CLIENTS | PEOPLE | PERFORMANCE

Improving Winery Performance

Master Planning

GHG Management

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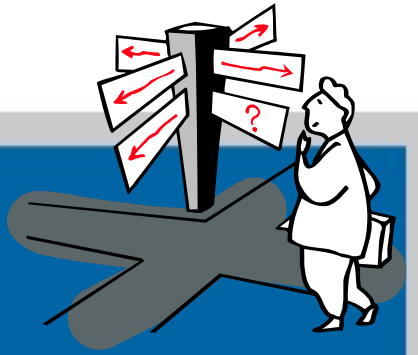
GHD CLIENTS | PEOPLE | PERFORMANCE

Improving Performance – Game of Chess

- Right people
  - need the right pieces
  - recognising unique capabilities
- Planning
  - understanding environment/anticipation
  - over-arching objectives/goals
  - planning to integrate all actions and capabilities
  - changing environment means evolving plans
  - Fatal to NOT plan
- Action
  - integrated & decisive action
  - confidence from experience and understanding

Long Range Goals/Hedgehog Concept



- Increase understanding of current operations, environment

- To find hedgehog concept - explore
  - Passion for…
  - Can be the best at…
  - What drives profitability/success…

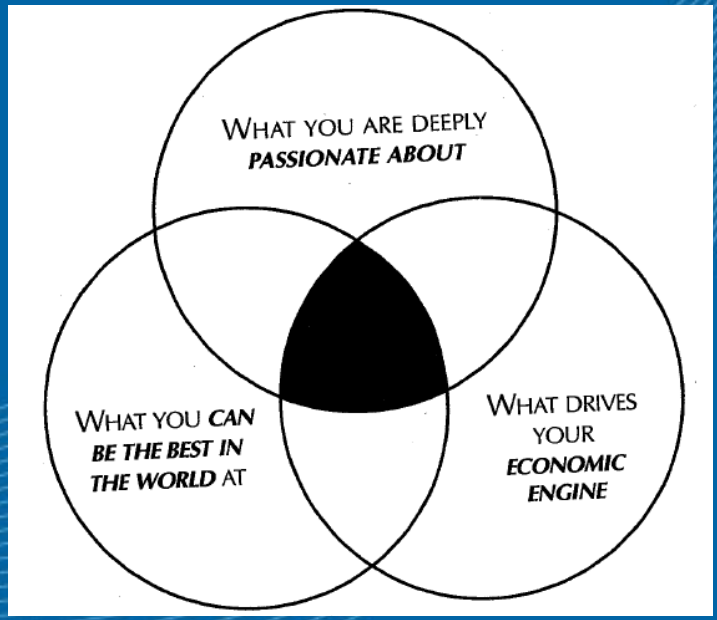
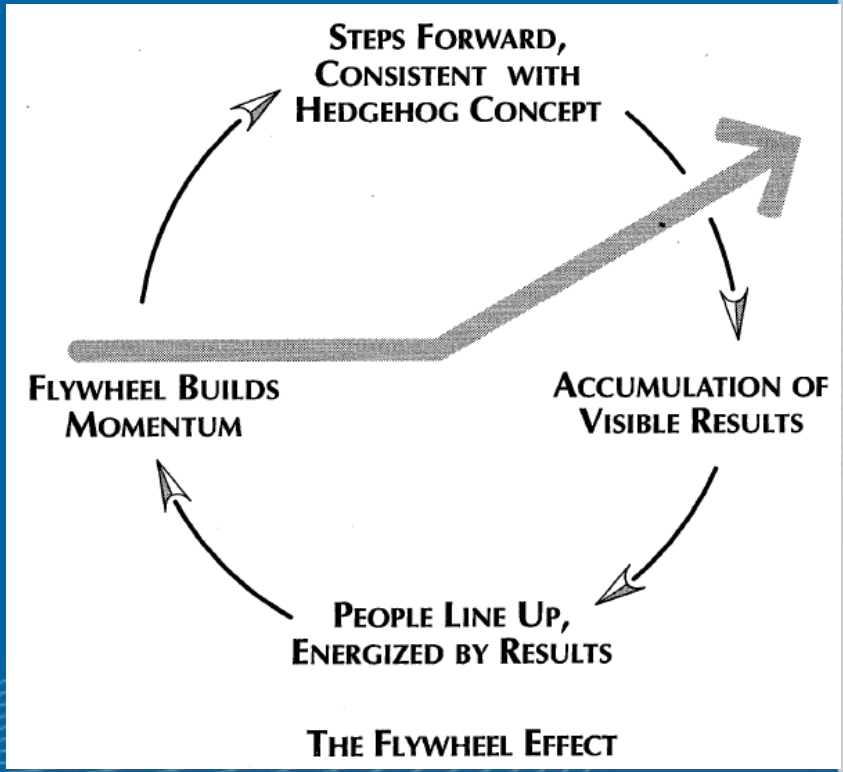


