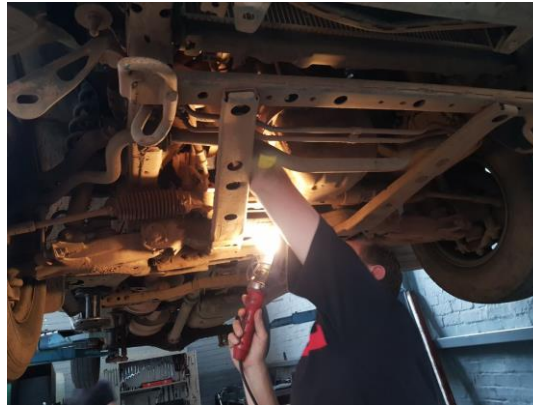


# THE DESIGN AND USE OF LEAN APPLICATIONS BUILT USING LOW-CODE AND NO-CODE PLATFORMS



# Morné Fourie



# Morné Fourie



# Halfway Production Centre

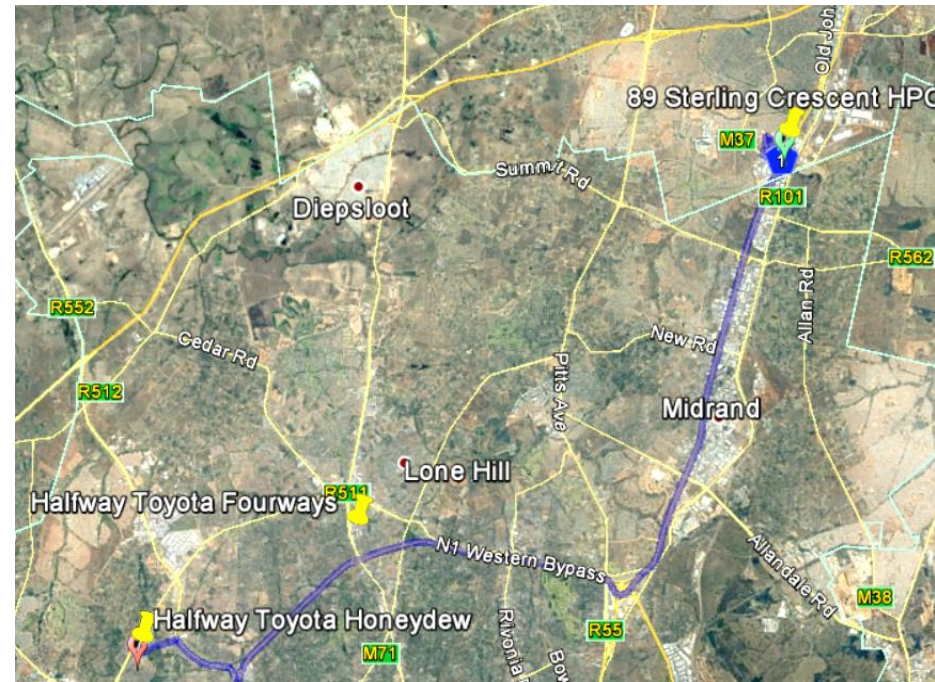
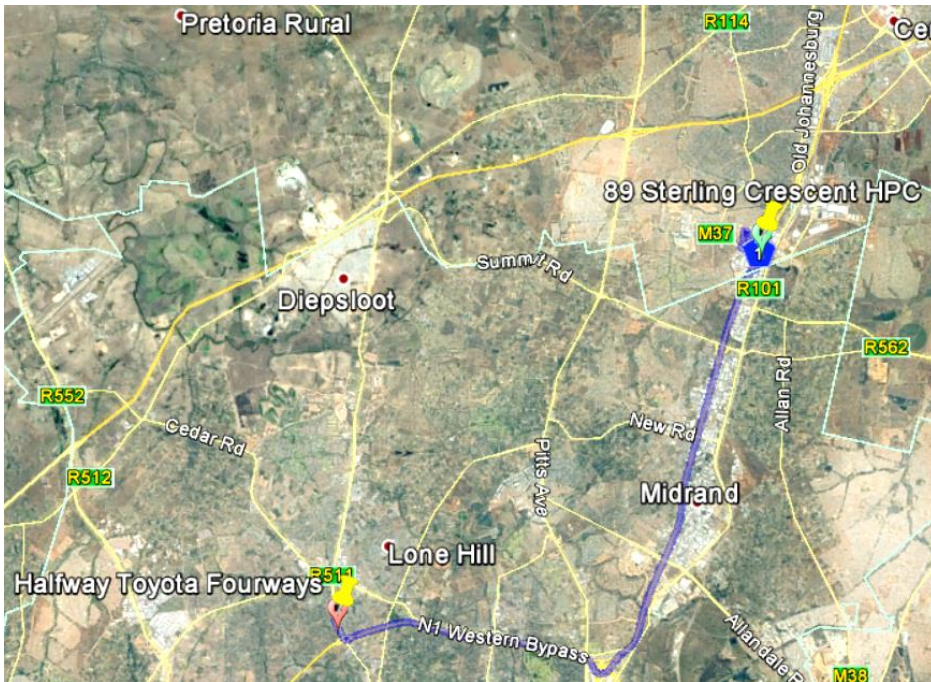




# Customers Of The Halfway Production Centre

(Distance to Halfway Toyota 4Ways is 26.3 km & to Halfway Toyota Honeydew is 34.7km away)

