The Evolution of QMOS Roll Shop Planner

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At a glance…

- *About Quad Infotech*
- *Quad Infotech Product Offerings*
- *QMOS RSP .Net Evolution*
- *Roll Shop Cost Analysis Tool*

Quad Infotech / QMOS Background

- Based in Toronto, Canada
- Flagship product: QMOS (QUAD Mill Operating System)
- MES for long products since 1992
- North America's top MES for long steel with 47+ implementations
- Intimate knowledge of the steel process
- An experienced and capable team of engineers with deep knowledge in
  - Steel making
  - Software design and development
  - Project management
  - Business analysis

Our Focus

- We are a customer centric company. Everything we do is based on the needs of our customers
- As a leading software provider to the steel industry, we are continuously exploring new solutions to enable our customers to stay ahead of the industry
- Our business analysts are process experts in steel manufacturing
- Investments in new technologies and big data in providing value-driven deliverables for our customers
- Strive to be the leader in developing software solutions for the Industry 4.0 Steel Manufacturing

QMOS Brand

- Most popular MES in the North American Steel Industry
- Present in USA, Canada, Mexico, India

Customer	# of Mills	Integrated Meltshop	EAF Meltshop	Rolling Mill	Post Processing	SAP Interface	Oracle Business
Gerdau	16		X	X		X	
Gerdau Special Steel	3		X	X	X	X	
Arjas Steel India	1	X		X	X	X	
Gerdau Mexico	1		X	X		X	
Nucor Steel	15		X	X			X
Commercial Metals	8			X		X	
Steel Dynamics	1		X	X			
Velorec (tubes)	1			X			
WMC (Wire Mesh Corp)	1		X	X			

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THE MES for Steel

- End to end process coverage for Melt Shop, Rolling Mill and Finishing and everything in-between
- Full process genealogy
- Integrated quality control
- Planning and scheduling
- Inventory management
- Delay and failure analysis
- Interface with L1 systems
- Operator friendly
- Manufacturing Intelligence and multi-dimensional, drill-down analytics
- 24/7 support

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Quad Product Suite

QMOS Digital Factory

The only MES that is specifically designed for the Long Steel Industry

APEX

Process Intelligence for the Digital Factory of tomorrow

QMOS DATA SCIENCE

Machine Learning and Data Driven Optimization

SCALE HOUSE

Improve performance and efficiency of your Scale House Operations

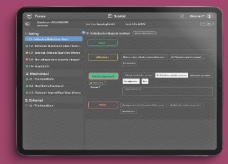
QMOS RECYCLING

Production Management System for Ferrous and Non-Ferrous Operations

EnergyMethods

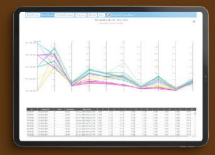
An enterprise Energy Management System for the Steel Industry

