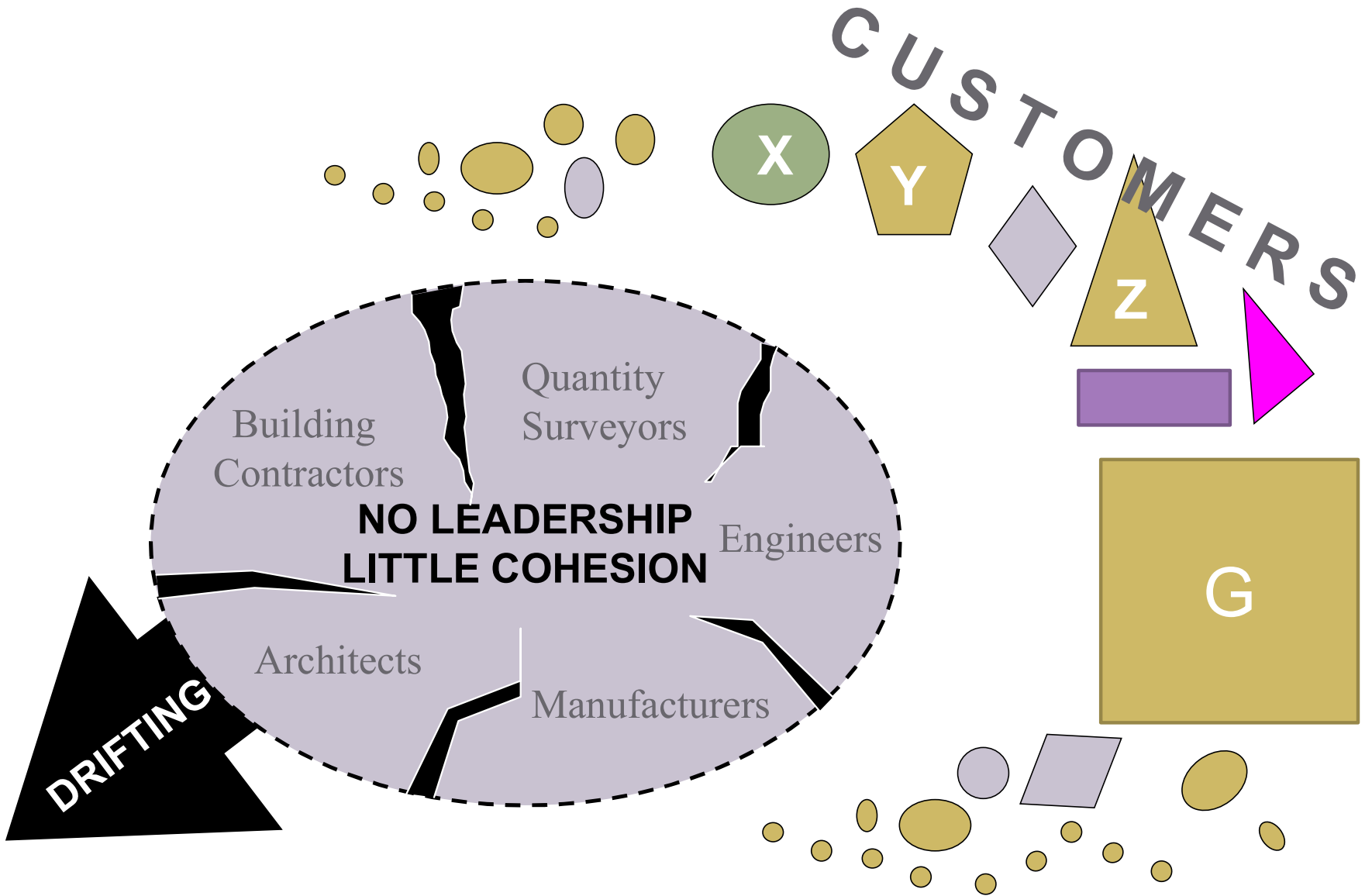


# Trajectories of Current & Future Construction Delivery Change: Implications for businesses, BEPs & Educators

Bob Hindle

ASOCSA 18th Built Environment Conference 15-16 July 2024 Nelson  
Mandela University, Gqeberha.



