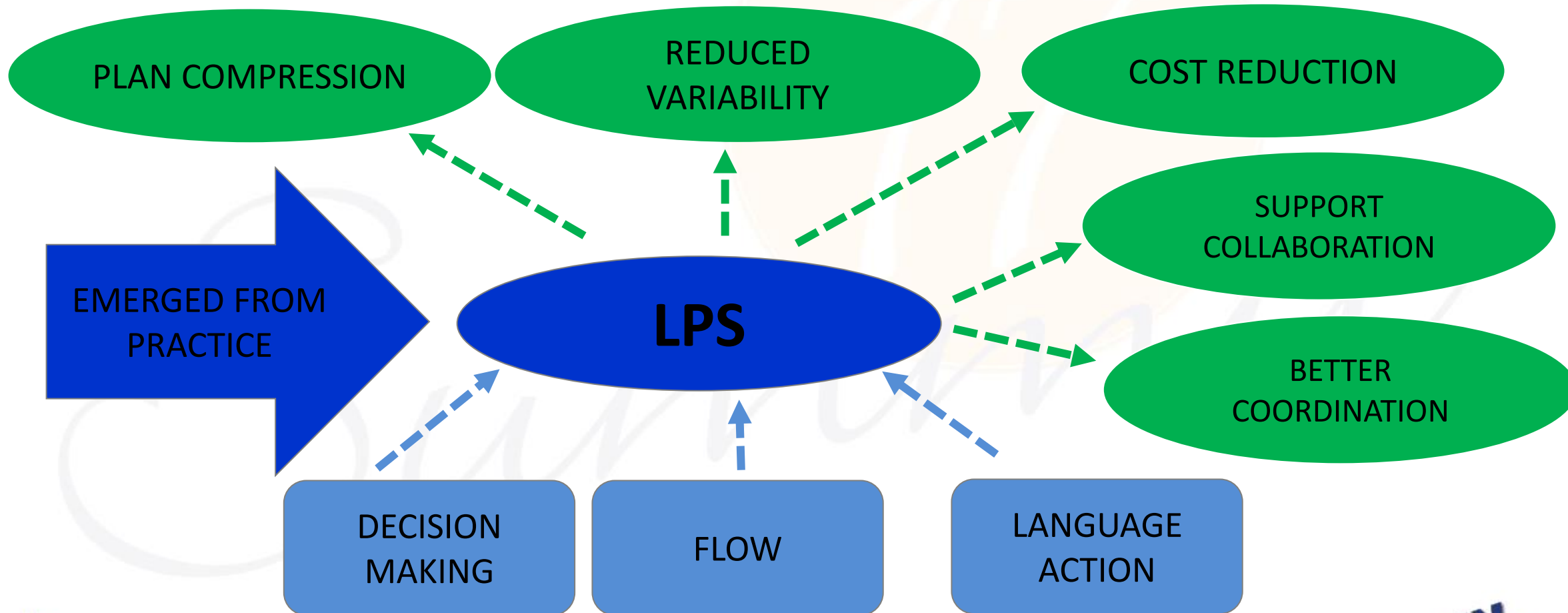
Last Planner® System Should-Can-Will-Did-Learn Planning



