APPLIED TECHNOLOGY: A NEW ERA TO COME ?

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YOUR MISSION IS TO KEEP IMPROVING CONSTANTLY PRODUCTS AND SERVICES WHICH IN TURN WILL REDUCE COSTS.

W. E. DEMING

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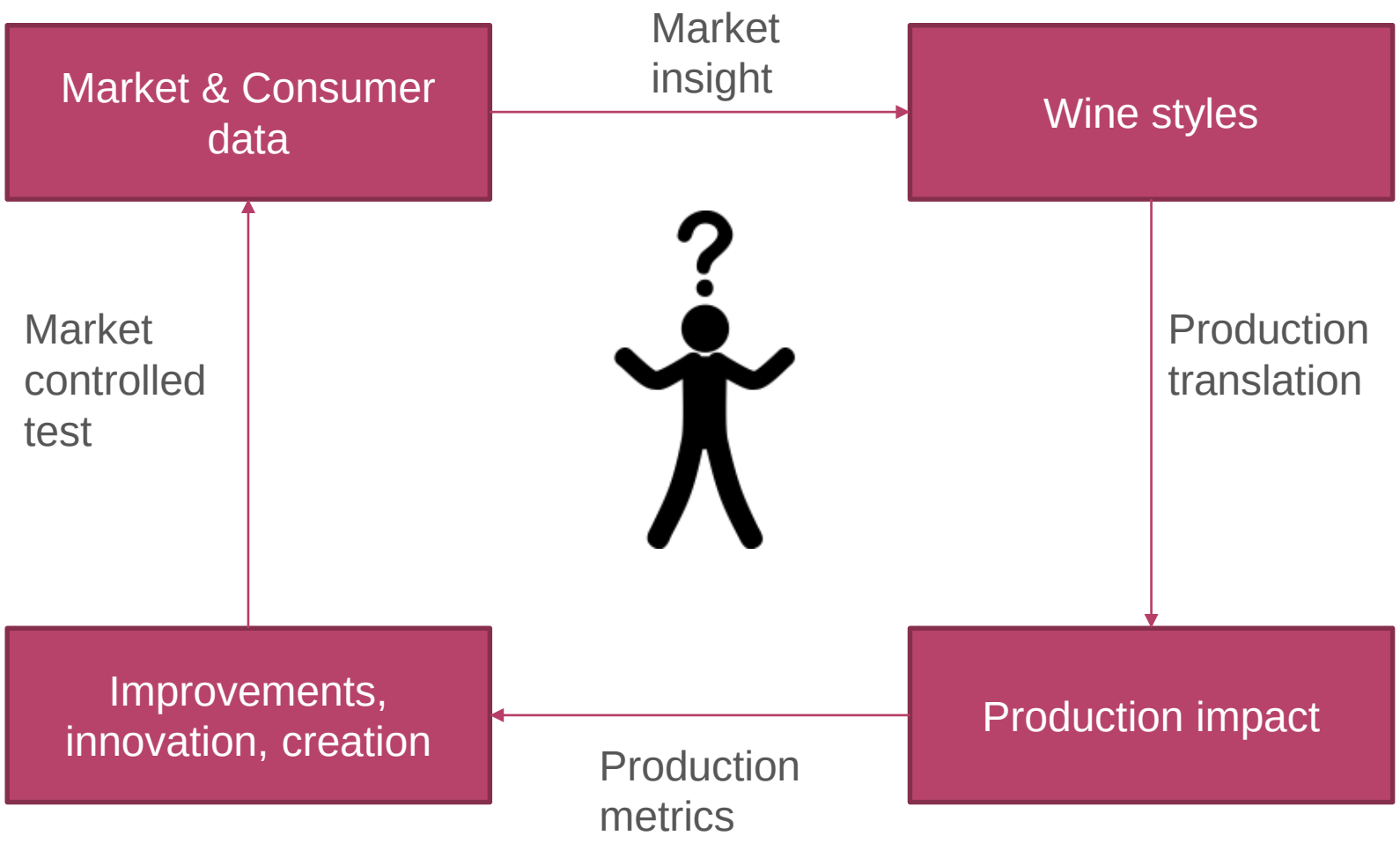
THE GROWING CHALLENGE



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FORECASTING – REVERSE

Aromatics
Sweet
Acids
Astringency
….

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Are you comfortable with your technology, data? Keep improving!

