



Co-located with:



Introducing:



**18 – 21 FEBRUARY 2023**

RIYADH FRONT EXHIBITION AND  
CONFERENCE CENTER (RFECC)

## **IMPLEMENTATION OF BIM WITHIN CONSTRUCTION**

*ENGINEERING CHALLENGES AND THE AUTOMATION OF ENGINEERING  
MANAGEMENT*

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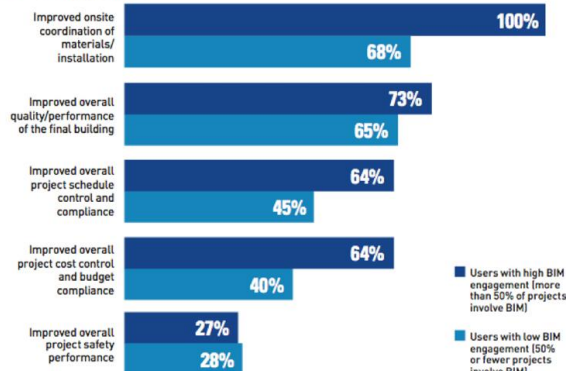
# Benefits of implementing BIM



The building industry has already benefited by implementing BIM

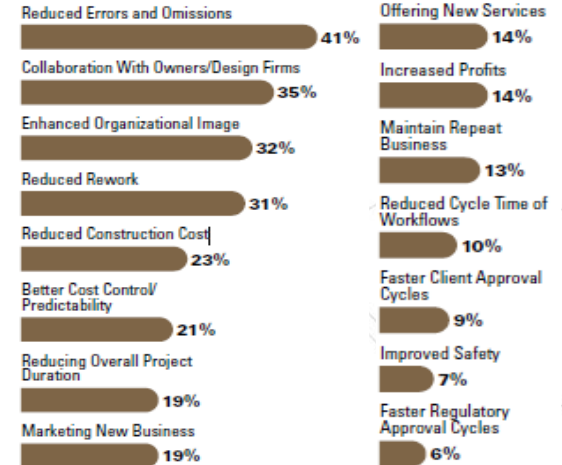
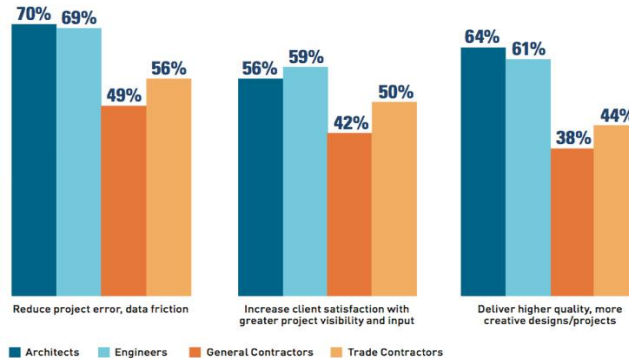
## Benefits of BIM (High Engagement Users Only)

Percentage of highly engaged BIM users who cite each of five benefits generated by having other key team members engaged with BIM



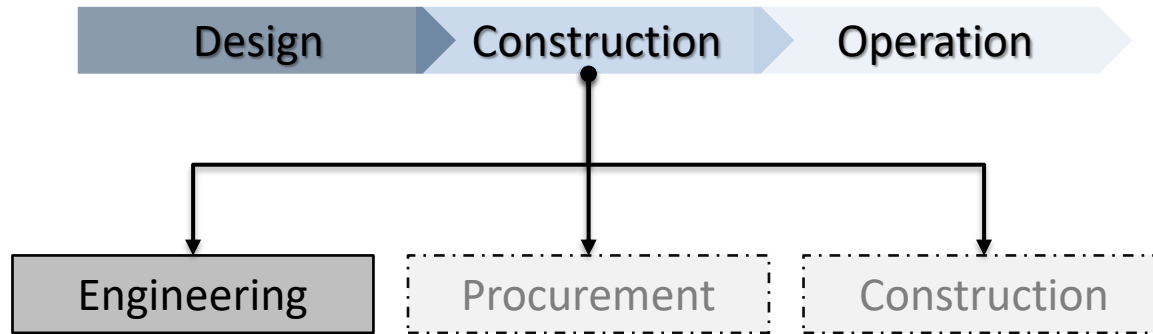
## Project Outcome Improvements From Using a Collaboration Solution on BIM Projects (by Type of Company)

Percentage of respondents, by discipline, who report receiving these project outcome improvements at a high or very high frequency from using a collaboration solution on their BIM projects



# Benefits of implementing BIM

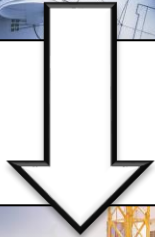
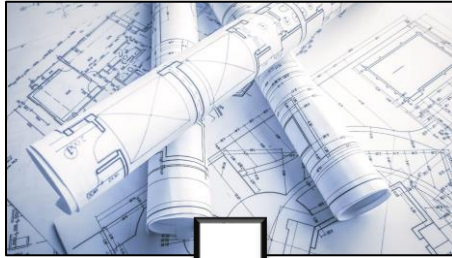
## Construction Stages



# Benefits of implementing BIM within Engineering



Engineering SDs



## AIM

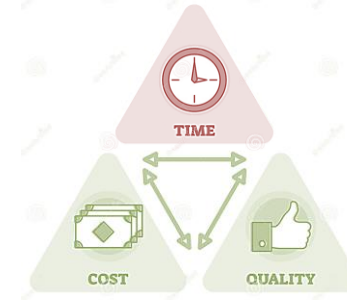
- Coordinated Drawings
- Technically Approved
- On Time
- Within The Budget





# Benefits of implementing BIM within Engineering





## Engineering SDs (Traditional vs. BIM)



### • SDs (Traditional)

- Average **25HR** 
- Average of **9 revisions** 
- **225hr** to get approval
- Normally one Trade

### • Modelling to Approved SD

- Average **65HR** 
- Average of **2 revisions** 
- **130hr** to get approval
- Different trades