# INDUSTRY ANALYSIS – Porter (1980)

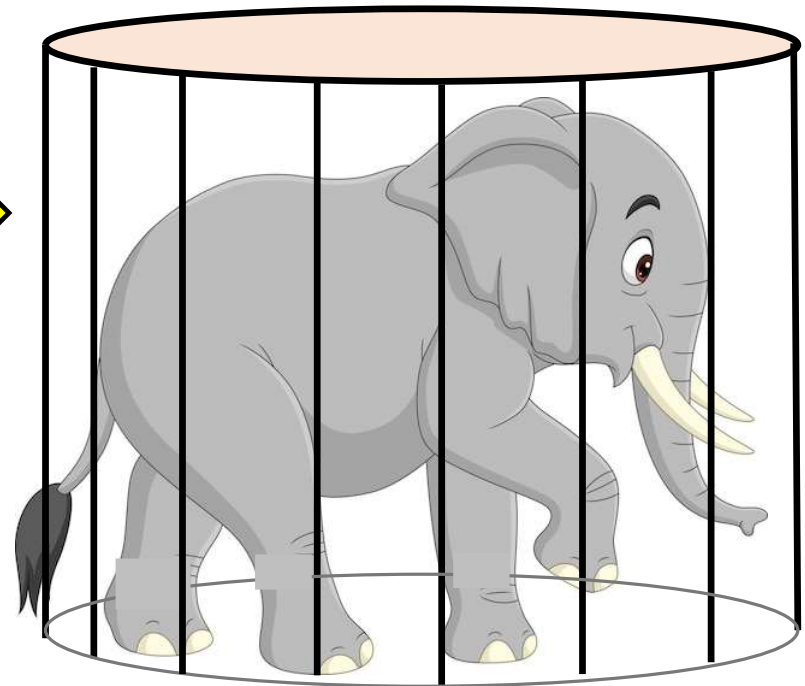
- Construction Probably the most fragmented industry on earth – fatally Fragmented?

- So fragmented that its



- STUCK – Unable to change / develop

- The system is LOCKED against attempts to change the status quo - Nam & Tatum (1988:140)



## Three points of clarification:

1. But change has & continues to occur  
(within the Silos & individual projects)
2. We continue to build great buildings  
(against the odds)
3. Look for construction business -  
development - not industry development

## Where in the contracting system is resistance found?

- Arrangement of role-players
- Orientation of role-players
- Where power in the supply chain resides!

Two questions arise:

What have been the Catalysts of  
Change &  
what should we be looking for?

# Drivers of Change in the Business of Building

1. Tough Economic Conditions
2. Customer dissatisfaction
3. Internal participants dissatisfaction & search for - business opportunities
4. New technologies – IT - Digitisation – processes, data & ideas capturing systems, – then improving them – **BIM**, etc. – Essentially, new digitisation tools
5. Weakening position of BEPs
6. Intervention of other industries & entrepreneurs

## A BENCHMARK

How have other industries that were once based on bespoke products, & craft production, evolved?

What should we be looking for to find the change that we need?