Learning process

Practice

Mastering

Innovation

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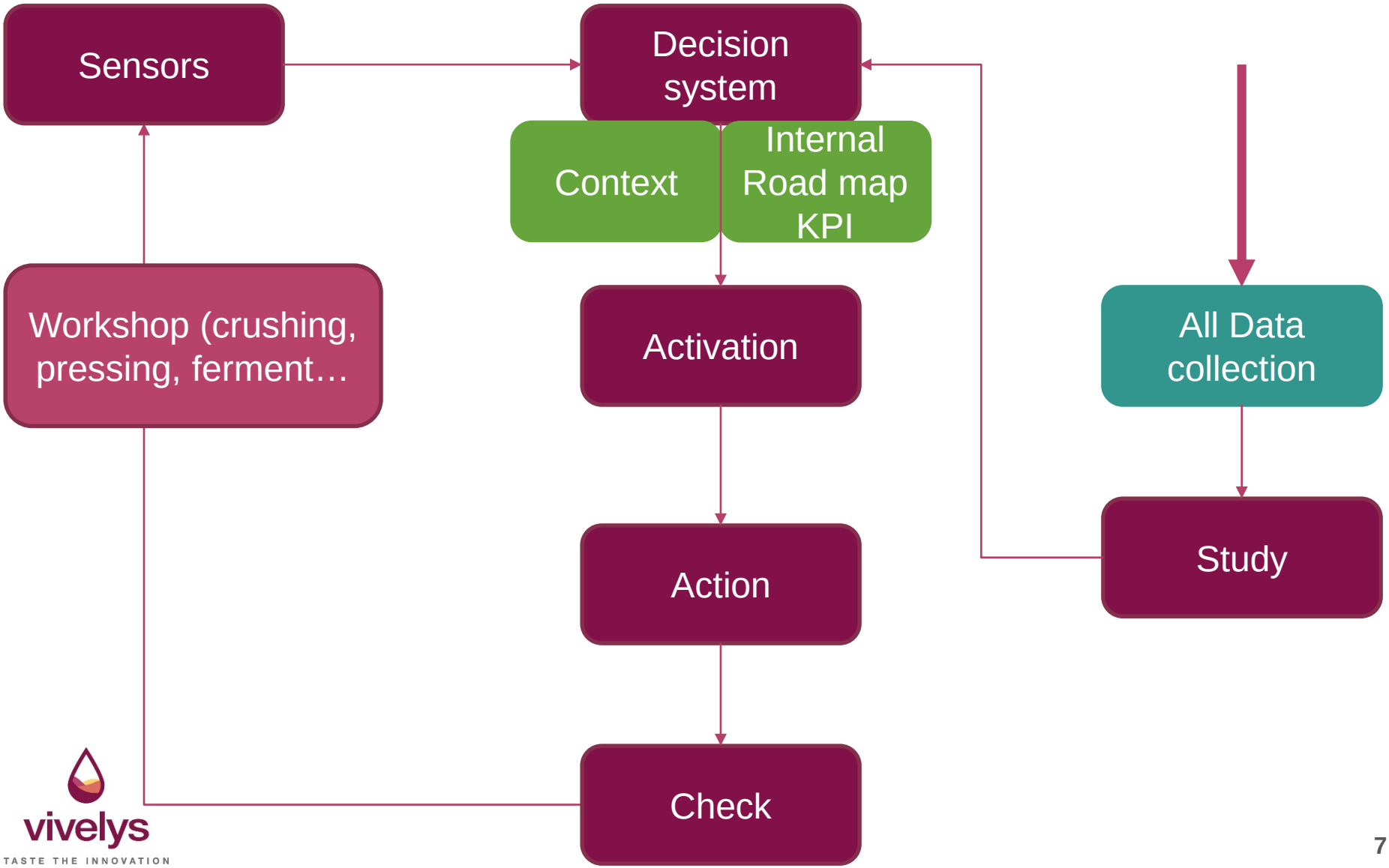
Some Context…

A BRIEF DESCRIPTION OF ANY PRODUCTION WORKSHOP, AND TECHNOLOGY



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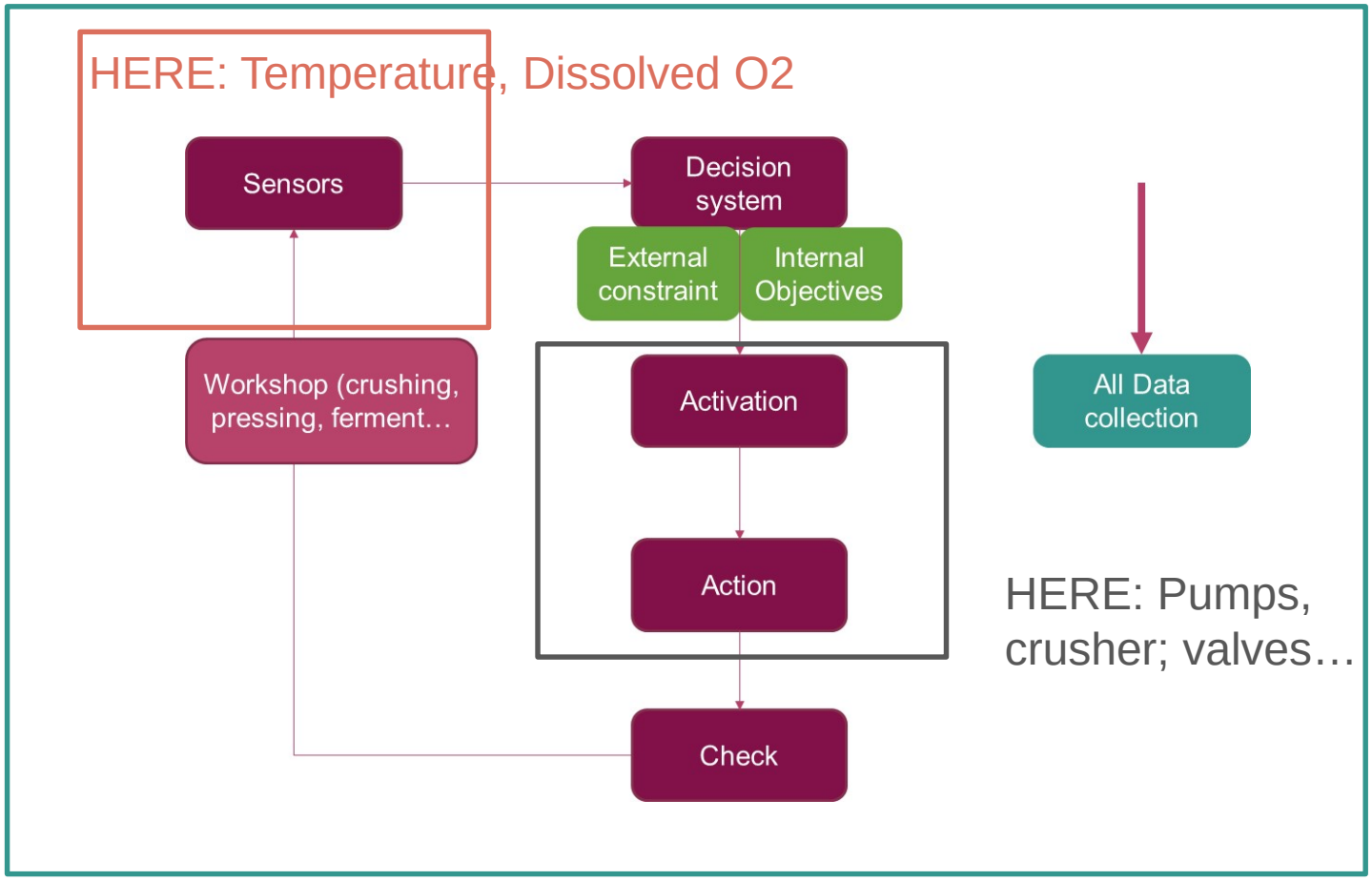
ANY APPLIED TECHNOLOGY CAN BE WORKING IN DIFFERENT PLACES LIKE



