

Delivering Design Through Lean Thinking

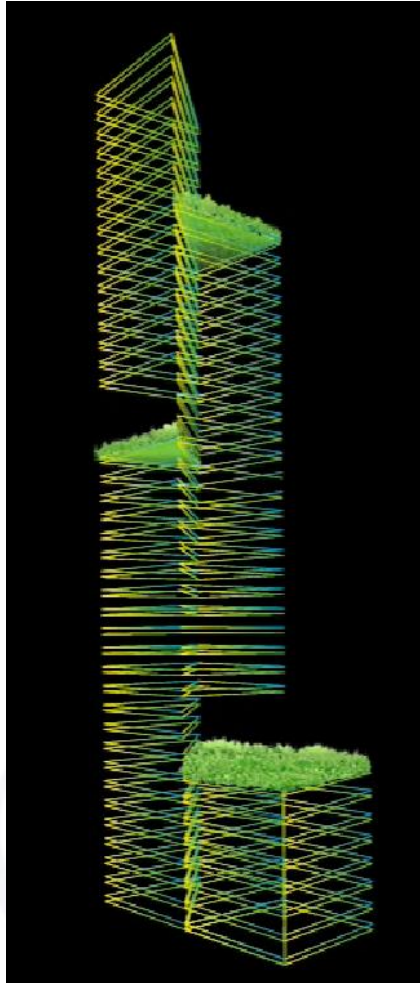
Darren Poultney
Turner & Townsend Suiko



Stuart Heaysman
Bouygues



Manhattan Loft Gardens



Described as “Europe’s most ambitious residential tower” Manhattan Loft Gardens is proposing to shape the next generation of living.



Based in Stratford City, London, it is a double-cantilevered tower, with three ‘sky gardens’ and a design hotel.



Project Scope

- BYUK's 1st tower project; 43 storeys.
- Very contractual environment with heavy Client Approval process
- Design process was continually losing time
 - Potential for subsequent impact on procurement and build identified as critical
- Turner & Townsend Suiko chosen as partner to implement improvements through Lean Thinking

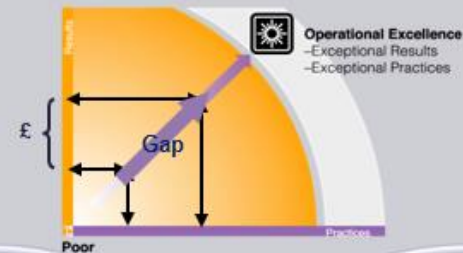


Suiko Approach

17
Summit

Suiko Why™ - understanding the compelling business reason for change

WHY?



Suiko What™ - developing and establishing a structure to the ways of working (practices)

WHAT?



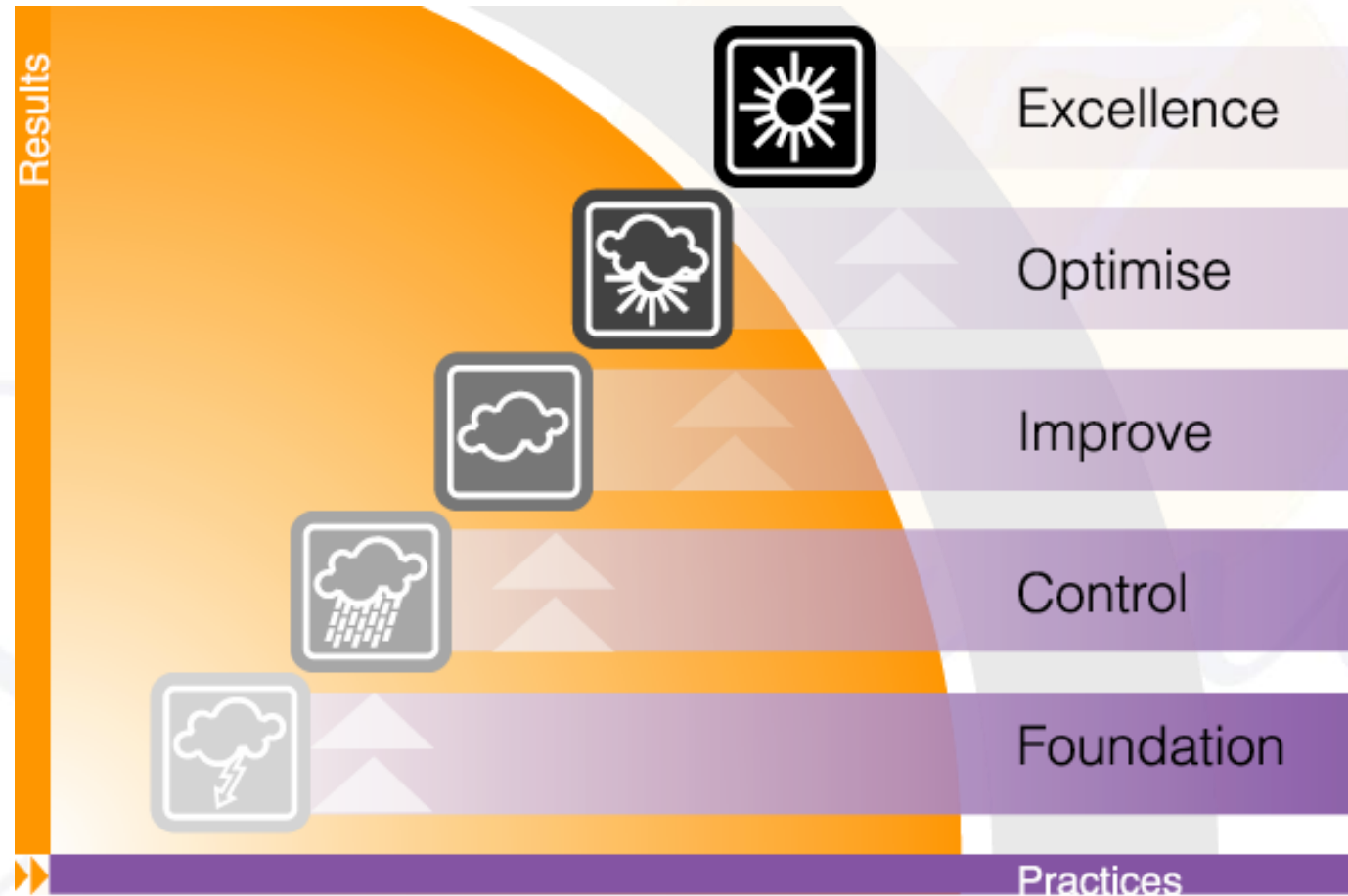
HOW?



