SMECluster Event 4 C2NET Project

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Company in brief

World Class Provider for Intelligent, Environmentally Sustainable Hydraulic and Lubrication Solutions

- Component supplier & independent system integrator
- Over 40 years' experience in fluid automation solutions
- Own modular platforms
 - Hydraulic and Oil lubrication systems
 - Control and monitoring
- Employees ~30
- Turnover 2015: ~5,5 m €
- Ownership: Operative management and person investors







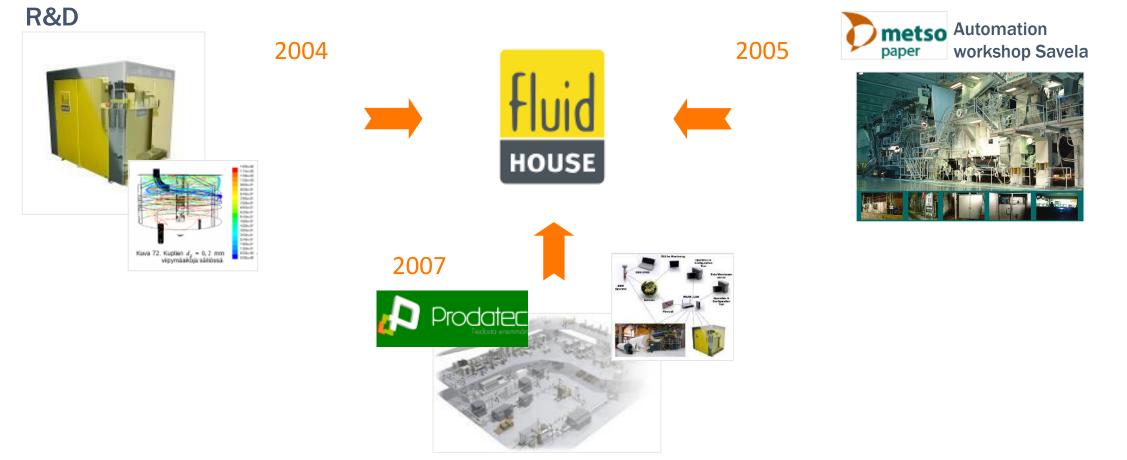
Representative office



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Background and history



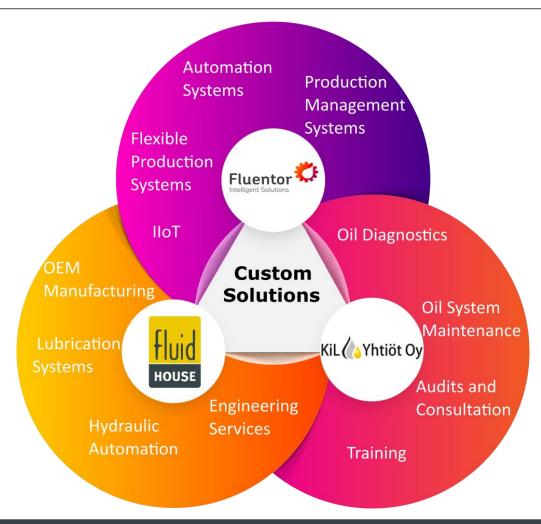


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Currently

www.fluidhouse.fi



- Fluentor Oy is our parent company.
- Kil Yhtiöt Oy is our sister company.

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• We provide solutions independently or together as it becomes necessary.



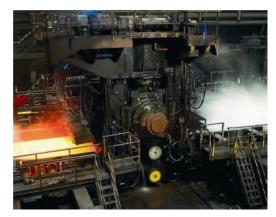
Typical applications for our solutions



Pulp & Paper machines



Turbines



Steel making machines



Motors, generators and gearboxes







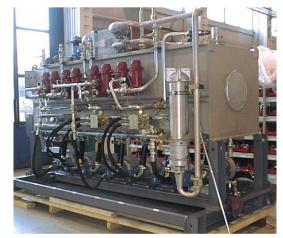
Deck machinery



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Hydraulic and lubrication systems