# Benefits of implementing BIM within Engineering



Duration



- **Misunderstanding** BIM process
- **Underestimating** the Size of the task

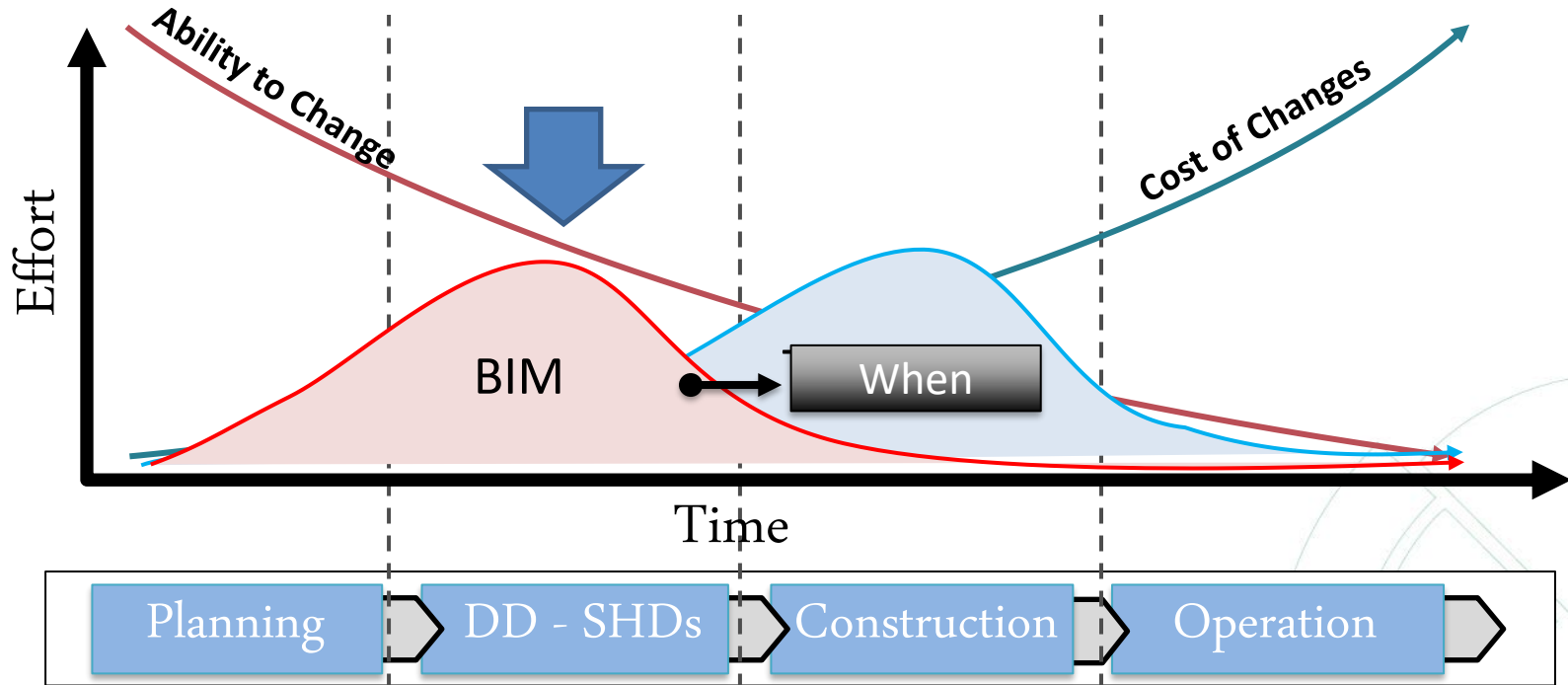


Misjudge the duration

# To gain the benefits of BIM implementation



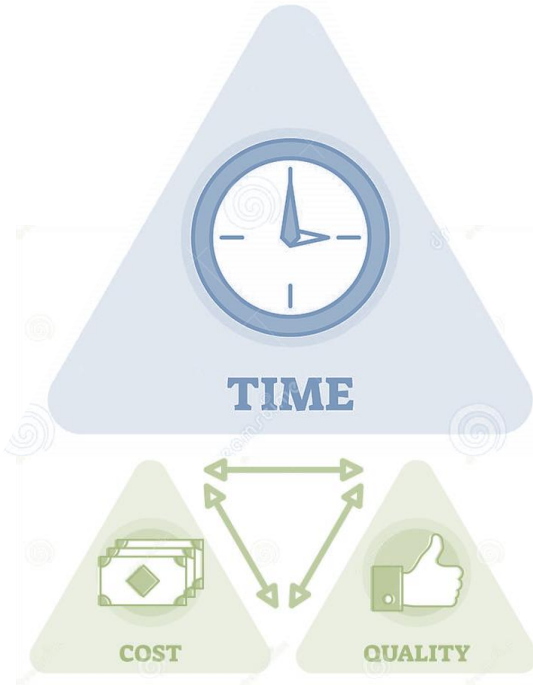
First: Preferred Design Process





# The negative impact of excessive use of BIM

## BIM Overdoing



- Over **Modelling**
- Over **Coordination**

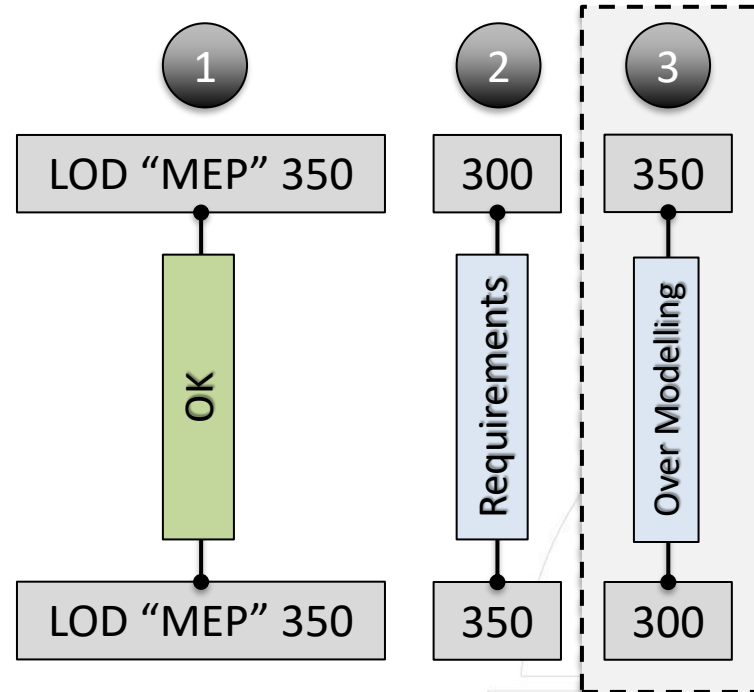
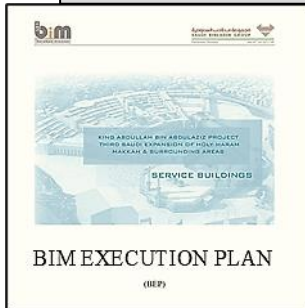
# The negative impact of excessive use of BIM