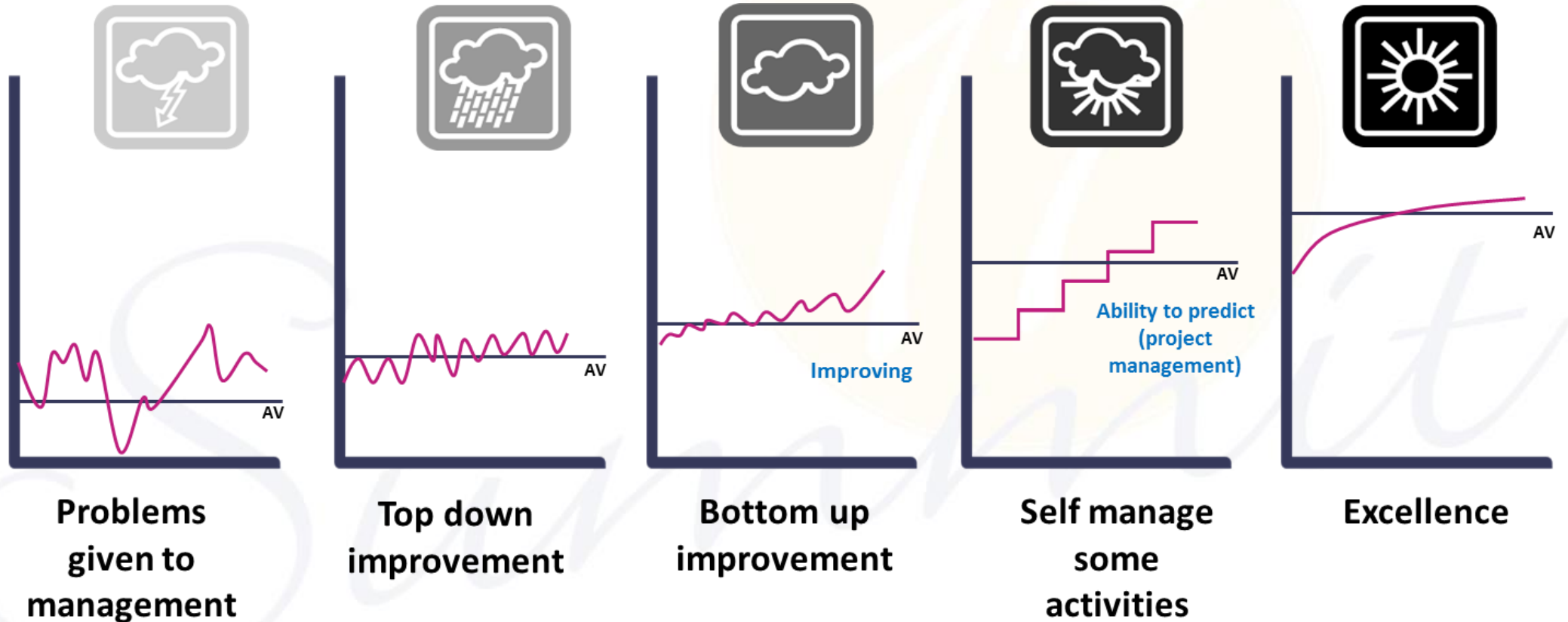
Suiko How™ - applying the enablers that accelerate and sustain change

Suiko Approach: WHAT?

