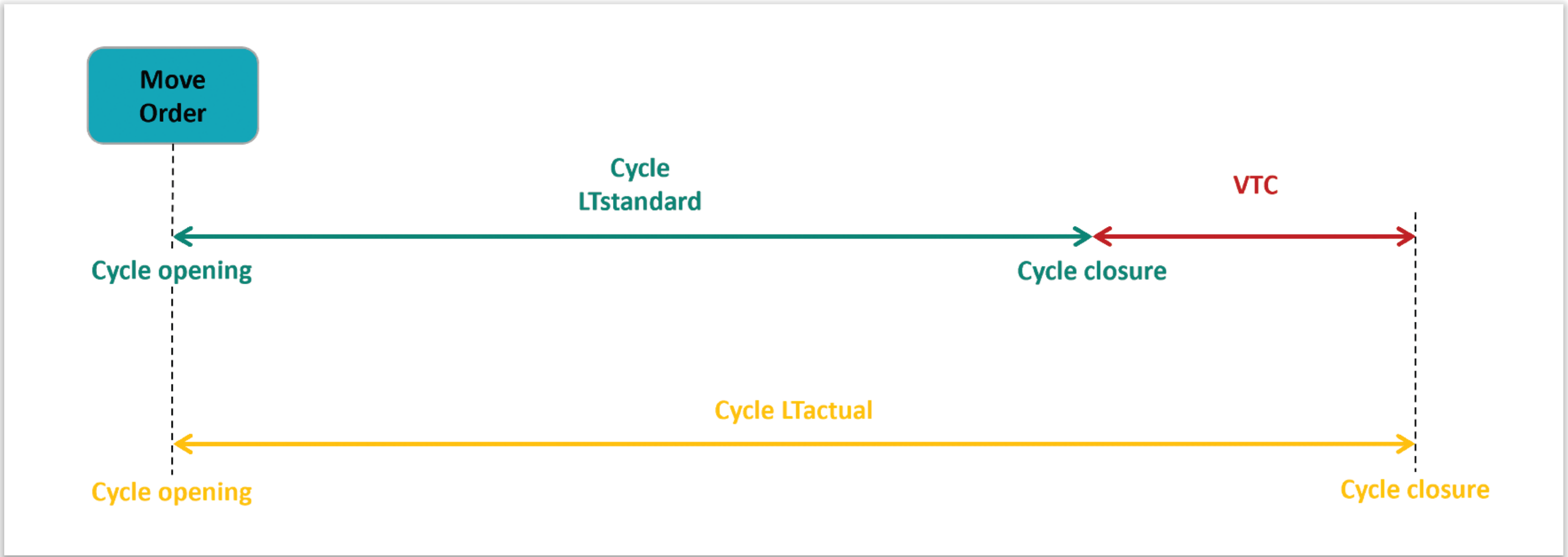


Master Thesis in Business Engineering

New procedure implementation for assembly line feeding
A Baker Hughes case study



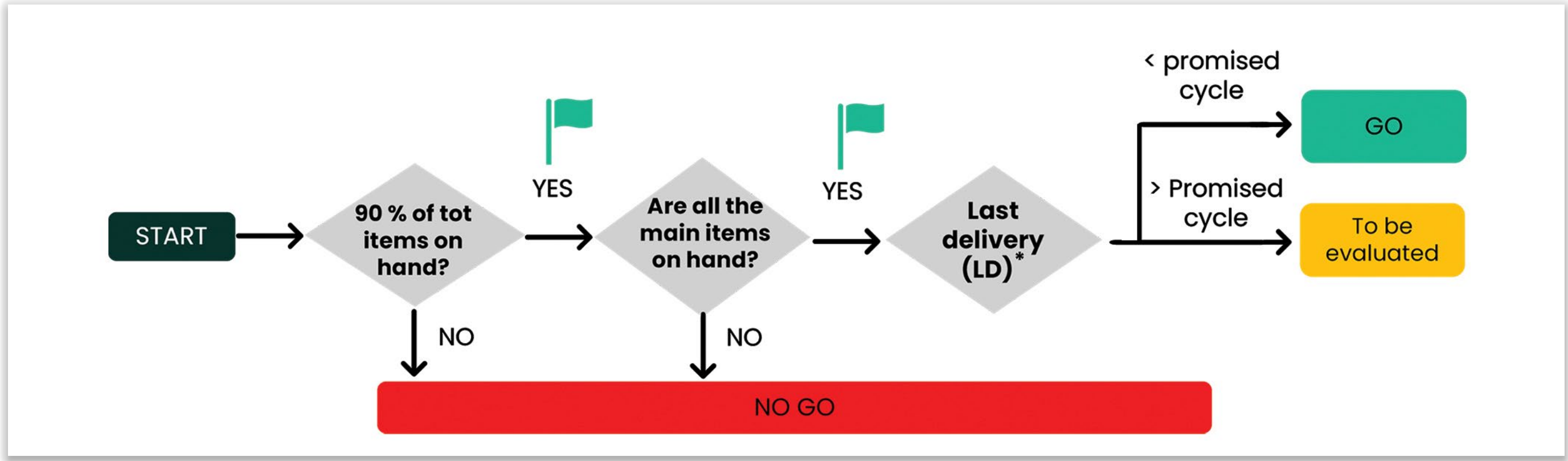
Centrifugal compressor (Baker Hughes)