HERE: thermoregulation; sorting tables…

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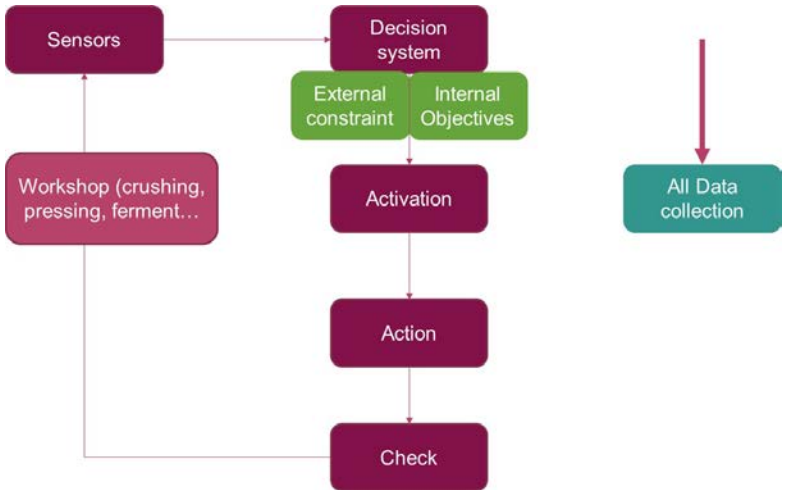
ANY OR ALL OF THIS CAN BE

100% MANUAL

SEMI AUTOMATED

AUTOMATED

CLOCK BASED or
KNOWLEDGE BASED



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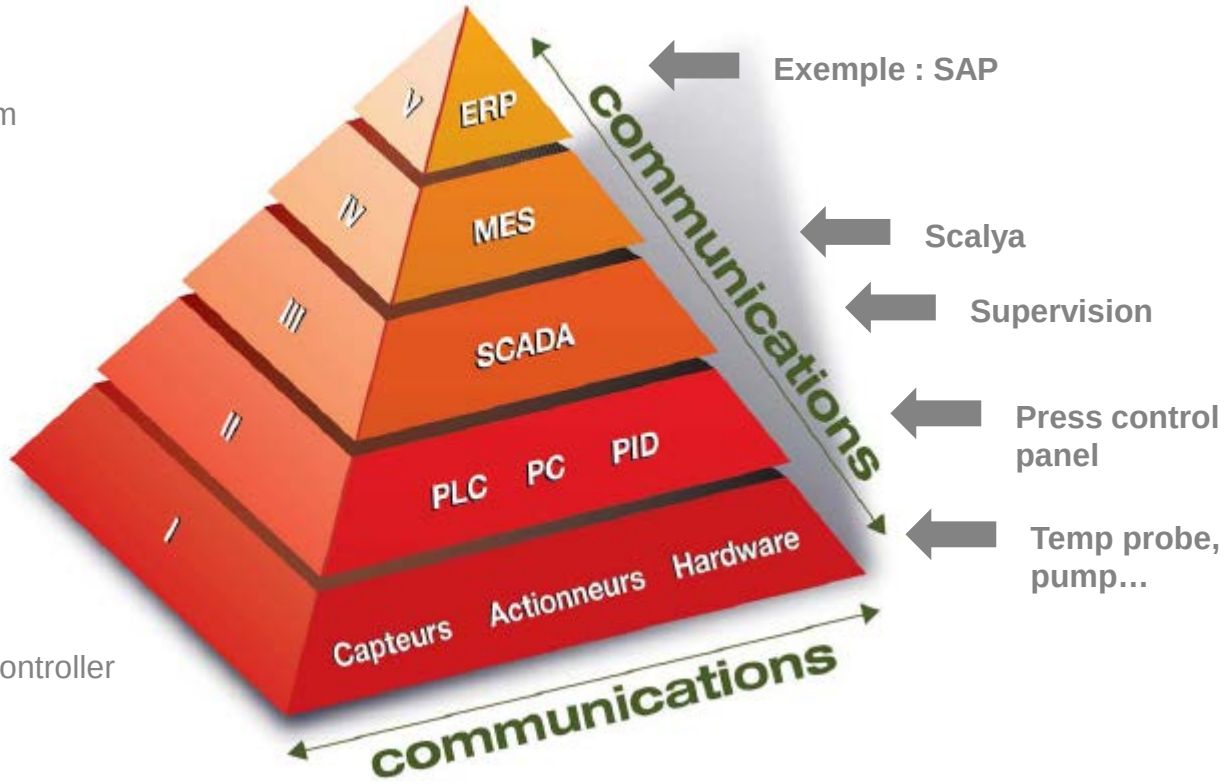
CIM (COMPUTER INTEGRATED MANUFACTURING)