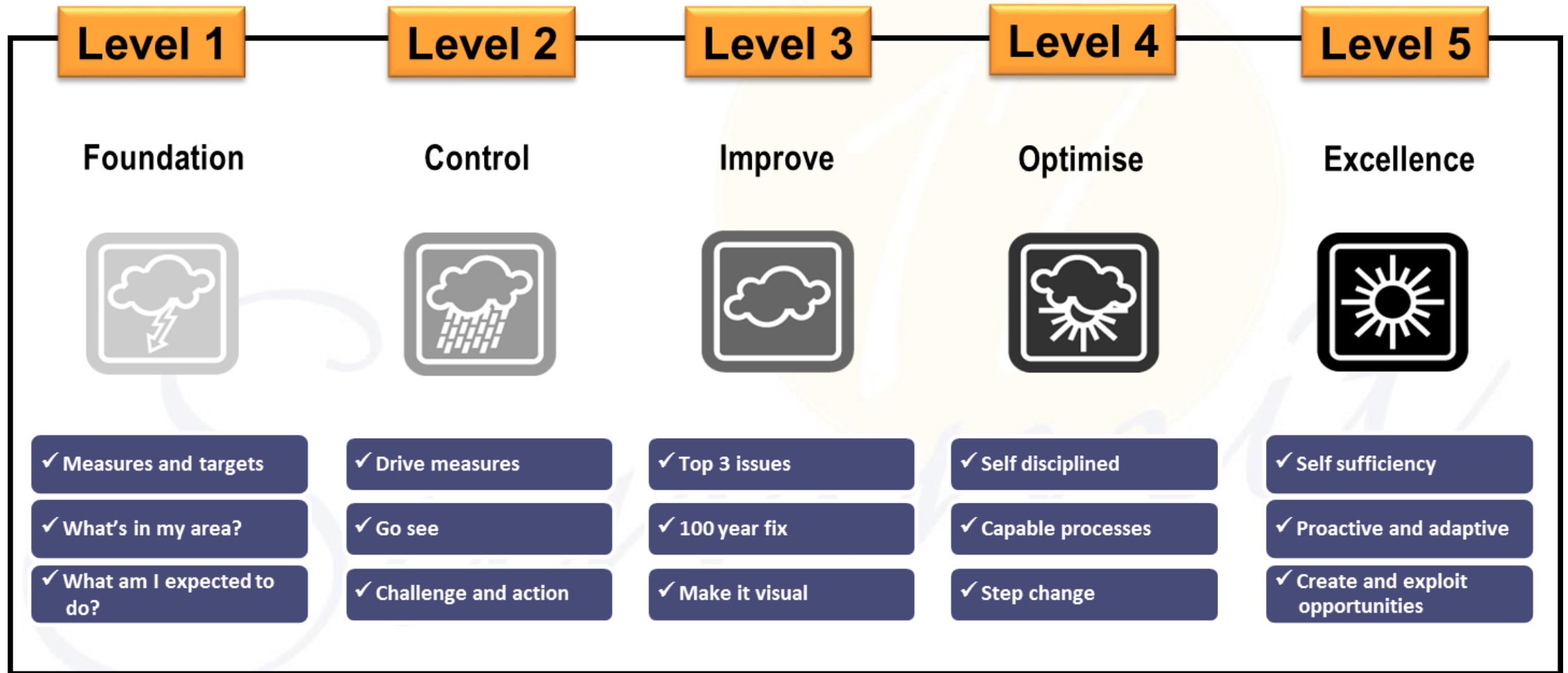
17
Summit



Suiko Approach; Symptoms



Suiko Approach: Levels & Top Tips



Approach: Education and Awareness

- 'Kick-off' session with Site team
 - Introduction to Turner and Townsend Suiko
 - Aims and Objectives
 - Clarification of Approach and Expectations
- Appropriate training workshops
 - Understanding of Key Lean Principles
 - Team building



Approach: Understand the Issues

Structured, personal interviews

- Build relationships and common understanding of the project
- Understand current key processes
- Identify what works well and not so well
- Understand peoples frustrations
- Identify potential areas for improvement



Design: Meeting the team: Interview questions

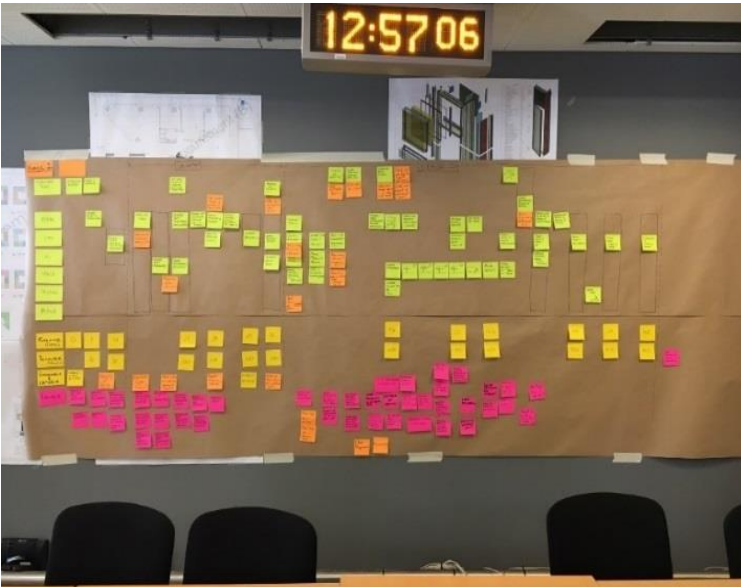
Name: _____ Date: _____

Job Title: _____

- How long have you been in the industry?
- How long have you been in the business?
- How long have you been on site?
- What is your role? Title, main responsibilities etc.
- Who do you report to?
- Who reports to you?
- What do your reports do?
- How does this site compare to others that you have worked on?
- What does a 'Day in the Life of' look like?
- How much time is planned, vs firefighting?
- What interactions do you have with others? Contractors, design team, site management team etc.
- What defines a good day / bad day?
- What meetings do you routinely attend, and how effective are they?
- What are your objectives and measures of success? Is this quantified?
- Do you have a copy of the live programme that I could view?
- How are actions defined, tracked etc?
- What documentation do you use? Standard documentation? Benefits etc?
- What works well?
- What not so well?
- Your frustrations
- What would you change if you could?

Approach: Process Mapping

- Workshops to understand current process steps
- Importantly, included BYUK and core consultants