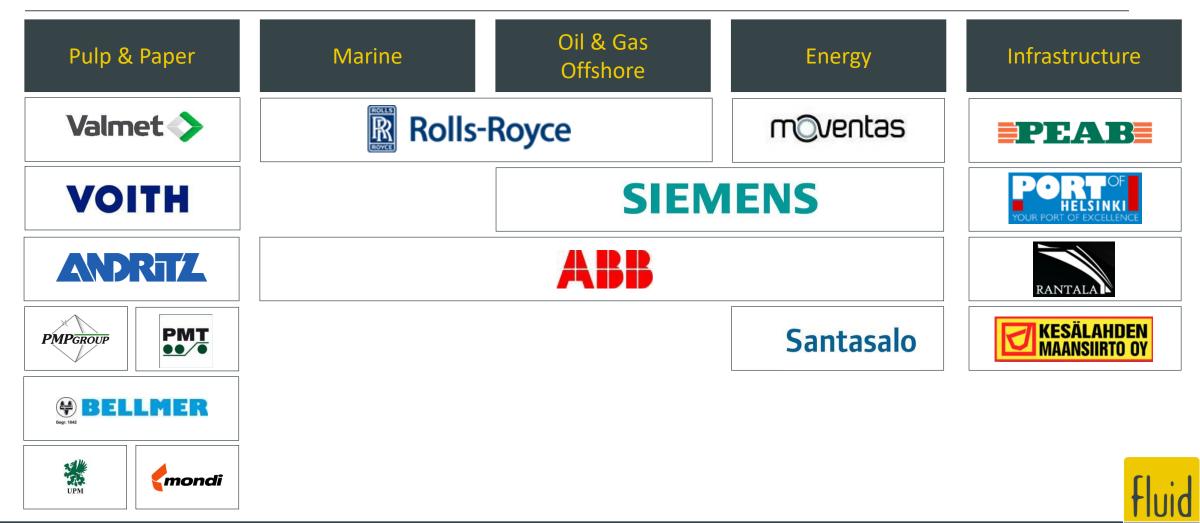








Key customers and market sectors





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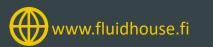
Other customers



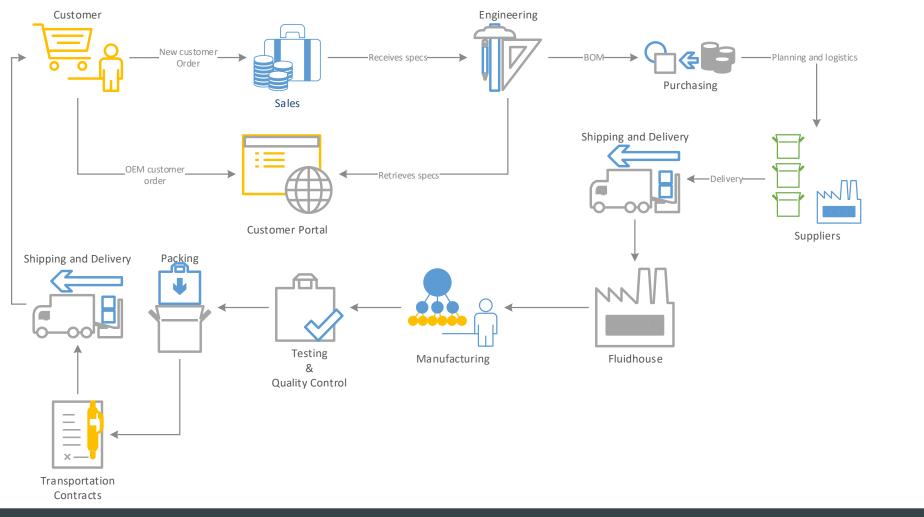








Our supply chain





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Current areas of opportunity

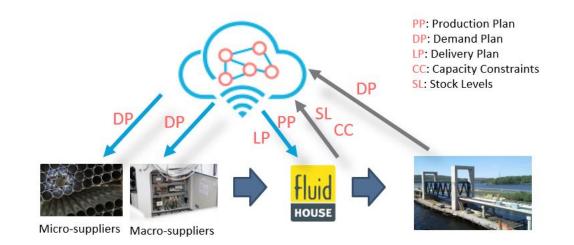
- Micro/Macro supplier supply chain system differences.
- Delays and problems with On Time Delivery (OTD).
- Lack of standard interface and communication systems between customers and suppliers.
- Scheduling problems due to lack of forecast capabilities.
- Internal processes rely heavily on old technologies (Excel, BAAN IV, etc.)
- Orders are managed in a personal manner depending on who the customer and the handler are.