**Halfway™**  
Production Centre



**Halfway™**

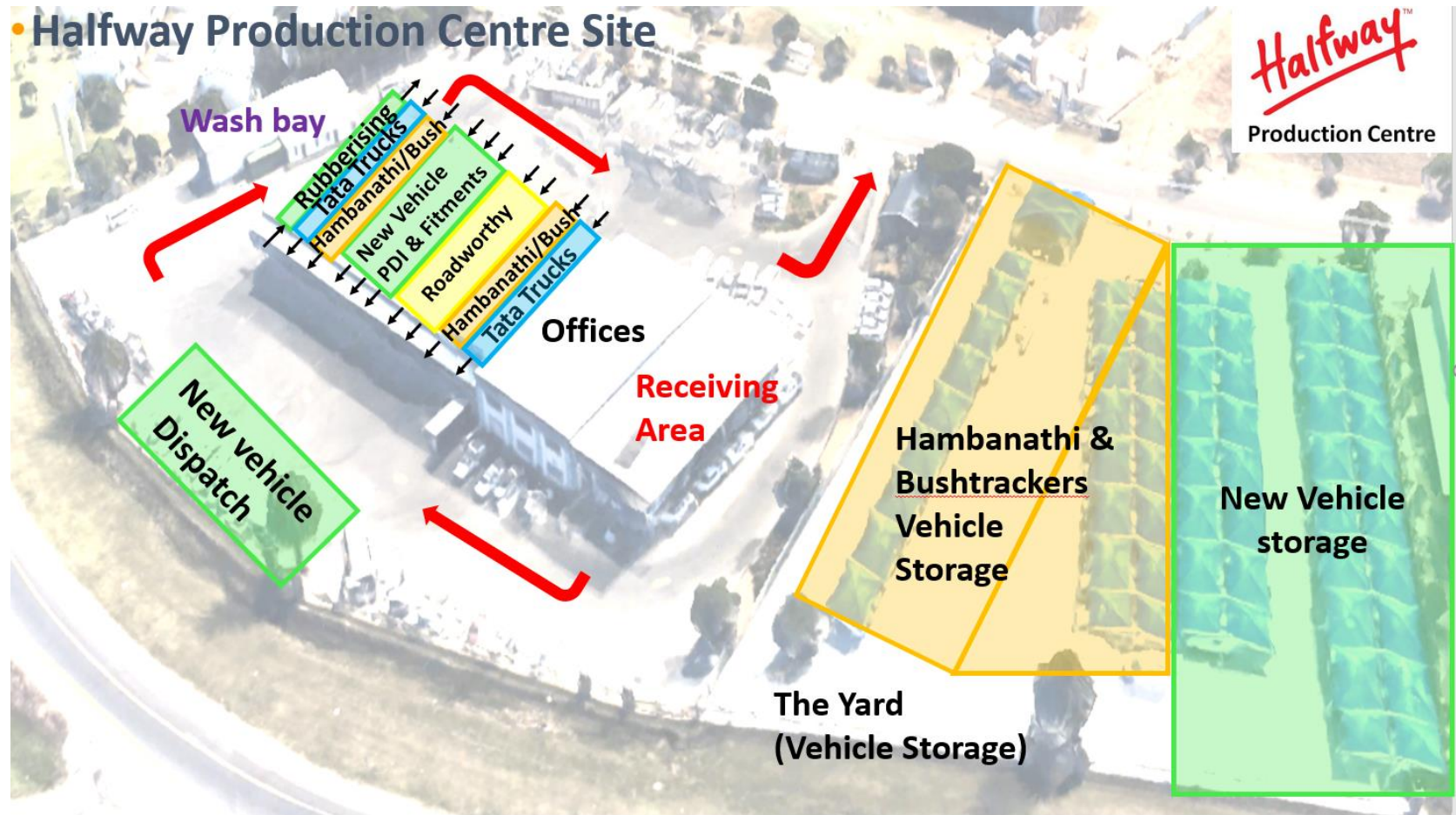
**MM&A**

**THE LEAN  
ENTERPRISE  
ACADEMY**



# Shared Site, 5 Companies

- Halfway Production Centre Site



# From Receiving To Storage

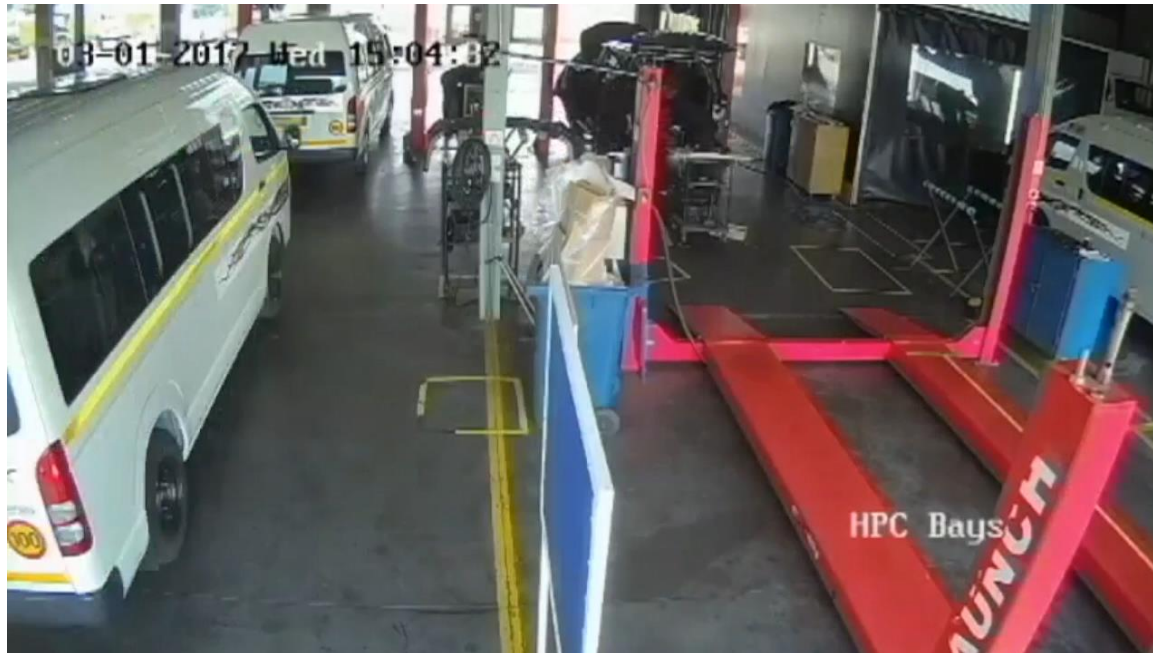


# From Requisition To Kanban





# From Takt to Dispatch



# Dispatch To Dealership



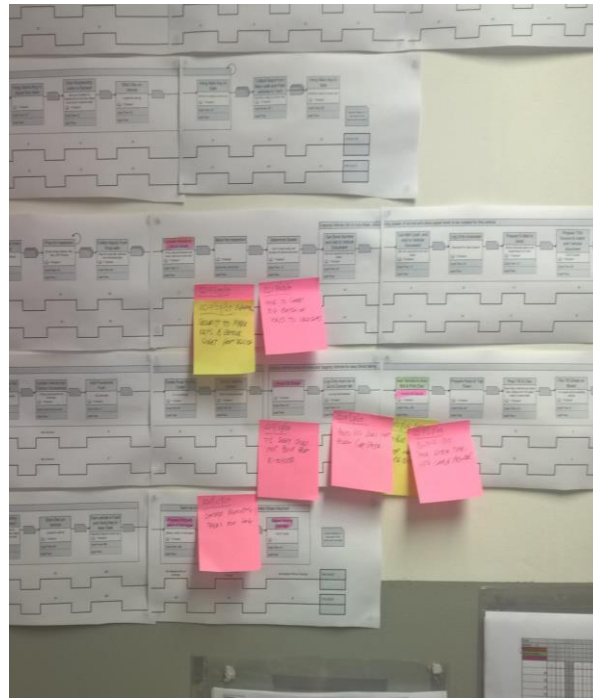
# Halfway Production Centre Purpose

---

- 1) 100% Complete and Accurate vehicle preparation for customer delivery in a known reliable time.**
- 2) Develop People with capability to improve their work every day**

# Halfway Production Centre Purpose

1) 100% Complete and Accurate vehicle preparation for customer delivery in a known reliable time.





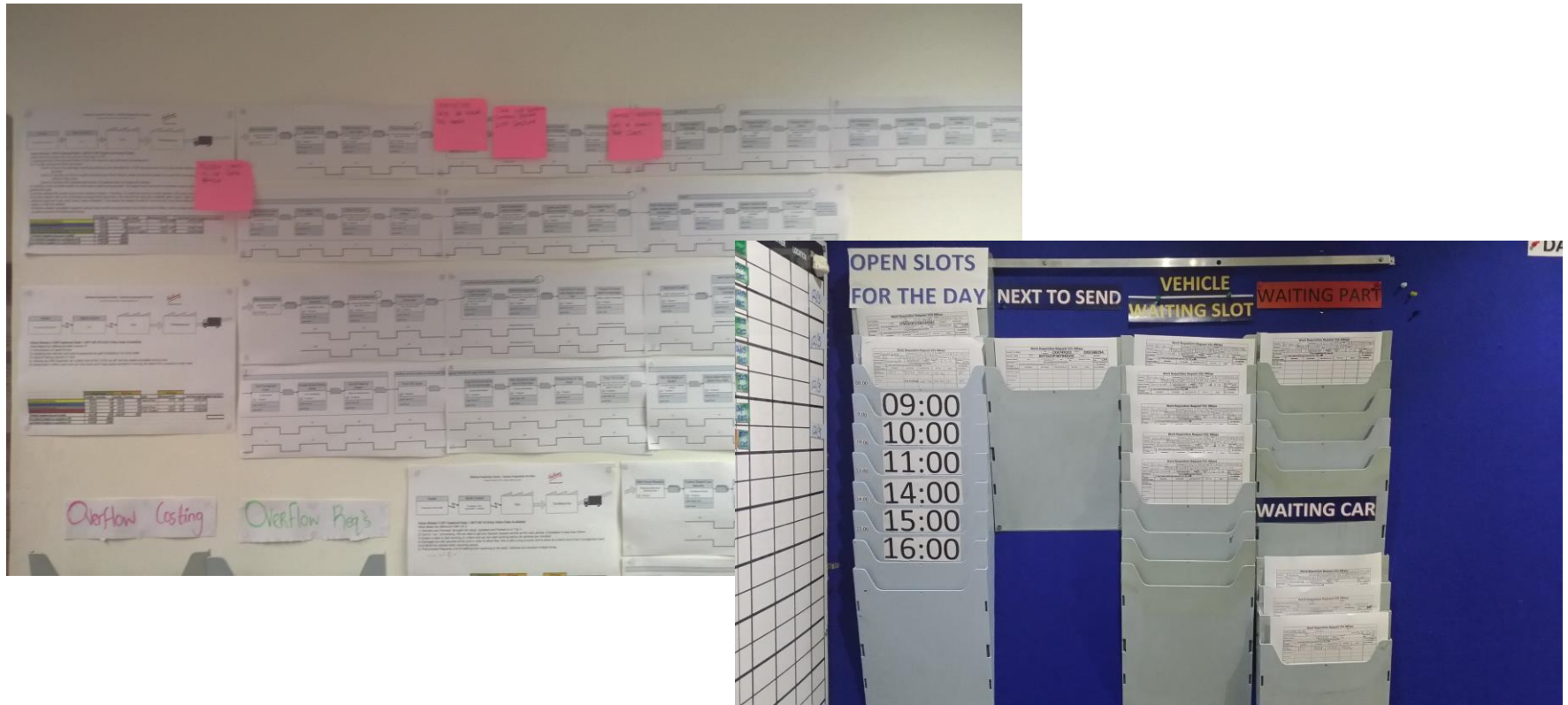
# Halfway Production Centre Purpose

- 1) 100% Complete and Accurate vehicle preparation for customer delivery in a known reliable time.