## Modelling LOD



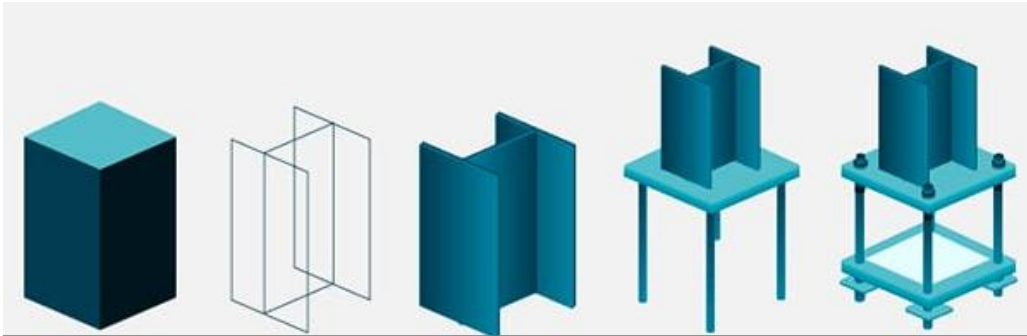
Is this Over Modelling?



# The negative impact of excessive use of BIM

Modelling LOD & Co. (Production Rate)

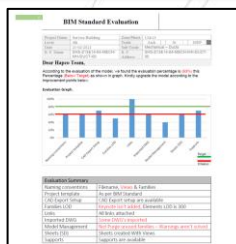
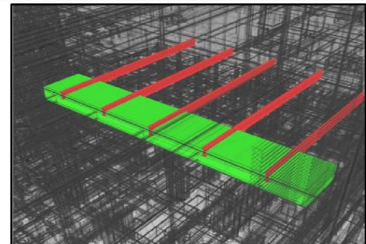
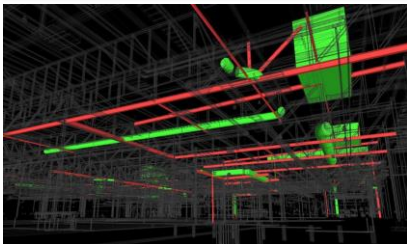
Modelling



Production Rate

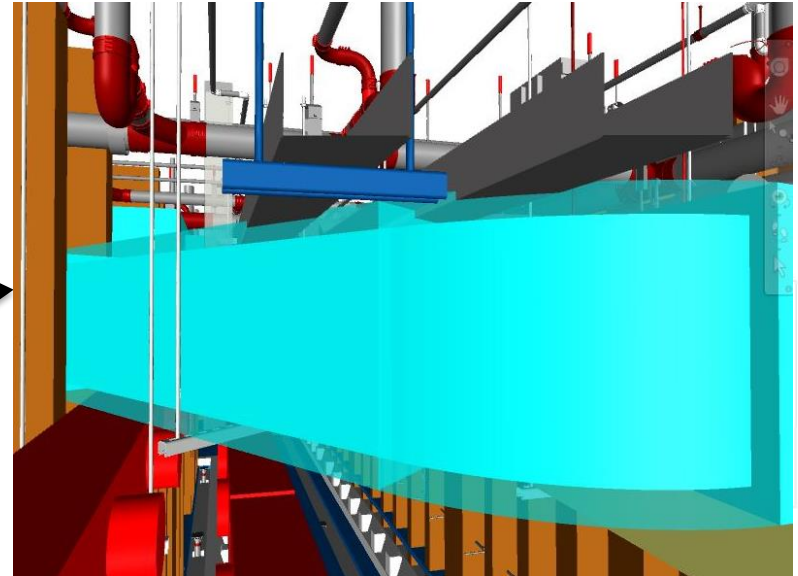
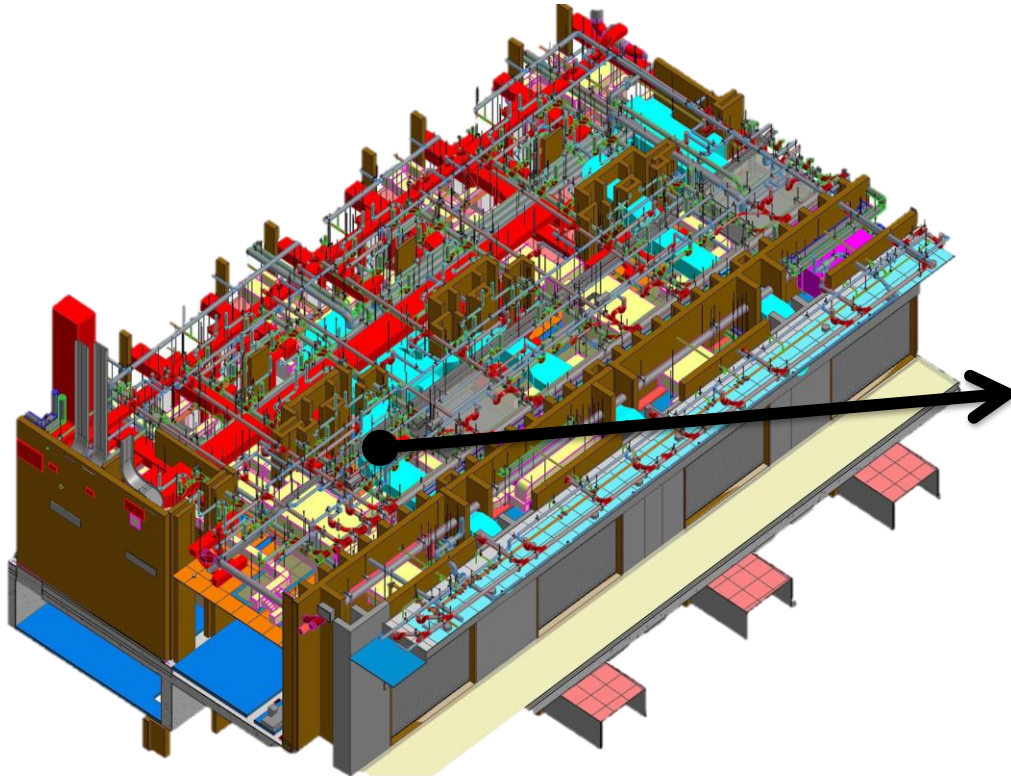


