



Master's  
Thesis

# Project Portfolio Management in the Example of a Mechanical and Electrical Contractor

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# Overview

- Introduction 03
- Key Definitions 05
- Why PPM Matters 07
- King & Moffatt Overview 08
- PPM at King & Moffatt 14
- Technology's Role 17
- Lessons Learned 18
- Portfolio Review and Adjustment 19
- Conclusion and Recommendations 20



A top-down view of a meeting table. Several people's hands are visible, some resting on documents. One document shows a line graph with red and blue data points. Another document shows architectural blueprints with a hand pointing to a specific area. A yellow hard hat is on the table, along with a black pencil holder containing various colored pencils and pens. A silver laptop is open on the right side of the table. The table surface is light-colored wood.

# Introduction

In today's dynamic and competitive business landscape, effective project management is paramount for organizations to achieve their strategic objectives and maintain a competitive edge. As projects become increasingly complex, a structured and strategic approach to project management is essential. Project Portfolio Management (PPM) has emerged as a critical discipline that empowers organizations to navigate the complexities of managing multiple projects and programs at once

This thesis delves into the intricacies of Project Portfolio Management within the context of King & Moffatt Building Services, a leading mechanical and electrical (M&E) contracting company. By examining King & Moffatt's PPM practices, this research aims to uncover the strategies and practices that have contributed to their success in managing a diverse project portfolio.



# Key Definitions

The primary goal of PPM is to ensure that an organization's projects and programs are aligned with its strategic goals and deliver value. It involves identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work to achieve specific strategic business objectives.

01



## Project

Project is a temporary endeavour undertaken to create a unique product, service, or result. This temporary nature signifies a definite beginning and end.

02



## Program

A group of related projects managed in conjunction to gain benefits and control not available when managed independently. Projects have a common outcome or collective capability that binds them together.

03



## Portfolio

Defined as a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives. Portfolio is aligned with the broader strategic goals of an organization.

04

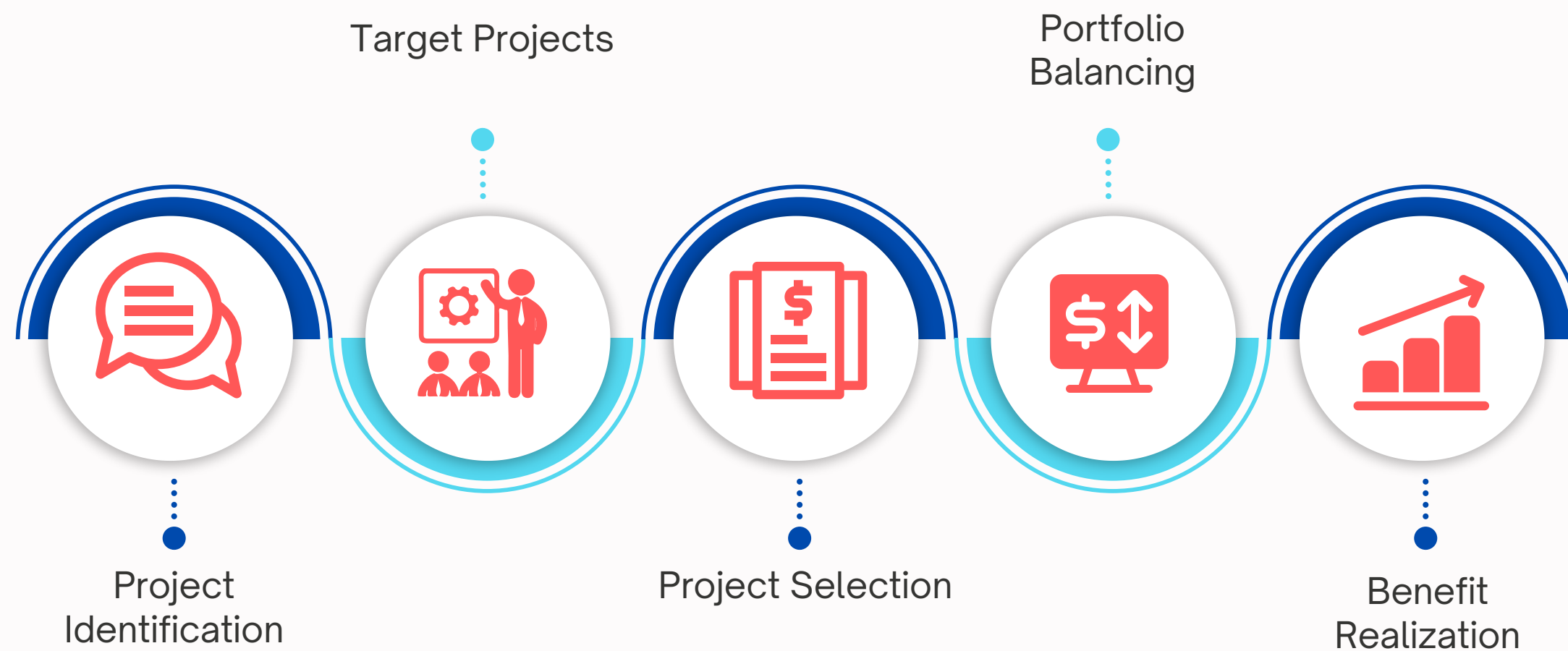


## PPM

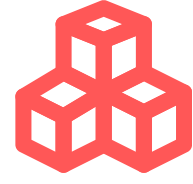
Project Portfolio Management (PPM) is a strategic approach to managing an organization's projects, programs, and other related work in a coordinated manner to achieve specific business objectives.

