



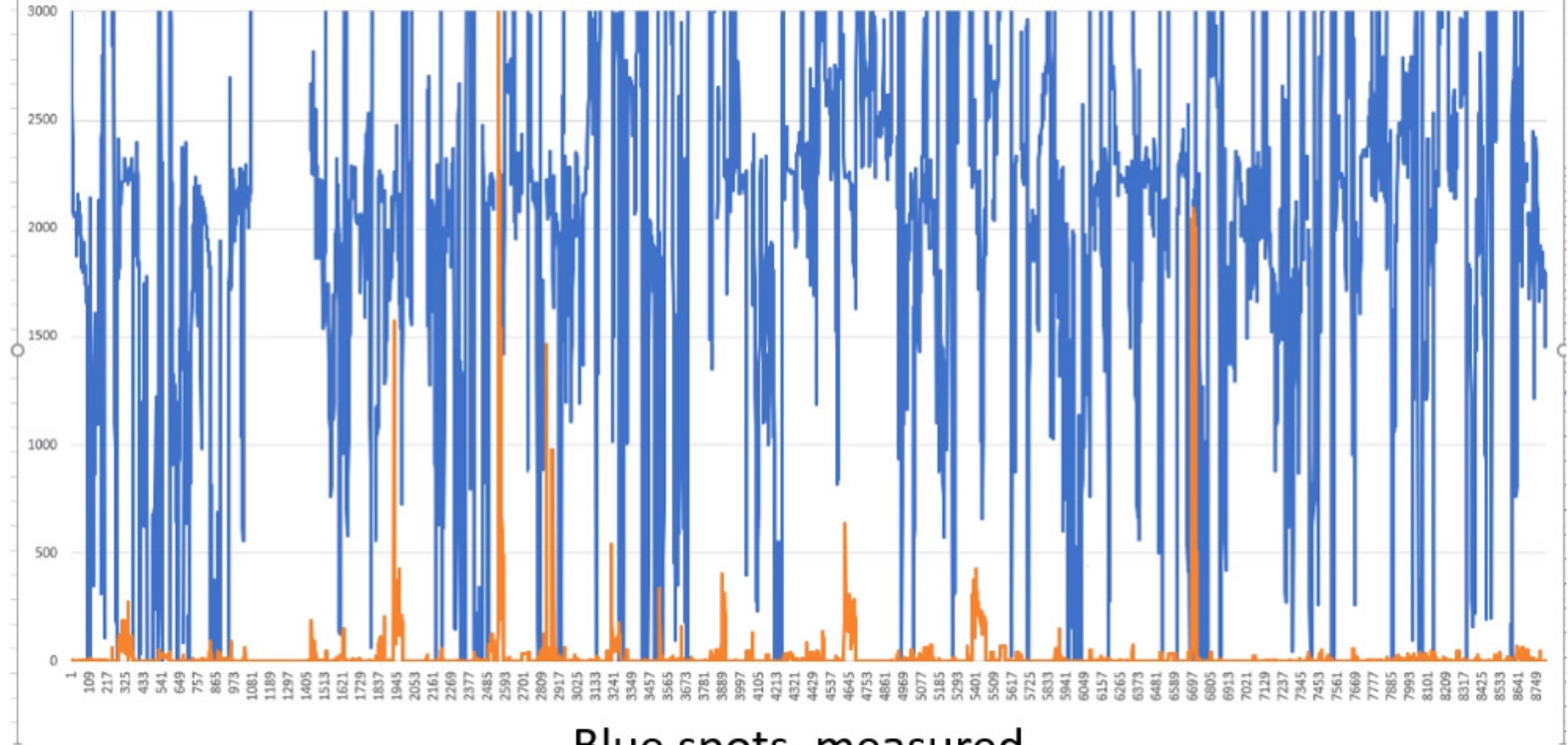
## **A different approach, trying to predict and control spots in paper.**

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No of spots on a  
jumbo reel. >50 mm<sup>2</sup>