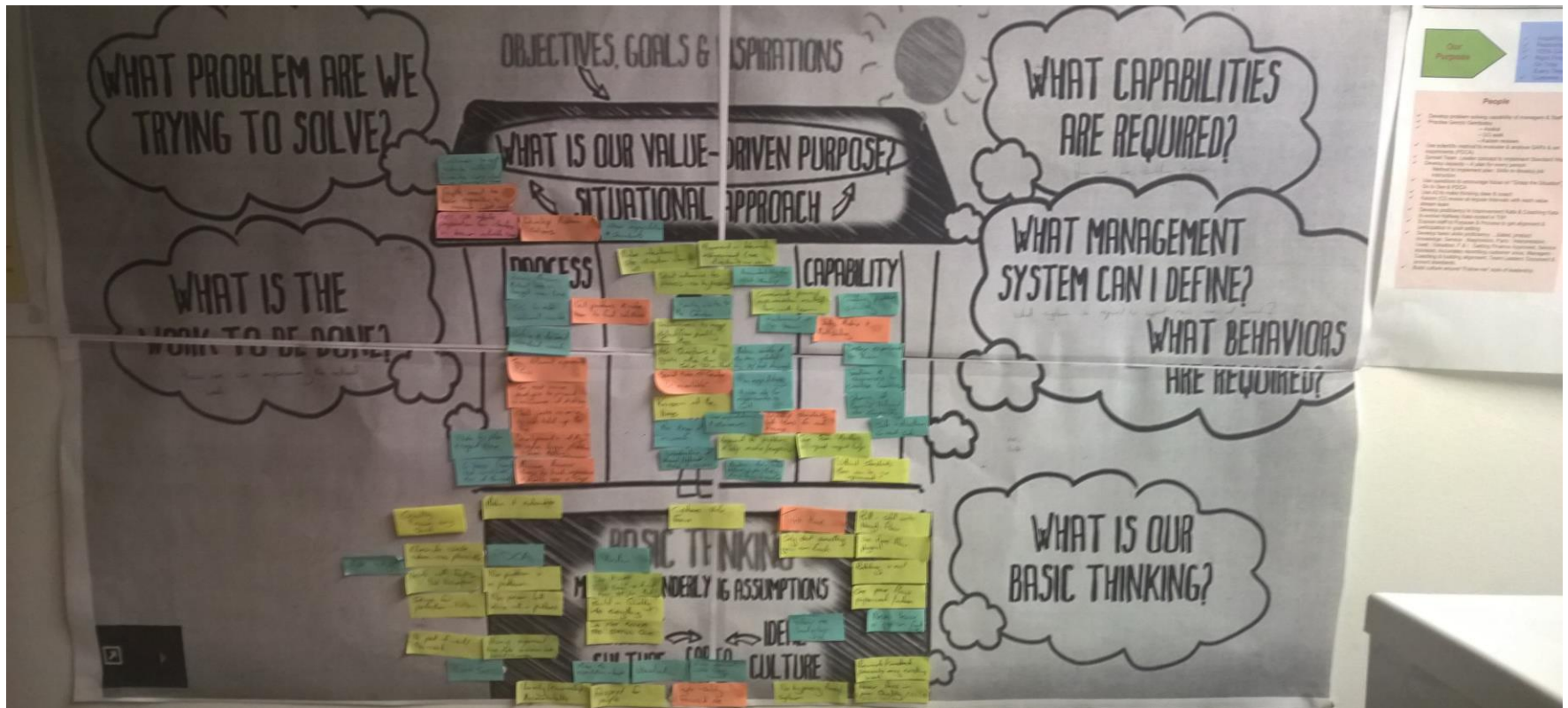
# Halfway Production Centre Purpose

- 1) 100% Complete and Accurate vehicle preparation for customer delivery in a known reliable time.



# Halfway Production Centre Purpose

- 1) 100% Complete and Accurate vehicle preparation for customer delivery in a known reliable time.





# Halfway Production Centre Purpose

## 2) Develop People with capability to improve their work every day

Kaizen Wall – Before & After



Kaizen Rewards





# Halfway Production Centre Purpose

## 2) Develop People with capability to improve their work every day

Kaizen – At The Gemba



Yokoten – The Sharing Wall



# Halfway Production Centre Purpose

## 2) Develop People with capability to improve their work every day



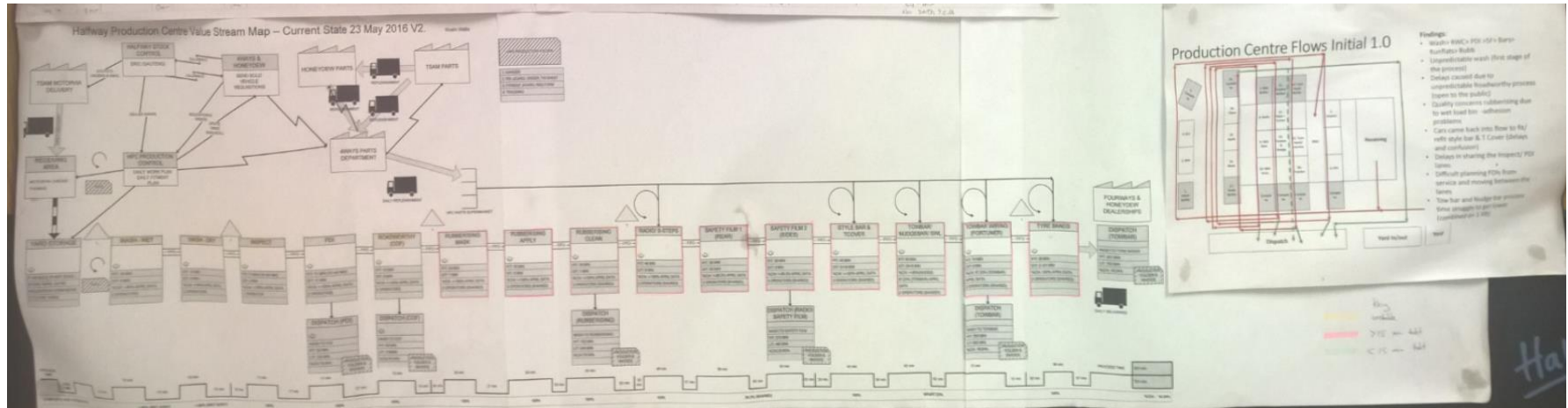
# Halfway Production Centre Purpose

## 2) Develop People with capability to improve their work every day

Monthly – Strategy Meeting

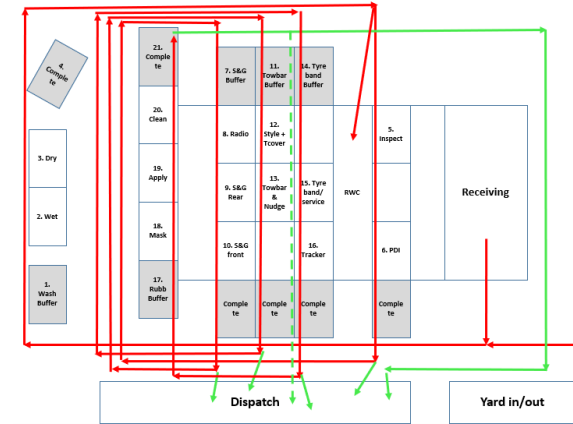


# Focus On Flowing Value to our Customer, Start In the Workshop



Drawing The Value Helped Us Understand the Problems.

Production Centre Flows Initial 1.0



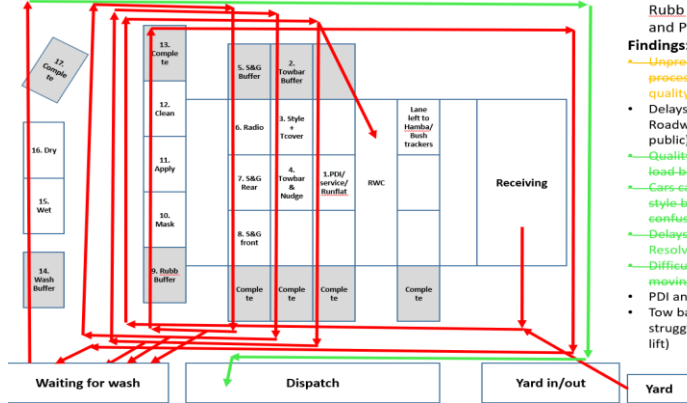
#### Findings:

- Wash > RWC > PDI > SF > Bars > Runflats > Rubb
- Unpredictable wash (first stage of the process)
- Delays caused due to unpredictable Roadworthy process (open to the public)
- Quality concerns rubberising due to wet load bin - adhesion problems
- Cars came back into flow to fit/refit style bar & T Cover (delays and confusion)
- Delays in sharing the Inspect/ PDI lanes
- Difficult planning PDIs from service and moving between the lanes
- Tow bar and Nudge bar process time struggle to get lower (combined on 1 lift)



