The digital transformation of the Canadian agriculture and mining sectors

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Major findings

- Substantial effort globally in primary industries
- Canada in top 3 in ag but lags in mining:
  - Both have a compelling need and are globally connected
  - Mining reported fewer labour or capital barriers
  - Policies and public programs generally viewed as supportive of both sectors; IP not an issue
  - Different industrial structure (mining and dairy less competitive), investment cycles (3 v. 30 year amortization), and widely divergent scalability and trialability of technologies likely cause

Implication for Canada's digital opportunity

- 2x2 typology offers four alternative pathways
  - I: top-down, closed corporate model, imported and both iterative and disruptive (John Deere)
  - II: top-down networked activity, open standards in US poorly connected to Canada; disruptive lock-in
  - III: hacking world; perfectly competitive; lots of local actors; dynamic (AgSky)
  - IV: primordial systems spaces using big data (FarmLead)
- I and II disruptive; III and IV local and contestable but highly dynamic; Canada's competitive advantage is with short-line manufacturing (DOT +)

Policy implications

- **Data ownership**: IP not an issue; rules being defined abroad; ownership generates significant endowment effect among producers who see the market as zero- or negative sum, suggesting early adopters may come from the group of market-savvy producers, with laggards either failing to engage or engaging too late to share in early adopter returns; may affect lock-in; concerns about exploitation of insider knowledge
- **Market structure matters:** small market and regionalization limits competition; renewed focus on competition policy at the national level, including the opening up of markets through deregulation or trade liberalization might nudge complacent firms and sectors to engage

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