# Principles of PPM

The primary goal of PPM is to ensure that an organization's projects and programs are aligned with its strategic goals and deliver value. It involves identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work to achieve specific strategic business objectives.



## Strategic Alignment



PPM ensures that all projects and programs are aligned with the organization's strategic objectives.

## Optimized Resource Utilization



Allocates resources efficiently across multiple projects.

# Why PPM Matters

A PPM is necessary to align projects with an organization's strategic goals, ensuring that resources are allocated effectively and that projects deliver maximum value.

## Improved Risk Management



Identifies and mitigates risks at the portfolio level. To identify interdependencies and cumulative risks that might not be apparent when managing projects individually.

## Enhanced Decision-Making



PPM provides a structured framework for making informed decisions about project investments.

## Stakeholder Satisfaction



Managing expectations and engaging stakeholders is key to project success.

## Increased Project Success Rates



PPM helps in identifying potential risks and challenges early, ensuring that projects are delivered on time, within scope, and on budget.



# King & Moffatt Overview

King & Moffatt Building Services has a rich history that traces its origins back to 1978. The company began as a small electrical contracting firm known as King & Moffatt Electrical, founded by Pat King and John Moffatt in Carrick-on-Shannon, Ireland. The company's humble beginnings as a "man in a van" operation laid the foundation for its growth into a significant player in the mechanical and electrical contracting industry





# Developments and Innovations

In 2002, they began operations in the UK. This expansion into the UK market was a pivotal step in the company's growth trajectory.

2006 marked the establishment of their Mechanical Division, which allowed King & Moffatt to take on full M&E contracts.

Their first project in mainland Europe was completed in 2018, a meat processing facility in Lisbon, Portugal.

King & Moffatt continued to expand across Europe, opening offices in Germany in 2020.

The company's strategic initiatives also include the launch of the Offsite MEP Prefabrication Service, which optimizes the supply chain and ensures quality.



# K&M - Jobs Tender Review

1	Year	Tar	Job-No	Organisation/Job Title	Town	Country	Sisk UK;#174	Sector	Project	Total Value Of E/M	Project Tier	Project St	Status
1856	2018		18-322	60 Northumberland Road	60 Northumberland Ro	IRL	Patrick McCaul Engineers ;#231	Commerci	E		Small works	04/03/2019	Lost
1857	2018		18-321	Clayton Hotel Conference Centre	Sir John Rogerson's Qu	IRL	McPhillips Ltd;#527	Hotel/ Leis	E		Small works	01/02/2019	Lost
1858	2018		18-320	DT Darlington	4368 Dog Trust Rehom	UK	TSL Projects Ltd;#182	Commerci	E		Small works		Lost
1859	2018		18-319	EPC Newbury	Newbury, United Kingd	UK	Bennett Construction Ltd;#203	Food	E		Medium Projects	02/01/2019	Lost
1860	2018		18-318	Belgrave & Grosvenor Road	Blocks A, B and C Belgr	UK	TSL Projects Ltd;#182	Residentia	M&E		Medium Projects	01/02/2019	Lost
1861	2018		18-317	Dr Oetker	Thorpe Park, Leeds	UK	Glenbeigh;#136	Food	E		Small works	11/10/2018	Lost
1862	2018		18-316	Cornamona Court	Cornamona Court. Kyle	IRL	TSL Projects Ltd;#182	Residentia	E		Medium Projects	01/02/2019	Lost
1863	2018		18-315	400 KK Fine Foods	Estuary House 10th Ave	UK	Kingswood Buiding Services Engineers Lt	Food	E		Small works		Lost
1864	2018		18-314	Meggitt Aircraft Breaking Systems	Coventry, CV6 4AA	UK	McLaughlin & Harvey Construction Ltd;#	Fit out	E		Small works		Lost
1865	2018		18-313	British Museum ARC	Great Russell St, Bloom	UK	Clegg Construction;#526	Education	M&E		Medium Projects	03/02/2020	Lost
1866	2018		18-312	Bernard Matthews, Norwich	Great Witchingham Ha	UK	McLaughlin & Harvey Construction Ltd;#	Food	E		Small works		Lost
1867	2018		18-311	Washington, Tyne & Wear	Washington, nr Newca	UK	Axiseng Consulting Engineers;#269	Commerci	E		Daywork		Not Pricing
1868	2018		18-310	DALP Unit 3.1 - Osprey House	Dublin Airport Logistics	IRL	TSL Projects Ltd;#182	Fit out	E		Small works	18/02/2019	Won
1869	2018		18-309	Project Orion	Ballycoolin, Dublin	IRL	Procad Engineering;#484	Energy	E		Small works		Lost
1870	2018		18-308	Dew Valley Foods Welfare Block	Dew Valley Foods, Holy	IRL	JS. Dooley Contracting Ltd;#222	Food	E		Small works	01/11/2018	Won
1871	2018		18-307	Dublin Port Inland	Dublin Airport Logistics	IRL	ISG;#447	Fit out	M&E		Medium Projects	02/01/2019	Lost
1872	2018		18-306	Henderson Park	66 Shoe Lane, London E	UK	Glenbeigh;#136	Commerci	E		Medium Projects	01/04/2019	Not Pricing
1873	2018		18-305	C-Wing Midlands Prison	C-Wing Midlands Priso	IRL	Pentadel Project Management;#507	Fit out	E		Daywork	15/10/2018	Lost
1874	2018		18-304	Brecks Food	Brighton Airfield, Bubv	UK	Morrison Construction;#524	Food	E		Daywork		Not Pricing
1875	2018		18-303	St Kilda Mechanical	Morrison Construction,	UK	Bennett Construction Ltd;#203	Other	E		Daywork	04/10/2018	Won
1876	2018		18-302	Wandle Road	Wandle Road Car Park,	UK	MEP Engineering Services Ltd;#523	Residentia	M&E		Medium Projects	01/04/2019	Lost
1877	2018		18-301	Carbery Foods - Cheese Diversificatio	Carbery at Ballineen, C	IRL	BAM Contractors;#110	Food	E		Daywork		Not Pricing
1878	2018		18-300	Westwood Student Accommodation	Upper Newcastle, Co. C	IRL	ISG;#447	Fit out	M&E		Medium Projects	03/12/2018	Lost
1879	2018		18-299	UCL Phase 1 Pool Street 6000&7000	Pool Street, London, UK	UK	John Paul Construction;#147	Residentia	E		Medium Projects	28/05/2019	Not Pricing
1880	2018		18-298	Ryanair Overflow Car Park	Dublin Airport	IRL	McLaughlin & Harvey Construction Ltd;#	Commerci	E		Daywork	01/11/2018	Lost
1881	2018		18-297	IPG	Ansty Park, Coventry	UK	Glenbrier Construction;#522	Manufactu	E		Medium Projects	14/01/2019	Won
1882	2018		18-296	Private Remediation (Fason's)	Fason Distribution Cen	IRI	MFA McFlroy Associates ;#430	Commerci	E		Small works	07/01/2019	Lost

