



Traditional contract law principles and technological change: harmony or discordance?

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Features of a 'smart contract'

- A legal contract in the sense of a legally enforceable agreement
- All or part of the contract is reduced to computer code
- Once the code is switched on, the contract operates automatically and cannot be amended or stopped
- The contract continues to operate until its designated end date, or until it is breached
- Operates using blockchain technology


```
def composeimage( x, y, colr, radius, points, diminish ) :
    nofill()
    stroke()
    strokewidth( 0.05 )
    autoclosepath( False )
    count = int( radius * 1.3 )
    colr = colors.color( colr )
    grad = colors.gradient( colr.darken( 1.0 ), colr,
                           colr.lighten( 1.0 ).desaturate( 0.4 ),
                           steps = count )
    for i in range( count ) :
        stroke( grad[ i ] )
        a = 0.75 - 0.25 * float( i ) / count
        colors.shadow( dx = 5, dy = 8, alpha = a, blur = 15 )
        path = oval( x - radius + i * 0.5, y - radius + i * 0.5,
                    radius * 2 - i, radius * 2 - i, draw = False )
        drawpath( brushpaint( path, points = int( points - i * 0.2 ),
                             length = radius - i + random( count - i ) / 3,
                             diminish = diminish ) )
```

Outline of presentation

1. Overview of the foundational principles of contract law
2. How these principles apply to 'smart contracts'
3. Concluding observations

Foundational contract law principles

Parties

Agreement

Consideration

Breach

Enforcement

Intention

Terms

Performance

Termination

Application to smart contracts

Parties

- Contractual capacity ✓



Application to smart contracts

Parties



The diagram features a horizontal timeline with 10 dots. A green box labeled 'Parties' is connected to the first dot by a vertical line. A dark blue box labeled 'Intention' is connected to the second dot by a vertical line. A bullet point is positioned below the 'Intention' box.

Intention

- Intention can be manifested in any manner, including computer code

Application to smart contracts

Parties

Agreement

- Offer and acceptance ✓

Intention



Application to smart contracts

Parties

Agreement

Intention

Terms

- Translating to computer code
- Adds an additional step
- Parties/lawyers cannot verify accuracy
- Must interpret all terms in advance
- No flexibility
- Computer code \neq legal language