Coordination



# The negative impact of excessive use of BIM

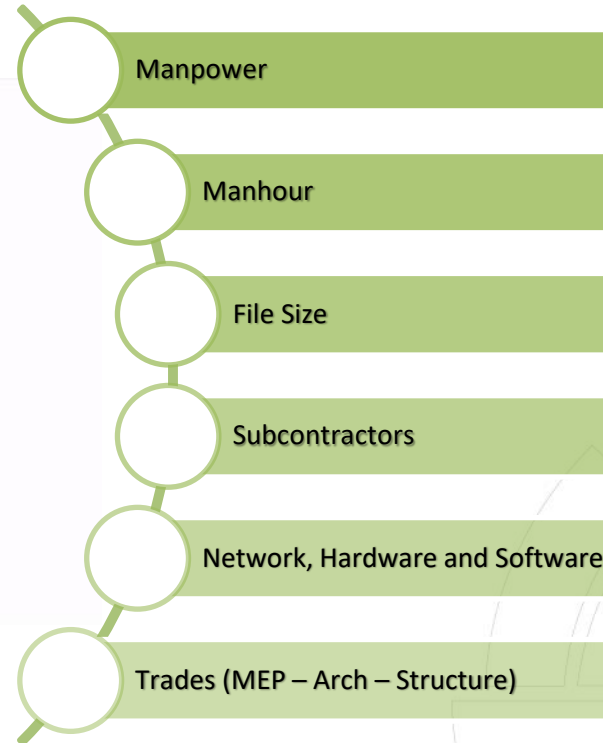
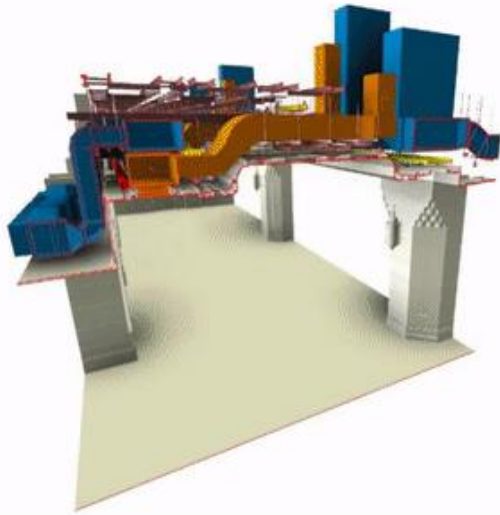
Zero Clash Vs. Acceptable Model





# The negative impact of excessive use of BIM

Other factors



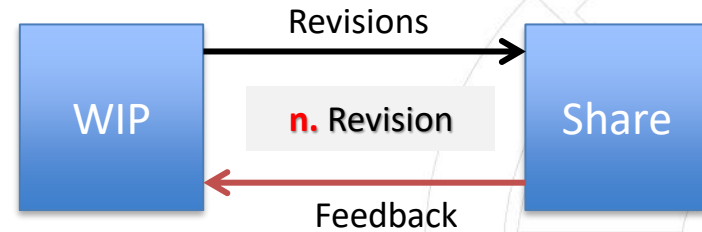
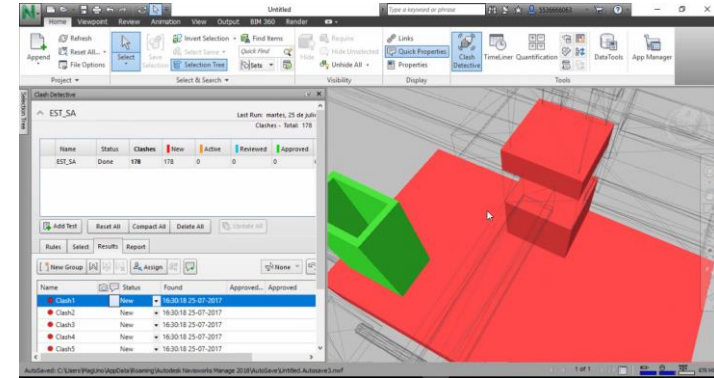
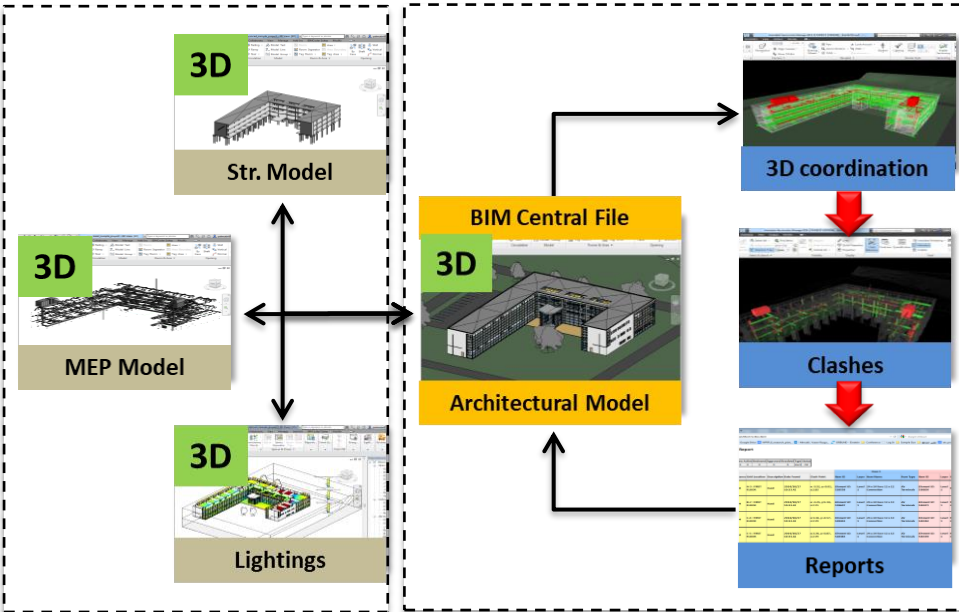