Creating and maintaining reliable workflow



LPS Background and Benefits





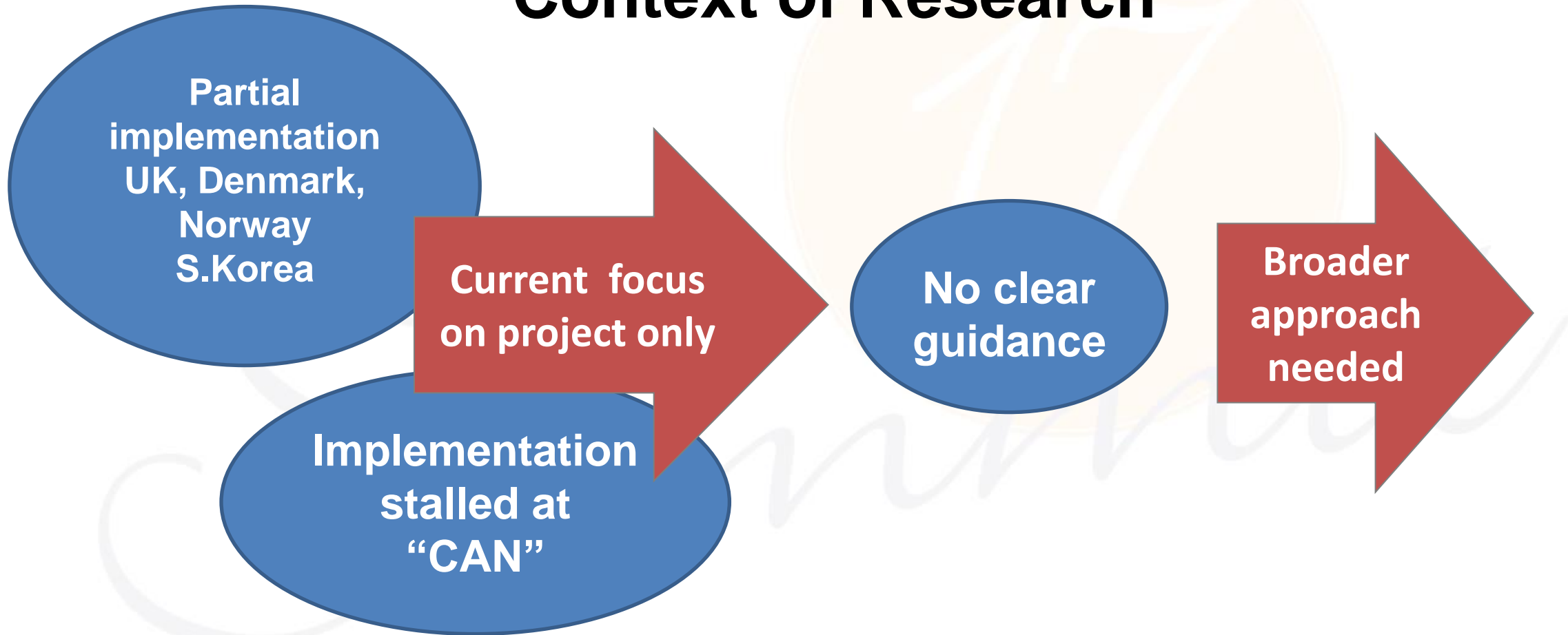
Context of Research

Partial
implementation
UK, Denmark,
Norway
S.Korea

Current focus
on project only

Implementation
stalled at
“CAN”

Context of Research





Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



LIMITED REALISATION OF LPS BENEFIT

How do we move
from here.....



Balfour Beatty





Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



LIMITED REALISATION OF LPS BENEFIT

How do we move
from here to here?



FULL BENEFIT REALISATION



Balfour Beatty





Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



**LIMITED REALISATION
OF LPS BENEFIT**

**FULL BENEFIT
REALISATION**

**Path Clearing Approach
to guide stakeholders!**



Balfour Beatty



HOW DID WE DO IT? Investigated projects: Building, Rail and Road



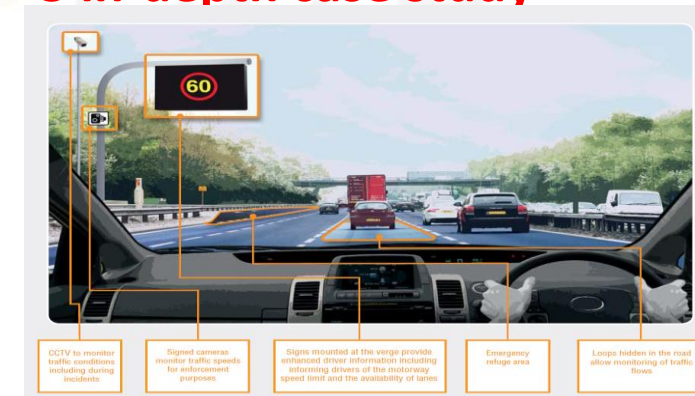
30 respondents interviewed



15 Projects observed



3 in-depth case study





What did we find out?

- Support needed at 3 levels: organisation, project, sector.
- Transparency and discipline are key social behaviours.
- Organisations need strategic capability and specific implementation strategies.



What did we do?

- Developed the LPS Path Clearing Approach to address these findings.
- Evaluated the approach with practitioner experts.
- Tested the LPS-PCA in a company – subsequently adopted into their processes.



What is the LPS-PCA?

- At organisational level – 5 steps
- At project level – 8 steps
- At sector level – 2 steps

LPS-PCA Organisational Level – Step Actions

- 1. Create the imperative for LPS leadership**
- 2. Identify and understand the drivers and benefits for LPS implementation**
- 3. Develop strategic capability and commitment to support LPS implementation**
- 4. Identify behaviours arising from the contract**
- 5. Create awareness on the strategic capability commitment for the implementation**

LPS-PCA Project Level – Step Actions

- 1. Explicitly align PL with the OL strategy**
- 2. Review current production planning and control practice**
- 3. Review practice using the LPS Principles**
- 4. Create enablers for LPS implementation**
- 5. Adopt a standard approach**
- 6. Understand and practice desired social behaviours**
- 7. Gauge Practice**
- 8. Gauging LPS implementation**



Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



LPS-PCA Sector Level Enablers– Step Actions

- 1. Engage with the external enabling factors**
- 2. Continuous learning action and feedback loop**



Balfour Beatty





Southampton
SOLENT
University



Centre for Lean Projects
NOTTINGHAM
TRENT UNIVERSITY



And finally.....

Lean construction research seeks practical and applied solutions.

Working with a University has many benefits:

- objective, unbiased (not a conduit to “the bosses”)
- access to global knowledge and expertise
- expertise in developing experimental action cycles for performance improvement



Balfour Beatty





Further Readings and Bibliography

- DANIEL, E.I. and PASQUIRE, C. , 2017. [Last Planner System Path Clearing Approach \(LPS-PCA\): an approach to guide; clients, main contractors and subcontractors in the implementation of the LPS.](#) Research report for external body. Nottingham: Nottingham Trent University: Publications.
- DANIEL, E.I. , 2017. [Exploratory study into the use of Last Planner ® System and collaborative planning for construction process improvement.](#) PhD Thesis, Nottingham Trent University, UK.