MI AUTOMATION CASE STUDY

FD4CAST
Forecasting Excellence

CASE STUDY CLIENT CONSTRUCTION INDUSTRY

TIMESHEET REPORT AUTOMATION

Initial Deployment Nov - Dec 2017

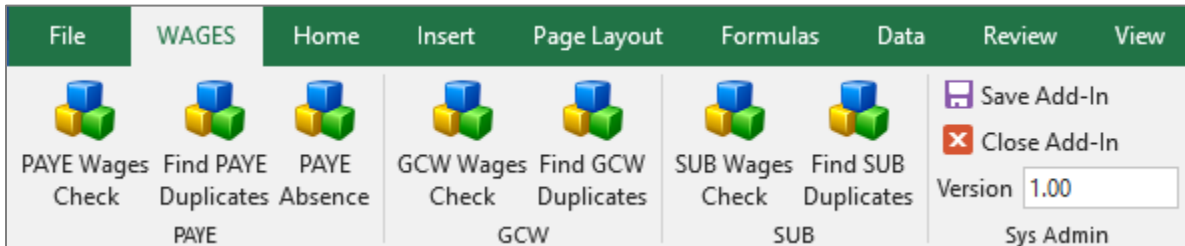### Additional Absence Automation Feb 2018

PROJECT OVERVIEW

OBJECTIVE	Overhaul and enhance timesheet check report automation.
SOLUTION FORMAT	MS Excel driven by VBA (Macros) add-in. User operation via custom ribbon.
MAIN PROCESSES	1. Populate a Cover Sheet with cost summary by division. 2. Create a Wages Check report of combined timesheet data across all divisions by employee. 3. Generate a Duplicates tab to highlight likely duplicate timesheet entries per employee. 4. Generate an Absence report showing employees with 1 or more days without a timesheet entry.
SUCCESSES	1. Removed hard coding from the VBA that could have resulted in incomplete reports. 2. Duplicate timesheet entry checks enhanced to work on individual days rather than the week as a whole. 3. Replaced user entry of last data row with VBA identification of the last row to prevent risk of user error. 4. Fixed loss of cell formatting in the original process. 5. Step-by-step process clearly defined within the custom ribbon, reducing the requirement for detailed end user process notes.
PROJECT TIMESCALES	1. Nov 2017 – Initial work for PAYE timesheets 2. Dec 2017 – Extended to run for GCW and SUB timesheets 3. Feb 2018 – Added Absence report functionality

Please contact me to discuss requirements for bespoke
Automated MI solutions and/or proofs-of-concept

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Timesheet Reporting AUTOMATION
User Navigation

1. Custom User Ribbon to Drive All Functionality

2. Screenshot of Cover Sheet Summarising Timesheet Wages (dummy data)

WEEKLY WAGES REPORT - PAYE

Company: **Kilnbridge Construction Services Limited**

Week Ending:	Sunday 14-Jan-2018		
			Total Cost
DIVISION	CONCRETE CUTTING		£ 20,000.00
DIVISION	CONSTRUCTION		£ 20,000.00
DIVISION	FABRICATION		£ 20,000.00
DIVISION	FIRE PROTECTION		£ 20,000.00
DIVISION	PPTS & HQ		£ 20,000.00
DIVISION	YORK ROAD		£ 20,000.00
	TOTAL		**£120,000.00**

3. Part Screenshot of Wages Check (dummy data)

CONCRETE CUTTING

								HOURS WORKED							
OPERATIVE DETAILS								Contract Number	MO	TU	WE	TH	FR	SA	SU	HOURS WORKED
ID No	DOB	NI Number	Surname	First Name(s)	Trade	Divisio			08-Ja	09-Ja	10-Ja	11-Ja	12-Ja	13-Ja	14-Ja	
1	01/01/1960	XXXXXXXXX	A	John	D/Drill	CC 1	1	12.00	12.00	12.00	10.00	12.50	6.00		64.50
2	01/01/1960	XXXXXXXXX	B	John	D/Drill	CC 1	1	12.00	6.00	9.50	9.50		9.50		46.50
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	1				2.00				2.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	2	2.00				1.00			3.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	3	3.00							3.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	4		7.00		1.00				8.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	5	1.00		6.00	3.00	6.00			16.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	6					2.00			2.00
3	01/01/1960	XXXXXXXXX	C	John	CAD Tech	CON	7	3.00	2.00	3.00	3.00				11.00
4	01/01/1960	XXXXXXXXX	D	John	D/Drill App	CC 2	8	10.50	10.50	10.50	10.50	10.50			52.50

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4. Part Screenshot of Duplicates (dummy data)