# How Craft-based industries evolve:

## **1) Standardisation -**

Dimensions/components/modular grids

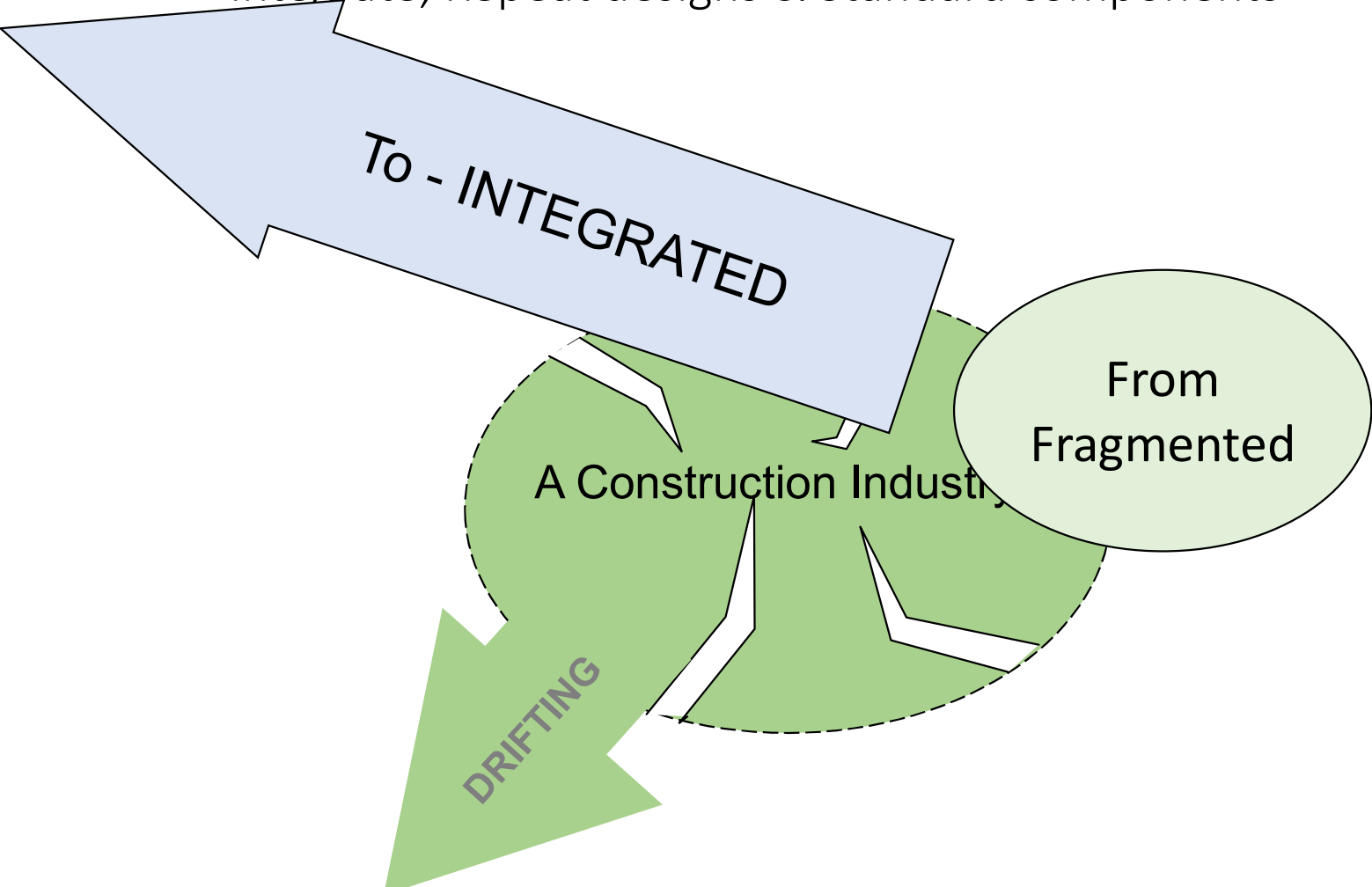
- Of best functioning designs
- Modularisation of elements & components

