



FORD MOTOR COMPANY

Calum Murphy
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START DATE: SEPTEMBER 3, 2018

END DATE: SEPTEMBER 3, 2019

STUDENT ID: 9974772

Line Manager: Brett McCall

Academic Tutor: Fumie Costen

Executive summary

The overall aim of this placement is to gain engineering experience in a real world environment, more specifically it will aid me in developing my professional skillset and learning how to tailor said skills in order to fill a role. This role will allow me to learn how to implement new resources to satisfy customer requirements.

The motivation for the department in bringing in a placement student is that the department is lacking in technical knowledge and there is a communication breakdown between different teams. I was brought on in order to remedy these issues as a fresh set of eyes with a technical background, this is what my manager said inspired them to select me specifically for the role.

As of this point in time I have achieved a lot within my role, I have developed a system for welcoming new employees to the team, I have generated a series of single point learnings on technical knowledge that will allow the team to perform tasks required within the role, I have created a handful of standardised documents that improve communication between teams, I have aided in developing a more agile working environment by introducing Kanban boards to the department, and I have aided in the implementation of an application onto a production line.

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Ford Motor Company

Ford Motor Company is a mobility company founded on June 16th 1903 in Detroit Michigan. It is now based in Dearborn, a suburb of Detroit. Ford are most widely known for their vehicle manufacturing most notably their vans, but are looking into branching out into other transport platforms.

Organisation

Ford has multiple divisions, the placement opportunity is with the manufacturing IT division, the role is within 'in plant implementation' or the 'IPI' department, more specifically within powertrain IPI or IPI PTO. Ford has an unusual hierarchal system, with the CIO at the top, we then have LL2, LL3, LL4, LL5 and LL6 which are management roles in descending order, followed by GSR8, GSR7 etc., with LL standing for leadership level and GSR standing for general salaried role. GSR8 being the top rank amongst general salaried roles. The majority of ford employees are GSR and contractors.

The Placement

IPI PTO is a team designed to analyse engineering challenges in a manufacturing environment and determine what is in and out of scope for the project, then assist in the implementation of any resources in scope. My role as a placement student is as a 'process improvement lead', with the aim of improving the technical knowledge within IPI.

Training

Ford has supplied me with a large amount of training on topics that fall under corporate responsibility such as data protection, insider training, integrity in business, export compliance, HIPPA, agency resources, dangerous goods handling, fair labour standards, sharing personal data, the Americans with disabilities act, the US tread act, sexual harassment, workplace civility.

Ford has also sent me on two three day long training courses relating to an application we use called 'factory information systems' or FIS, I was sent on this course in order to create documentation that could be readily accessed so that in future when a task needs completing it can be done in a time sensitive fashion.

Ford has also allowed me to undergo digital worker training to a level 2 standard, digital worker is a resource used by Ford in order to provide training on the applications used by the company such as WebEx, WebEx teams, Microsoft office, outlook and SharePoint along with useful skills such as time management and sharing expertise. As far as I am aware this is a service offered exclusively by Ford Motor Company. Proof of this can be seen in appendix 1

I have also received training on a variety of topics exclusive to IPI such as, risk issue management, scope management, governance and the milestone systems used within manufacturing for example GPDS milestones, agile methodology and SDM methodology.

Projects

Process improvement lead

The main project that I am involved in, is assessing, analysing and generating solutions for the lack of technical knowledge and communication breakdown within the team, this I found to be very difficult as it involved a complete change in mind-set, prior to my time at ford I have always been given a scope of work, whereas this project required a scope of work to be generated. To generate an initial scope of work I held a series of 1 to 1 and group meetings where the team discussed problems that

they face regularly with documentation and technical expertise, from here bi-weekly meetings were put into place with both the team and management to discuss potential solutions for the problems that were found. Once approval was granted for a solution, I found and arranged meetings with subject matter experts in order to implement said solution. Examples of the process, the problems and the solutions can be found under appendix 2.