V ERP = Entreprise Resource Planning
Plan all ressources of the company (sales, admin, HR….)

IV MES = Manufacturing Execution System
- Data acquisition
- Scheduling
- Flow charts
- Traceability
- Quality control
- Process management
- Performance analysis
- Document management
- Maintenance management

III SCADA = Supervisory Control And Data Acquisition

II Automate = PLC Programmable Logic Controller



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BEING A SMALL WINERY OR THE LARGEST ONE DOES NOT PREVENT YOU TO ASK :

WHY DO WE NEED IT ?

WHAT DO WE NEED ?

HOW THIS WILL INCORPORATE THE WINERY ? PHISICALLY, PROCESS, HUMAN…

GOING BEYOND ?

WHY DO WE NEED IT ? IN MOST CASES IT WILL BE LINKED TO…

QUALITY ? 

 VOLUME ?

COSTS ? 

 TIME ?

EFFORTS ? 

 ALL ?

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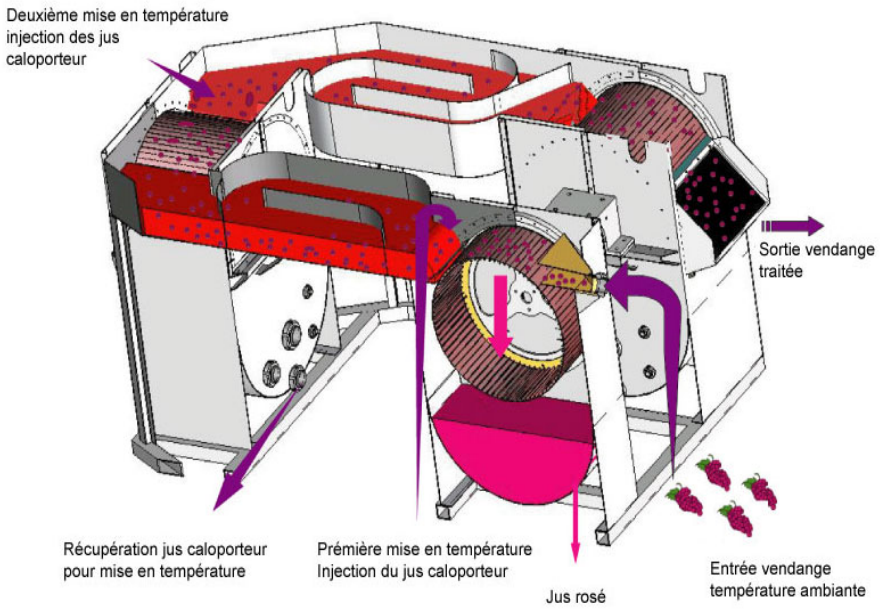
First example around quality– Preventing defects and constant improvement



When grape heating appeared in Europe it was created to correct a defect by destroying Laccase in grape and juices.

Then it appeared to be efficient in evaporating partially pyrazines.

As most of the time a vaccum filter was used behind with little control it ended up with Amilyc wines which flourished for a while

But controlling metrics or when added heated maceration, and or flash and you can now use it in many different ways, solids AF (MPC), AF in liquid phase (Thermo), Thermo-mix….

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FROM 1 PROCESS

Grape reception tank

Heating unit

Pressing

Vaccum filter

AF

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TOO MANY PROCESS

Gra pe

Heating unit	Pressing	Vaccum filter
Heating unit	MPC	AF
Heating unit	1/2Flash	MPC
Heating unit	Flash	Pressing
Heating unit	Pressing	Vaccum filter
Cooling unit	MPF	etc

+ Solids

AF

Amylic | Varietal | Fruity light wine | Structured wine | New ?