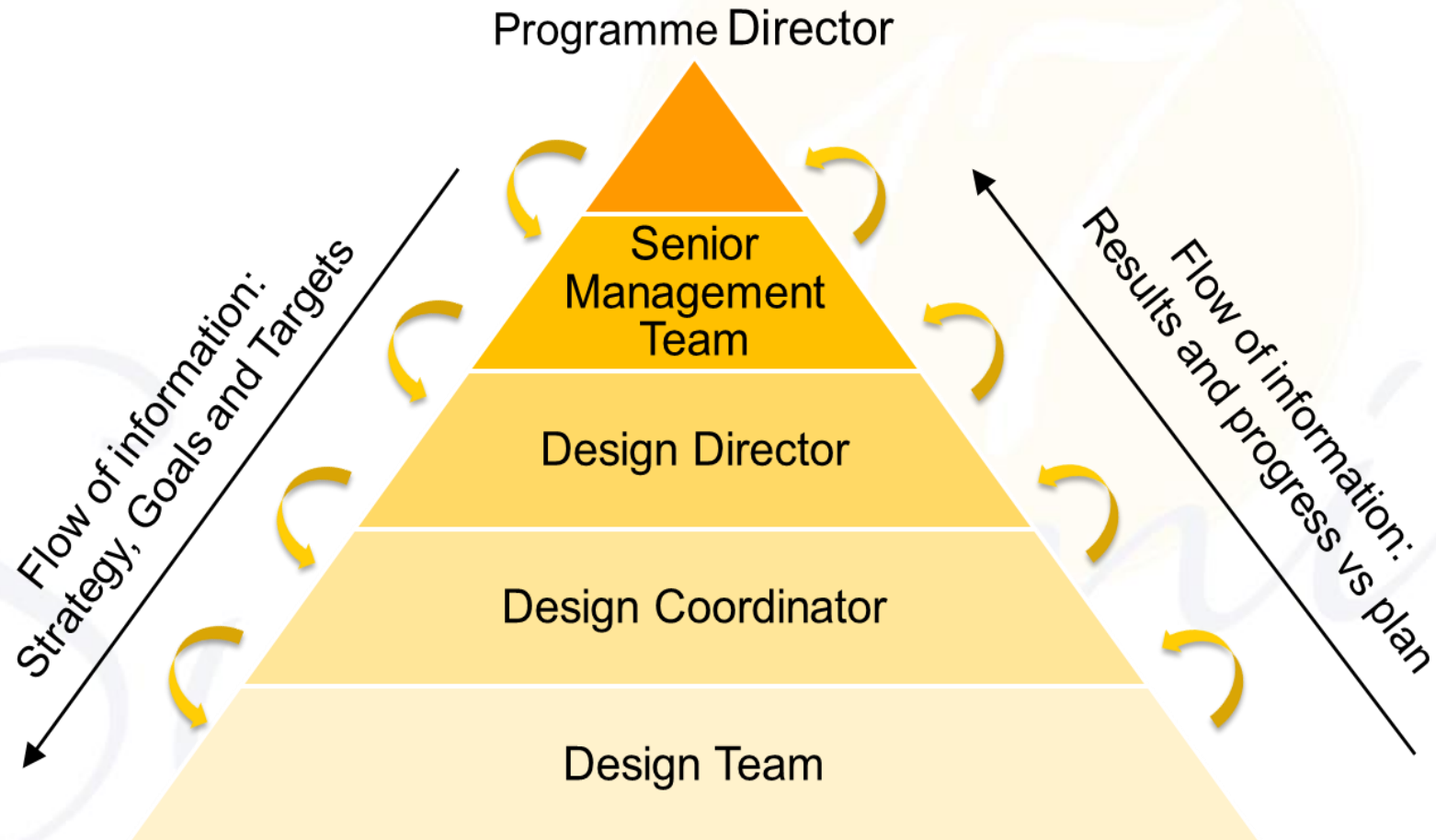


Key Themes Identified

- Opportunities for improvement identified in the following areas:
 - Clarity of roles
 - Clarity of requirements / objectives
 - Changing priorities → Firefighting
 - No measure of success
 - Effectiveness of Communication / flow of information
 - Coordination of activities
 - Definition of actions from meetings
 - Lack of accountability
 - Actions not always closed out



Solution: Design Process Daily Review



Collaborative Planning

Collaborative meeting held with Bouygues and Design Consultants

- Programme Development
- Standardised templates
- Identification of required activities
- Establish required activity duration
- Sequencing of activities



Output → Optimised, collaborative plan to achieve (or improve upon) all key milestones set out in Programme

Master Activity Tracker

- The Master Tracker is populated with all deliverables from the Consultant, where Planned (and Actual) delivery dates or actions are incorporated.



Clear document
information

Design Packages - MLG Activity Tracker							Progress		1 - SOM submit		3 - BY sign off									
Owner: Alek Georgiou									2 - BY Review		4 - Client Sign off									
Document Number		Originator Doc No	Revision	Document Title	Size	Scale	Due Date	Owner	Progress (1-4)	Status (R/A)	03/10/16	04/10/16	05/10/16	06/10/16	07/10/16	10/10/16	11/10/16	12/10/16	13/10/16	14/10/16
GENERAL																				
MLG-SOM-A31-ALL-GA-SL-		100000	A-000	B	COVER SHEET	A0	NTS													
MLG-SOM-A31-ALL-GA-SL-		100001	A-001	B	INDEX OF ARCHITECTURAL DRAWINGS	A0	NTS													
MLG-SOM-A31-ALL-GA-SL-		100002	A-002	A	ABBREVIATIONS, SYMBOL LEGENDS	A0	NTS													
MLG-SOM-A31-ALL-GA-SL-		100004	A-004	B	MATERIALS LIST	A0	NTS													
SITE PLANS																				
MLG-SOM-A31-ALL-GA-SL-		100011	A-011	A	LOCATION PLAN	A0	1:1000													
MLG-SOM-A31-ALL-GA-SL-		100012	A-012	B	SITE PLAN	A0	1:500													
MLG-SOM-A31-ALL-GA-SL-		100013	A-013	C	SETTING OUT PLAN	A0	1:100													
MLG-SOM-A31-ALL-GA-SL-		100014	A-014	A	SITE LOCATION PLAN	A3	1:2500													
MLG-SOM-A31-ALL-GA-GND-		100051	A-051	-	GROUND LEVEL SITE PLAN (10/2)	A0	1:50													
MLG-SOM-A31-ALL-GA-GND-		100052	A-052	-	GROUND LEVEL SITE PLAN (20/2)	A0	1:50													
FLOOR PLANS - SHELL & CORE																				
MLG-SOM-A31-ALL-GA-BAS-		100100	A-100	C	PLAN - BASEMENT (DETAIL KEY-OFF)	A0	1:100													
MLG-SOM-A31-ALL-GA-GND-		100101	A-101	D	PLAN - GROUND LEVEL (DETAIL KEY-OFF)	A0	1:100													