# The negative impact of excessive use of BIM

## Coordination process

WIP

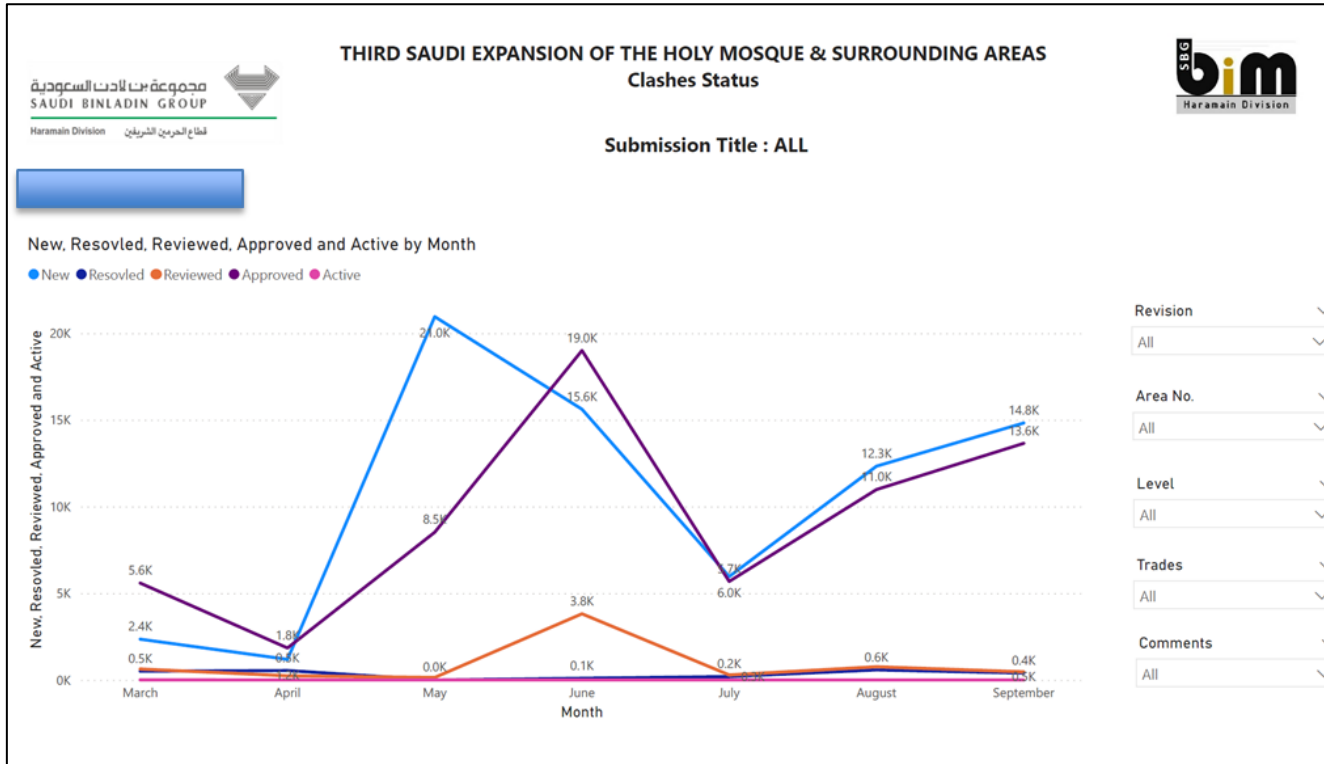
SHARE





# The benefits of Automated Engineering Management

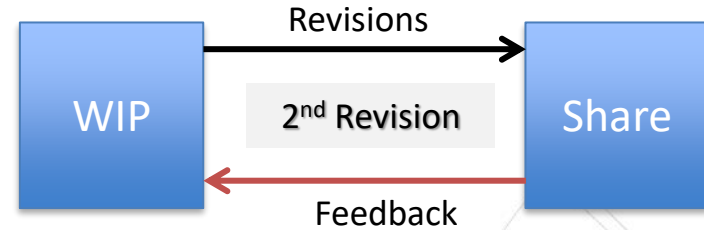
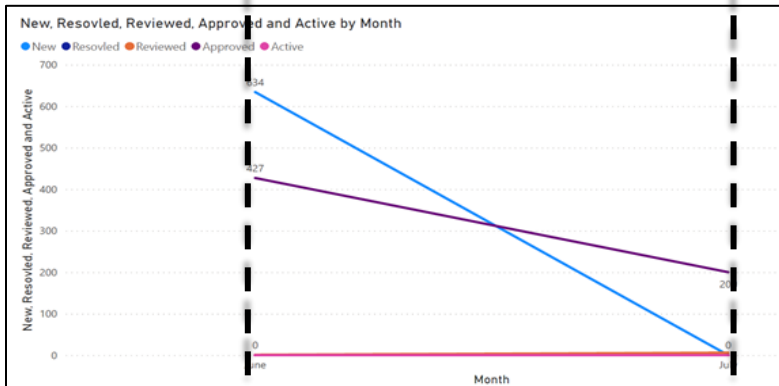
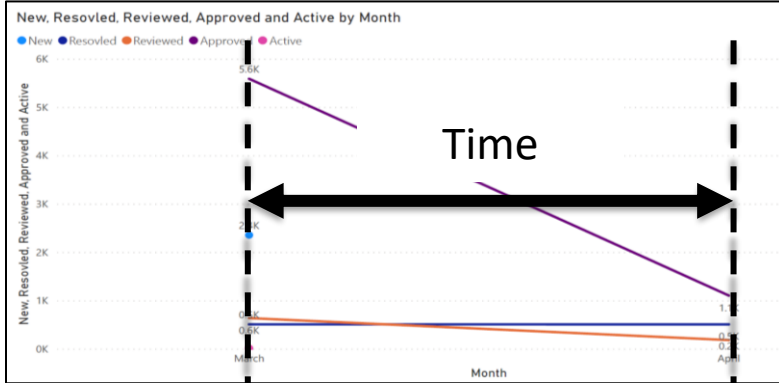
Tracing System (Coordination all submission)