Diagram from: Collins J, 2001

Upward Spiral

- Understanding
- Long range goals
- Planning effort
- Pro-active action with engagement and alignment
- Increasing **success**

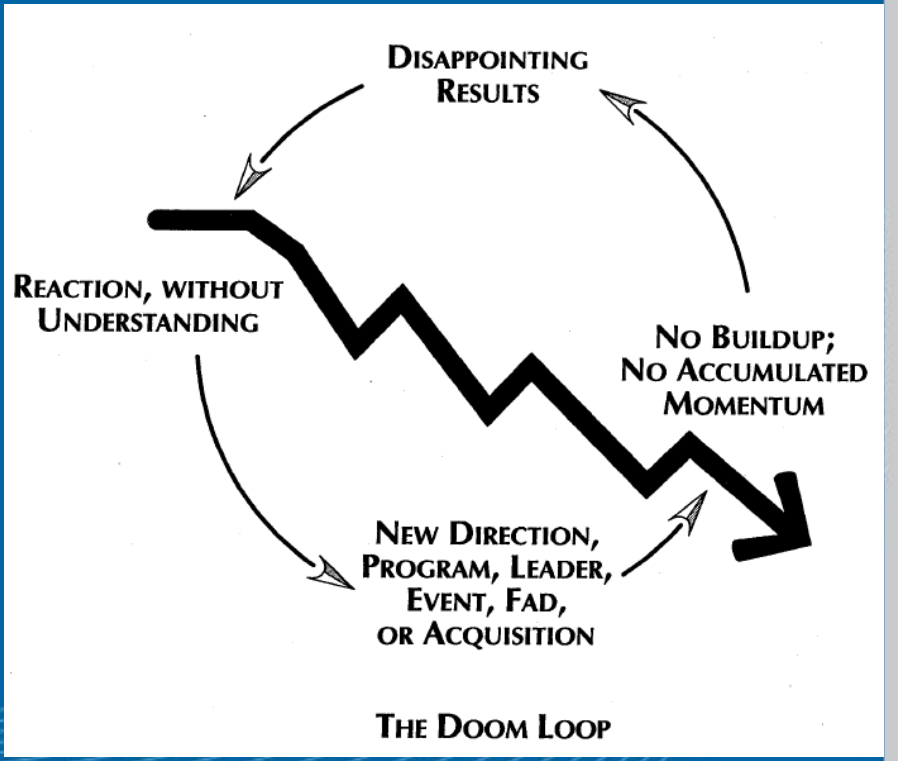


Diagrams from: Collins J, 2001

…or Downward Spiral

- Lack of understanding
- Lacking long range goals
- Re-active and scattered actions
- Disappointment
- Disillusionment
- Lack of engagement and alignment

doom



Integration and Master Planning

- Get all the input
  - Analyse/document current operations
  - Input from each function in company
    - marketing…
  - Staff issues and improvement ideas
  - Outside Input
    - R&D organisations
    - Suppliers
    - Other Industries
    - Regulatory

Ideas from Other Industries

- Re-use CIP
- Pumping/valving/automation
- By-product recovery:
  - Cheese
    - reduced waste-water BOD
    - easier to recycle water
  - Bottom Line Improvement **and** Reduced Environmental Impact!