# Focus On Flowing Value to our Customer, Start In the Workshop

## Production Centre Flows Version 2.1



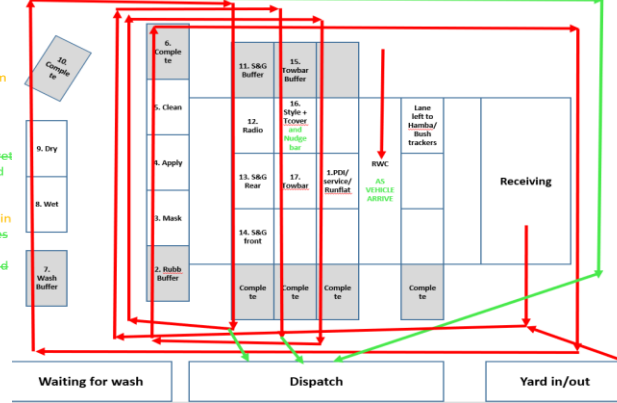
### What Changed:

- RWC > PDI > Runflats > Bars > SF > Rubb > Wash. Combined inspect and PDI into our lane

### Findings:

- Unpredictable wash (first stage of the process) Partially resolved – Safety film quality issue now
- Delays caused due to unpredictable Roadworthy process (open to the public)
- Quality concerns rubberising due to wet load bin – adhesion problems Resolved
- Cars came back into flow to fit/ refit style bar & T Cover (delays and confusion) Resolved Now an issue again
- Delays in sharing the inspect/ PDI lanes Resolved
- Difficult planning PDIs from service and moving between the lanes Resolved
- PDI and service delayed by Runflats
- Tow bar and Nudge bar process time struggle to get lower (combined on 1 lift)

## Production Centre Flows Version 3.1



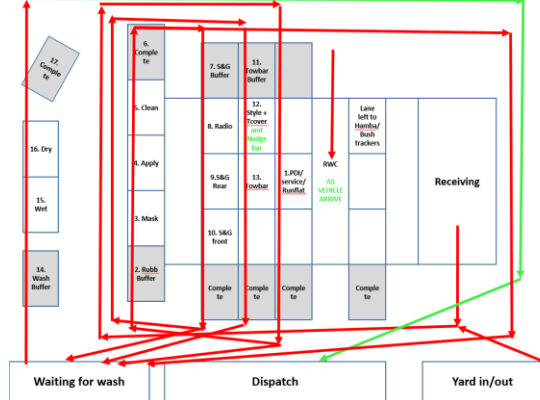
### What Changed:

- RWC as arrive PDI > Runflats > Rubb > Wash > SF > Bars.

### Findings:

- Unpredictable wash (first stage of the process) Partially resolved – Safety film quality issue resolved. Wash now unpredictable – wait up to 2 hours
- Delays caused due to unpredictable Roadworthy process (open to the public) Resolved
- Quality concerns rubberising due to wet load bin – adhesion problems Resolved
- Cars came back into flow to fit/ refit style bar & T Cover (delays and confusion) Resolved
- Delays in sharing the inspect/ PDI lanes Resolved
- Difficult planning PDIs from service and moving between the lanes Resolved
- PDI and service delayed by Runflats
- Roadworthy – difficult to track if done or not
- Tow bar and Nudge bar process time struggle to get lower (combined on 1 lift) Resolved on 2 separate lifts

## Production Centre Flows Version 4.1



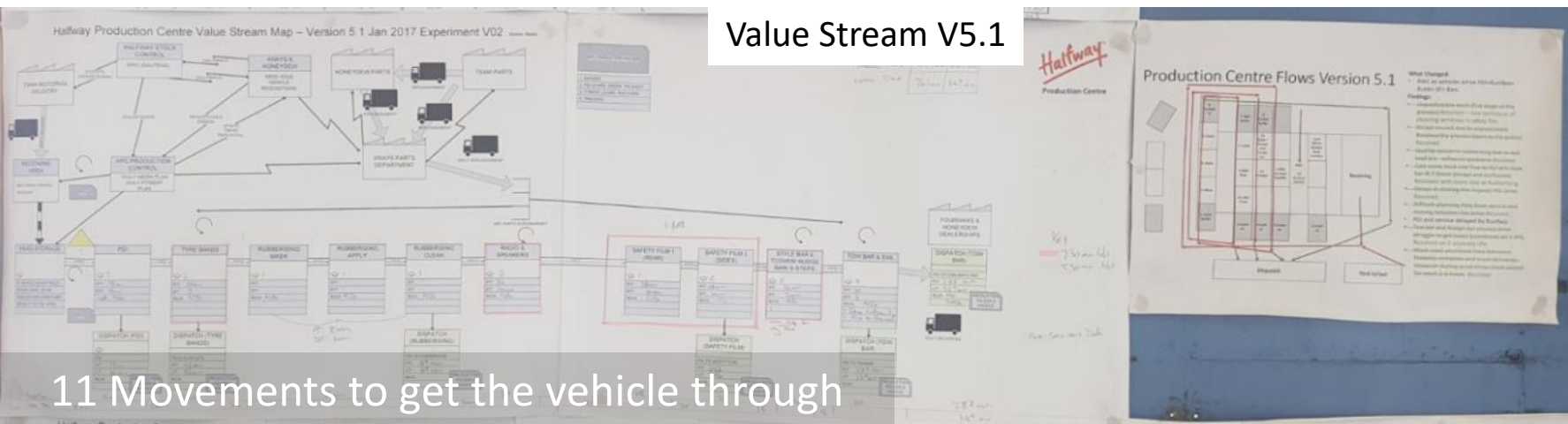
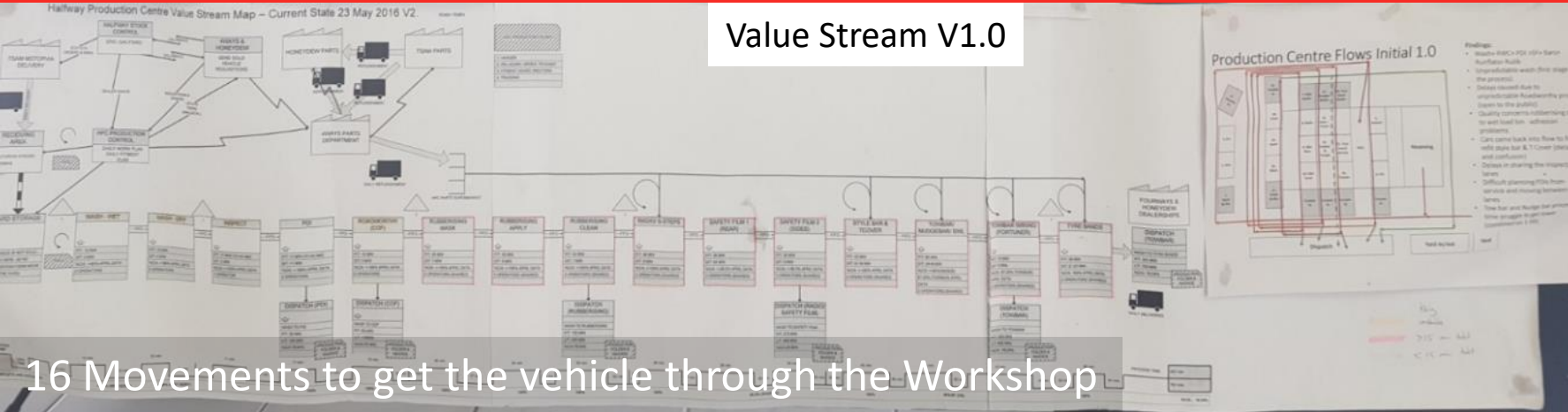
### What Changed:

- RWC as vehicles arrive PDI > Runflats > Rubb > SF > Bars > Wash.