# The benefits of Automated Engineering Management

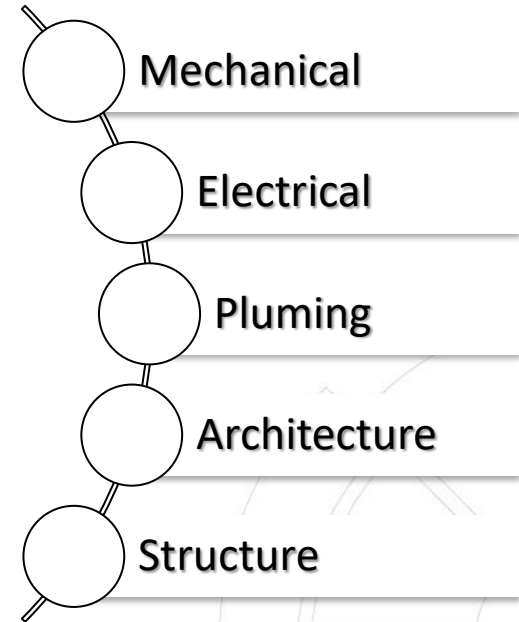
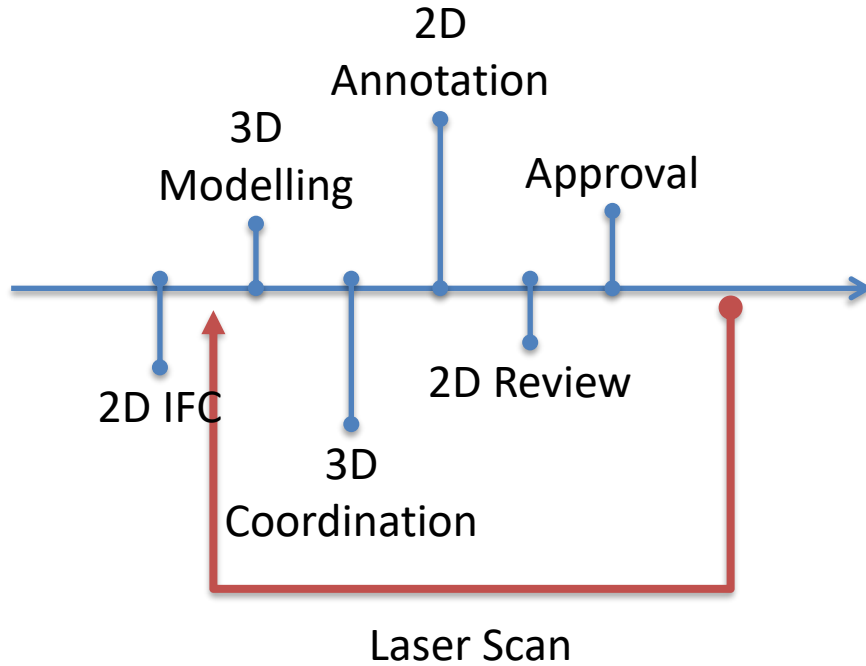