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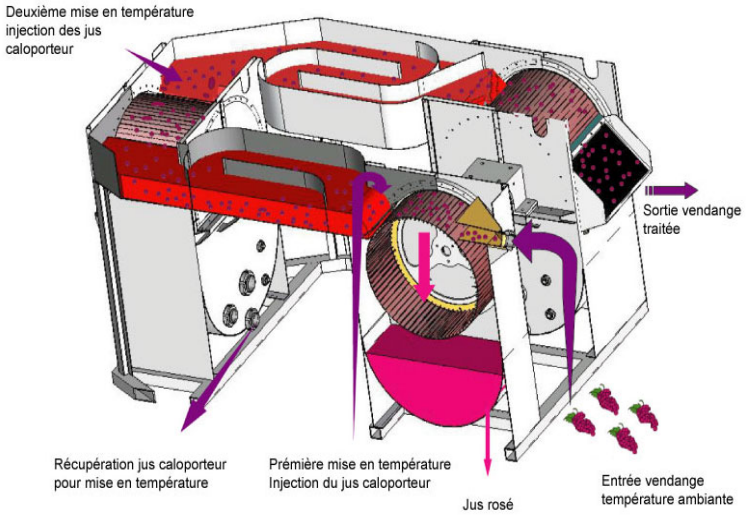
First example around quality– Preventing defects



Immediate technology impact

Knowledge and process impact using the technology

Laccase and pyrazines

Solid AF, Liquid AF, Mix – different wine styles and production efficiency

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WHAT FINAL IMPACT

QUALITY ?

VOLUME ?

COSTS ?

TIME ?

EFFORTS ?

ALL - YES…Hey, things never look that easy

Impact of K$ per year – ROI < 3 y

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Conclusion of first example

A technology can have a primary use for which it has been created but may be applied in very different ways. So, you may be using 20% of the technology.

In order to choose, decide what it good for me, in terms of technology, and process one should look to understand:

What product definition am I looking for ? (Wine style or profile)

What consequences in terms of production from final blend to grape ? (cost, human, …)

Which parameters will help me to reach the final goal and what decision system will help me ?

How will I be more efficient tomorrow ? ROI ?

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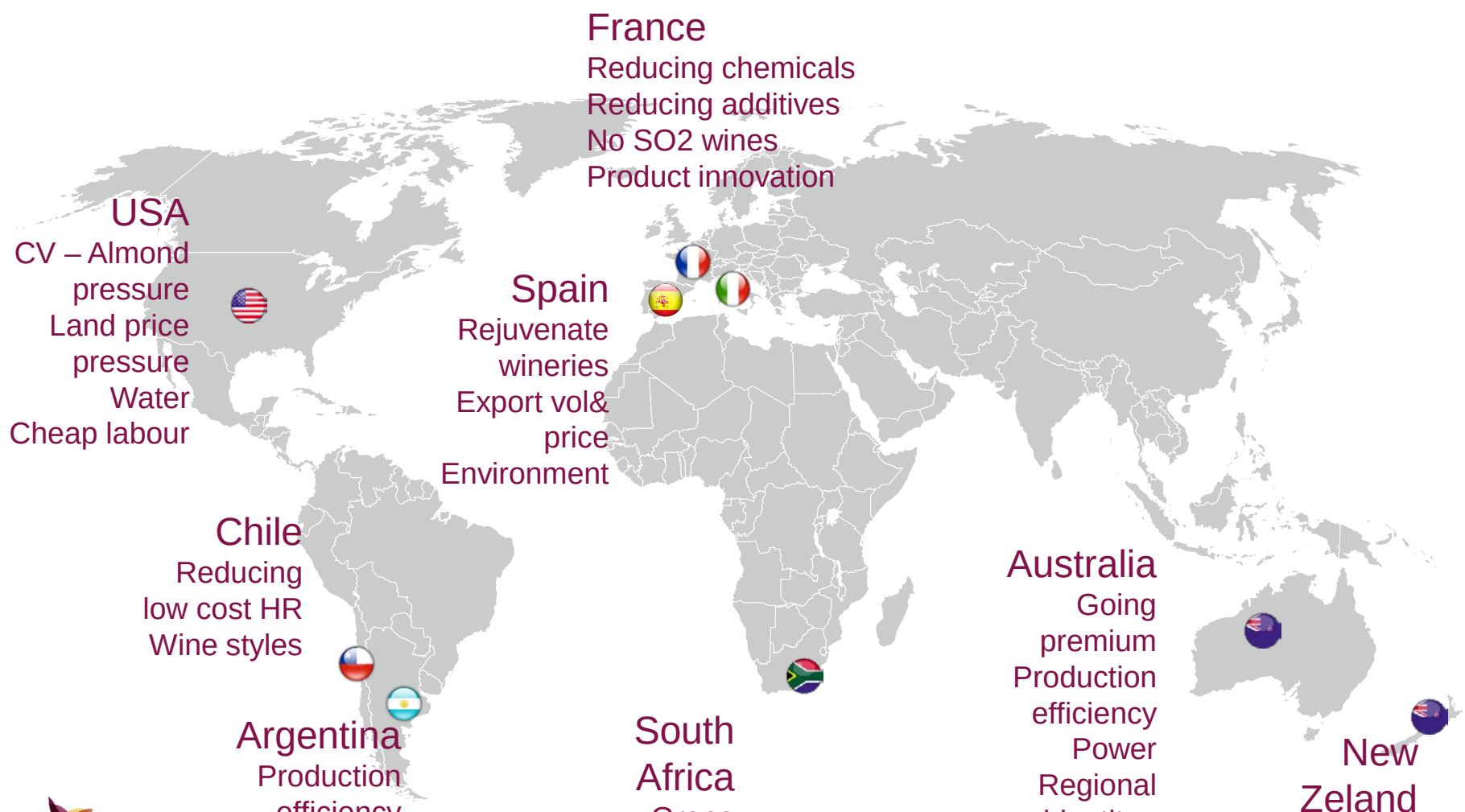
Primary technology functions are often the results of local problems