# K&M - Jobs Tender Review

Count of Job-No	Column				
Row Labels	Daywork	Small works	Medium Projects	Large Projects	Grand Total
2013	284	33	7		324
2014	339	152	36		527
2015	252	194	59		505
2016	209	180	71		460
2017	159	158	62	1	380
2018	128	133	114	8	383
2019	145	170	122	12	449
2020	85	170	100	21	376
2021	20	89	116	24	249
2022	15	105	112	17	249
2023	14	139	142	35	330
2024	3	47	66	15	131
<b>Grand Total</b>	<b>1653</b>	<b>1570</b>	<b>1007</b>	<b>133</b>	<b>4363</b>

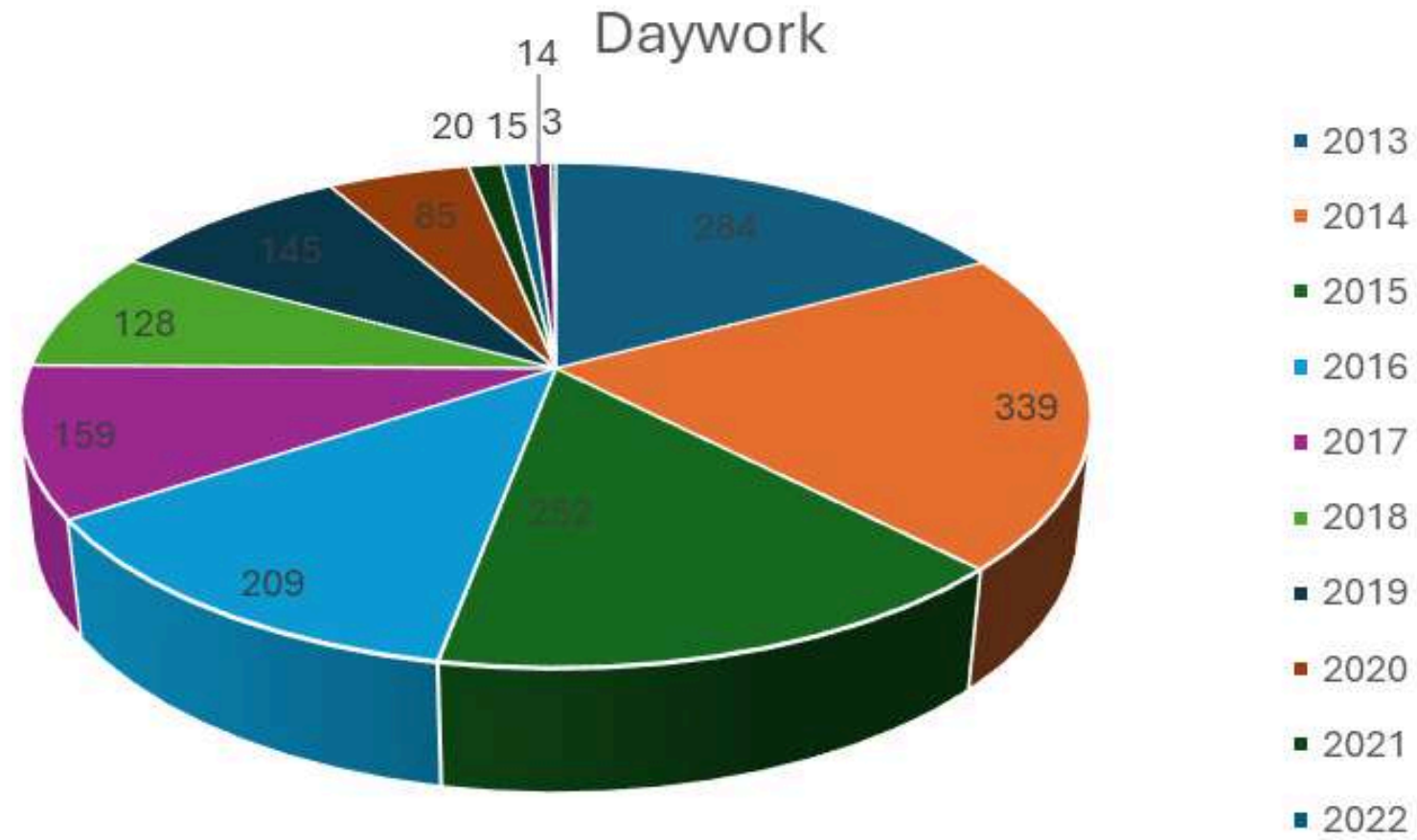
**1. Daywork:** These are the smallest projects, valued under €100,000