**2) Integration** – design and production within a single business entity

**3) Commodification** – offering products rather than services (**Think Brands**)

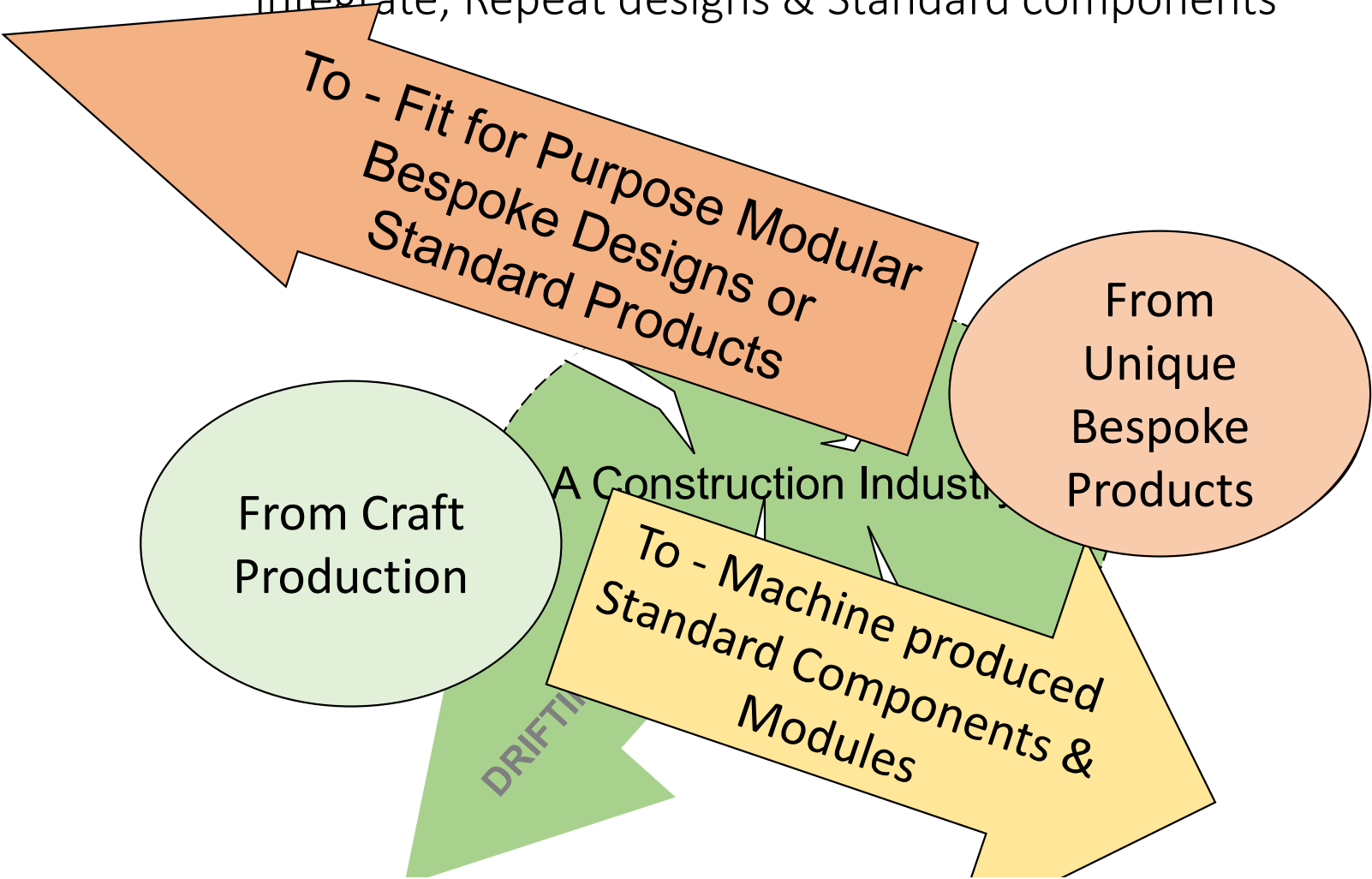
# Three Essential Shifts:

Integrate, Repeat designs & Standard components



# Three Essential Shifts:

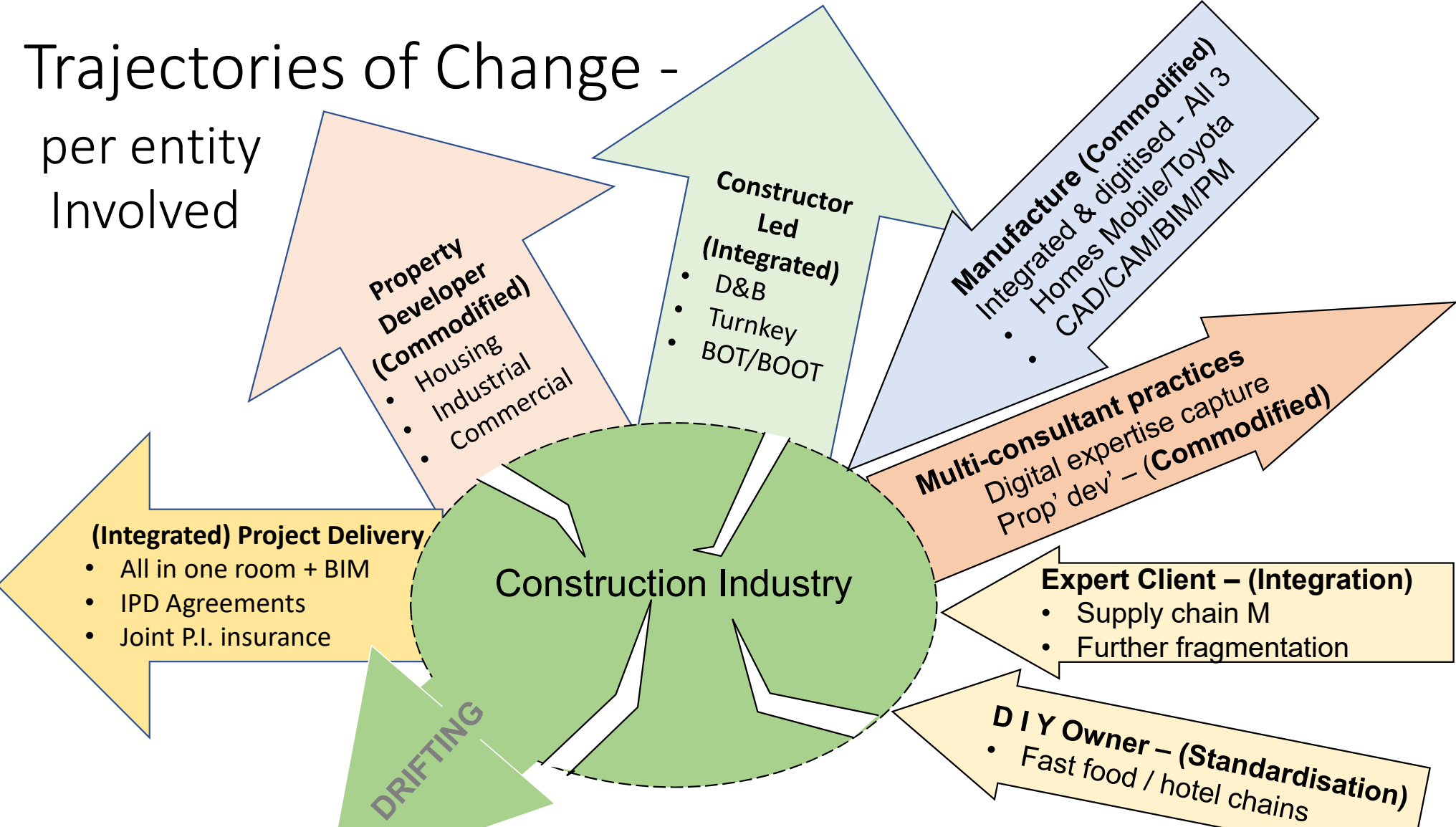
Integrate, Repeat designs & Standard components



# Analysis of Actual & Anticipated Change -

Remember what to look out for if we are to follow other modern industries

# Trajectories of Change - per entity Involved



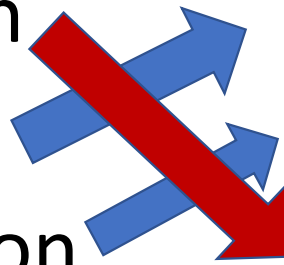
# Comparison – Anticipated v Actual Steps

## **ANTICIPATED**

1. Standardisation
2. Integration
3. Commodification

## **ACTUAL**

1. Integration
2. Commodification
3. Standardisation



**Without standardisation at several levels real change will be denied  
Procurement will default to the traditional ways over time**

## Additional Structural Change Trends -

1. Re-arrangement of power players in industry structure
2. Growing importance of PM & BIM
3. Digitisation Adoption
4. Weakening of the BEP power position (turning of the flanks)

# Change Trajectory Matrix



Lead By Category ▶	Constructor org's	Property Developer	Multi Consult' org's	Expert Client org's	Manufacturer
<b>Traditional</b> procurement & delivery	Innovative methods	Inhouse design Calls for tenders or self build	Traditional procurement & delivery	In-house designs Serial tenders i.e. KFC, McD, Hotel groups	Off-site 3D printing ? Builders for assembly
<b>(IPD) Integrated</b> Project Delivery	Design Build, BOT. One office for all PM & BIM driven <b>Mace – Shard</b>		Using major process improvement systems (at speed)	BIM driven  IPD contracts	Single organisation
<b>Commodified</b> (services to products)	Found at large & small ends - i.e. <b>Refineries/pools</b>	Plot & Plan, Industrial, commercial	Property Developments	Not yet but watch this space!	Park Homes  Toyota Homes
<b>Digital capture</b> <b>Next Level</b>	Digital Twin feedback & design improvement <b>Laing O'Rourke</b>		Reduce BEP input PwC, KPMG, etc. <b>Wild-card ?</b>	<b>Digital Twin</b> feedback & design improvement	Software i.e. CAD, CAM BIM, PM



