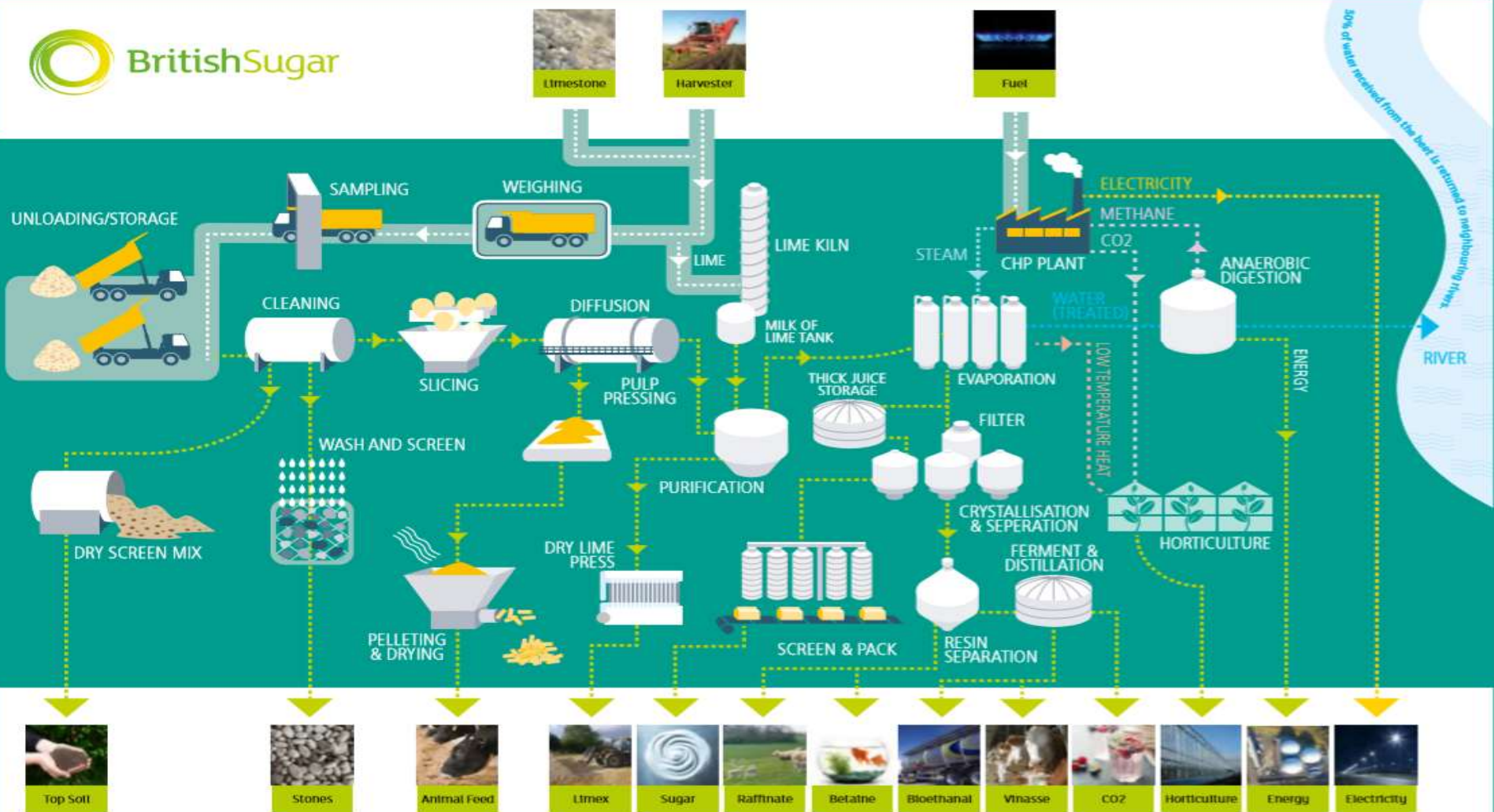


# **Codifying Decision-Making: British Sugar's AI-Driven Operational Framework**

Daniel Simkiss: Smart Supply Chain lead



100 Years Learning how to optimise  
our manufacturing process

Knowledge Drain in Last 10 Years

5 Years to solve it

10 Years to train an expert!

2000  
15 Years

2020  
<7 Years



Advanced Insight  
Centre





Google announces plans to have an AI Agent on “everybody’s desk”



Alpha schools in the US run 2 hours of AI lessons a day

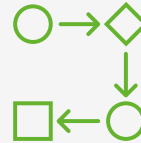


OpenAI is now the most valuable startup ever at ~\$500Billion



## People

Shorter career spans  
reducing institutional  
knowledge creating and  
urgent need for effective  
knowledge capture



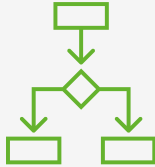
## Process

People centric approach to  
decision making with local  
accountability and central  
expertise. Data drives  
events that drives action.