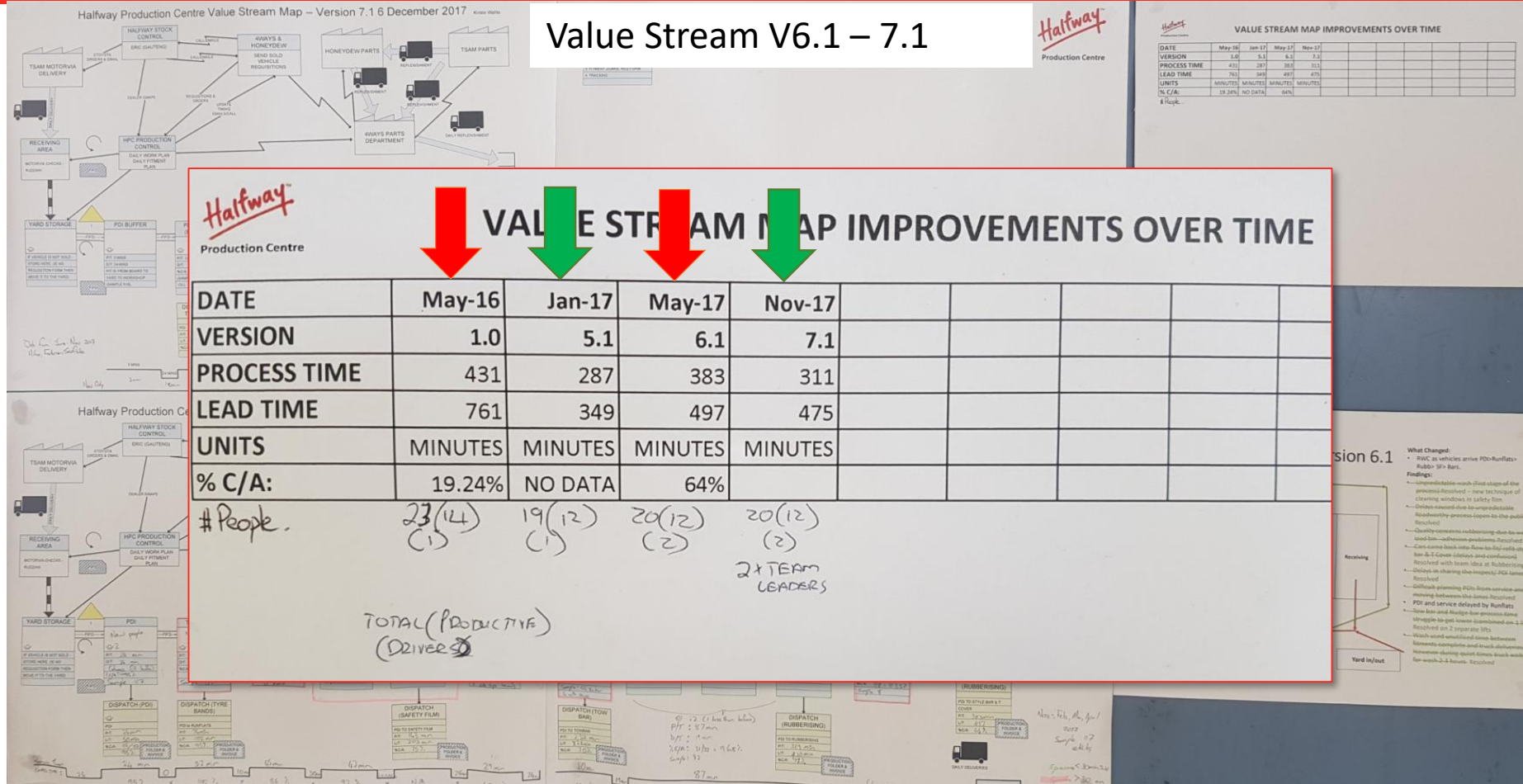
### Findings:

- Unpredictable wash (first stage of the process) Resolved – new technique of cleaning windows in safety film
- Delays caused due to unpredictable Roadworthy process (open to the public) Resolved
- Quality concerns rubberising due to wet load bin – adhesion problems Resolved
- Cars came back into flow to fit/ refit style bar & T Cover (delays and confusion) Resolved with team idea at Rubberising
- Delays in sharing the inspect/ PDI lanes Resolved
- Difficult planning PDIs from service and moving between the lanes Resolved
- PDI and service delayed by Runflats
- Tow bar and Nudge bar process time struggle to get lower (combined on 1 lift) Resolved on 2 separate lifts
- Wash used unutilised time between fitments complete and truck deliveries. However during quiet times truck waited for wash 2-3 hours

# Focus On Flowing Value to our Customer, Start In the Workshop

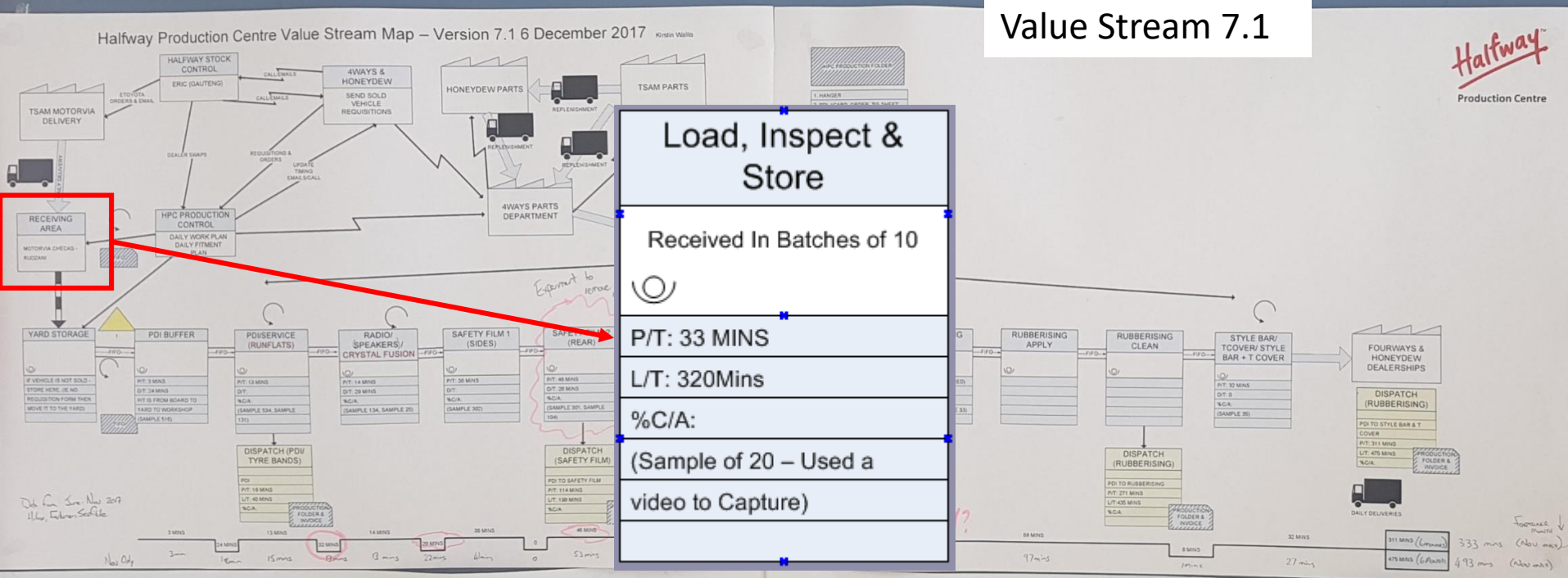


# Focus On Flowing Value to our Customer, Start In the Workshop



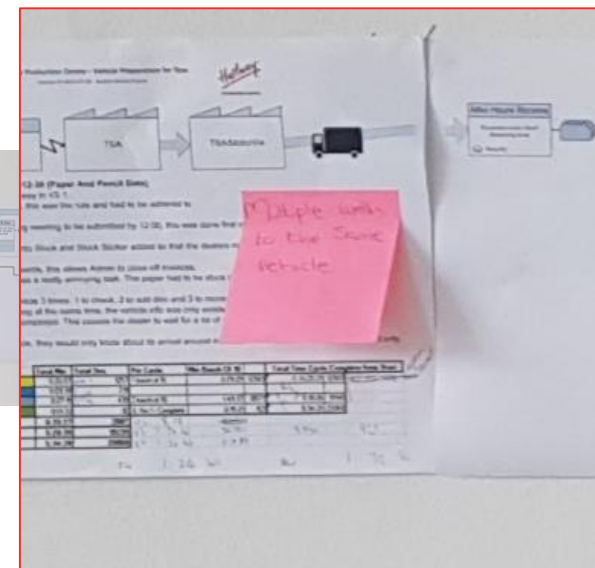
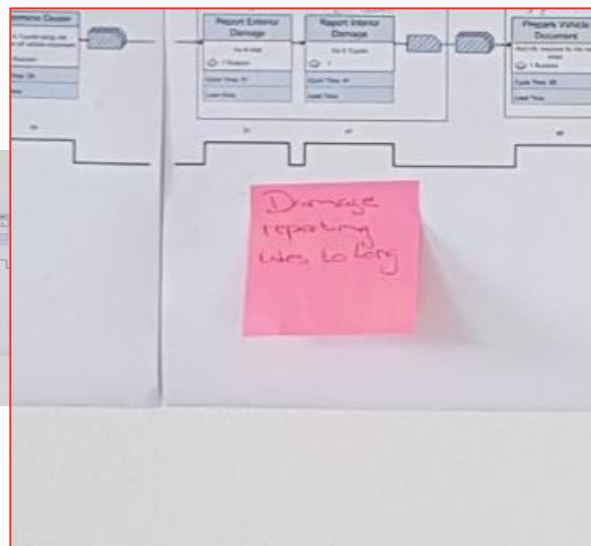
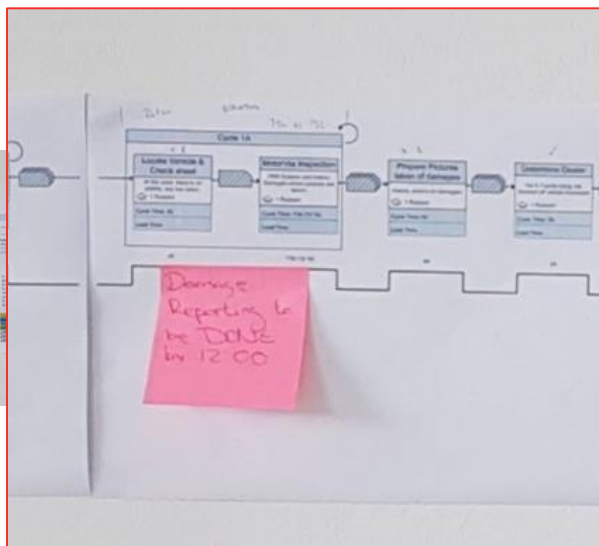
# Focus On Flowing Value to our Customer, Understand The Problem