# Which Entities or Skill-sets Taking Advantage

- Entrepreneurs
- Property developers
- Some business savy construction industry types:
  - Constructor organisations
  - Large Multi-discipline construction consultant organisations
- Frequent buyer – Expert clients of the industry
- Toyota & other manufacture led businesses

Perhaps a question of –

Being the first to gain  
competitive advantage  
through digitisation &  
process engineering?

Testing the trajectories –  
to what extent do they address known problems:

- The level of involvement of producer in design
- The level of repeat functional designs
- The level of craft production involved
- The degree of integration
- The need to hire an external main-contractor
- The likelihood of contractor's claims
- Speed of completion, etc.

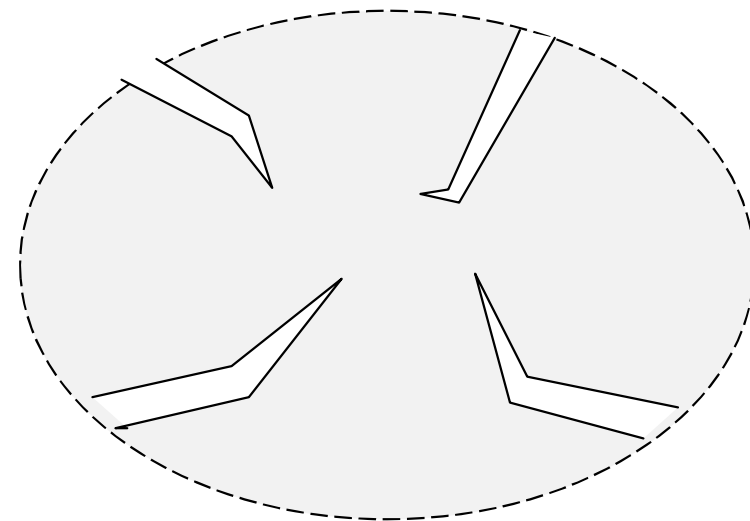
System type: Level of:	Constructor led	Property Developer	Integrated Traditional	Multi-consultant	Manufacture	Client led
Involvement of builder in design	100%	Varies	Yes	Varies	100%	Varies
Craft production involved	Mostly	Mostly	Mostly	Mostly	Highly reduced	Mostly
The degree of integration	High	Minimal	Medium	At design stage only	High for branded buildings	Weak
Use of repeat designs	When pos' Details 100%	YES often	Seldom	Seldom	Always	Varies
External main contractor hired	No	Yes	No	Yes	Yes but minimal	Yes
Claims	Few	Common	Few	Common	Few	Possible
Early completion date	Good	Traditional	Improved	Improved as early to start	Significant	varies