Activity dates
specified


Daily Activity Sheet

17
Summit

				Manhattan Loft Gardens		Daily Activity Sheet								Owner Week comm. Updated		Alek Georgiou 14th November, 2016	
No.	Responsible	Action	Description	Resource	Previous Stage	Mon		Tues		Wed		Thurs		Fri		Issue / Comment	
				Available	Complete?	Plan	Complete	Plan	Complete	Plan	Complete	Plan	Complete	Plan	Complete		
22	BYUK	P2	100313							P2							
23	BYUK	P2	100331							P2							
24	BYUK	P3	102316									P3					
25	BYUK	P3	102318									P3					
26	BYUK	P3	102334									P3					
27	BYUK	P3	100335									P3					
28	BYUK	P3	102316									P3					
29	SOM	P1	100594											P1			
30	SOM	P1	102338											P1			
31	SOM	P1	100351											P1			
32	SOM	P1	100352											P1			

Daily Review Process

- Daily Review undertaken every day
- BYUK and architectural consultant
 - Review of activity completion
 - Review of outstanding Actions
 - Identification of issues causing progress to be delayed, and defining appropriate actions
 - Clarification of next day requirements



Residential Design:
Daily Review Meeting Agenda

1. Review outstanding short-term actions
 - Have all the actions due today been completed? If not, why not?
 - Add additional actions if necessary
2. Review the daily activities vs plan;

i) Activity completion
ii) Quality

 - Did we achieve what we set out to achieve? If not, why not?
 - Assign actions where necessary, to prevent issues from being repeated again.
 - ensure owner (present) & date are defined
3. Clarify activities for the following day
 - Ensure everyone understands what is required
4. Review any potential forthcoming issues
 - Are other activities / priorities going to affect the activities planned
5. List any actions that cannot be resolved and require escalation
6. AOB

		Programme Review Actions:		Review Date		Complete
		Residential Design		9 January 2017		Overdue
No.	Action	Owner	Date	Days Until Due	Status	Comments
87	BYUK issue MOM from communal workshop	AG	29-Nov		Complete	
88	SOM to advise communal packages issue dates	JE	29-Nov		Complete	
89	BYUK to confirm comments on K13	AG	29-Nov		Complete	
90	BYUK to issue updated Activity Tracker	AG	29-Nov		Complete	
92	BYUK to send GF paving info to SOM	AG	09-Dec		Complete	
93	Organise meeting with Kane to coordinate	AG	09-Dec		Complete	
94	SOM to correct penthouse wall location	JE	14-Dec		Complete	
95	BYUK to arrange metalwork workshop	AG	15-Dec	-25	Complete	email sent 170103
96	SOM to update façade abutment detail	JE	04-Jan	-5	Overdue	09/01/17: DIZ and SCA to meet next week.
98	carpark wall to be revised as AG emails 09/01/17	JE	13-Jan	4		

Weekly Review Process

- A weekly programme meeting is held with Consultants
 - agree weekly objectives
 - agree any change in priorities
- A weekly Design & Production meeting is held
 - review Design information required to maintain Site progress
 - allows management of priorities for the BYUK Team

DESIGN						
No	ISSUES	ACTION	RESPONSIBLE		STATUS	DATE COMPLETE
			WHO	WHEN		
1	Review head & 9.10.10 team up	Set structure to confirm	Shane	26/01	✓	26/01
2	20' P. Lath CS/rollout/Dimensions	to be updated structure to confirm	Shane	19/01	✓	25/01
3	Project road design (priority review)	to be confirmed	Shane	19/01	✓	25/01
4	Appointment to Bridge - for requirements	to be defined (hope to return on 1st)	Shane	19/01	✓	25/01
5	Pool Deck - numbers	to be confirmed	Shane	19/01	✓	25/01
6	L11.15 update to outline built	to be confirmed	Shane	19/01	✓	25/01
7	Access point for the works	to be confirmed	Shane	19/01	✓	25/01
8	Notes in code / left side of report	to be confirmed	Shane	19/01	✓	25/01
9	1105-1215 construction week	to be confirmed	Shane	19/01	✓	25/01
10	1.6.16 dimensions (BP)	to be confirmed	Shane	19/01	✓	25/01
11	Thermal on bridge deck	to be confirmed	Shane	19/01	✓	25/01
12	(1.14) Stone design surface	to be confirmed	Shane	19/01	✓	25/01
13	Leads 2.2/2.3/2.4	to be confirmed	Shane	19/01	✓	25/01
14	Covering details + case/sketch	to be confirmed	Shane	19/01	✓	25/01
15	Top edge not passed	to be confirmed	Shane	19/01	✓	25/01
16	Rolling in the cupboard	to be confirmed	Shane	19/01	✓	25/01
17	Leave young/children's room	to be confirmed	Shane	19/01	✓	25/01
18	Verill Ball dimensions + structure	to be confirmed	Shane	19/01	✓	25/01
19	Toilet holder finish	to be confirmed	Shane	19/01	✓	25/01
20	Ball in the shower	to be confirmed	Shane	19/01	✓	25/01
21	W28 dimension same confirmation	to be confirmed	Shane	19/01	✓	25/01
22	Technical data proposed system	to be confirmed	Shane	19/01	✓	25/01
23	Self rising on layout sheets	to be confirmed	Shane	19/01	✓	25/01
24	W2 work box made to back	to be confirmed	Shane	19/01	✓	25/01
25	APD schedule	to be confirmed	Shane	19/01	✓	25/01
26	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
27	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
28	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
29	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
30	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
31	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
32	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
33	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
34	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
35	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
36	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
37	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
38	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
39	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
40	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
41	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
42	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
43	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
44	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
45	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
46	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
47	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
48	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
49	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01
50	1.12.16 (room) (bal)	to be confirmed	Shane	19/01	✓	25/01