QMOS JobAid



Go paperless with all your forms and job aids

QMOS R-Factor



Fully automated Rolling Mill process control feedback system

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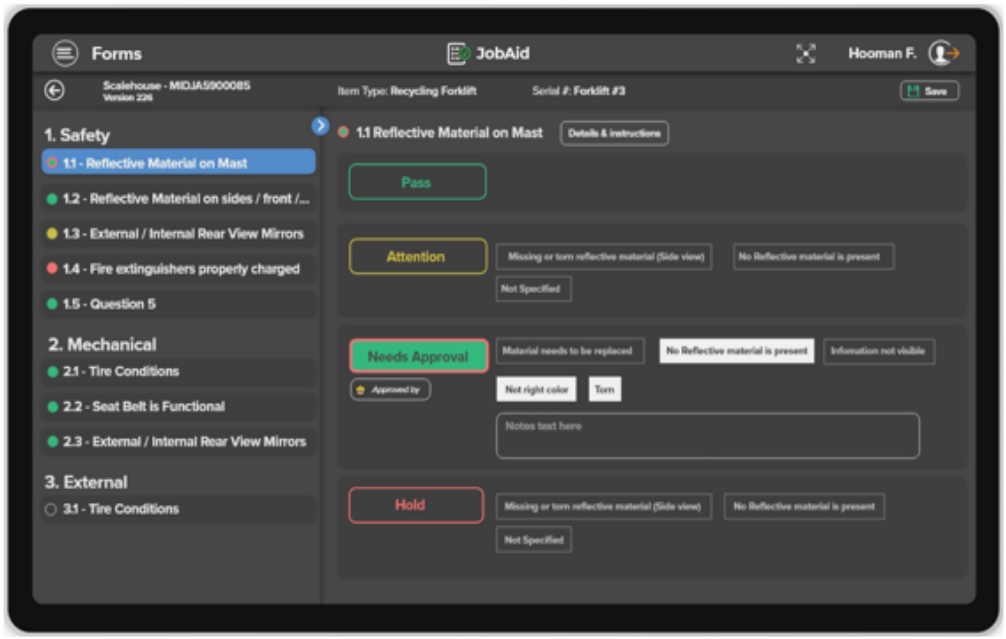
Job Aid – Paperless form management

- Fully custom digital forms such as Safety tours, Pre-inspection, Check lists and more
- Form version management
- Issue and failure tracking
- Failure reason tracking
- Equipment health tracking
- Easy to use operator interface
- Operator instructions
- Full history and audit trail
- Tablet friendly
- Automatic work order generation in the ERP or CMMS



Rfactor Management System

Safely increase productivity & reduce need to measure hot bars

- Reduced cobbles & out of spec bars
- Setup sheets that reflect how product is actually rolled
- Identify & improve product issues during the shift
- Involve operators in continuous improvement
- Safe & effective training of new operators
- Get the most out of every shift

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Rfactor Management System

QMOS R-factor System presents R-factors in a meaningful format that Operators can understand & use in real time during the shift to improve shift performance

Shows if any stands are out of spec

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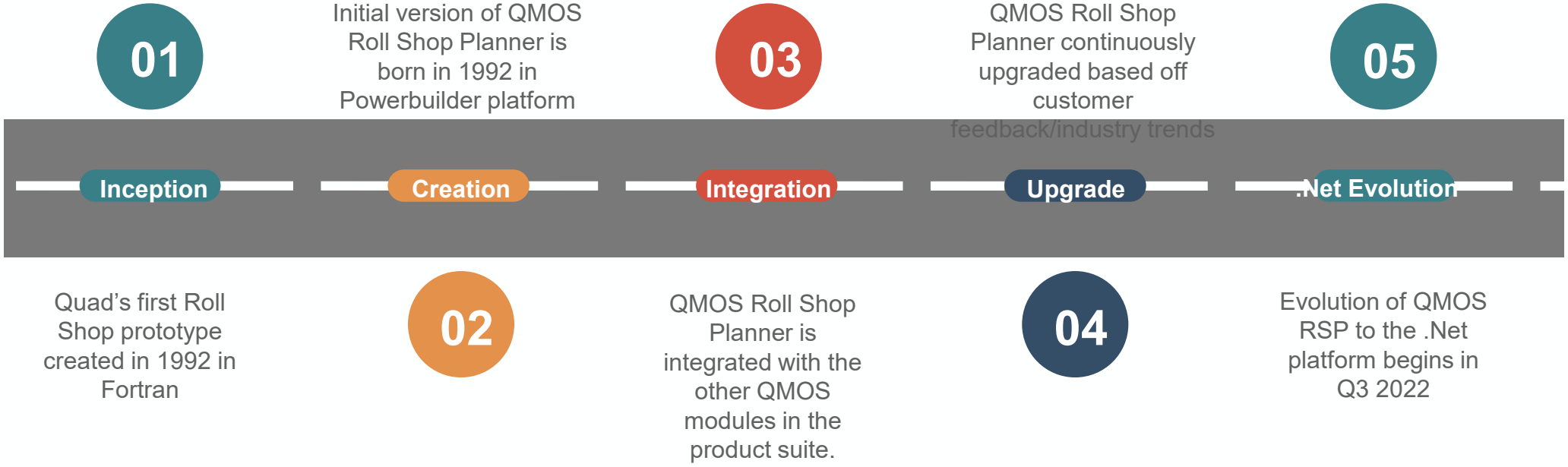
QMOS Roll Shop Planner

A quick look at the evolution of QMOS Roll Shop Planner over the years



QMOS RSP .Net Evolution: Why??