**2.Small Works:** Valued between €100,000 and €1 million.

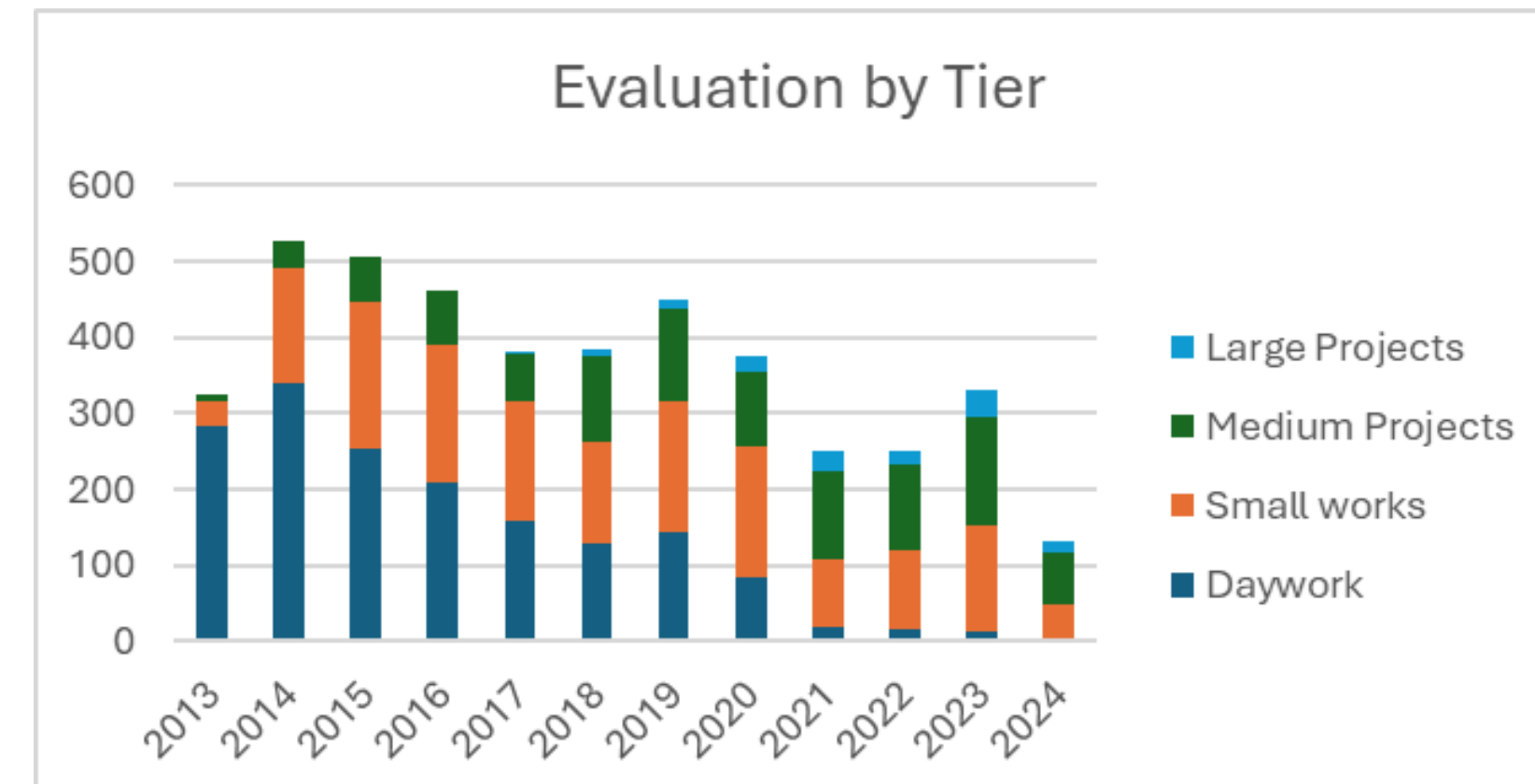
**3.Medium Projects:** These are valued between €1 million and €15 million.

**4. Large Projects:** These projects, valued over €15 million

# K&M - Jobs Tender Review



- Decline in Daywork: The drastic decrease in daywork projects indicates a strategic shift away from smaller, less complex work.
- Growth in Medium and Large Projects: The substantial increase in medium and large projects highlights King & Moffatt's growing capabilities and strategic focus on larger-scale projects.