WORLD CHALLENGES



France
Reducing chemicals
Reducing additives
No SO2 wines
Product innovation

USA
CV – Almond pressure
Land price pressure
Water
Cheap labour

Spain
Rejuvenate wineries
Export vol& price
Environment

Chile
Reducing low cost HR
Wine styles

Argentina
Production efficiency
Refreshning Malbec

South Africa
Grape growers struggling

Australia
Going premium
Production efficiency
Power
Regional identity - terroir

New Zeland
1 style SB dependency

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WINE ECO-ENGINEERING

WORLD CHALLENGES

And everywhere:

Climate change

Consumer awareness

Energy

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WINE ECO-ENGINEERING

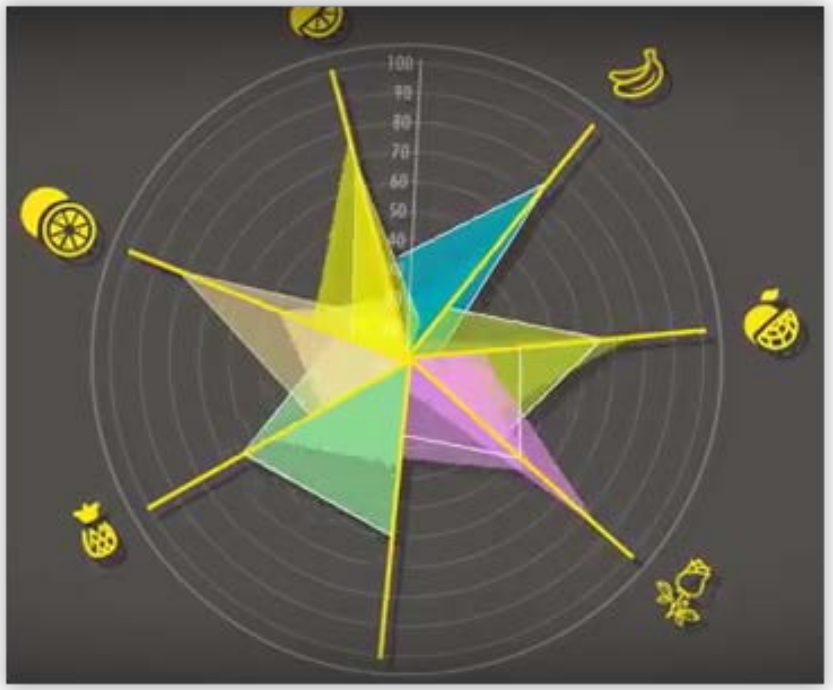
Second example around quality – Marketing to production - Improving products

Context: A fierce European bulk market competition.

A growing pressure on grape growers.

A South- West of France bulk company linking marketing to their production.

A need to create value linking market to production.



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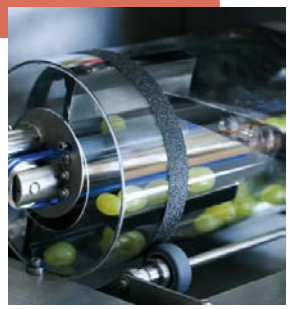
Second example around quality – Marketing to production - Improving quality

This creates a range of SB & Colombard wines on specific wine styles & price range

Harvest management has been key



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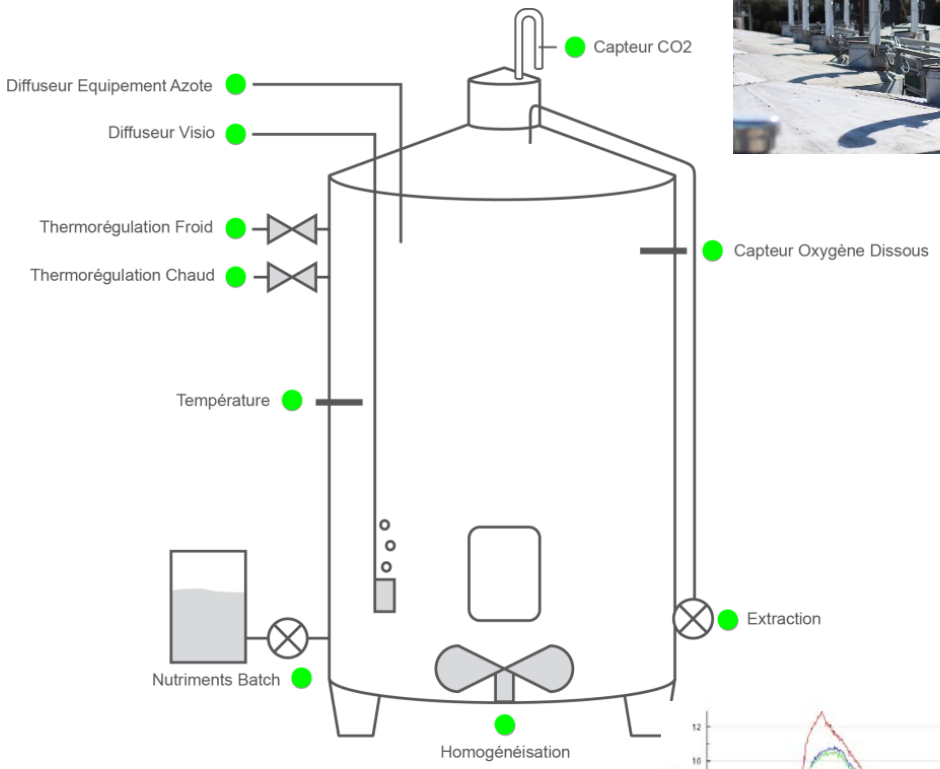
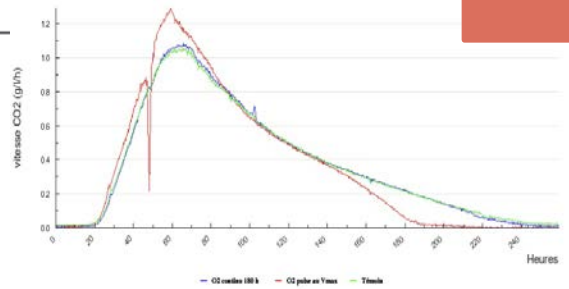
Second example around quality – Marketing to production - Improving quality