Implementing outbound logistics (OBL)

I assisted the team in implementing OBL on our panther engine line, this application is used by the plant to assist in the buy-off process, buy-off is where the engines produced are shipped off to assembly plants in order to be placed into vehicles. We were facing push back from plant IT and the plant manager as the previous system allowed for faster scanning of the engine parts and was more complicated than the previous system as more steps were involved in pairing the part to a 'rack', a rack holds multiple copies of the same part for shipping. The first problem was resolved by rigorous testing to show that in spite of the scanning process taking longer, the overall time from scan to ship was reduced due to the following steps being improved by the implementation of the new application. The second problem was resolved by creating a single point learning or SPL on how to properly pair parts to 'racks', ensuring that all of the team members in buy-off knew exactly how to perform their roles. Overall the project was only moderately complicated but it allowed me to meet a variety of people in new roles. The project allowed me to experience some of the setbacks that can be faced in a customer centric organisation.

New hire on boarding

This project was important as the two graduate placement students within the team were due to rotate a few short months after I joined the team, the task I was presented with was to ensure that a handover could be conducted smoothly. This meant ensuring that all compulsory company training were completed, all company systems were signed onto, policies were introduced and ensuring they were supplied with all the relevant information pertaining to the project they were taking over.

To perform this task I met with the two current graduates regularly in order to discuss potential methods, after deliberation it was determined that the simplest way was to approach the tasks on three fronts, the project based information, general knowledge of the department and the compulsory processes such as introduction to policies and team specific resources.

Firstly and most importantly was the relevant project based information, to ensure that everything was transferred to the new hire effectively a standardised document was created, this document was designed to be populated by the graduate currently in the role in order to be handed over to their replacement.

Secondly a checklist was created which fully encompassed the tasks deemed compulsory by Ford and by IPI PTO.

Finally a series of presentations was generated that supplied the new hire with basic information about who IPI are and the role they undertake.

Examples of the solutions can be found in appendix 3.

Working Systems

Meetings

In order to provide course correction and ensure that I am meeting deadlines I attend weekly meetings with either my supervisor or my manager, this is normally a brief 15 minute conversation to discuss my prior week and explain my plans for the following week.

I also host a bi-weekly meeting with the members of IPI that I use to gain feedback on the work I am doing to allow me to adapt an agile working methodology that uses iteration. This meeting is also used for me to ascertain if any new problems have been raised that I can assess and provide potential solutions. Initially there were daily touchpoints however I found that the team did not find these useful and as such cancelled the meeting series.

Every month Ford hosts a community of practice meeting where graduates gain the opportunity to meet upper management and learn about projects that Ford is working on to allow us the ability to provide input into things that may fall outside of our purview.

Ford is also currently undergoing a change in working mentality as a company, it is moving from a team based organisation to a product driven organisation, meaning a more agile workplace and less bureaucracy preventing innovation. I have helped to implement this within my team by introducing KANBAN with the help of a colleague, we have 'catch-ups' every other day to discuss our progress towards meeting our weekly milestones.

Evidence of our regular meetings can be seen under appendix 4.

Extra-curricular Activities

The company organises a plethora of events for the Ford college graduates (FCG's), during the first month of my time at Ford we were given the opportunity to undergo a 'meet the fleet' event, where we were allowed to test drive a selection of Ford vehicles around the test track at Dunton technical centre.

I attended a competition at the University of Manchester where we helped students by providing example interviews followed by judging a competition where students presented a technical solution to a theoretical problem faced by a company.

The Ford college graduates also arrange regular social events such as a Christmas jumper bar crawl and a trip to the local trampoline park along with a rock-climbing event.

Evidence of attendance can be seen in appendix 5.

Reflective thoughts

In reflection, this placement has not met my expectations, however that is not a negative, this position has helped me develop professionally by putting me into a leadership role, I feel that the skills I have learned would lend themselves amicably to a management position within engineering, it has granted me leadership and teambuilding skills through running my own project that go way beyond that of my previous life experience, along with the ability to properly analyse and assess engineering challenges in order to create a scope of work that will meet any criteria that is set out. It has aided my ability to create technical documentation and to provide technical guidance as a large portion of my workload is generating single point lessons for use within the team.