# Craft Production? (without craftsmen??)

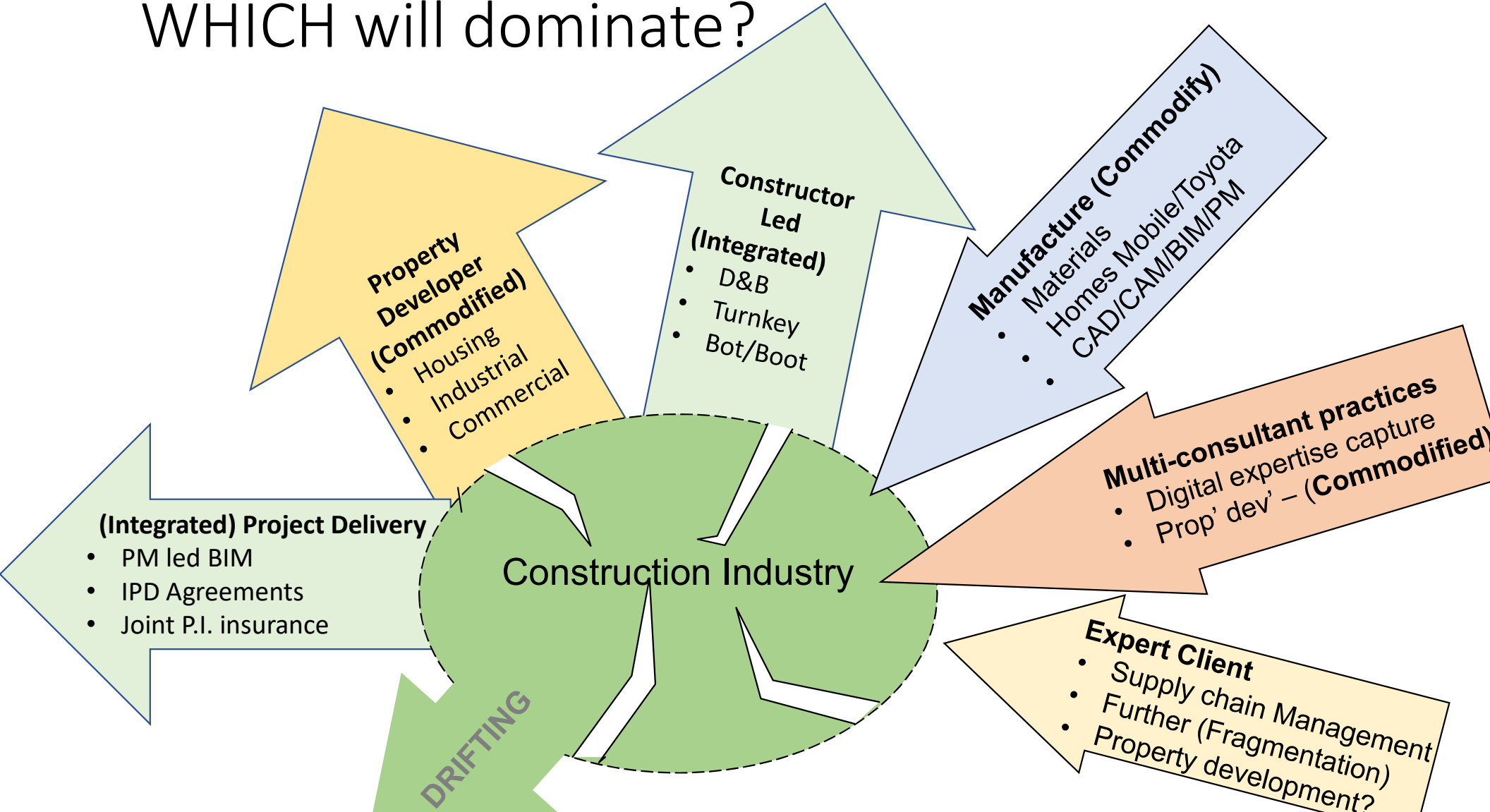
Traditional building crafts & builders will still be required:

- a) to prepare foundations and service connections
- b) to assemble modules, cladding, & connections
- c) to build non-standard buildings
- d) for additions and alterations
- e) for repairs & maintenance