AF under strict real time monitoring

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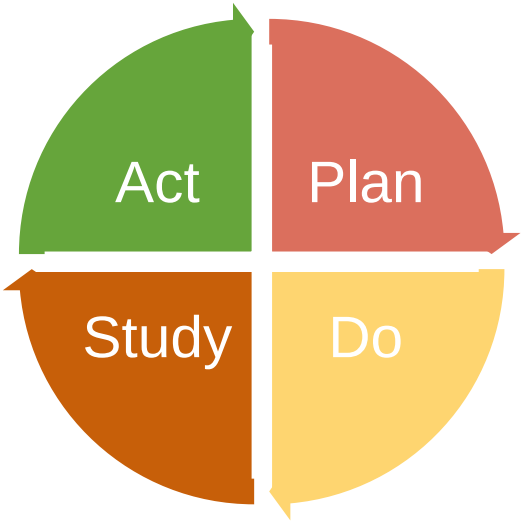
Second example around quality – Marketing to production - Improving quality



			Product goal SauvBlanc (voir standards sensoriels)	Super Premium
			Objectif Technique	Fresh SB varietal flavours Mix process with thiol_fermentative reductive to be applied. Grape class are SL stop at high TAP and harvest D+8 high hue or blocks in SL with thiols hue more advanced. Winemaking proces head on mix of 3MH/ Ac-3MH
1	2	3	4	
Process stage	Mastering	Parameters	System/ tools	
Harvest	Grape characteristics	Maturation physiologique (chgmt/arrêt)	Dyostem	
		Teinte		
		TAP arrêt		
		Elements d'équilibre :		
		TAVP	Mesure chimique	
		AT		
		Nass		
		Etat Sanitaire	Evaluation Terrain	
		Rendement	Pesée	
Reception	-			
Pre ferment maceration	Extraction magt	Mise en œuvre (O/N)		
		T°C de macération	non mesurable	
		Temps de macération		
Pressing	Extraction mgt	Programme pressurage	-	
		Sélection gouttes	-	
Pre ferment work – cold soak	Extraction mgt	Mise en œuvre		
		Temps (j)		
		T° (°C)		
		Turbidité cible (NTU)	Turbidimètre	
		Rendement réelcuve	Pesée	
Af start	Propagation	souche de levure		
		dose		
		concentration cellulaire		
	Aromatic mgt	Turbidité cible (NTU)	Turbidimètre	
	Nitrogen mgt	Nass (mg/L)	Mesure chimique	
		Correction azotée@ levurage (g/Hl)	Surveillance soft Scalya	
		Correction azotée@ Post Vmax (g/Hl)	Surveillance soft Scalya	

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Conclusion of second example

By working together between marketing and production, product definition has been improved. A common internal vocabulary has been created.

By writting down all metrics in production linked to final products, they have been able to improve process.

As a result in some products (whites) they have been able to push yields over 20 to 40% and increase product quality.

They have revised their production management. And they keep improving and innovating….

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Take down barriers between departments – W.E.Deming

Don’t be afraid to change !

An impact on wine production – from vertical

Traceability

Objectives of production
Vineyard data
Grapes analyses
Weather conditions
Logistics

↓

Grapes lots / qualities
Harvest date

Traceability

Objectives of production
Grapes lots / qualities
Reception analyses
Logistics, tasting

↓

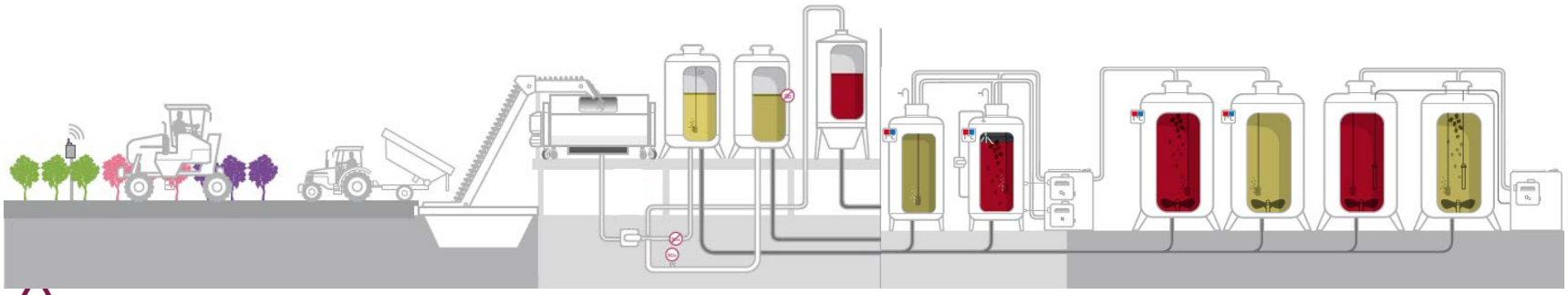
Extraction management
(press programs, juice fraction selection, maceration time)