# K&M - Jobs Tender Review

Count of Job-No	Colu																				Grand Total				
	Not Pricing					Not Pricing Total	Won					Won Total	Lost					Lost Total	Ongoing Evaluation					Ongoing Evaluation Total	
	Daywork	Small works	Medium Projects	Large Projects	Daywork		Small works	Medium Projects	Large Projects	Daywork	Small works		Medium Projects	Large Projects	Daywork	Small works	Medium Projects		Large Projects						
Row Labels	Daywork	Small works	Medium Projects	Large Projects	Daywork	Small works	Medium Projects	Large Projects	Daywork	Small works	Medium Projects	Large Projects	Daywork	Small works	Medium Projects	Large Projects	Daywork	Small works	Medium Projects	Large Projects	Ongoing Evaluation Total				
2013	13	5	1	0	19	241	7	0	0	248	30	21	6	0	57	0	0	0	0	0	0	324			
2014	224	10	2	0	236	70	33	6	0	109	45	109	28	0	182	0	0	0	0	0	0	527			
2015	140	2	11	0	153	70	47	9	0	126	42	145	39	0	226	0	0	0	0	0	0	505			
2016	119	7	0	0	126	49	31	12	0	92	41	142	59	0	242	0	0	0	0	0	0	460			
2017	76	4	0	0	80	53	37	11	0	101	30	117	51	1	199	0	0	0	0	0	0	380			
2018	52	3	7	0	62	35	32	21	1	89	41	98	86	7	232	0	0	0	0	0	0	383			
2019	66	32	3	1	102	44	52	21	1	118	35	86	98	10	229	0	0	0	0	0	0	449			
2020	33	53	0	2	88	25	46	20	4	95	27	71	80	15	193	0	0	0	0	0	0	376			
2021	0	28	0	2	30	10	7	18	1	36	10	54	98	21	183	0	0	0	0	0	0	249			
2022	0	36	0	0	36	5	18	18	2	43	10	51	94	15	170	0	0	0	0	0	0	249			
2023	0	53	16	4	73	6	26	14	4	50	6	39	64	16	125	2	21	48	11	82	330				
2024	0	15	3	2	20	1	9	2	0	12	1	5	4	1	11	1	18	57	12	88	131				
<b>Grand Total</b>	<b>723</b>	<b>248</b>	<b>43</b>	<b>11</b>	<b>1025</b>	<b>609</b>	<b>345</b>	<b>152</b>	<b>13</b>	<b>1119</b>	<b>318</b>	<b>938</b>	<b>707</b>	<b>86</b>	<b>2049</b>	<b>3</b>	<b>39</b>	<b>105</b>	<b>23</b>	<b>170</b>	<b>4363</b>				

King & Moffatt's Tender Participation (2013-2024): A Strategic Evolution

# PPM at King & Moffatt

## Project Identification and Selection

King & Moffatt employs a rigorous process to identify and select projects based on strategic alignment, risk assessment, financial viability, resource availability, and client relationships.

## Maintaining Projects

Project Execution and Delivery. The company follows a structured approach to project execution, emphasizing meticulous planning, coordination, and stakeholder engagement.

## Lessons Learned

King & Moffatt emphasizes the value of documenting and applying lessons learned for continuous improvement.

## Portfolio Review and Adjustment

Feedback mechanisms and lessons learned are utilized to drive continuous improvement in portfolio management practices.

# Project Identification and Selection

The project selection process at King & Moffatt follows a structured approach. The key steps include:

**Initial Screening:** Potential projects undergo an initial screening to determine their feasibility and alignment with the company's strategic goals. This involves a preliminary assessment of the project's scope, objectives, and basic financial metrics.

- Alignment with Company Strategy

**Detailed Evaluation (Tender Stage):** Projects that pass the initial screening are subjected to a detailed evaluation. This includes comprehensive risk assessments, financial analysis, and resource planning. The evaluation team also considers the project's technical requirements and any potential regulatory challenges.

**Criteria for Project Evaluation:**

- Risk Assessment
- Financial Viability
- Resource Availability
- Client Relationships and Reputation

# Maintaining Projects

Maintaining projects at King and Moffatt involves a comprehensive and integrated approach that encompasses project execution and delivery, risk management, health, safety, and environmental management, quality management, the use of technology, stakeholder communication and engagement, and performance measurement and improvement.

The key steps include:

- Project Planning and Design Development
- Execution Phase
- Quality Assurance and Control
- Commissioning and Handover
- Continuous Improvement (lesson learned, training)
- Key Performance Indicators (KPIs)
- Performance Reporting and Transparency