## Technology

Leveraging recent advances  
in software systems and AI



## Codified

Decisions and knowledge incorporated into the system based on 100 years of learning



## Predictive

Events detected based on codified knowledge used to predict outcomes and allow preventative action



## Prioritised

Events detected based on codified knowledge are prioritised to ensure the most pressing issues are dealt with 1st



## All Sites Water Treatment Overview

AI Assistant

### Bury St Edmunds

95.9% %

COD Removal

Disch. TW

99.9% %

NH3 Removal

Disch. TW

86.3% %

TN Removal

Disch. TW

97.4% %

SS Removal

Disch. TW

13 % Last 24h

Biogas Venting

Redox

Temp

DO

298 m3/hr

SA Discharge

0 m3/hr

Lark Discharge

174 m3/hr

Anaerobic Feed

93 m3/hr

Raw Aerobic Feed

98 m3/hr

Condensate Feed

### Cantley

99.0% %

COD Removal

Disch. TW

99.9% %

NH3 Removal

Disch. TW

81.8% %

TN Removal

Disch. TW

100.0% %

SS Removal

Disch. TW

Redox

Temp

DO

m3/hr

Discharge Flow

m3/hr

Pond System Feed

m3/hr

Raw Aerobic Feed

m3/hr

Condensate Feed

### Newark

94.1 %

COD Removal

Disch. TW

99.9 %

NH3 Removal

Disch. TW

87.7 %

TN Removal

Disch. TW

92.1 %

SS Removal

Disch. TW

20 % Last 24h

Biogas Venting

Redox

Temp

DO

246 m3/hr

Discharge Flow

50 m3/hr

Anaerobic Feed

56 m3/hr

Raw Aerobic Feed

99 m3/hr

Condensate Feed

### Wissington

95.8 %

COD Removal

Disch. TW

99.5 %

NH3 Removal

Disch. TW

83.6 %

TN Removal

Disch. TW

96.8 %

SS Removal

Disch. TW

100 % Last 24h

Biogas Venting

Redox

Temp

DO

298 m3/hr

Discharge Flow

69 m3/hr

Anaerobic Feed

80 m3/hr

Raw Aerobic Feed

197 m3/hr

Condensate Feed





07:00

08:00

Event

Context

History

Documents

Tacit Knowledge



Stock issue  
Breakdown  
Resourcing  
Raw Material  
Price Change  
Demand Shift

Read daily memo

Stored Raw Material  
degraded by 35%  
across 50% of the  
stock

Talk to Sarah

Similar  
incident in  
2016

Find old emails

Previous  
incident report

Search network  
drive

Run @ 120%  
throughput and  
5% loss increase

Run @ 110%  
throughput and  
7% loss increase

Run @ 117%  
throughput and  
2% loss increase

Use 10 Years  
experience to  
augment decision



07:00

07:10

Event

Context

History

Documents

Tacit Knowledge



Stock issue  
Breakdown  
Resourcing  
Raw Material  
Price Change  
Demand Shift

Stored Raw Material  
degraded by 35%  
across 50% of the  
stock

Similar  
incident in  
2016

Previous  
incident report

Run @ 117%  
throughput and  
2% loss increase

AI Summary  
every hour

One stop shop  
AIC

AI event detection

AI corporate  
knowledge  
included

AI Tacit knowledge  
included



07:10

10:00

Decision

Action

Result

Learn



Run @ 117%  
throughput and  
2% loss increase



3% Loss incurred



2% Loss incurred



Future advice  
updated to  
%116%





1 to Many  
= Generic



1 to 1 =  
Tailored



Harvest  
Knowledge



Share  
Knowledge

Thanks to

Seeq

IOTA

IBM

British Sugar Team

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