Fermentation management
(yeast strain, T°C, supply)

Objectives of production
Wine batch/ quality
Wine analyses
Marketing
Tasting

↓

Ageing management
(T°C, O2, oak, lees)



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To transversal. Need of MES, and later ERP

ERP

Organising, simulating, planning, coordinating global process

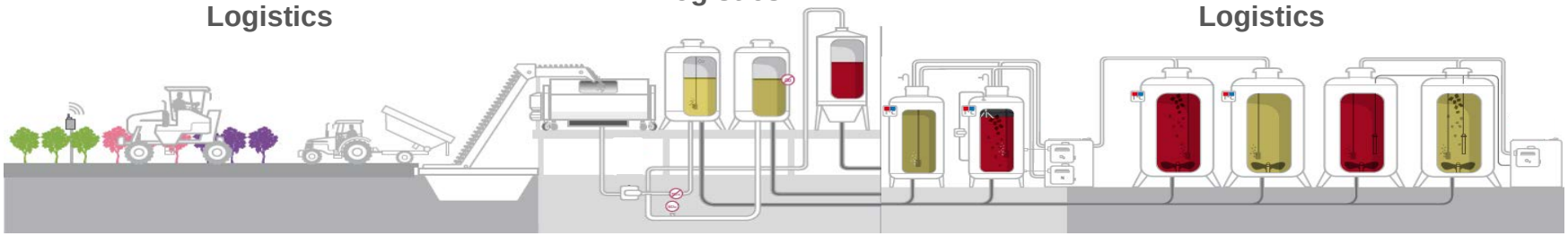
M.E.S.

Collecting data. Applying decision rules

Vineyard data
Grapes analyses
Weather conditions
Logistics

Analytic data
Process data
Logistics

Analytic data
Process data
Tasting data
Logistics



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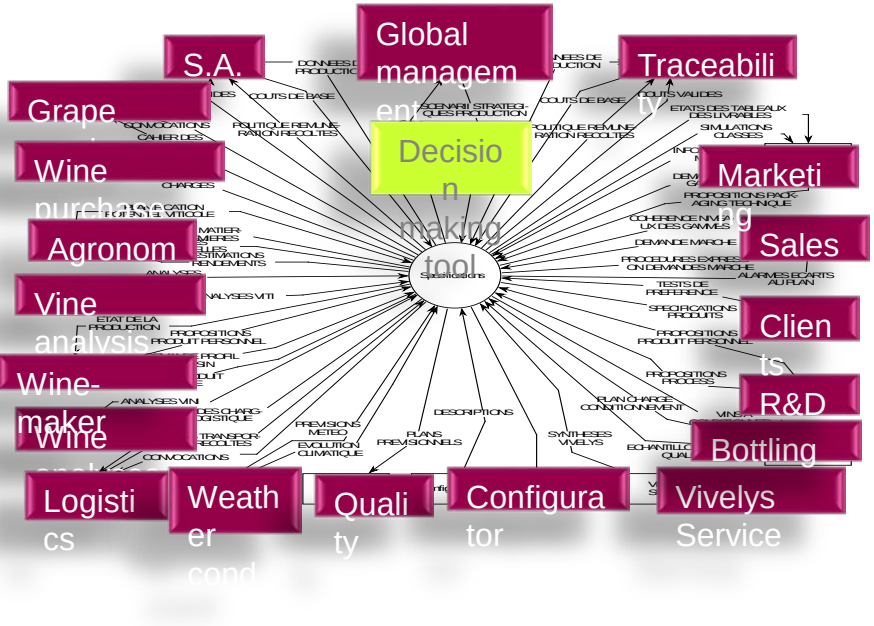
And tomorrow !

TOMORROW



ERP

& later Numerical Humanity !!

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CONCLUSION 1

LEARNING

MEASURING

ALLIANCE

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CONCLUSION 2

WHAT ABOUT TERROIR ?

IS IT WORTH IT $WISE ?

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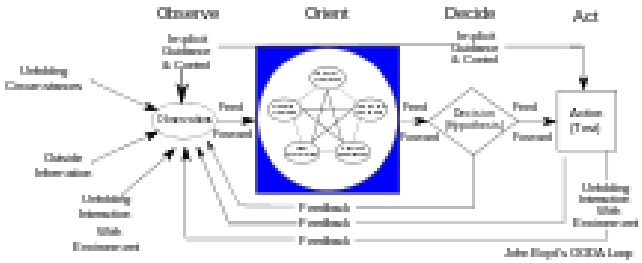
CONCLUSION 3 - SOME REFERENCES…

John Boyd – OODA loop



W.E. DEMING – The 14 Key principles/ 7 deadly diseases.

Walter A. Shewhart – PDCA/ PDSA

Raymond Vaillancourt – About uncertainty and changement
(french sorry ! And from Quebec even tougher !)

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ALONE YOU WILL GO FASTER,
TOGETHER WE WILL GO FURTHER.

African Expression

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THANKS !!

THOMAS@VIVELYS.COM

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