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C2NET pilot and its relevance to our work

- Secure cloud-based storage and management of critical data, such as purchasing, production plans, customer order data status, etc.
- Sharing of relevant production data with customers and suppliers
- Accesibility of production data anywhere and at anytime with strong visibility of useful data and awareness of the real-time situation
- Optimisation of planning and production activities and enhancement of data availability to Fluidhouse and its partners.





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Pilot use cases as real-life situations

Fluidhouse's pilot has 3 use cases it seeks to test under the C2NET framework:

- Use case 1: Inquiry, quotation and order reception planning Focuses on the initial parts of the SCM process
- Use case 2: Management of production planning Focuses on the planning and optimization of production
- Use case 3: Optimization of information accessibility in material purchasing planning

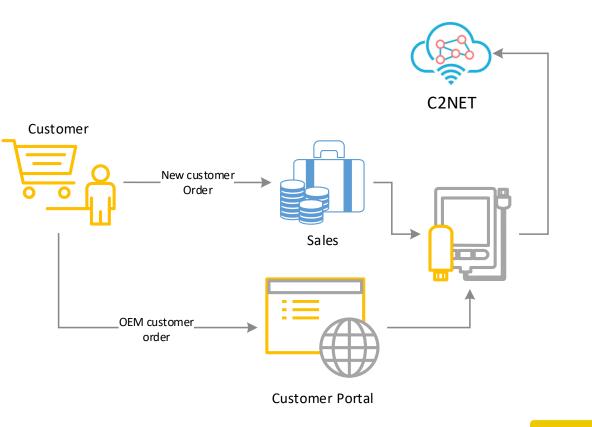
Focuses on the monitoring of data availability of pending purchases





Use case 1 – Inquiry, quotation and ordering

- Order data becomes available for visualization to all relevant parties via C2NET.
- Status changes, issues and anything that may arise can trigger notifications.
- With future developments eligible customers the inquiry, quotation and ordering process will eventually be possible via C2NET.

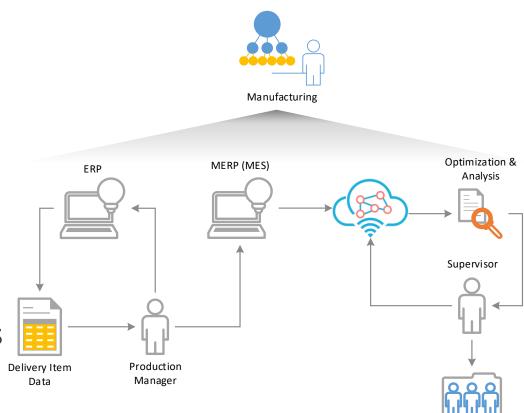






Use case 2 – Production planning (1)

- This scenario focuses more on internal processes.
- C2NET provides schedule optimization to guarantee latest start date, and acceptable OTD.
- Production status information is made available to customers.
- The constant monitoring and notification of status changes enables better response times.
- General increase in visibility and transparency.



Resource Allocation, Production Plan

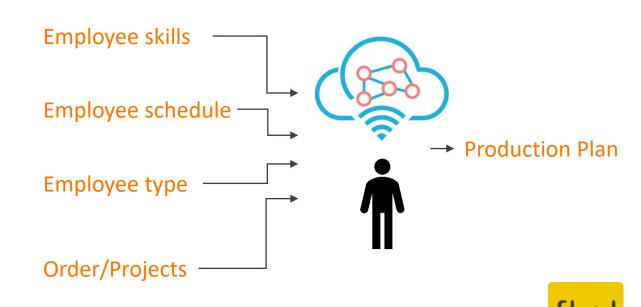


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Use case 2 – Production planning (2)

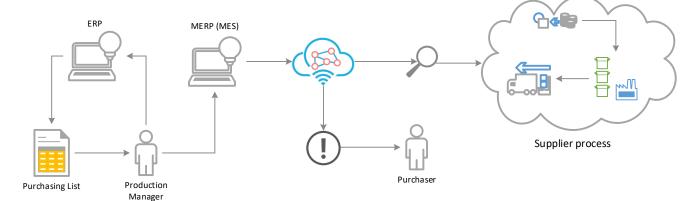
- Mixed-Integer Linear Programming (MILP) model for the scheduling of production and human resource.
- Distributes the work load of production operations among available workers, matching their skills.
- Model features:
 - It treats delivery dates as hard constraints, no late deliveries are allowed.
 - It allows overtime / hiring temporary external workers
 - As the primary sub-objective, it minimizes such overtime/external hire cost.