## Value Stream 7.1





# Focus On Flowing Value to our Customer, Go to The Gemba



# Focus On Flowing Value to our Customer, Looking For Solutions

## Manual

*Halfway*

### NEW VEHICLE STOCK

HONEYDEW



VEHICLE MAKE	VIN	NUMBER	BAY NO	#	LOCATION
Hilux	AHTEB6CB302S00810			1	SAMRAND
Hilux	AHTEW6CB800990693			2	SAMRAND
Hilux	AHTEB6CB102800286			3	SAMRAND
Hilux	AHTG6W6CB800991090			4	SAMRAND
Hilux	AHTGA86B801110088			5	SAMRAND
Hilux	AHTHA8CB603590281			6	SAMRAND
Hilux	AHTEW6CB700991169			7	SAMRAND
Hilux	AHTKB8CB602960687			8	SAMRAND
Hilux	AHTGA3BB200961180			9	SAMRAND
Land Cruiser	TWILB71J904800421			10	SAMRAND
Pro's	JTNKP0JE700500385			11	SAMRAND
Elios	MBJB29BT200104190			12	SAMRAND
Corolla	AHTB33JE300014847			13	SAMRAND
Hilux	AHTKB8CB702850200			14	SAMRAND
Hilux	AHTGA86B101110137			15	SAMRAND
Hilux	AHTJB8BBX04570608			16	SAMRAND
Avenza	MHKMSEA0N0K000160			17	SAMRAND

*Halfway*



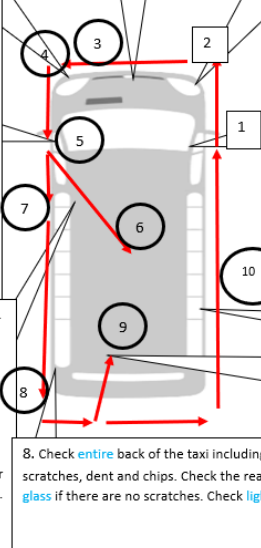
## Digital

Ref	Stock #	Time	Dealer	Who	Reg	VIN	Engine	Model
807506	40SES09851	2018/04/11 8:39	Honeydew	Sivile Nkumbi	NEW09851	AHTSX22P207034400	2TR9146345	QUANTUM 2.7 SESFIKILE 16s
807504	40SES09848	2018/04/11 8:39	Honeydew	Sivile Nkumbi	NEW09848	AHTSX22P07034404	2TR9146083	QUANTUM 2.7 SESFIKILE 16s
807502	40SES09816	2018/04/11 8:39	Unknown	Sivile Nkumbi	NEW09816	AHTSX22P107034419	2TR9146154	QUANTUM 2.7 SESFIKILE 16s
807499	40SES09788	2018/04/11 8:38	Honeydew	Sivile Nkumbi	NEW09788	AHTSX22P207034414	2TR9146096	QUANTUM 2.7 SESFIKILE 16s
807490	40SES09881	2018/04/11 8:38	Honeydew	Sivile Nkumbi	NEW09881	AHTSX22P607034643	2TR9146887	QUANTUM 2.7 SESFIKILE 16s
807484	40SES09878	2018/04/11 8:37	Honeydew	Sivile Nkumbi	NEW09878	AHTSX22P607034612	2TR9148373	QUANTUM 2.7 SESFIKILE 16s
807482	40SES09834	2018/04/11 8:37	Honeydew	Sivile Nkumbi	NEW09834	AHTSX22P707034425	2TR9146457	QUANTUM 2.7 SESFIKILE 16s
807479	40SES09828	2018/04/11 8:37	Honeydew	Sivile Nkumbi	NEW09828	AHTSX22P407035340	2TR9159320	QUANTUM 2.7 SESFIKILE 16s
807477	40SES09783	2018/04/11 8:36	Honeydew	Sivile Nkumbi	NEW09783	AHTSX22P207035269	2TR9158501	QUANTUM 2.7 SESFIKILE 16s
807470	40SES09805	2018/04/11 8:36	Honeydew	Sivile Nkumbi	NEW09805	AHTSX22P307034230	2TR9141139	QUANTUM 2.7 SESFIKILE 16s
807469	40SES09797	2018/04/11 8:35	Honeydew	Sivile Nkumbi	NEW09797	AHTSX22P407034382	2TR9145944	QUANTUM 2.7 SESFIKILE 16s
807463	40SES09796	2018/04/11 8:35	Honeydew	Sivile Nkumbi	NEW09796	AHTSX22P007034265	2TR9139774	QUANTUM 2.7 SESFIKILE 16s
807460	40SES09827	2018/04/11 8:34	Honeydew	Sivile Nkumbi	NEW09827	AHTSX22P807035230	2TR9157939	QUANTUM 2.7 SESFIKILE 16s
807459	40SES09793	2018/04/11 8:33	Honeydew	Sivile Nkumbi	NEW09793	AHTSX22P907034362	2TR9140901	QUANTUM 2.7 SESFIKILE 16s
807457	40SES09852	2018/04/11 8:33	Honeydew	Sivile Nkumbi	NEW09852	AHTSX22P407034396	2TR9140817	QUANTUM 2.7 SESFIKILE 16s
807452	40SES09833	2018/04/11 8:32	Honeydew	Sivile Nkumbi	NEW09833	AHTSX22P907034426	2TR9146558	QUANTUM 2.7 SESFIKILE 16s

# Focus On Flowing Value to our Customer, Looking For Solutions

## HPC Check Standard

### Model: Quantum

<p>4. Walk to the front corner of the car and <b>look down</b> the length of the car starting from the <b>roof</b> to the wheels looking for dents. Check for scratches, dent and chip on right side of the <b>front bumper</b>. Check <b>side mirror</b>.</p>	<p>3. Walk to the front and Check the <b>entire front</b> of the taxi including factory fitted accessory for dent, chip and scratches. Check <b>two hooter underneath</b> on the left corner. Check <b>windscreen</b> for cracks and chips</p>	<p>2. Walk to the front corner of the car and <b>look down</b> the length of the car starting from the <b>roof</b> to the wheels looking for dents. Check for scratches, dent and chip on right side of the <b>front bumper</b></p>
<p>5. Open passenger door check for scratches on door panel and frame. Open the cubby hole check for <b>service book</b>, <b>owner's manual</b>, 2 <b>tow hook covers</b> and 2 <b>tow hooks</b>. Close cubby hole and look along <b>dash board</b> for scratches. In the middle of the centre console look ash tray</p> <p>6. Step on the wheel arch and look on the <b>roof</b> for scratches and dents. Big car often scratched by trees while in transit. Close the door and check <b>beadings</b>. Check glass if there are no scratches.</p>		<p>1. Check that all keys are present. Open the door and check for scratches on <b>dash board</b>, <b>ignition</b>, <b>door frame</b>, <b>door panel</b>. Check that the rubber covers is on the <b>pedals</b>. Close the door and check <b>beadings</b>. Mark down all damage on the consignment form and take pictures to send to MotorVia</p>
<p>7. Walk to the passenger sliding door and open it. On the step open the cover to check if <b>jack</b> is there. Then get inside to check 4 <b>wheel caps</b> are present and underneath the seat behind the driver seat check the <b>tool bag</b>. Check seats and <b>headrest</b>. In the <b>tool bag</b> check for; 2 spanners, 1 pliers, screw driver, wheel spanner, 3 spare wheel extension and lowering rods and two jack <b>extension blocks</b>. Check the roof lining inside for damage and check the sunroof for chips or cracks. Check <b>glass</b> if there are no scratches.</p>		<p>10. Walk along driver side <b>towards the door</b> and check body for scratches, chip and dent. Check <b>glass</b> if there are no scratches.</p>
<p>9. Underneath, check <b>spare wheel</b> is present and the factory fitted accessory for chip, check <b>along length dent</b> and scratches</p>		
	<p>8. Check <b>entire</b> back of the taxi including <b>rear bumper</b> from left to right for scratches, dent and chips. Check the rear <b>windscreen</b> for cracks or chips. Check <b>glass</b> if there are no scratches. Check <b>lights cracks</b>.</p>	