Visual Management

- Visual indicators to highlight potential issues
- Charts showing progress vs plan

Daily Activity Sheet														
BOUYGUES UK				Manhattan		Owner		Alek Georgiou						
				Loft		Week comm.		21st November, 2016						
				Gardens		Updated								
No.	Responsible	Action	Description	Resource Available	Previous Stage Complete?	Mon	Tues	Wed	Thurs	Fri	Quality (Y/N)	Delay Code	Issue / Comment	
42	BNK		100735					P1	A1					
43	BNK	P2	100737		P1				P2	A2				
44	BNK	P2	100733		No P1 Data Assigned				P2	A2				
45	BNK	P2	102733		No P1 Data Assigned				P2	A2				
46	BNK	P2	103733		No P1 Data Assigned				P2	A2				
47	BNK	P2	104733		No P1 Data Assigned				P2	A2				
48	BNK		101220				P1	A1						
49	BNK	P2	101300						P2	A2				
50	BNK	P2	101410						P2	A2				
51	BNK	P2	101411						P2	A2				
52	BNK	P2	100016		P1				P2	A2				
53	BNK	P3	100839		P2				P3	A3			P3 22/11/16	
54	SOM	P1	Spec - pad room							P1				
55	SOM	P1	Spec - lobby skid							P1				
56	SOM	P1	Spec - carpet							P1				

Manhattan

Loft

Gardens

Daily Activity Sheet

Owner

Alek Georgiou

Week comm.

21st November, 2016

Updated

25th November, 2016

Weekly Dashboard: Residential Design Activity

Daily Progress Vs Plan

Day	Plan	Complete
Mon	0	0
Tue	30	25
Wed	5	5
Thu	15	10
Fri	40	15

	Mon		Tues		Wed		Thurs		Fri		Weekly Total		
	Plan	Complete	Plan	Complete	Plan	Complete	Plan	Complete	Plan	Complete	Plan	Complete	% complete
P1 F A1	2	1	2	2	6	1	2	1	16	11	28	16	57%
P2 F A2							9	9	16	5	25	14	56%
P3 F A3	24			24			1	1	9	1	34	26	76%
P4 F A4													#DIV/0!
Total	26	1	2	26	6	1	12	11	41	17	87	56	64%