## Spots/jumbo reel/hour

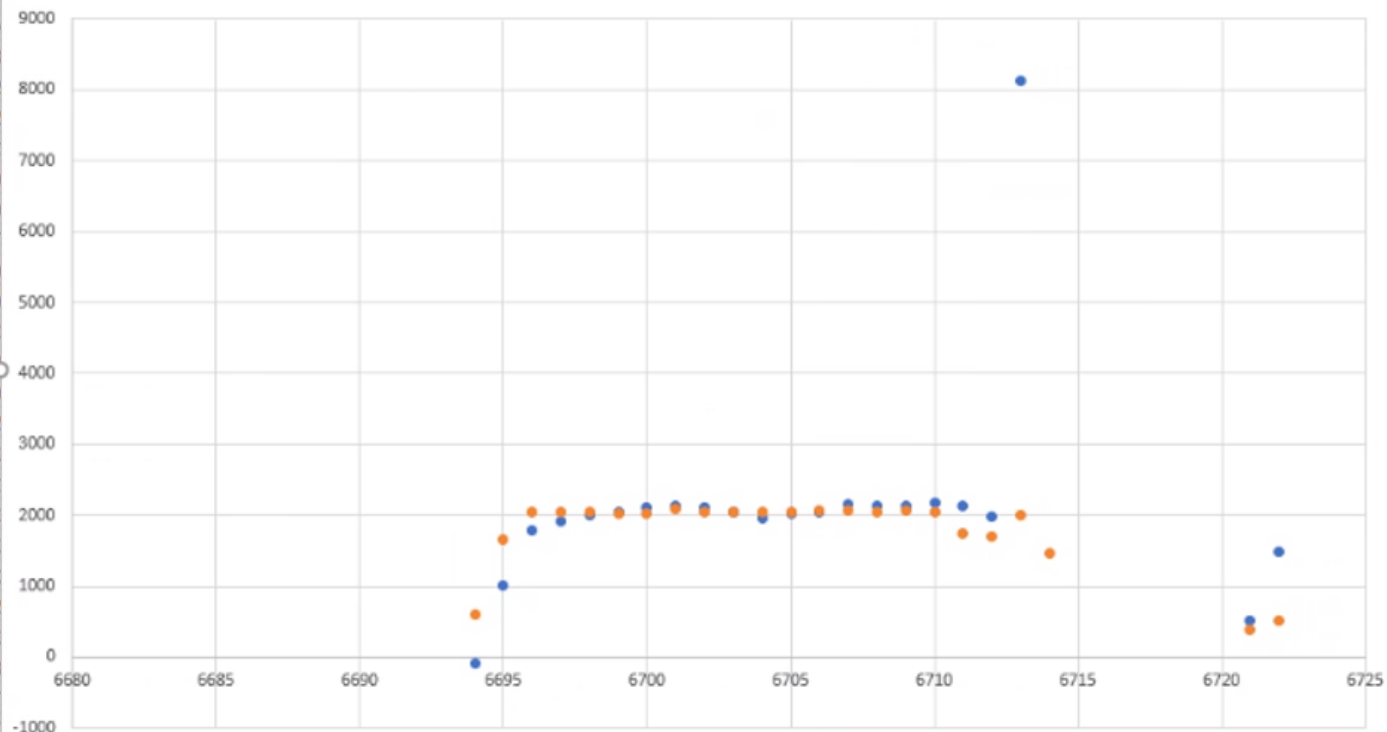


Blue spots, measured



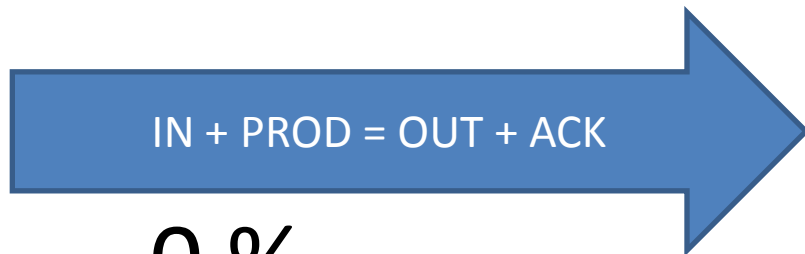
No of spots on a  
jumbo reel. >50 mm<sup>2</sup>