Although this experience is very useful and benefits me greatly, I do not feel as though this particular field is one I would like to work in, in the near future. This is due to the fact that although there is a significant amount of technical understanding necessary for the role, there is a lot more of the business involved than I had previously envisioned, I feel as though I would be happier in a more practical role such as research and development, testing or application development.

References

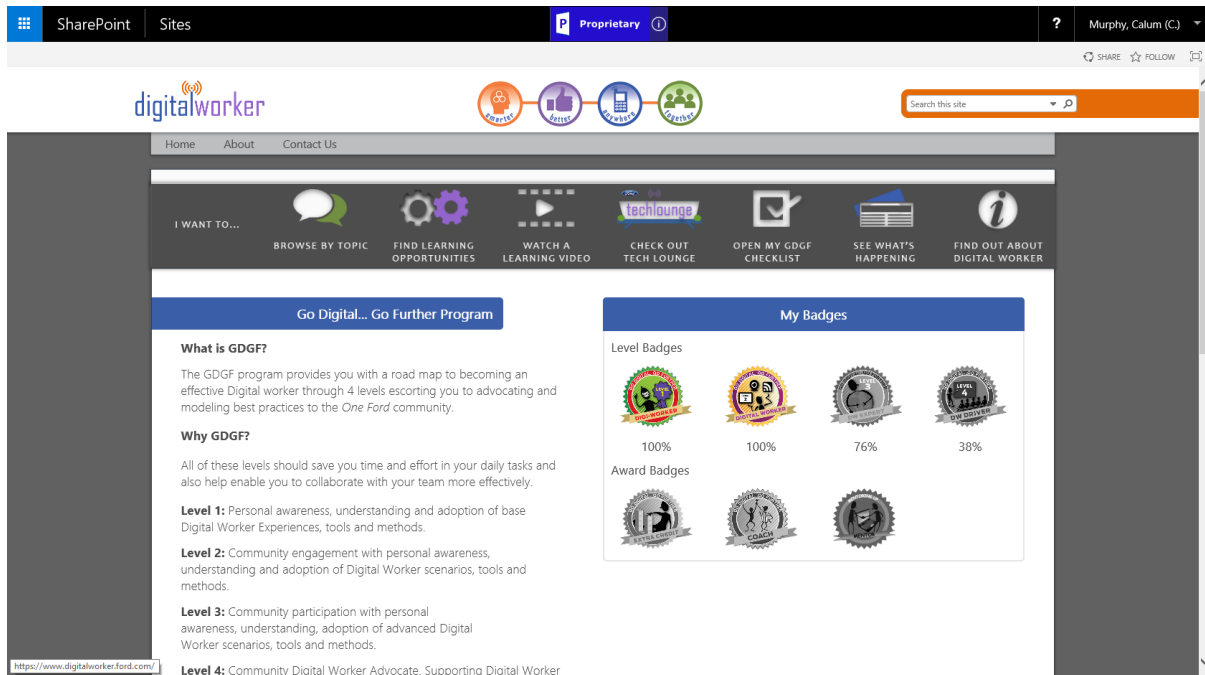
Suzanne Thomas
Role: Manufacturing IT Manager
Email: sthom124@ford.com

Brett McCall
Role: IPI PTO Manager
Email: bmccall1@ford.com

David Falco
Role: IPI Lead
Email: dfalco@ford.com

Appendices

Appendix 1



Appendix 2

The following image shows the process, I underwent meetings with each team member individually in order to assess where they felt our shortcomings were

	MONDAY	TUESDAY	WEDNESDAY
	14	15	16
07			
08			
09		Culture Transformation for New Hires - half-day workshop Warley MPR Giddings, Vivian (V.)	
10	1 to 1 with Baba; Desks; Murphy, Cal 1 to 1 with Jiten; Desks; Murphy, Cal		
11	1 to 1 with Saira; Desk; Murphy, Calu		
12			
13	1 to 1 Imran; Desk; Murphy, Calum (C) 1 to 1 with David; Desks; Murphy, Ca	Kanban Boarding; Kanban Board; Bc	
14	1 to 1 with Ciaran; Desks; Murphy, Ci		New hire material review Warley Murphy, Calum (C.)
15			

The following images show examples of the solutions I have created for problems identified in the meetings above.