CHECKED BY:

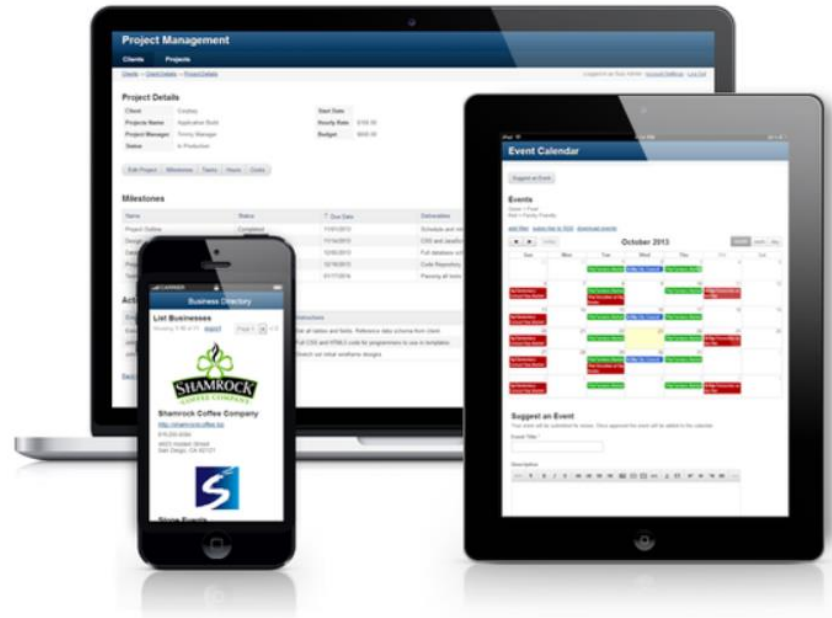
VIN / STOCK NO / JOB NO:

DATE :

# Focus On Flowing Value to our Customer, Looking For Solutions

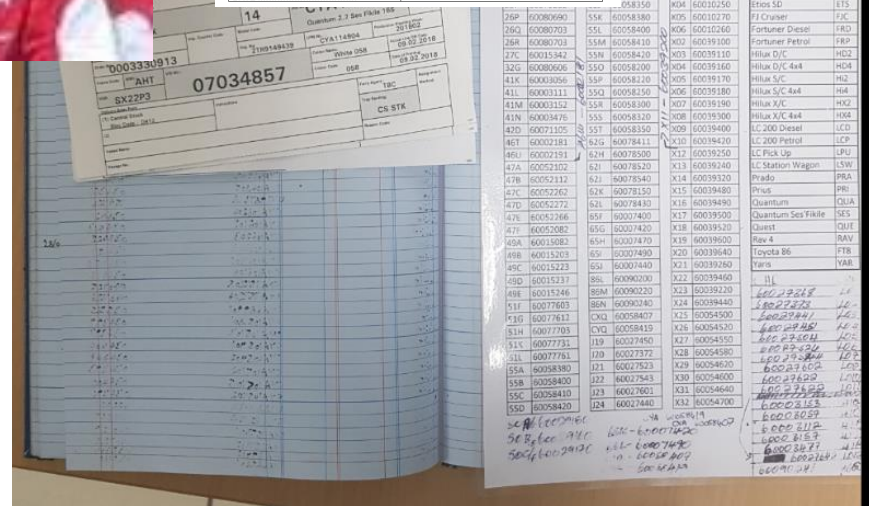
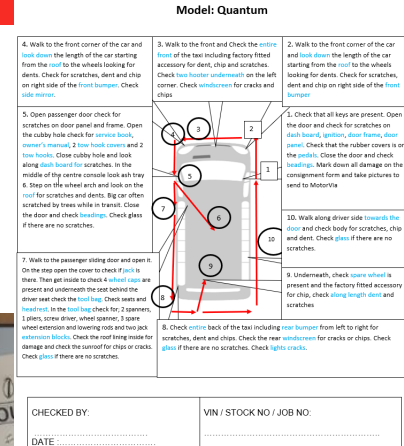
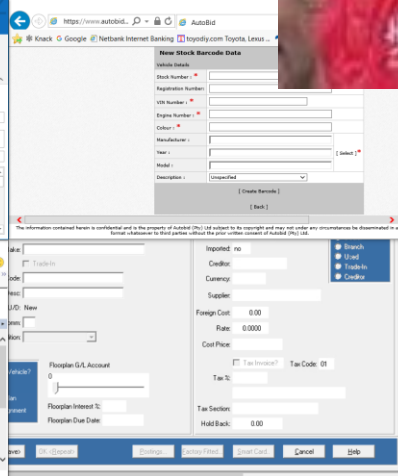
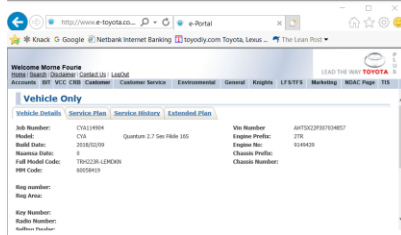
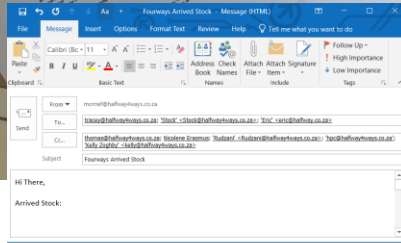
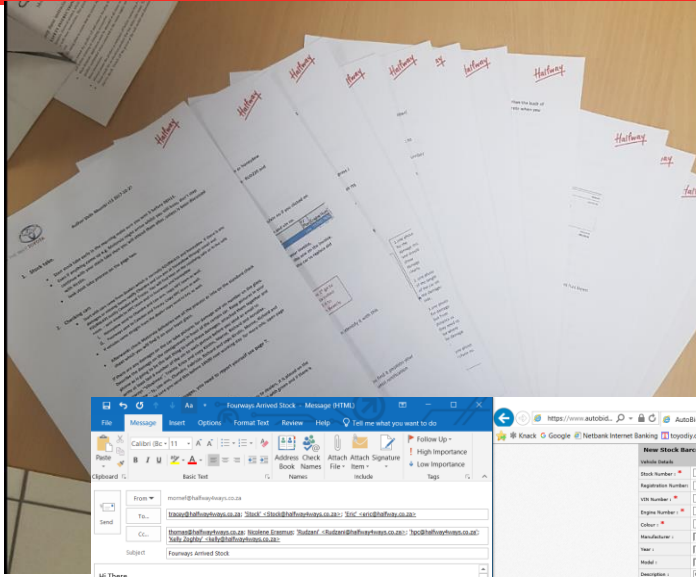
I'm Sorry, Did you say Knack?

knack\*





# Focus On Flowing Value to our Customer, Experimenting



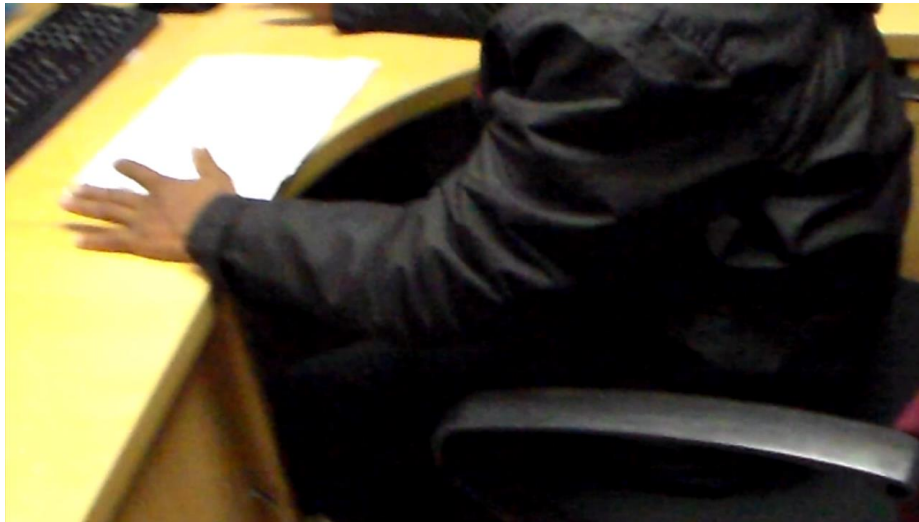
Halfway™

MM&A

THE LEAN ENTERPRISE ACADEMY

# Can we Flow Value to our Customer?

		Video 1 – Old	Video 2 - New
1.	Physical Check With Damage	20:57	04:10
2.	P/T Per Complete Vehicle (24Min)	33:27	09:15
3.	First Vehicle Done in Batch of 10	05:20:39	09:15
4.	Last Vehicle Done In Batch of 10	05:34:28	01:32:30