## Spots/jumbo reel/hour

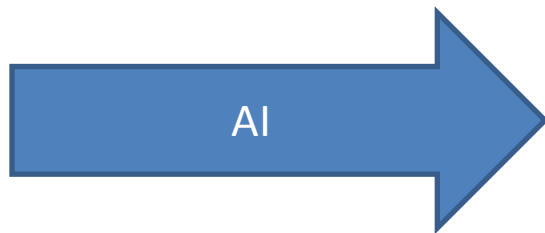


Blue spots, calculated  
Yellow spots, measured



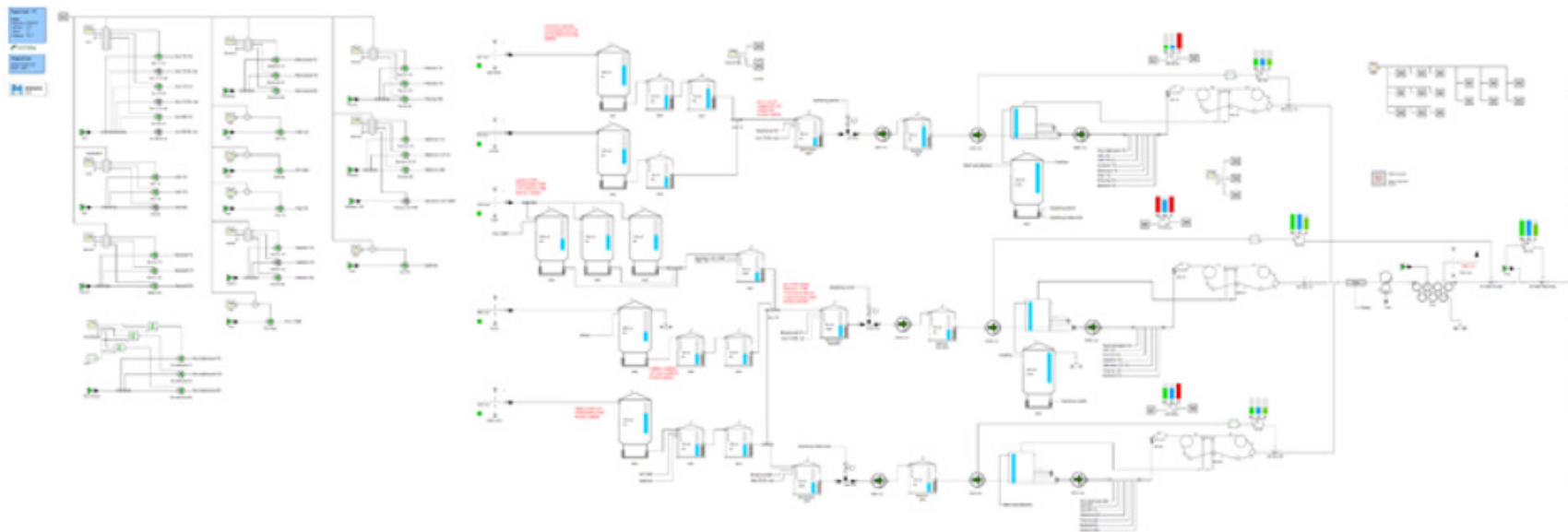