Application to smart contracts

Parties

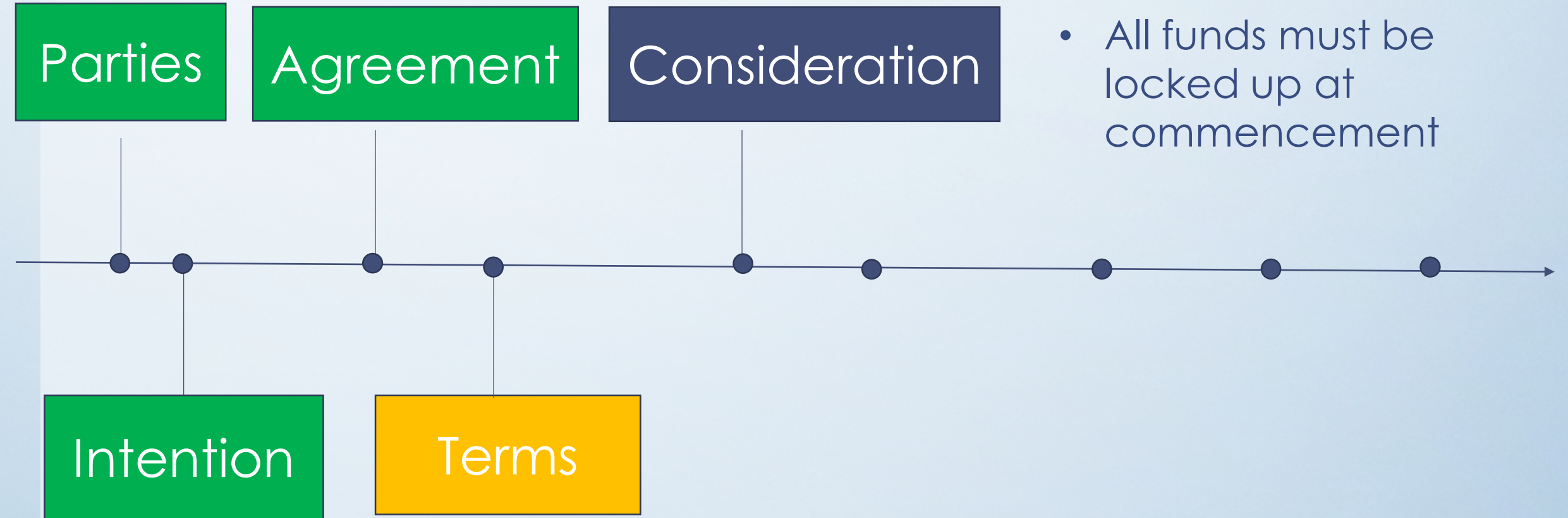
Agreement

Consideration

- All funds must be locked up at commencement

Intention

Terms



Application to smart contracts

Parties

Agreement

Consideration

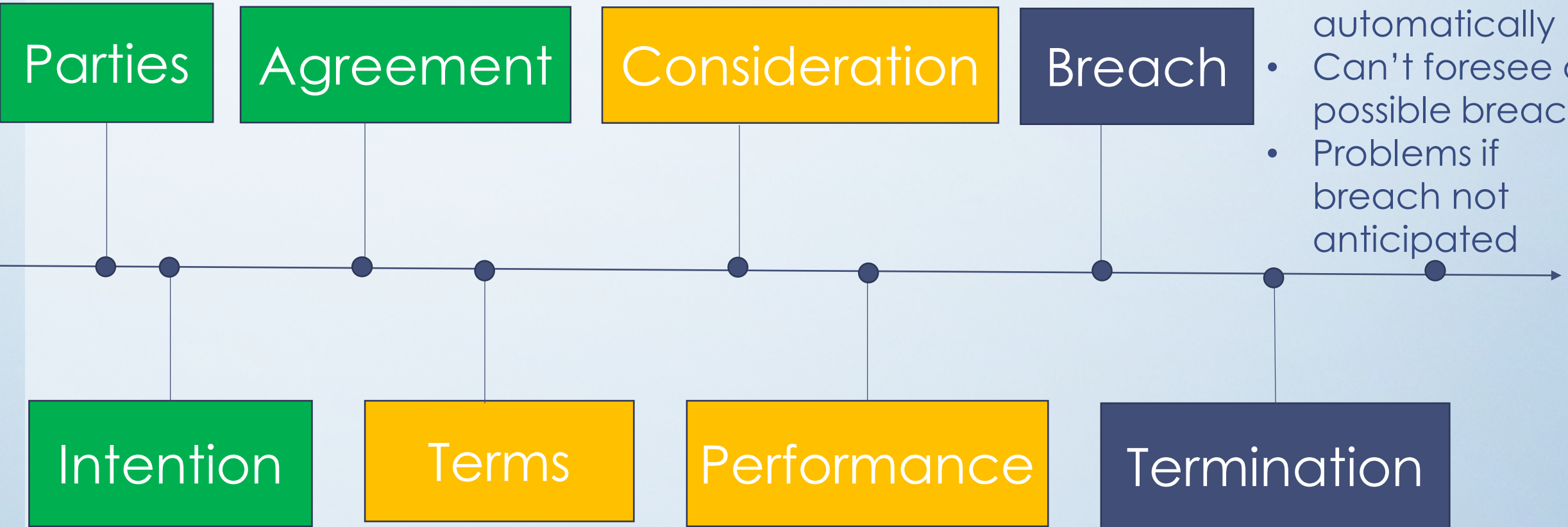
Intention

Terms

Performance

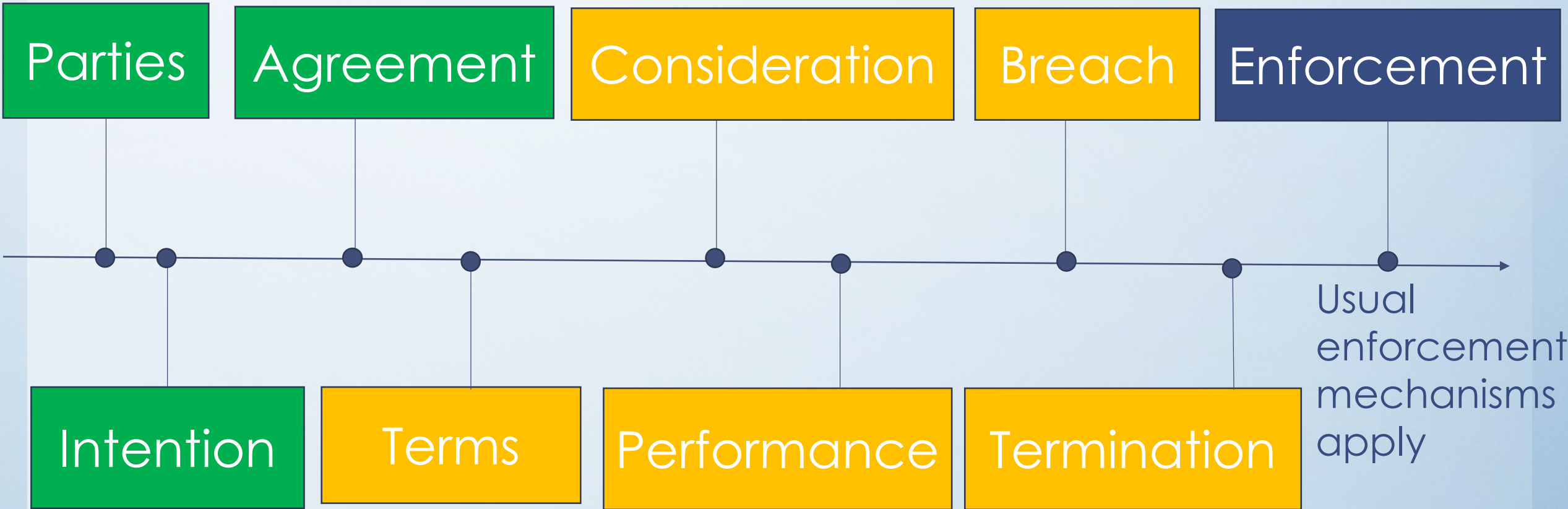
- Automating performance
- Verifying performance has occurred (requires outside parties, ie oracles and external data sources)

Application to smart contracts



- Contract ends automatically
- Can't foresee all possible breaches
- Problems if breach not anticipated

Application to smart contracts



Concluding observations

- Smart contracts are compatible with foundational contract law principles – the two can work in ‘harmony’
- Contract law is sufficiently flexible to withstand this technological change
- Smart contracts may be useful for short-term, one-off financial exchanges (eg interest rate swaps; futures trading)
- However, smart contracts are problematic for complex, long-term commercial agreements – costly, time consuming, inflexible

Thank you