## Tracing System (Coordination/submission)



# Automated Engineering Management

Our production Line

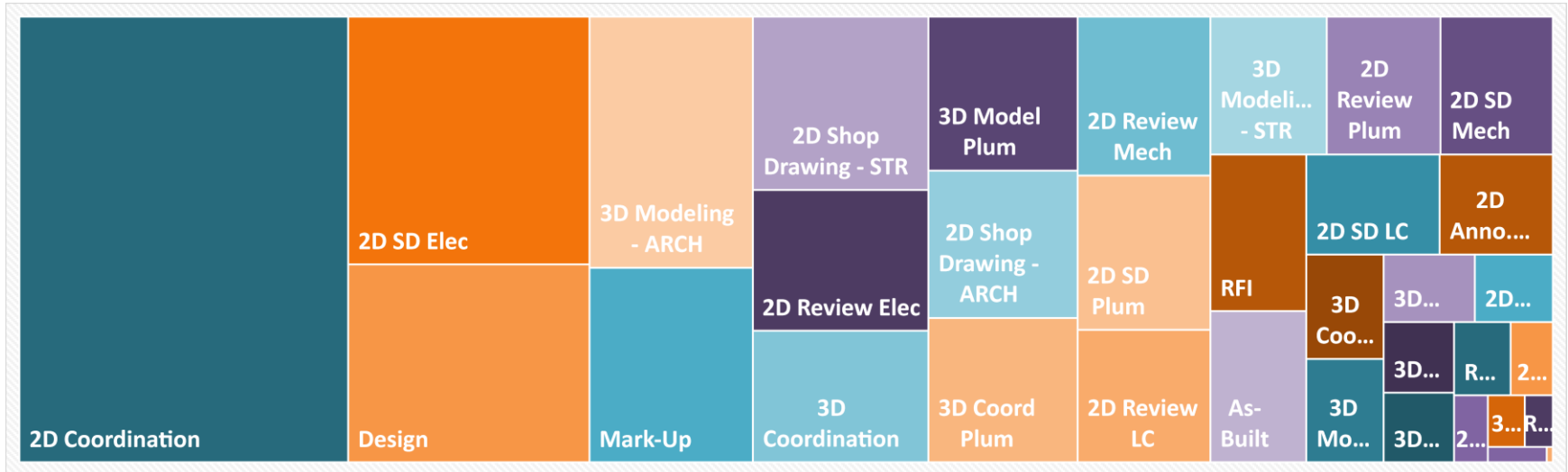


# Automated Engineering Management

Our production Line

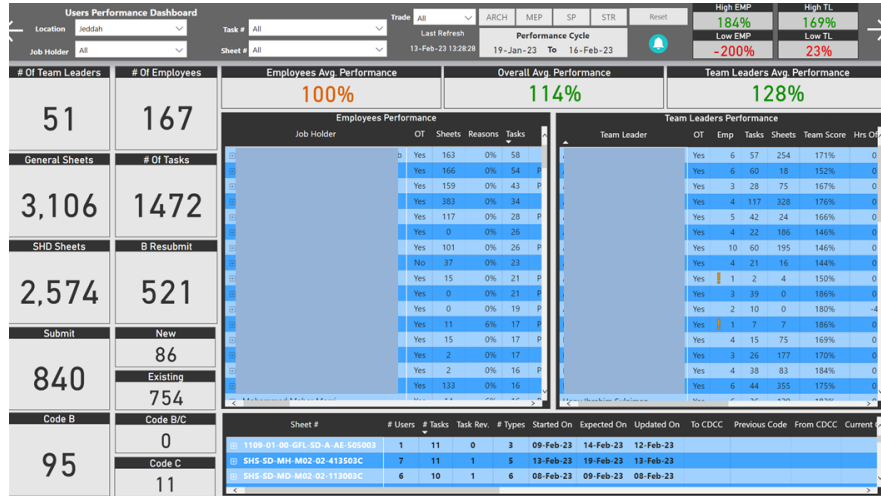


## 35 Task



# Automated Engineering Management

Improve & Maintain Productivity Rate



Task & Team Dashboard



Rate Dashboard

# Automated Engineering Management



## Task & Team Dashboard

**Users Performance Dashboard**

Location: Jeddah | Trade: All | ARCH | MEP | SP | STR | Reset | High EMP: 184% | High TL: 169% | Low EMP: -200% | Low TL: 23%

Task #: All | Last Refresh: 13-Feb-23 13:28:28 | Performance Cycle: 19-Jan-23 To 16-Feb-23

# Of Team Leaders	# Of Employees	Employees Avg. Performance	Overall Avg. Performance	Team Leaders Avg. Performance
51	167	100%	114%	128%

General Sheets	# Of Tasks
3,106	1472

SHD Sheets	B Resubmit
2,574	521

Submit	New
840	86

Code B	Code B/C
95	0

Existing	Code C
754	11

Job Holder	OT	Sheets	Reasons	Tasks
Yes	163	0%	58	
Yes	166	0%	54	
Yes	159	0%	43	
Yes	383	0%	34	
Yes	117	0%	28	
Yes	0	0%	26	
Yes	101	0%	26	
No	37	0%	23	
Yes	15	0%	21	
Yes	0	0%	21	
Yes	0	0%	19	
Yes	11	6%	17	
Yes	15	0%	17	
Yes	2	0%	17	
Yes	2	0%	16	
Yes	133	0%	16	

Team Leader	OT	Emp	Tasks	Sheets	Team Score	Hrs Off
Yes	6	57	254	171%	0	
Yes	6	60	18	152%	0	
Yes	3	28	75	167%	0	
Yes	4	117	328	176%	0	
Yes	5	42	24	166%	0	
Yes	4	22	186	146%	0	
Yes	10	60	195	146%	0	
Yes	4	21	16	144%	0	
Yes	1	2	4	150%	0	
Yes	3	39	0	186%	0	
Yes	2	10	0	180%	-4	
Yes	1	7	7	186%	0	
Yes	4	15	75	169%	0	
Yes	3	26	177	170%	0	
Yes	4	38	83	184%	0	
Yes	6	44	355	175%	0	

Sheet #	# Users	# Tasks	Task Rev.	# Types	Started On	Expected On	Updated On	To CDCC	Previous Code	From CDCC	Current
1109-01-00-GFL-SD-A-AE-505003	1	11	0	3	09-Feb-23	14-Feb-23	12-Feb-23				
SH5-SD-MH-M02-02-413503C	7	11	1	5	13-Feb-23	19-Feb-23	13-Feb-23				
SH5-SD-MD-M02-02-113003C	6	10	1	6	08-Feb-23	09-Feb-23	08-Feb-23				

# Automated Engineering Management



Team (Job Holder & TL)