- Change in platform(.net vs PowerBuilder) enables Quad to leverage latest technologies and frameworks

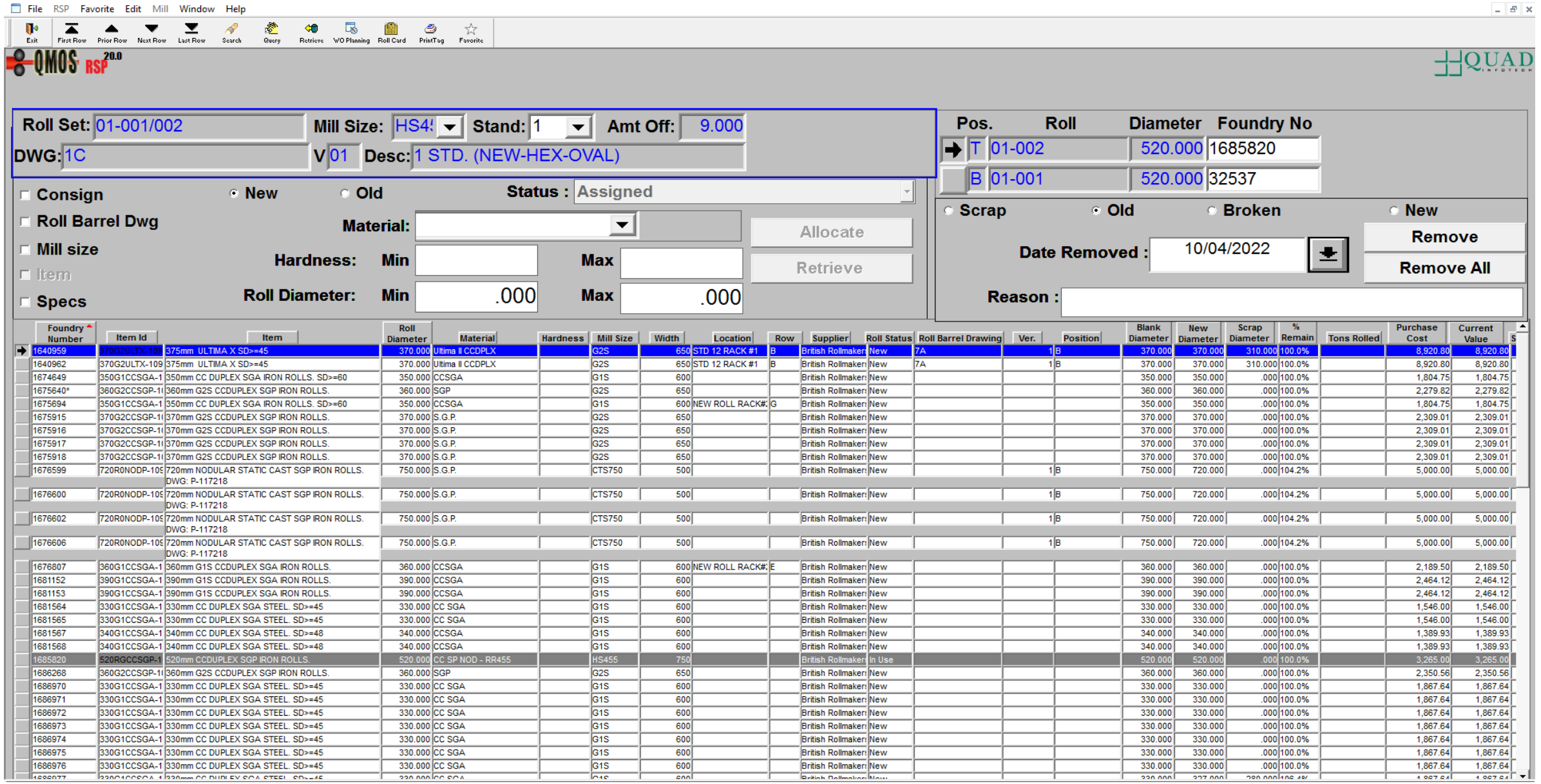
- Redesigned, modern screens to aid in better user experience and intuitiveness