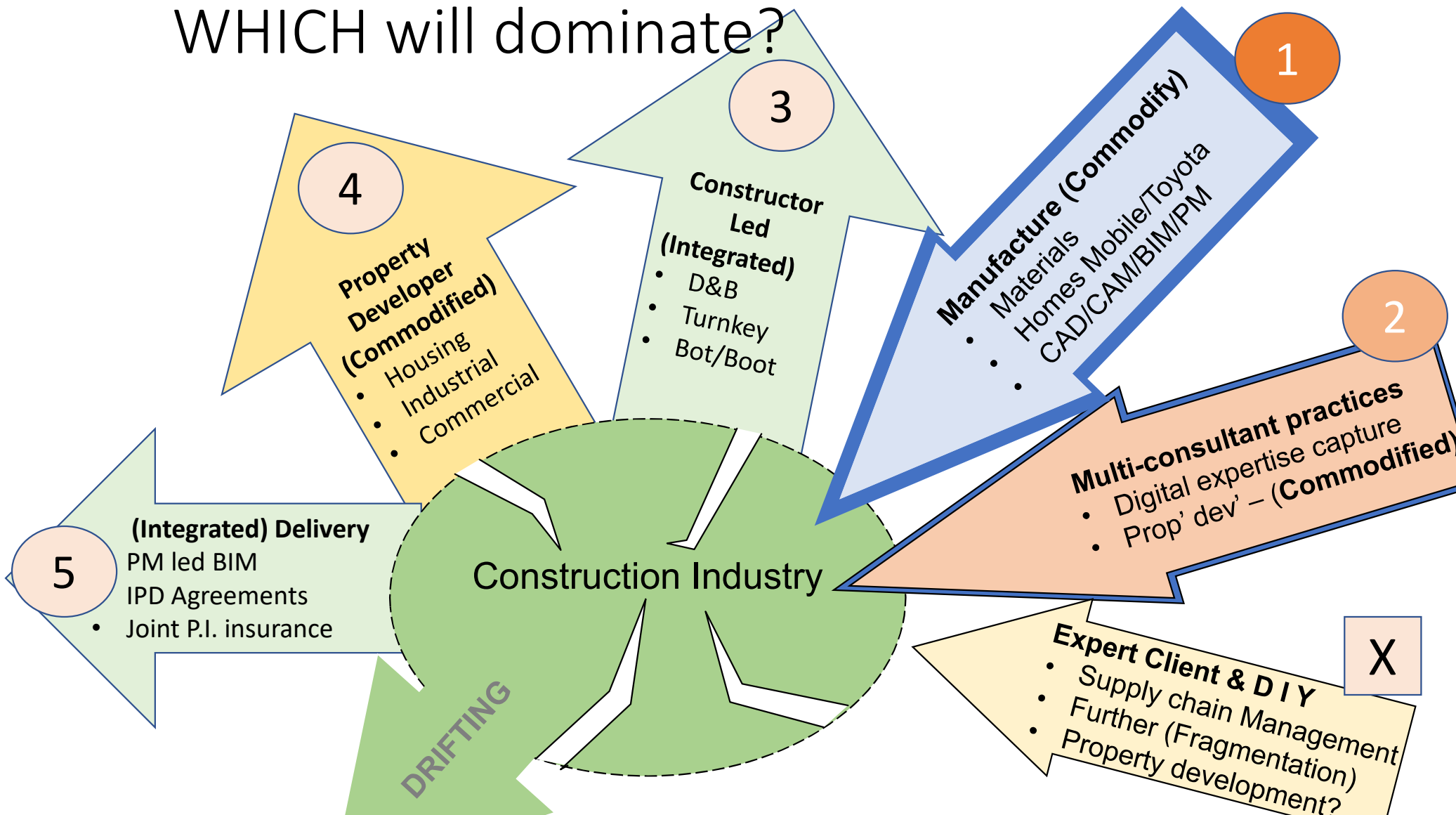
**But on a more reduced scale!**  
& at higher pay!



# WHICH will dominate?



# WHICH will dominate?



But change will be slow until:

1. **High demand for buildings** is present again
  2. Buyers fully understand current system pitfalls or - **Producers simplify the process & deliver faster +**
  3. **Nationally agreed dimensional standards re:** modules & components
  4. **Governments adopt best standard designs** for each building:
    - Best functioning designs, low running costs, ease of maintenance
- Given points 2 to 4 – Reductions in time and cost will increase DEMAND (The Ford factor)



Which is the KEY missing component – for building to benefit from the 4<sup>th</sup> & 5<sup>th</sup> IR?

**STANDARDISATION**

(Must be the starting point)

# Threats to Existing Role-players?

- Education System Obsolete (If not already will be soon)
  - Siloisation must end – Educate and train all entities together
  - Rather disperse to other more suitable faculties
- The BE Professions will be threatened with Extinction
  - Far fewer need
  - Professional (Vertical orientation) attitudes **Do not fit the future**
- Leaders who pilot the future will be entrepreneurs
  - Educated in business science, marketing and Operations Mmt'
  - Probably from a manufacturing background
- Constructors will depend most on civ-eng projects

# Thanks for listening!

Please come talk to me if you have questions or think I am missing something.

Or write to [RH@zedcore.co.za](mailto:RH@zedcore.co.za)