Brewing Industry – Carbon Dioxide Recovery

- CO_2 capture from fermentation
- reuse for carbonation or sell
- value adding via by-product recovery
- reduced carbon dioxide emissions
- carbon dioxide emissions from wine industry fermentation are significant

Image from: Whittemann 2008

CO2 Recovery-Process used in Breweries

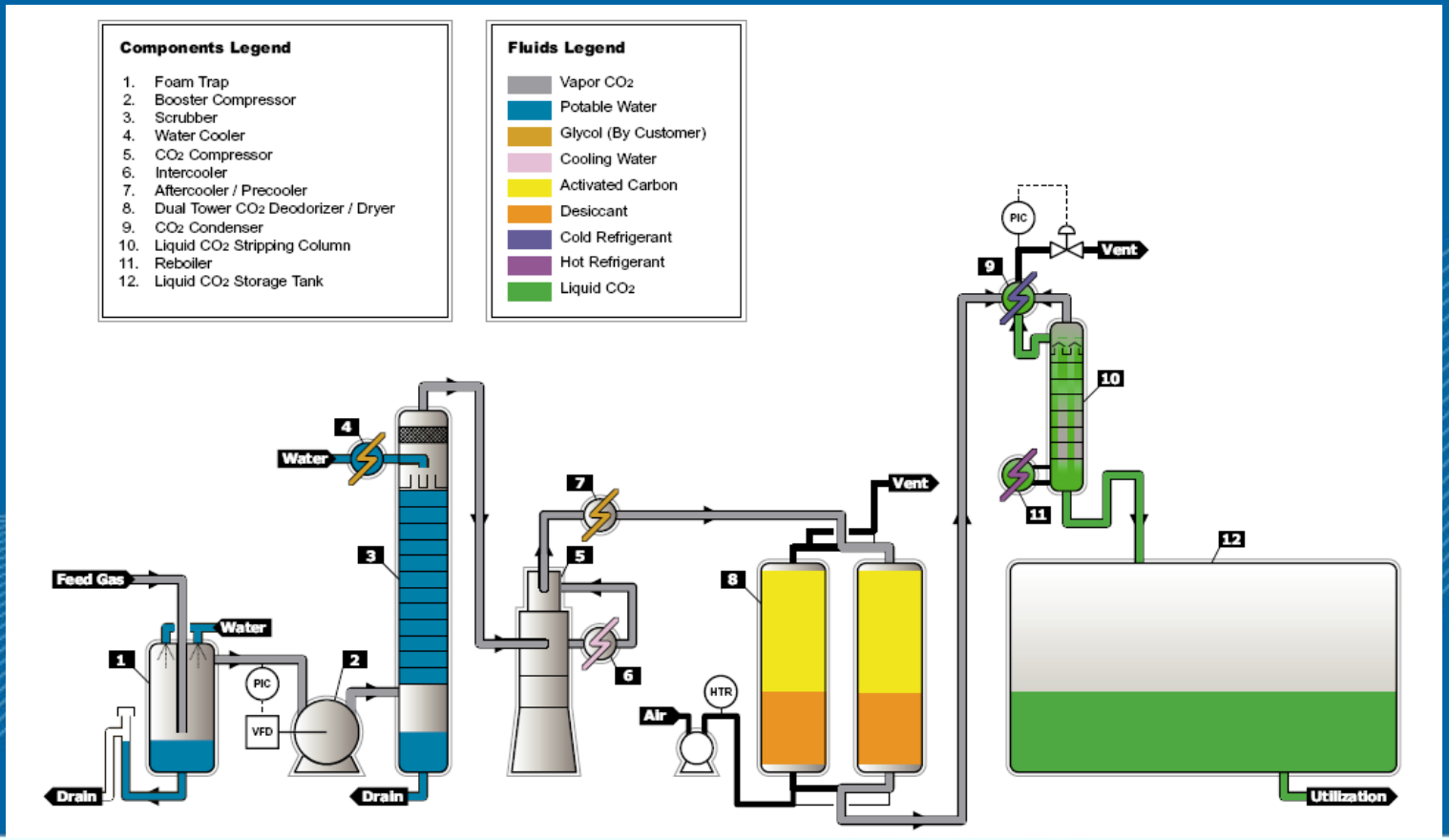
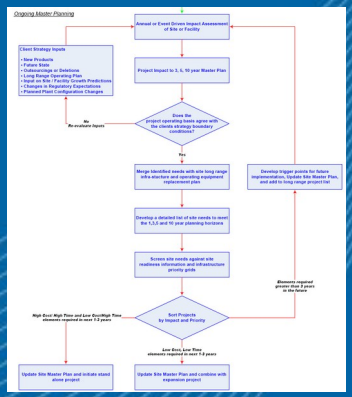