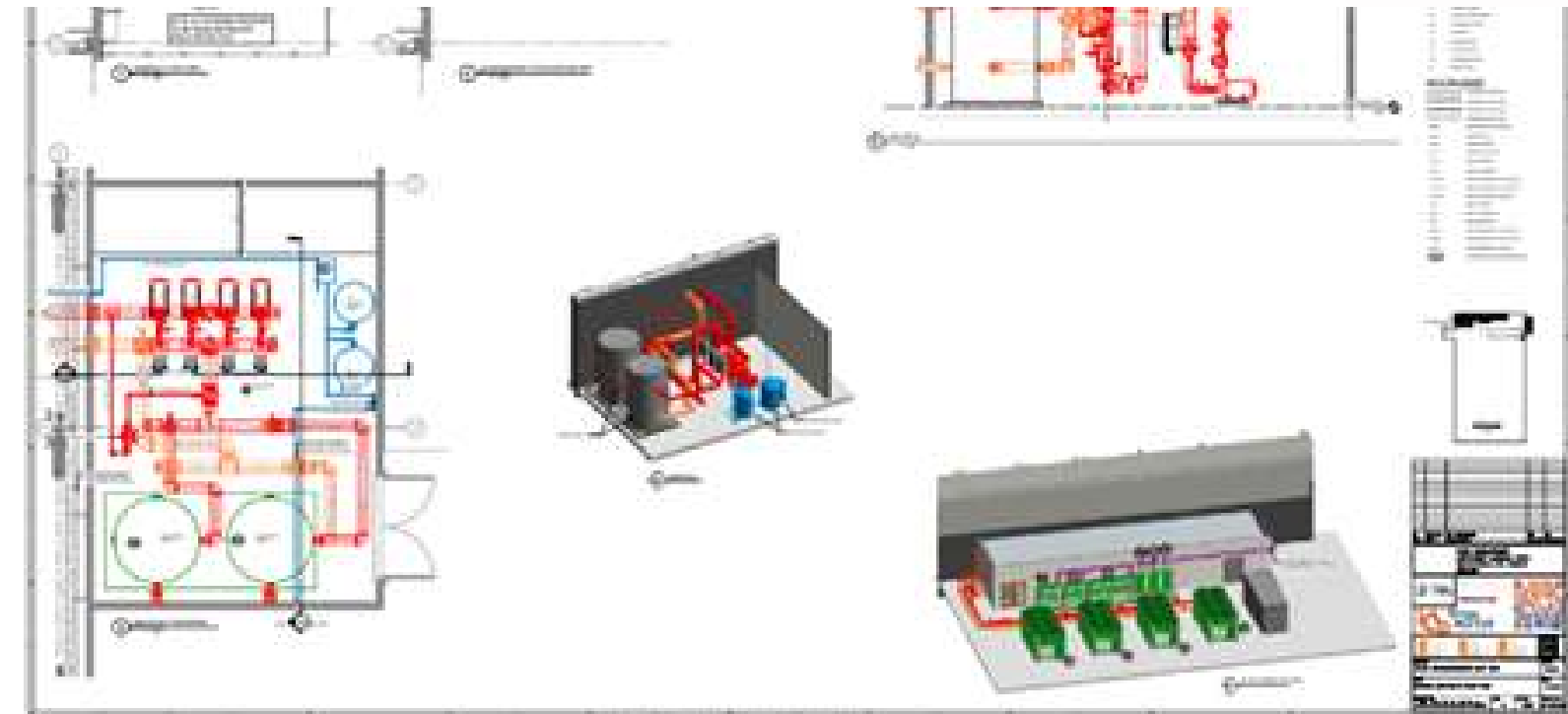
# Technology's Role under Execution Phase

## BIM Expertise:

- Builders Work Coordination.
- Builders Work Scheduling.
- Working Drawings.
- Procurement.
- Off-Site Fabrication.



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# Lessons Learned

Lessons learned are a critical component of project management, providing valuable insights into what worked well and what didn't. This knowledge helps in:

- Promoting Best Practices: Sharing successful strategies and methodologies to replicate positive outcomes in future projects.
- Preventing Recurrence of Mistakes: Identifying and addressing failures to avoid repeating the same mistakes, thus enhancing project efficiency and quality.
- Fostering Continuous Improvement: Encouraging a culture of continuous learning and improvement by leveraging past experiences to enhance processes and outcomes

The key steps include:

- Benefit realization
- Lesson learned with the Pre-contract Department

# Portfolio Review and Adjustment

**Periodic Portfolio Reviews.** Regular reviews assess the performance and strategic alignment of projects.

- Review Frequency: Quarterly reviews with senior management, project managers, and financial analysts to evaluate project progress, financial performance, and strategic alignment.
- Performance Metrics: Analysis of Schedule Performance Index (SPI), Cost Performance Index (CPI), and overall project health to identify projects needing corrective actions.
- Strategic Alignment: Assessment of each project's alignment with long-term objectives. Projects misaligned with strategic priorities may be re-scoped, delayed, or terminated.

**Adjusting Project Priorities.** Re-prioritizing projects in response to business changes is essential.

- Re-Prioritization Criteria: Projects are re-prioritized based on strategic fit, financial performance, risk levels, and resource availability.
- Resource Reallocation: Resources are reallocated to high-priority projects, adjusting staffing, budgets, and equipment as necessary.
- Stakeholder Communication: Effective communication with stakeholders is vital to manage expectations and gain support for changes, informing them about the reasons and benefits.