Video 1



Video 2

# More results

## Focus On Flowing Value to our Customer, Outcome

		Video 1 – Old	Video 2 - New
1.	Systems Used	11	5
2.	Paperwork Time to Complete	12:30	6:34
3.	Walks to the Same vehicle	3	1

Time Saved for Received Batch Of 10	311 (5:11:00)
Time Saved over the Volume of 300 Vehicles per month	9330 (156)
Workdays worth of Time Saved	18

# When will you Start Using no-code platforms like Knack?



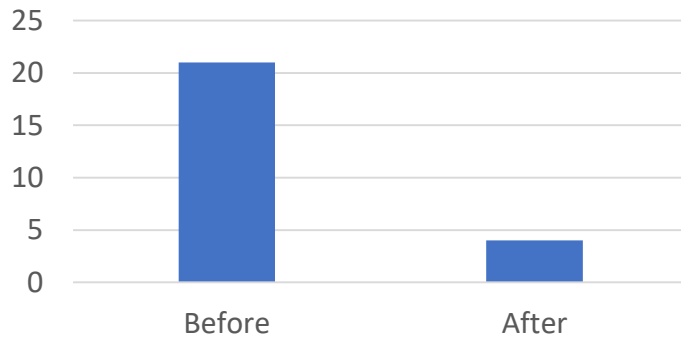


# When will you Start Using no-code platforms like Knack?

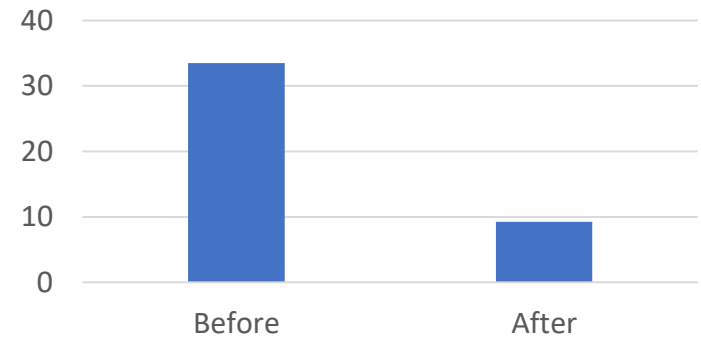


# Mike Moore

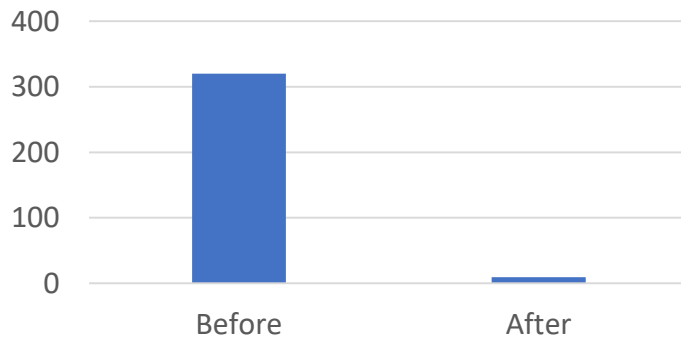
Physical Check & Damage Report



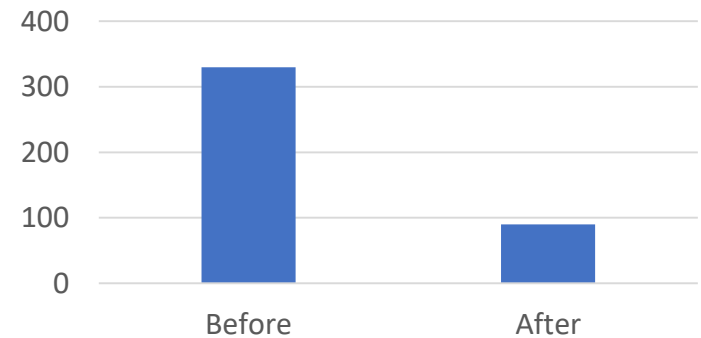
Time to Complete Vehicle



First Vehicle Ready Time



Time to finish batch of 10



# Morné the developer?

**.NET**

**PHP**

**SQL**

**IIS**

**C#**

**XML**

**Python**

**Javascript**



# Halfway Apps





# The Citizen Developer



**Morné Fourie**  
CITIZEN DEVELOPER

- Experiment
- Refine and improve the application
- Doing Kaizen with the admin alongside Kaizen with the physical work
- Collaborate with the team to feed ideas back into the app
- Respond quickly to suggestions and challenges

# The Citizen Developer



**David Male**

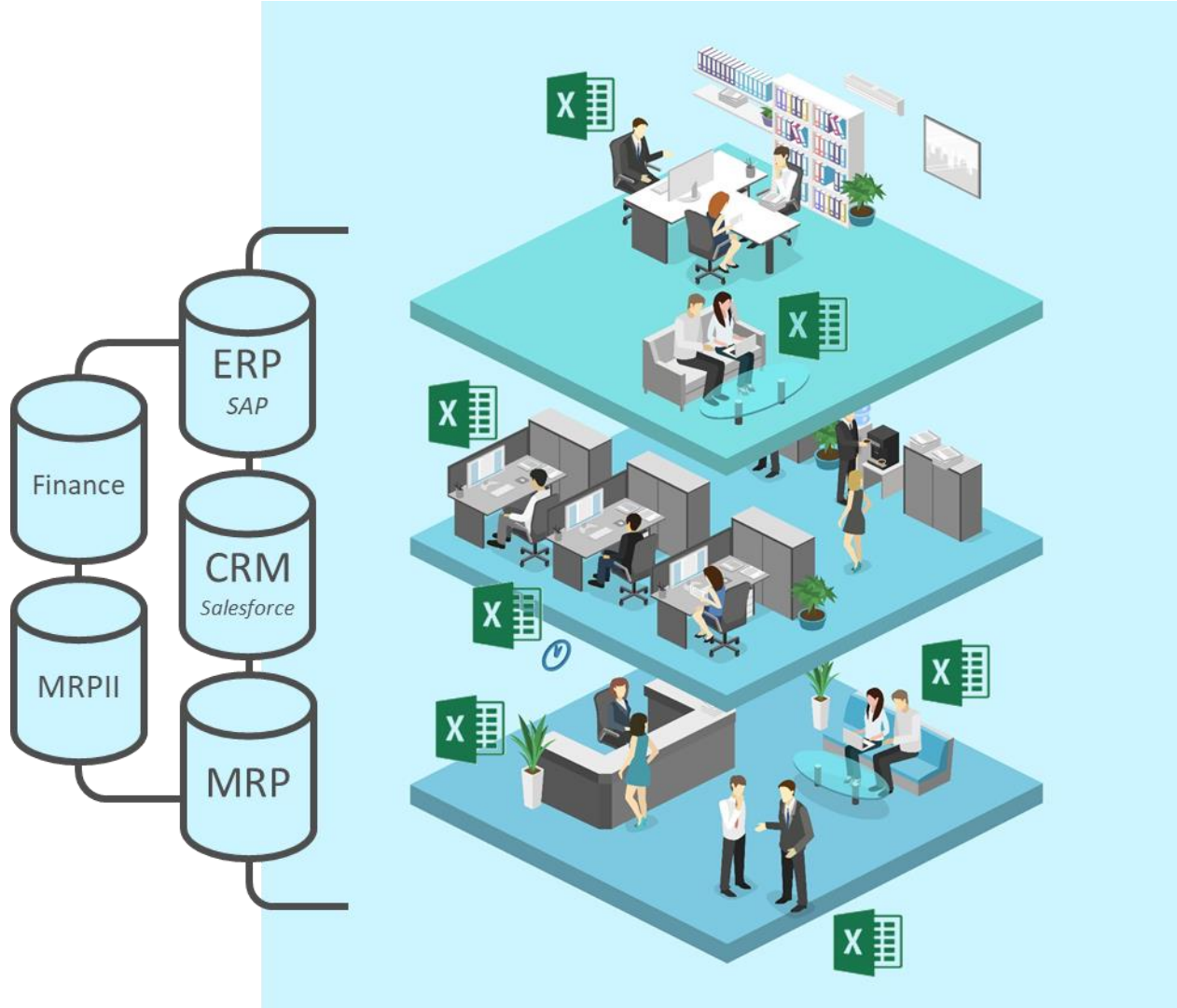
CITIZEN DEVELOPER

## **ROBINS & DAY**

(Peugeot Citroen Retail Group UK)

- Using Knack and other low-code platforms for over a year
- Built several applications that have already transformed the business
- Built automated links between his apps and other core systems within the business

# Traditional IS ecosystem



**DATA RICH,  
INFORMATION  
POOR**

# No-Code Applications

**THERE IS  
MUCH TO SEE  
AND ENDLESS  
POTENTIAL  
FOR CHANGE  
AND  
IMPROVEMENT**