Use case 3 – Purchasing planning

- C2NET functions as a monitoring support for delayed deliveries.
- Powerful tool for the purchasing personnel.
- Future iterations may include inquiry management and negotiation of deliveries.







Dataset view on C2NET platform

NRD	OPTIMISATION	COLLABORATIO	N SETTINGS	ADMIN	
	Datasets				
	Network		Company		NEW
	Pilot 4		Fluidbouse		DELETE
	Show 10 • entries		Search:		
	DataBase Name	Table Name	Creation Date	1	FIELDS
	C6	Person_Period	2017-05-16710.41.20.000Z		MAPPING RULES
	C6	Order	2017-05-16T10-41-20.000Z		VISUALIZE/EDIT
	C6	Order_Part	2017-05-16T10:41:20.000Z		Select chart
	C6	Customer	2017-05-16T10:41:20.000Z		Select chart Customer Ordens
	C6	Customer_Order	2017-05-16T10.41.20.000Z		Suppler Orden Open Customel-Orders
	C6	Supplier	2017-05-16T10:41:20.000Z		Open Supplier Orders
	C6	Supplier_Order	2017-05-16T10.41.20.000Z		
	C6	Production_Production	2017-05-16T10/41/20.000Z		
	C6	Order_Part_Production	2017-05-16710.41.20.0002		
	Showing 11 to 19 of 19 entries		First Previous 1 2	Next Last	

Acknowledgement Licence Agreement Contacts

The goal of C2NET Project is the creation of cloud-enabled tools for supporting the SIMEs supply network optimization of manufacturing and logistic assets based on collaborative demand, production and delivery plans. C2NET will be designed to comprehensively cover the entire supply chain considering all stages of manufacturing, distribution and sales to supply a product to market.





Customer orders (use case 1)

RD	OPTIMISATION	COLLABO	RATION	SETTINGS	ADMIN	
		Customer Orders				
		Customer Orbers				
			ApriMay 2(June 2 July 20Au	gus/SepterOctobiNovenDecem/an	uar Febru-March April 2May 20une 2July	
		Order: Part	111122222222223333	3333334444444444555512	3456789111111111222222222	
		201021: FLUIDCIRC 1200-DS lube	1 (Delivered)		N	
		201021: FLOW METER CABINET	4 (Delivered)			
		201026: FLUIDCIRC 2000-DS lube	1 (Delivered)			
		201026: BACK PUMP STATION 63L	5 (Delivered)			
		201065: FLUIDCIRC 800-DS lube			1 (Kitting Done)	
		201065: FLOWMETER SR,flowmeter			1 (Kitting Done)	
		201071: BACK PUMP STATION 63L			1 (Kitting Done)	
		201071: FLUIDCIRC LU 6000 DS			1 (Kitting Done)	

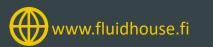


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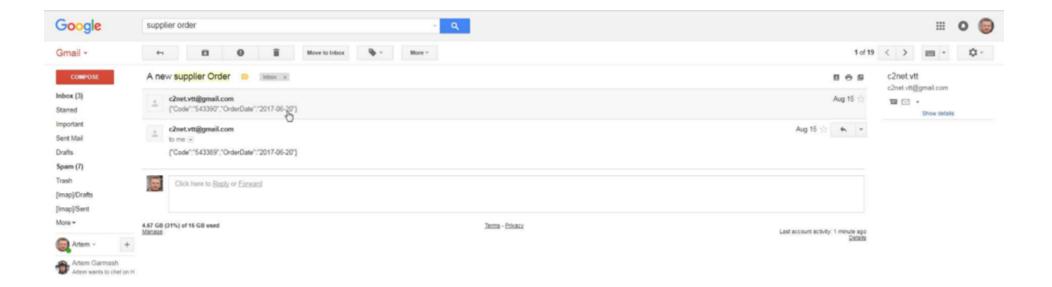
Supplier purchase orders (use case 3)