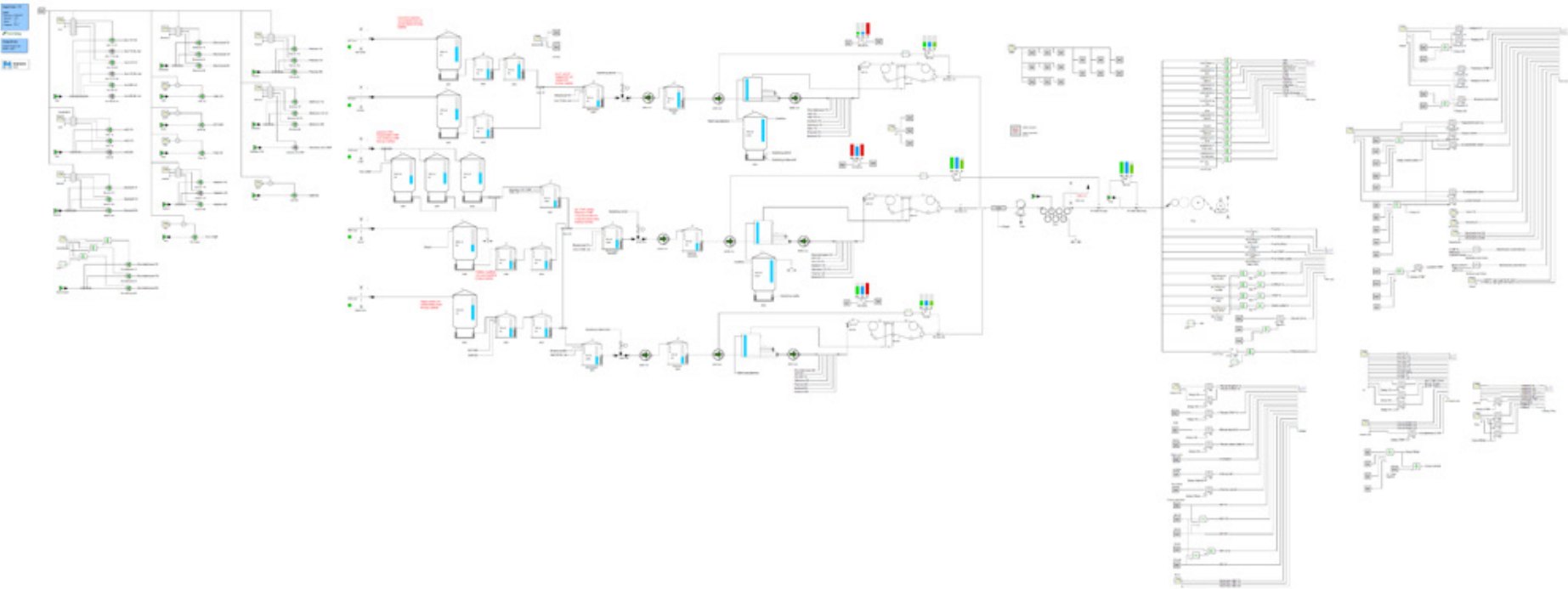
0 %



5 %

68 %



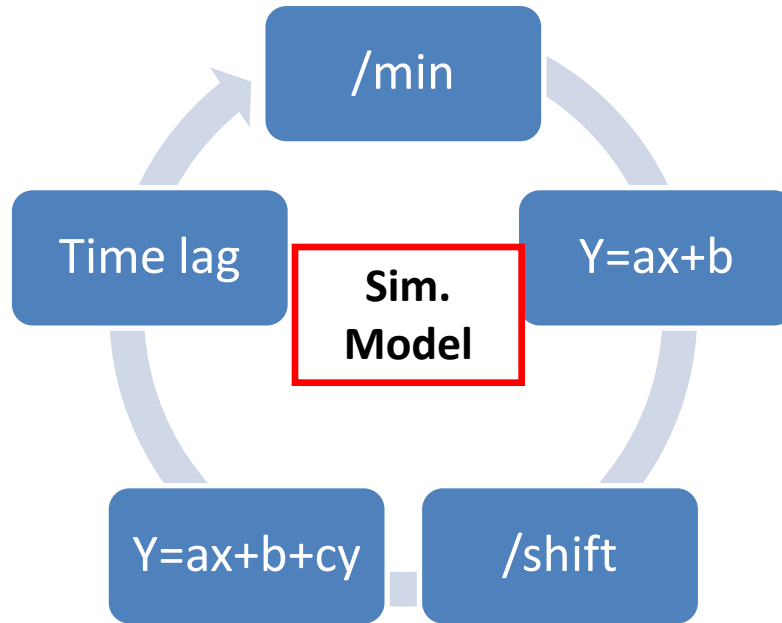


Logarithms  
Exponential



Model build work example.

