BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan data yang diperoleh serta untuk menjawab tujuan dari penelitian, maka dapat disimpulkan sebagai berikut:

a. Pengenalan KR di Indonesia secara akademis dimulai pada tahun 2000 awal, sedangkan implementasi secara praktik di tahun 2015. Saat ini, implementasi KR masih terbatas pada proyek-proyek berskala besar. Hal ini disebabkan pengembangan manajemen dan perubahan budaya kerja membutuhkan tenaga ekstra dari tim konstruksi yang kerap hanya dimiliki perusahaan konstruksi besar.
b. BIM mampu mendukung penuh 4 dari 12 prinsip KR yang dikemukakan oleh Sacks *et al.* (2009). Dengan fitur yang disediakan BIM seperti *clash detection*, *quantity take off*, CDE dan visualisasi, BIM menunjang pelaksanaan prinsip KR antara lain reduksi variabilitas, manajemen visual, *flow and value*, dan reduksi siklus. Sementara itu, fitur BIM yang belum dapat dioperasikan secara keseluruhan dan membutuhkan peningkatan terindikasi pada prinsip perbaikan terus-menerus, reduksi ukuran *batch*, kontrol produksi, *going to gemba*, peningkatan fleksibilitas dan jaringan mitra luas.
c. Pelaksanaan KR dengan BIM pada proyek konstruksi di Indonesia terbukti mampu menciptakan lingkungan kerja kolaboratif, mereduksi pemborosan, deteksi masalah lebih awal, dan meningkatkan nilai kegiatan. Sementara untuk mencapai manfaat tersebut, tantangan yang dijalankan berupa

pembelajaran yang harus dilakukan secara paralel, penanaman pola pikir, serta membutuhkan kegigihan dan tindakan visioner tim konstruksi.

d. Faktor-faktor penghambat adopsi KR dengan BIM meliputi besarnya biaya investasi, restrukturisasi organisasi, dan pengembangan sumber daya manusia.

5.2 Saran

Penelitian ini memiliki sejumlah keterbatasan. Masih barunya penerapan KR dengan BIM pada proyek konstruksi nasional menyisakan banyak isu yang dapat menjadi objek penelitian berikutnya. Beberapa di antaranya adalah kuantifikasi besarnya biaya dan waktu yang dapat direduksi oleh implementasi KR dengan BIM, peningkatan produktivitas tim menggunakan KR dengan BIM, studi kasus penggunaan sistem KR (VSM, SCM, 5S) pada proyek konstruksi di Indonesia, pengukuran maturitas implementasi KR dengan BIM di Indonesia, dan perbandingan implementasi KR menggunakan piranti lunak dengan yang tidak. Dengan terbatasnya kajian mengenai KR dengan BIM di Indonesia, Peneliti merekomendasikan kajian lanjutan yang lebih detail untuk menjawab isu-isu tersebut.

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