# Conclusion

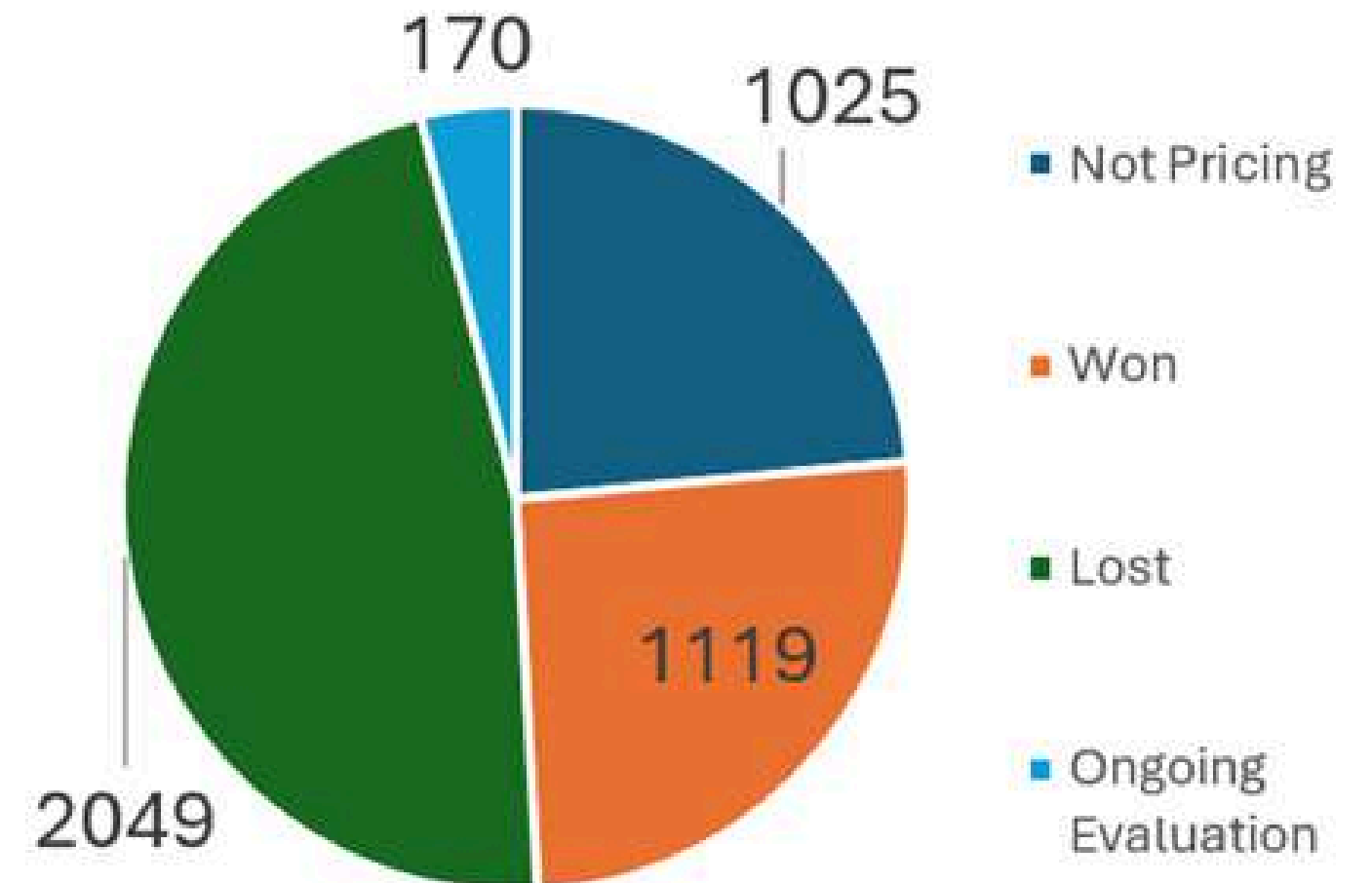
In conclusion, this thesis provides valuable insights into the theory and practice of Project Portfolio Management (PPM) in the M&E contracting industry. The in-depth analysis of King & Moffatt Building Services demonstrates that their PPM practices align with established theoretical frameworks, particularly the PMBOK Guide. This alignment is evident in their project selection, prioritization, and execution processes, contributing to their growth and success in the industry. However, the research also identifies areas for potential improvement, such as refining the documentation of lessons learned and implementing a more structured approach to the estimation process.

# Recommendations

## Lesson Learn for Pre-contract Department

Now in King and Moffatt had the lesson learned system In the context of won projects from the pre-contract (estimation) phase. Estimation errors often come to light only after the project has been completed, as the commercial department analyzes cost discrepancies and identifies areas where estimates were inaccurate. Each won project provides valuable insights into why certain criteria allowed the tender to be successful. Understanding these criteria helps in refining future estimation processes and improving overall project outcomes.

However, for effective Project Portfolio Management, it is essential to gain insights not only from the "Won" category but also from the "Not Pricing" and "Lost" categories where possible.

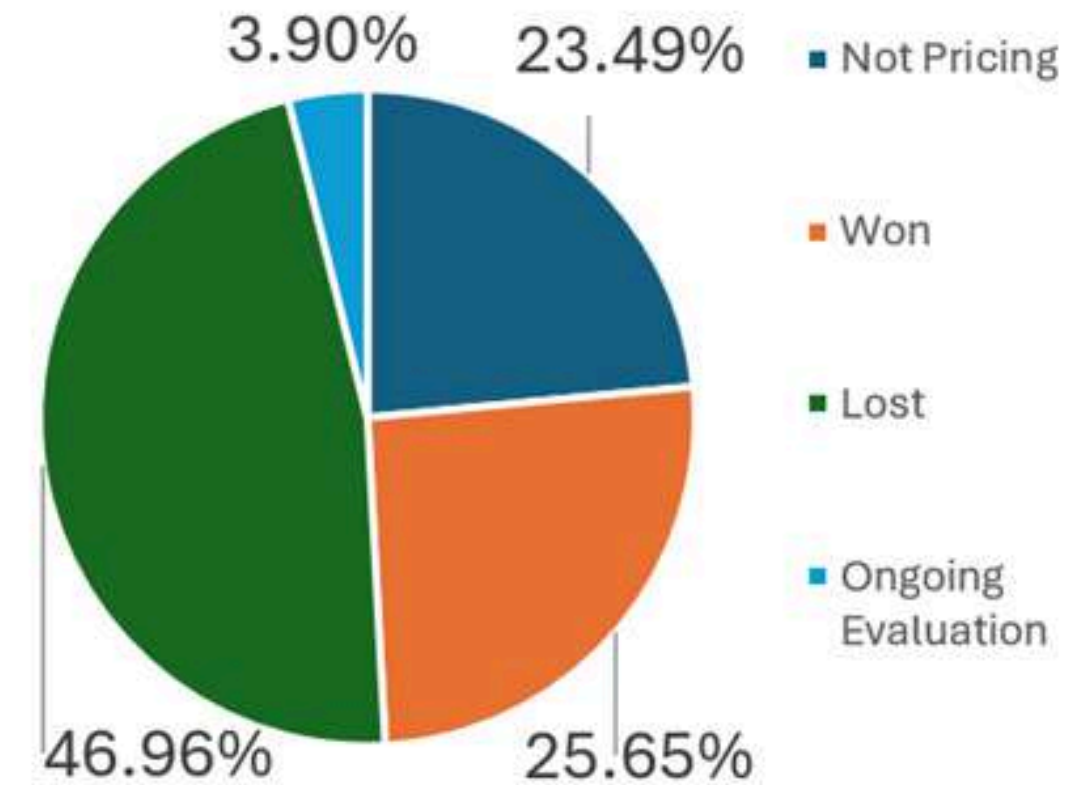


## Insights from "Lost" Projects

Understanding why 47% of projects were lost is crucial for improving future bids. Key areas to explore include:

- Competitive Pricing: Assess if losses were due to lower competitor pricing and adjust strategies accordingly.
- Scope and Requirements: Ensure proposals align with client needs and address all requirements.
- Client Feedback: Gather client feedback to identify areas for improvement.
- Lost Analysis: Determine if losses were direct or via main contractors.

Analyzing these factors helps King & Moffatt refine their bidding process, enhance competitiveness, and increase future tender success rates.



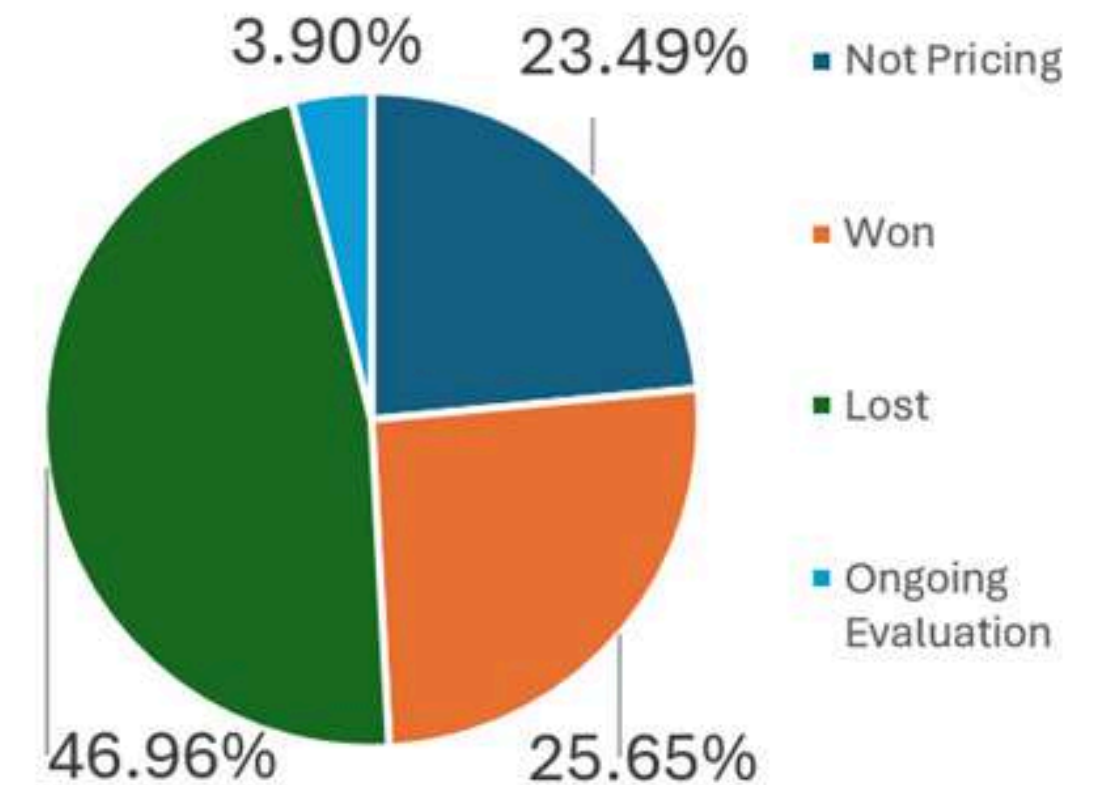
## Insights from "Not Pricing" Projects

For effective Project Portfolio Management, it's crucial to analyze "Not Pricing" projects alongside "Won" and "Lost" ones. 24% of projects fell into the "Not Pricing" category without detailed explanations.

Key reasons to document include:

- Strategic Misalignment: Projects not aligned with company goals.
- Geographical Constraints: Projects in areas without operational capabilities.
- Resource Limitations: Lack of resources to estimate and execute projects.
- Time Constraints: Inability to meet tender deadlines due to existing commitments.

By documenting these reasons, King & Moffatt can refine their portfolio management decisions, reveal trends, and improve resource allocation, ensuring better strategic alignment and project management.



# Monitoring Estimating process

## .....● **Treating Estimation as a Project**

To improve PPM, treat the estimation process as a project by applying project management practices:

- Work Breakdown Structure (WBS): Develop a detailed WBS to track tasks, assign responsibilities, and set deadlines. This helps include monitoring and control under this stage.
- Monitoring and Control: Implement mechanisms to track progress, identify bottlenecks, and ensure timely completion.

## .....● **Enhancing Monitoring and Control**

- Progress Tracking: Use project management software for real-time updates and bottleneck identification.
- Automated Notifications: Set alerts for deadlines and required actions.
- Regular Reviews: Conduct reviews to identify issues and improve processes.

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# THANK YOU

For watching this presentation

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- 📍 Ireland