- Improved screen processing times as a result of code re-engineering
  - Processing will now mostly occur at the database level, allowing for data to be processed behind the scenes and effortlessly refreshed and shown on multiple instances of the same screen with no adverse effects to operations

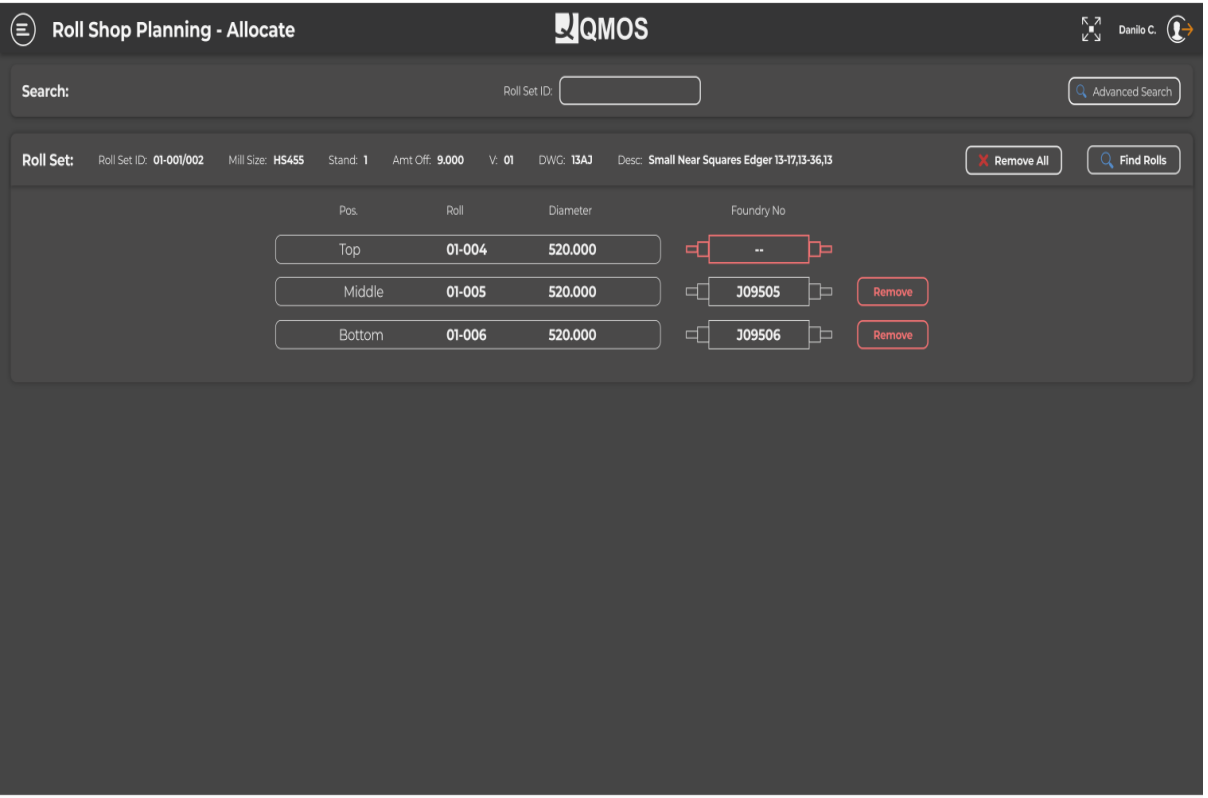
QMOS RSP .net Evolution: How??