Name	Date modified	Type	Size
1-000_SPL	27/09/2018 11:20	Microsoft Word D...	37 KB
1-001_FIS	26/09/2018 09:36	Microsoft Word D...	5,281 KB
1-002_FIS	25/09/2018 16:24	Microsoft Word D...	7,953 KB
1-003_FIS	21/01/2019 16:02	Microsoft Word D...	5,981 KB
1-005_QTS_Asset	07/01/2019 16:48	Microsoft Word D...	4,044 KB
1-006_QTS_Asset_Mod	08/01/2019 09:28	Microsoft Word D...	410 KB
1-007_QTS-QLSCM	14/11/2018 09:58	Microsoft Word D...	33 KB
1-008_QLS-CM_Asset (Autosaved)	28/11/2018 14:47	Microsoft Word D...	604 KB
1-008_QLS-CM_Asset	19/11/2018 16:35	Microsoft Word D...	604 KB
1-009_QTS	10/01/2019 14:38	Microsoft Word D...	34 KB
1-010_S7	30/11/2018 12:32	Microsoft Word D...	229 KB
1-011_Validate_QTS	01/12/2018 17:41	Microsoft Word D...	12,506 KB
1-012_Networking address sheet	22/01/2019 15:08	Microsoft Word D...	103 KB

The image above depicts the series of single point learnings I have generated to supply technical information to the team. Below is an example of a single point learning.

CREATING AN ASSET IN FIS

1-003

Type:	Knowledge	<input checked="" type="checkbox"/> Problem	<input type="checkbox"/> Process Improvement
Date:	CDSID	Comments/Changes	
	24/09/18	CNTURP109	Creator

DATE OF APPROVAL: SEPTEMBER 24, 2018
FORD MOTOR COMPANY

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0.0 Objective
The purpose of this SPL is to learn how to create a new asset within FIS. This SPL is for use by the PTD department.

1.0 Background

- To create a new asset you require the administration privileges that allow you to gain access to the data exchange device (DxD).
- You also require the correct administration privileges for the plant that you are working on at the time.

2.0 DxD

2.1 Accessing NetPro

The first step in the process of creating a new asset is to access a DxD, when you have gained access to the DxD you will see a program entitled 'Simate NCM Manager', within this program there is an application called NetPro, this is the application that you need.

2.2 Using NetPro

Within NetPro you must create a new connection, to do this click insert new connection then create new row, now you should see a screen similar to that shown in figure 1 below

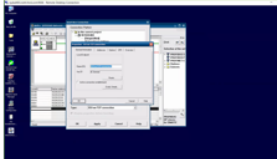


Figure 1 – New connection in NetPro

Populate the 'General Information' and the 'Addresses' data fields with the correct values for the new asset, after the data fields are filled correctly click OK then apply.

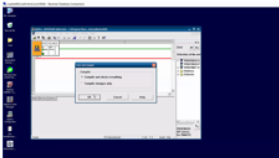


Figure 2 – Save and Complete window

Within the NetPro screen click the 3rd button from the left, shown in figure 3, on the taskbar at the top of the page. This will bring up the screen shown in figure 2, select complete and check everything. At which point you will see the image in figure 4 below.

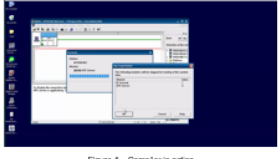


Figure 4 – Complete in action

Another of the problems that the team was facing was interpreting where each team member currently stood in regards to application sign off, this is due to everyone having their own way of doing things and as such I developed a standardised document that automates the entire process, this can be seen below (a large portion of the columns have been hidden to allow the full document to be shown in this report).