# Analysing process





No of spots

Machine speed

Grammage

Dosage of ret aid

Temp

Conductivity

No of combinations	Result	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	....	M100
82	>=95 %														
3	<95 %														
45	>=95 %														
23	>=95 %														
41	>=95 %														
59	>=95 %														
55	<95 %														
75	>=95 %														

$$\text{Result} = A + B * Mx + C * My + D * Mz + E * Mw$$

A big number of combinations to be evaluated, ~ 81000

# Conclusions !

- Using a simulation model and AI in combination
  - Gives a useable result
  - Provides direct instructions,
    - "do that"
    - "don't do "
    - "avoid..."

# Conclusion 2

– With the AI system You can analyse everything..

..but to get a statistical proven result, You have to have a very large amount of data.

→ This means, over a long time.

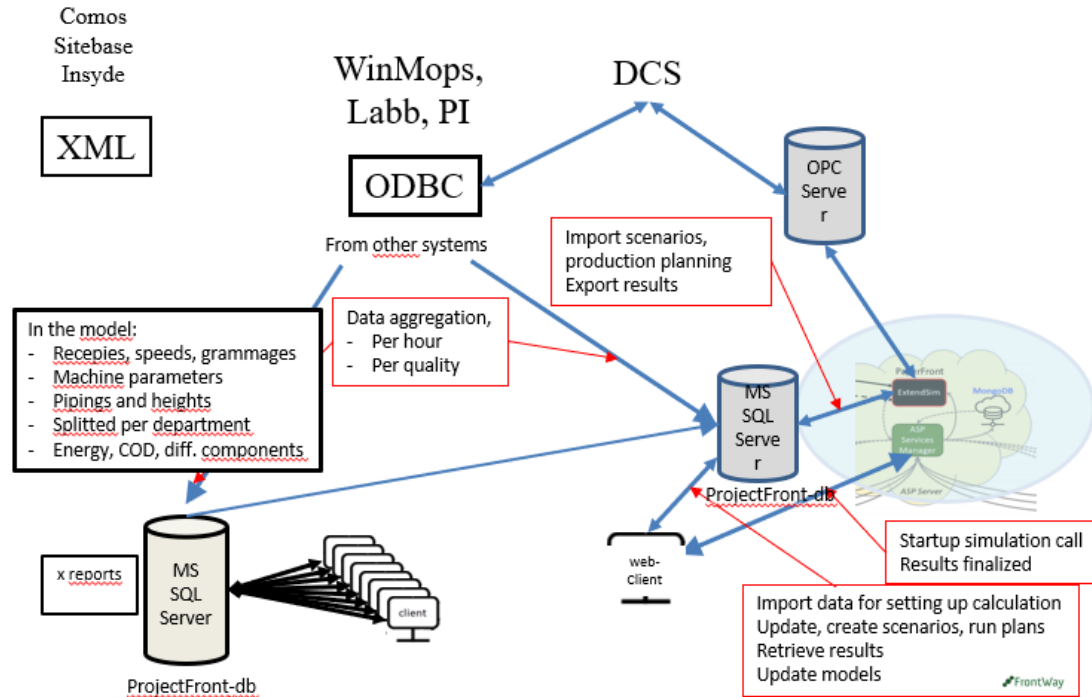
Over a long time, You have made a number of process modifications.

→ this implies that the given model by the AI is of limited value

# Conclusion 3

- The interpretation of the results:
  - Falls back to the core competence from
    - The chemical supplier
      - Focus on "right" area to study
      - What impacts the performance of a chemical?
    - The Mill
      - Has the knowledge of the wet end system
      - Needs to share good data
- A work team is needed, including sim expert.

# Yes, it can this be used on repeat !





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