Job Holder	OT	Sheets	Reasons	Tasks	Status	Started On	Expected On	Updated On	Reason	Tasks Score	Vacation	Check Vacations	Saturday Off	Hrs Off	Performance	Current OT
	Yes	163	0%	58	OPEN	13-Feb-23	14-Feb-23	13-Feb-23	NA	143%	0	✓	0	-10	138%	IN PROGRESS
	Yes	166	0%	54	Progress	13-Feb-23	14-Feb-23	13-Feb-23	NA	159%	0	✓	0	-9	155%	IN PROGRESS
	Yes	159	0%	43	Progress	12-Feb-23	20-Feb-23	12-Feb-23	NA	181%	0	✓	0	-9	177%	IN PROGRESS
	Yes	383	0%	34	OPEN	13-Feb-23	15-Feb-23	13-Feb-23	NA	185%	0	✓	0	-12	173%	IN PROGRESS
	Yes	117	0%	28	Progress	13-Feb-23	19-Mar-23	13-Feb-23	NA	193%	0	✓	0	-14	179%	IN PROGRESS
	Yes	0	0%	26	OPEN	13-Feb-23	14-Feb-23	13-Feb-23	NA	154%	0	✓	0	-41	-46%	IN PROGRESS
	Yes	101	0%	26	Progress	13-Feb-23	14-Feb-23	13-Feb-23	NA	185%	0	✓	0	-12	172%	IN PROGRESS
	No	37	0%	23	OPEN	13-Feb-23	13-Feb-23	13-Feb-23	NA	109%	1	✓	NA	0	109%	NO OT BASED ON SELECTIONS
	Yes	15	0%	21	Progress	12-Feb-23	14-Feb-23	12-Feb-23	NA	181%	3	✓	0	-39	-19%	IN PROGRESS
	Yes	0	0%	21	Progress	13-Feb-23	20-Feb-23	13-Feb-23	NA	176%	1	✓	0	-13	163%	IN PROGRESS
	Yes	0	0%	19	Progress	12-Feb-23	14-Feb-23	12-Feb-23	NA	147%	0	✓	0	-10	143%	IN PROGRESS
	Yes	11	6%	17	Progress	12-Feb-23	14-Feb-23	12-Feb-23	Change of Scope	147%	0	✓	0	-11	137%	IN PROGRESS
	Yes	15	0%	17	Progress	12-Feb-23	14-Feb-23	12-Feb-23	NA	147%	0	✓	0	-11	136%	IN PROGRESS
	Yes	2	0%	17	OPEN	13-Feb-23	14-Feb-23	13-Feb-23	NA	176%	0	✓	-4	-67	-24%	IN PROGRESS
	Yes	2	0%	16	Progress	12-Feb-23	15-Feb-23	12-Feb-23	NA	188%	0	✓	-3	-33	-13%	IN PROGRESS
	Yes	133	0%	16	OPEN	13-Feb-23	14-Feb-23	13-Feb-23	NA	188%	0	✓	-4	-41	-13%	IN PROGRESS
	Yes	14	6%	16	Progress	12-Feb-23	15-Feb-23	13-Feb-23	Coordination	113%	0	✓	-4	-50	-88%	IN PROGRESS
	Yes	0	0%	15	OPEN	13-Feb-23	14-Feb-23	13-Feb-23	NA	180%	6	✓	-1	-22	148%	IN PROGRESS
	Yes	29	0%	14	OPEN	13-Feb-23	13-Feb-23	13-Feb-23	NA	129%	12	✓	-2	-63	-71%	IN PROGRESS
	Yes	35	0%	14	Progress	13-Feb-23	27-Feb-23	13-Feb-23	NA	186%	0	✓	0	-12	173%	IN PROGRESS
	Yes	166	0%	14	Progress	12-Feb-23	14-Feb-23	12-Feb-23	NA	93%	0	✓	-4	-41	-107%	IN PROGRESS
	Yes	107	0%	14	OPEN	13-Feb-23	23-Feb-23	13-Feb-23	NA	171%	0	✓	0	-10	161%	IN PROGRESS

# Automated Engineering Management



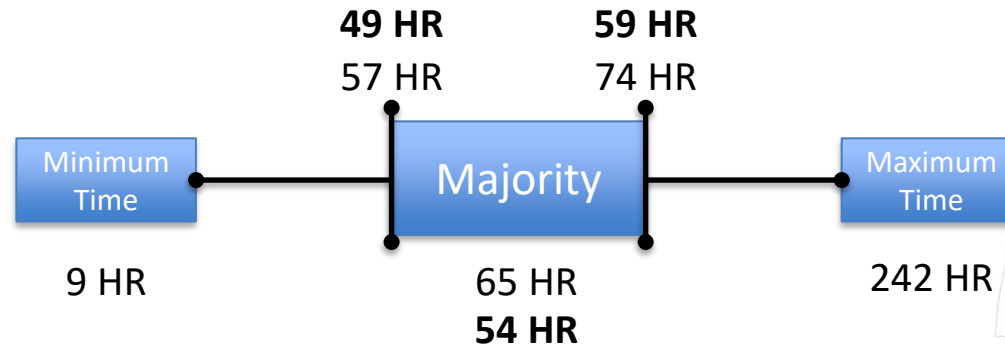
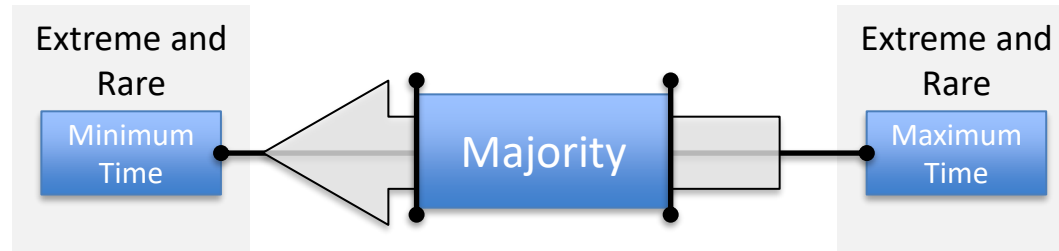
## Rate Dashboard





# Automated Engineering Management

SDs production

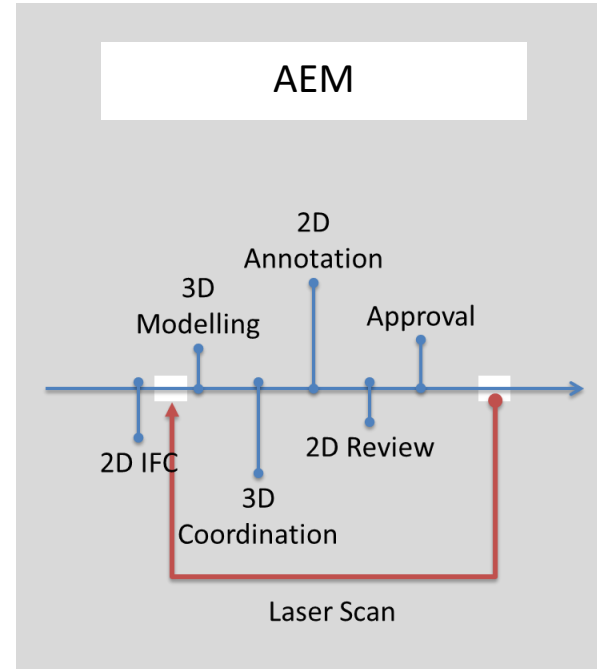


# Automated Engineering Management

## To Conclude

- Utilize staff time.
- Minimize nonproductive hours.
- Improve the quality.
- Within an accepted cost.

There is always room for improvement





# THANK YOU