	A	B	C	D	E	F	G	H	I	AI	AJ	AK	AL	AM	AN	AO	AP	AQ
1	Application Sign off Checklist			Application														
2	Sign Off Status: COMPLETED			FIS			QDAS			SMART			LMA			IVECS		
3	Role	Name	CDSID	Applicable	Sent	Signed	Applicable	Sent	Signed	Sent	Signed	Applicable	Sent	Signed	Applicable	Sent	Signed	
4	Launch Manager			y	y	y	y	y	y	y	y	y	y	y	y	y	y	
5	LL6																	
6	Program Leader																	
7	Senior Stakeholder																	
8	IPI Supervisor																	
9	Plant IT Manager																	
10	AM																	
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20	Progress			1	100.0%	100.0%	1	100.0%	100.0%	100.0%	100.0%	1	100.0%	100.0%	1	100.0%	100.0%	

Appendix 3

The following images show the systems put into place in order to assist with the integration of a new hire.

Learning Approach	Priority	Responsibility	Lead	Support	Informed	Completed
Understand ONE*	Mandatory	Lead	Support			
Active WFLC (Log Worker Status for L1 and L2)	Mandatory	Lead	Support			
Complete all other Mandated training (a-h through j)	Mandatory	Lead	Support			
Participate New Hire Community of Practice (CoP)	Mandatory	Lead	Support			
Develop own personal and professional skills	Mandatory	Lead	Support			
Work as a member of a team to achieve defined goals and implement strategies	Mandatory	Lead	Support			
Understand what is meant by professional practice	Recommended	Lead	Support			
Understand the ethical and legislative environment relating to IT activities	Recommended	Lead	Support			
Identify opportunities for effectiveness	Recommended	Lead	Support			
Develop detailed knowledge of core Food Project Management processes	Recommended	Lead	Support			
Apply Project Management	Recommended	Lead	Support			
Scope Management	Recommended	Lead	Support			
Quality	Recommended	Lead	Support			
Gain knowledge of business function	Mandatory	Lead	Support			
Gain knowledge of Systems landscape, understand purpose of key systems, key interdependencies within Product Line, how they support business function	Mandatory	Lead	Support			
Assume responsibility for small & simple project deliverables (a-c) Lead work stream within major program and/or lead small project	Mandatory	Lead	Support			
IPD Structure	Shadowing	Mandatory	Lead	Support		
Plant Overview	Shadowing	Mandatory	Lead	Support		
Plant IT Introduction	Shadowing	Mandatory	Lead	Support		
Research Overview	Shadowing	Mandatory	Lead	Support		
System Environment	Shadowing	Mandatory	Lead	Support		
Network Introduction	Shadowing	Mandatory	Lead	Support		
CHD Access	Shadowing	Mandatory	Lead	Support		
Networking address sheet (NAS)	IPI Lead	Mandatory	Lead	Support		
FGS IT Coding Matrix	IPI Lead	Mandatory	Lead	Support		
FGS Map Sheets	IPI Lead	Mandatory	Lead	Support		
NAS Drive	IPI Lead	Mandatory	Lead	Support		

The above is the on boarding checklist that encompasses all of the compulsory training from both corporate and IPI, below is the project specific document and the series of informative presentations on the department.