Image from: Wittemann 2008

Integration and Master Planning

- Individual ideas may not be viable alone but as part of an **integrated plan** they can have real value.

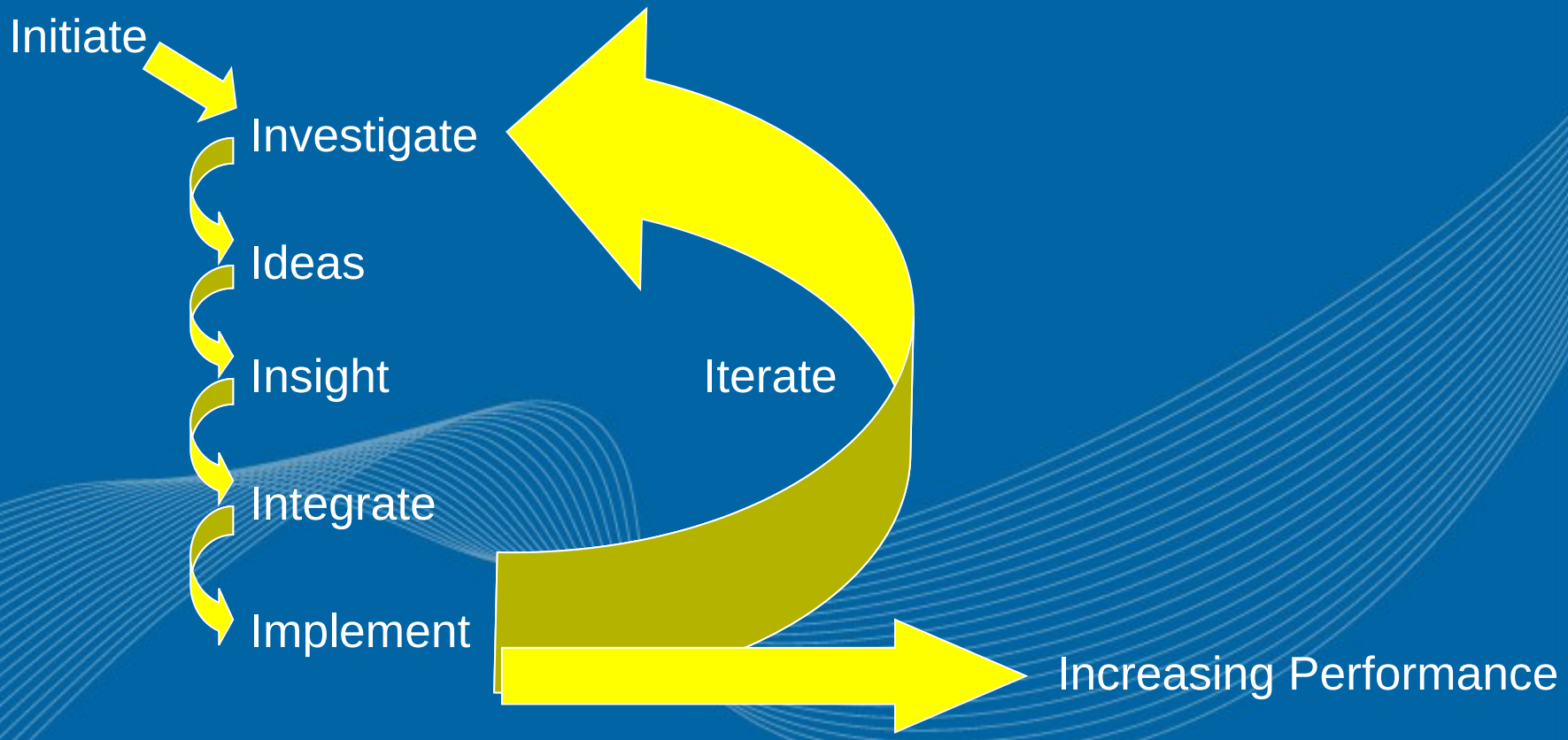


- Develop an initial master plan
  - detailed list of needs
  - screen needs
  - sort projects-impact/priority and stand-alone/expansion coupled
  - initial projects and their sequencing
  - projects planned for implementation at a later date along with trigger points

Integration Example

- Waste-water
  - Salinity
    - segregation
    - caustic replacement
    - caustic reuse
  - Organic/Hydraulic
    - reduction at source
  - By-products
    - recycled water
    - nutrients to crops
    - CALs
      - Methane gas – heat and power
      - Odour controlled
      - Sludge as soil conditioner

Master Planning Summary



Measuring Winery Improvement through Greenhouse Gas (GHG) emissions

- Waste from a process is a loss, GHG can be a good measure of winery efficiency
- 2kg of GHG per Litre of wine produced
- Global wine production to be at 2,668,300,000L = fossil fuel emissions of 1,000,000 passenger vehicles annually.
- Inclusion of Greenhouse Assessment as part of the assessment driven by requirements from major markets (EU).
- New level of complexity for industry

Adding GHG to existing EMS

- An EMS applies the classic Plan-Do-Check-Act framework to the management of environmental issues in a winery
- By simply identifying GHG emissions environmental aspect within the management system

Plan

- Include a statement on reduction of GHG emissions EMS environmental policy.
- Set emissions reduction targets and objectives for environmental aspects that have GHG potential at each relevant level within the winery.

Do

- Identify which aspects of operations and activities produce GHG emissions
- Implement programs to address the impacts and achieve set targets and objectives.
- Establish procedures to ensure that all personnel are aware of emission reduction targets and objectives
- Internally communicate progress on GHG emissions reduction activities among various levels within the winery.

Check

- Regularly monitor and measure GHG emissions reduction of operations and activities.
- Assess how the performance of implemented programs and procedures are achieving the set targets and objectives.

Act

- Align programs or procedures to better meet set targets and objectives, based on results of monitoring and assessments.
- Periodically review targets and objectives to determine whether these should be modified in order to better fulfill environmental policy requirements or overall business strategy.

Future Challenges

- Without question, the political and ecological drivers for wineries to manage their GHG emissions will increase over the next decade.
- There are no internationally accepted standards for measuring and reporting GHG emissions reduction from wineries
- Until such standards are developed and gain international acceptance, utilising existing EMS and life-cycle standards offers a credible alternative that can give companies/industry sectors a jump-start on the management of GHGs.
- By doing so, wineries can begin integrating GHG management into their existing systems and avoid the cost of having a separate data collection and reporting effort specifically for GHGs.

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Thank You For Listening

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