Variance to Cycle (VTC) representation

				Make					Buy							
	START_PROM	FINAL_PROM	90%BOM item	Bundle	Casing painting	Head flange	Bearing support	Rotor	Dgs	Bearing	Miscellanea	Carter	Thermo element	Flanges	Instrumentation	Assembly tools
2349872-1 Model type ABCB1234 VTS=60 LT standard	2/5/2024	3/12/2024		ITEM_LINK	123456	123456		123456	123456	123456	123456	123456	123456	123457	123459	123460
				Status	Not Available	On Hand	On Hand	On Hand	On Hand	On Hand	On Hand	Not Available	On Hand	On Hand	On Hand	On Hand
				Subinventory		Massa	Massa	Massa	Massa	EX SUPP	Bari		SAPO	Bari	Massa	Massa
				Promise Date	1/9/2024							1/9/2024				

Digital solution concept



The GO-NOGO procedure

Problem statement

This thesis aimed to study a solution to support on-time delivery (OTD) performances to reach the challenge target of 100%. The works has been developed with Baker Hughes, a multinational company that operates in the energy and technology sector. As one of the main products it produces is the centrifugal compressor, the thesis investigates specific needs and requirements related to this product manufacturing line. Several factors influence OTD, one of the production KPI used in the company that influences OTD is the Variance to Cycle (VTC). The relevance of the VTC were analysed within a cross-functional team, this work is focused on two of them: the completeness of material at the beginning of the production cycle, importance of a single procedure (standard work) for 2 assembly cycles. The AS-IS definition emphasises the presence of multiple software that can be consulted to obtain information from the planner, leading to potential errors related to the cycle launch without the complete availability of the items that can cause interruption caused a no-optimal shopfloor occupation (wastes).

Solution concept

To prevent the problems of lack of material at the cycle launch and to ensure a standard work for the cycle launch, a new procedure called GO-NOGO was developed to follow when deciding to launch the assembly cycle. This method was created to guarantee the cycle launch with material availability to avoid interruption during the assembly phase.

Results

The procedure was initially tested manually to assess its benefits and criticalities. During this phase, the monitoring of the already defined KPIs, such as Variance to Cycle (VTC) and Variance to Start (VTS) (the difference between the actual cycle start date and the scheduled start date) were maintained. The monitoring of the CONWIP, an essential KPI to support the decision to launch an additional cycle, was also introduced, together with the GO-NOGO procedure. The KPI analysis showed a decreasing for the VTC while VTS increased slightly. This finding is not surprising, as the procedure introduces new criteria to avoid the launch of unsuitable cycles, causing delays in the launch of production cycles in some cases.

However, this approach has allowed the causes of material non-availability to be investigated. The manual solution (with relevant high cost due to the high number of people involved, and with software management problem) has been used as a pilot to check and adjust the new procedure. Once the solution was validated, we move towards a digital solution, synchronised in real-time with the company's information, modifying an existing report to keep costs down and achieve sustainable solution.

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