60 001	IMISATION COLLABORATION	SETTINGS	ADMIN					
	Supplier Purchase Orders	NovemDecembeJanuary 2FebruaryMarch 20April 201May 2	Saver and the second					o a o 📰 🖉
	Order: Part	447464555352511 2 3 4 5 6 7 8 9 101112151+151617181520	PLANA MANAGEMENT	OPTIMISATION			ADMIN	
	541378: LOHKO	1 of 1		Supplier Purchase Or	rders			
	541378: RYHMÄ, PERUSLEVY NS10+4xN56	lofi						
	541543: BLOCK NS25(DBET6X) + DRE6	Tel Contraction of Co			April 201		July 2017 August 2017	
	541543: PRECONTROL BLOCK 01	141		Order: Part	A REAL PROPERTY OF A READ REAL PROPERTY OF A REAL P	18 19 20 21 22 23 24 25	26 27 28 29 30 31 32 33 34	
	541890: BLOCK NS32(P/Q)+1xNS25(DBET6X)	1 of 1		542668: PRECONTI	532(P/Q)+2xNS25(DBET6X)	1443		
	541890: PRECONTROL BLOCK 01	2 of 2			532(P/Q)+2xNS25(DBET6X)	57		
	542107: PERUSLEVY			542716: PRECIONTI	And the second	0		
	542107: PERUSLEVY, VÄ, LILAATTA CE5	6.65		542761: SUBPLATE		0 of 3		
	542122: CHECK VALVE BLOCK, 2 VALVES	1 of 1		542769: SUBPLATE		0.012		
	542122: LOHKO 2xPR.RELIEF	1 of 1		542769: SUBPLATE	NG6*5	0 at 1		
	542122: SUBPLATE NG6*2	1 of 1		543125: BLOCK NS	532(P/Q)+1xNS25(DBET6X)	No. 19	0 of 2	
	542122: SUBPLATE NG10*1	1 of 1		543125: PRECONT	ROL BLOCK 01		0 of 4	
	542122: SUBPLATE NG6*3	2 of 2		543378: SUBPLATE	NG6*2		0 of 1	
	542122: SUBPLATE NG10*2	2 of 2		543378: SUBPLATE	NG10*2		0 of 1	
	542122: LOHKO	1 of 1						
	542122: LOHKO 2xPR.RELIEF+2xSHUTTLE	1 of 1						
	542463: LOHKO							
	542463: LUBRICATION BLOCK G+B+B+Mang.v							
	542463: SUBPLATE NG6*2							
	542463: CHECK VALVE BLOCK, 2							
	542512: BLOCK.N532(P/Q)+1xN525(D8ET6X)	1011						
	542512: PRECONTROL BLOCK 01	2 of 2						
	542668: BLOCK NS32(P/Q)+2xNS25(D8ET6X)		Act (1)					





Notifications (by e-mail)





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So? Does it work and is it worth it?

- In short, yes. While not yet perfect and fully functional C2NET has already helped us in the following ways:
 - The production plan optimization scenario has provided hard-data on long perceived areas of opportunity in the relationship between resources and workload.
 - The development of data imports/exports to/from our MERP system have started an analysis of our internal processes. This in turn will make it easier to integrate our PDM system and change to a new ERP in the coming years.
 - The supplier monitoring scenario has likewise provided ideas of how to approach this very real issue that needs to be addressed ASAP.
 - The UI developments made in C2NET, while currently limited, open the path to further analysis of what data needs to be shared between relevant parties in our supply chain.



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The future of C2NET and what it can do for us

- Enhance and overall improve our business relationships with both customers and suppliers.
- Help us standardize and better evaluate what kind of suppliers we want to collaborate with.
- Standardize plans and datasets so that they are easier to integrate with multiple legacy systems.
- Involve customers and suppliers in the C2NET platform so we can fully benefit from the collaboration features it offers.





Questions?

Thank you for your attention



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