Application	Background Details	Recommendations
FIS	<p>This work includes the transition from PDS to FIS - Ford's new standard plant floor monitoring system for existing stations and in addition, implementing FIS on new stations that have been installed across the line.</p> <p>The In-Scope configuration work has been completed (incl. VP-Web and PCBs) but the system has not been validated completely. In order for IPI to issue application sign off, the following must be completed:</p> <ul style="list-style-type: none"> Controls Validation Checks (100% across all lines) contained in MAD sheets Plant acceptance that reports can a) be generated and b) display accurately - evidence to be captured <p>Latest update from Controls: Plan to reconvene FIS validation w/c 21/01 to allow for production to resume / allow the renew of MPS' permit to work.</p>	Follow up with Martin Coker w/c 07/01
PDS	<p>This work includes making sure that all Neo (upgrade or new) stations have been set up correctly in PDS. This includes:</p> <ul style="list-style-type: none"> Folder structure setup completed - Controls Supply of updated Project File - OEM Back-end setup completed (Dual Path and Compare) - Plant IT NAS vs PDS IP address compare - IPI <p>IPI have completed a full line compare - Results can be found in Project Documents Folder - See Links Tab.</p> <p>Request for sign-off has been issued and Controls and IPI Supervisor have both signed off.</p> <p>Plant IT (Ross Philpot) have highlighted that there are a number of issues incl:</p> <p>TE271OP40.2 - Project is using Simotion. The DADs do not have Simotion installed and thus is failing to compare. Paul Can has supplied Simotion install disk.</p> <p>THCP20G is using a newer version of Distributed safety and config pack - Paul Can is waiting on further details.</p>	Follow up with Ross Philpot w/c 07/01
OBL	<p>This work includes replacing the Plant's current system (Viatech) with Ford's standard Outbound Logistics System (OBL).</p> <p>The plant have re-raised concern regarding an increase in the total scan time at the buyoff when using the new system.</p>	Follow up with Isaac Osawe Set up meeting w/c 14/01 to resume discussion

Name	Date modified	Type	Size
Onboarding 1 – Ford IT	29/01/2019 08:43	Microsoft PowerP...	359 KB
Onboarding 2 – The IPI Tasks	29/01/2019 08:46	Microsoft PowerP...	1,133 KB
Onboarding 3 - The Plant	17/12/2018 11:19	Microsoft PowerP...	418 KB
Onboarding 4 - Plant Production	17/12/2018 12:11	Microsoft PowerP...	77 KB
Onboarding 5 - Production PTO Machining	17/12/2018 13:59	Microsoft PowerP...	736 KB
Onboarding 6 - Production PTO Assembly	17/12/2018 15:57	Microsoft PowerP...	880 KB
Onboarding 7 - Production PTO Gauging	19/12/2018 10:04	Microsoft PowerP...	353 KB
Onboarding 8 - IT in the plant - Basics	18/12/2018 08:32	Microsoft PowerP...	136 KB
Onboarding 9 - IT in the plant - Network Application 1	18/12/2018 09:41	Microsoft PowerP...	457 KB
Onboarding 10 - IT in the plant - Network Application 2	18/12/2018 15:43	Microsoft PowerP...	1,801 KB
Onboarding 11 - IT in the plant - Network Application 3	19/12/2018 11:28	Microsoft PowerP...	1,797 KB

Appendix 4

Below is the evidence of my weekly meetings with my management team and with my fellow GSR's. The meetings containing knowledge project in the title are ones between myself and the GSR employees and the weekly review is with management.

08					
09	Knowledge Project Meeting: WebEx	Canceled: IPI Lea WebEx Franke, Rai	Knowledge Project Touchpoint	Knowledge Project Touchpoint	Knowledge Project Meeting: WebEx Franke, Rai
10					IPI Tea&Talk: WebEx; Falco, Da
11			Knowledge Project Meeting: WebEx		

A great first day at the office!

Twenty eight graduates and interns from Product Development, Smart Mobility, Finance, Ford Credit and IT joined forces to meet the latest Ford product range on the Dunton test track during their induction week in an event organised by the FCG (Ford College Graduates).

Getting behind the wheel of a full range of vehicles from the new Fiesta ST and Focus to the Ranger Wildtrak and Transit, the event gave them the opportunity to see first-hand the products Ford offers while also meeting

new starters from other business functions across Ford of Britain and Ford of Europe.

The mix of vehicles were from early prototype to near production with PD engineers on hand to explain the unique features of each. For most of them it will be the beginning of a series of rotations around the business to gain skills and experience on offer at Ford at the beginning of their career.

■ To find out more email ffordcol@ford.com