		CONCRETE CUTTING							HOURS WORKED								
11		OPERATIVE DETAILS						Contract Number	MO	TU	WE	TH	FR	SA	SU	HOURS WORKED
12																
13	ID No	DOB	NI Number	Surname	First Name(s)	Trade	Division		08-Jan	09-Jan	10-Jan	11-Jan	12-Jan	13-Jan	14-Jan	
173	2	01/01/1960	XXXXXXXX1	B	John	D/Drill	CC 1	1	12.00	6.00	9.50	9.50		9.50		46.50
174			XXXXXXXX1 Total						12.00	6.00	9.50	9.50	0.00	9.50	0.00	46.50
175	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	1				2.00				2.00
176	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	2	2.00				1.00			3.00
177	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	3	3.00							3.00
178	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	4	0.00	7.00		7.00				14.00
179	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	5	1.00		6.00	1.00	6.00			14.00
180	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	6		7.00		7.00				14.00
181	3	01/01/1960	XXXXXXXX2	C	John	CAD Tech	CON	7	3.00	2.00	3.00	3.00				11.00
182			XXXXXXXX2 Total						9.00	16.00	9.00	20.00	7.00	0.00	0.00	61.00
183	4	01/01/1960	XXXXXXXX3	D	John	D/Drill App	CC 2	8	10.50	10.50	10.50	10.50	10.50			52.50
184			XXXXXXXX3 Total						10.50	10.50	10.50	10.50	10.50	0.00	0.00	52.50

5. Part Screenshot of Absence (dummy data)

CONCRETE CUTTING								HOURS WORKED									
OPERATIVE DETAILS								Contract Number	MO	TU	WE	TH	FR	SA	SU	HOURS WORKED	HOLIDAY *
ID No	DOB	NI Number	Surname	First Name(s)	Trade	Divisio			08-Ja	09-Ja	10-Ja	11-Ja	12-Ja	13-Ja	14-Ja		x 1.00	Comments
7	01/01/1960	XXXXXXX1 Total	A	Mike	D/Drill	CC 1			H	6.00	9.50	9.50	0.00	9.50	0.00	46.50	0.00	
8	01/01/1960	XXXXXXX2 Total	B	Mike	Labourer	CON			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Mike - sick certificate received covering until 07/01/2018.
9	01/01/1960	XXXXXXX3 Total	C	Mike	Engineer	CON			0.00	9.50	10.50	9.50	9.50	6.00	0.00	45.00	0.00	
10	01/01/1960	XXXXXXX4 Total	D	Mike	Formwork Apprentice	CON			10.00	10.00	10.00	10.00	0.00	0.00	0.00	40.00	0.00	

6. Project Synopsis

FD4Cast were approached by Kilnbridge to undertake a small project to overhaul and extend an existing automated timesheet checking system.

The original VBA had been written by multiple users with basic programming skills. It contained a mix of hard coded ranges as well as requesting user input to specify the last row of the data for one of the processes. The VBA was completely rewritten, preserving the underlying process while replacing all hard coding with calculations to determine the size of the data. Multiple copies of nearly identical code were replaced with single procedures that could be run on different sheets. To perform the duplicate timesheet entry checks, conditional formatting was used to highlight cells where the total by day or week was above specified tolerance limits.

The solution was delivered as an Excel add-in which could be used in any spreadsheet rather than needing a dedicated spreadsheet to run the timesheet checks. The operation of the VBA was driven from buttons in a custom ribbon.

The new process worked quickly and was more robust than the original. So Kilnbridge asked FD4Cast to extend the initial timesheet check used on their PAYE timesheets, to also run for their GCW and SUB timesheets. This original VBA was parameterised so that the same procedures could be run for the different timesheet groups. This simplified testing as well as long term support by keeping the quantity of VBA to a minimum.

In February 2018, the client approached FD4Cast to add a new Absence report to the timesheet checks. This grouped the data to show only rows where the employee had one or more days during the week without any work. Any holidays were shown as blue cells with an H present to aid administrators in their checks. The spreadsheets contained many conditional formats, which would otherwise slow down the process. To keep the runtime to a few seconds, VBA was written to remove this formatting, and then to re-apply it once the report had been generated.

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ABOUT FD4CAST

Founder owner James Power is a BA/MI Analyst who specializes in the design and delivery of MI solutions built in MS Excel, Access & SQL for organisations requiring streamlining and automation of their administrative and financial processes.

As organisations seek to embrace the much-heralded 'brave new world of automation', FD4Cast operates in a specialist niche which seeks to sit between the end-user and the in-house organisational IT department.

'Agile' solutions are typically required in order to 'oil the cogs' of the process interaction between ERP systems and the MI Analyst (who often may not be a VBA specialist) in order to enable faster and error-free production of MI Reporting to therefore leave more time for actual business analysis.

Where appropriate, existing business processes are analysed & redesigned, and VBA code is used in order to automate previously manual copy/paste exercises. In addition, data cleansing, automated matching, duplicate detection, and general spreadsheet manipulation techniques will be incorporated in any given delivered project.

Data can be imported from base data source files or email attachments. In some instances where required, web-scraping exercises can be performed.

WORKING METHODOLOGY

1. Typically a first stage scoping exercise is undertaken with client input - i.e. requirements / objectives.

2. If 'Automation' opportunities exist, then these are identified and presented to the client.

3. A 'Proof-of-Concept' deliverable is agreed and produced for UAT (User Acceptance Testing).

4. End-to-End project scope agreed and then coded.

5. Error handling implemented in the base code in the event of new future data formats causing the overall process to deter from the original agreed 'Happy Path' route.

6. Continual support & maintenance agreed as an ongoing requirement, or on an ad-hoc basis.

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