Cumulative Progress vs Plan

Day	Plan	Complete
Mon	0	0
Tue	30	25
Wed	35	30
Thu	50	40
Fri	90	55

P1 Cumulative Progress vs Plan

Day	Plan	Complete
Mon	0	0
Tue	2	1
Wed	4	3
Thu	10	7
Fri	26	16

P2 Cumulative Progress vs Plan

Day	Plan	Complete
Mon	0	0
Tue	0	0
Wed	0	0
Thu	9	9
Fri	25	14

P3 Cumulative Progress vs Plan

Day	Plan	Complete
Mon	24	24
Tue	24	24
Wed	24	24
Thu	25	25
Fri	49	26

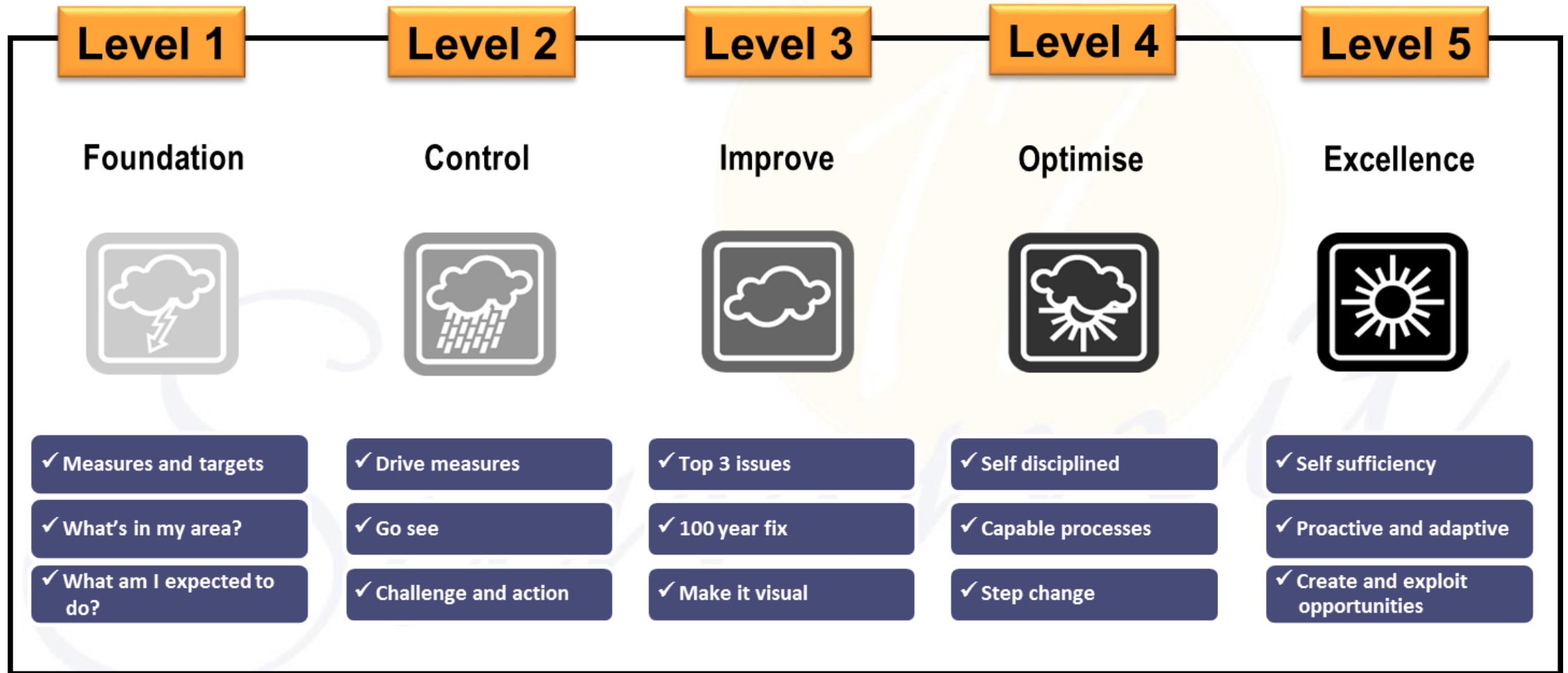
P4 Cumulative Progress vs Plan

Day	Plan	Complete
Mon	0	0
Tue	0	0
Wed	0	0
Thu	0	0
Fri	0	0

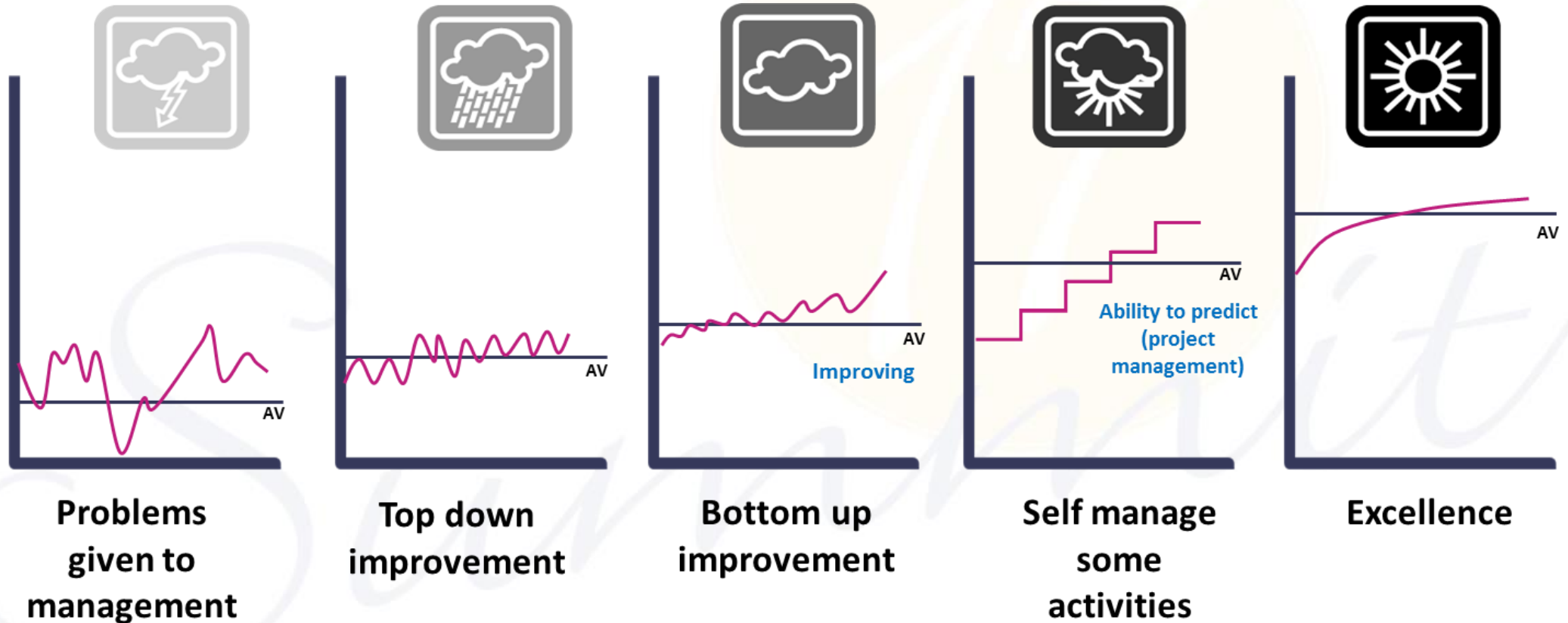
Turner & Townsend
Sole

BEAR

Suiko Approach: Review of Levels

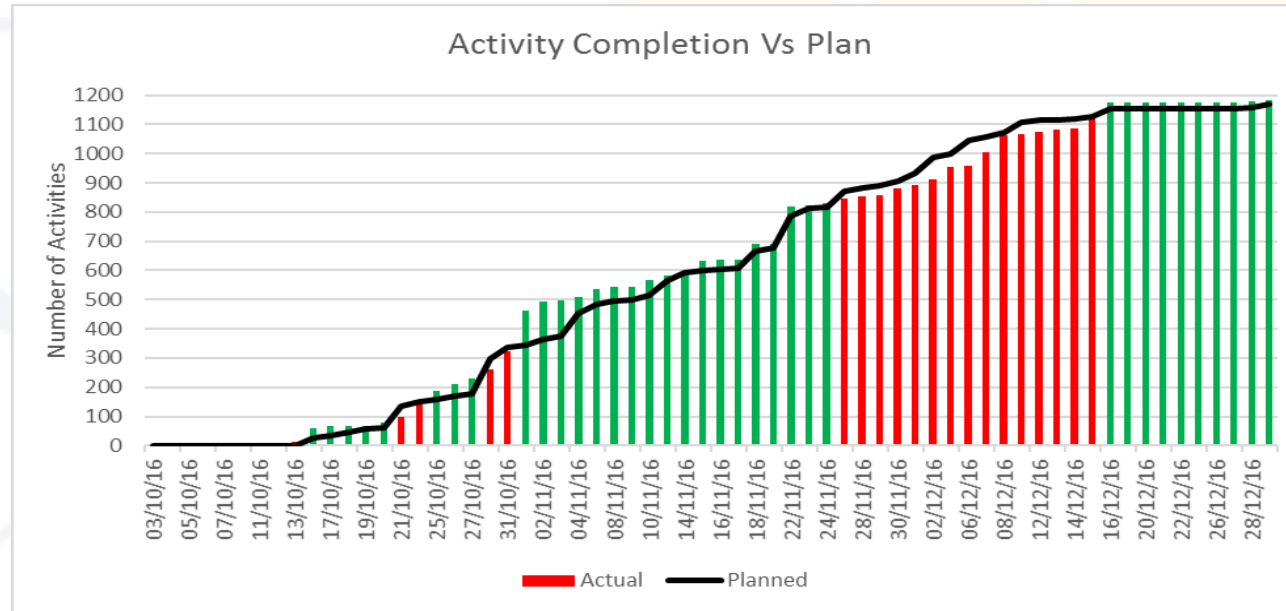


Suiko Approach; Review of Symptoms



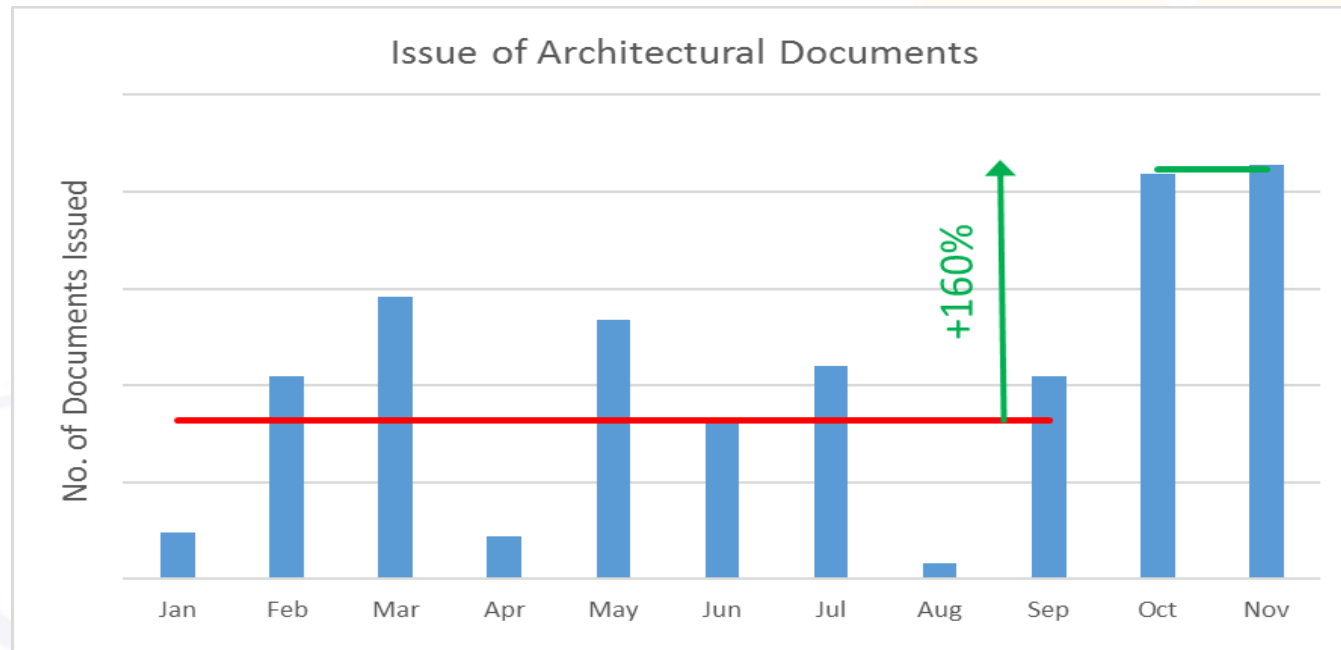
Results: Adherence to Plan

- Compliance with planned activities was very positive
 - The number of completed activities closely matched the plan
 - More than 2 months after implementation, an overall rate of adherence to plan of 100%



Results: Quantitative

- Average number of documents issued increased by an additional **+160%** upon implementation (**82/month** → **212/month**)
- No deterioration in the quality of work



Based on this improved rate, completion of the Design programme is considered to have been accelerated by approximately four months in this two-month period.

Results: Qualitative

- More documents being produced 'right first time'
- Documents produced on time, aligned with sequence
- Production and Design are much better aligned
- Change in priorities more effectively managed
- Greater clarity and focus on priority issues
- Less staff turnover from Consultant Team

Factors Critical to Success

- Emphasis on early Education and Engagement
- Collaborative approach; BYUK, architects, subcontractors
- Tools and behaviours;
- Improved clarity and visibility of requirements ensures accountability
- Developing key measures to track progress vs plan

Factors Critical to Success

- Be open and honest
- Willingness to offer and accept constructive criticism
- Build relationships between the different parties
- Show the benefit to the Consultants as well
- Improvements seen by focussing on:
 - Cooperation
 - Coordination
 - Communication



Turner & Townsend
Suiko

17
Summit

Questions & Discussion

Darren.Poultney@turntown.co.uk



Balfour Beatty



Turner & Townsend
Suiko