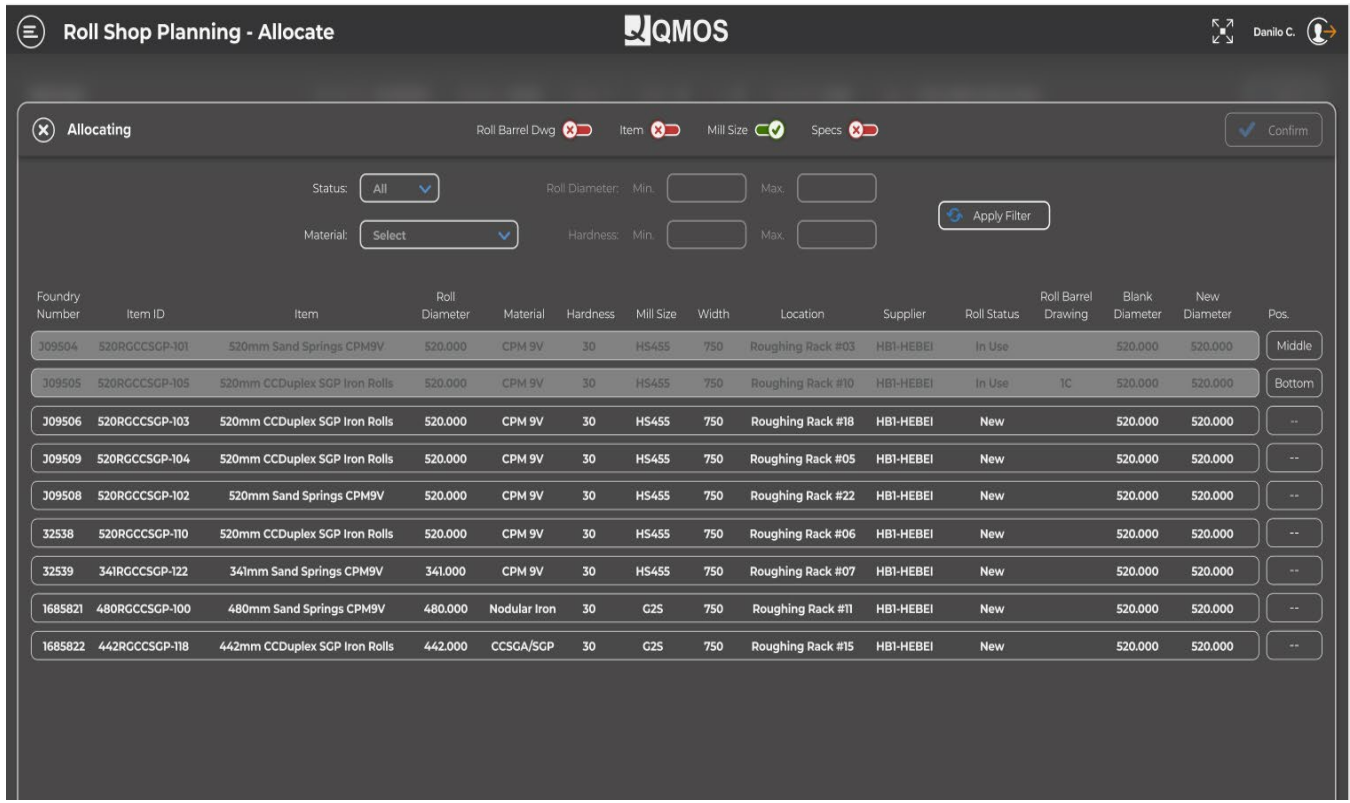
- QMOS RSP Evolution Project began officially at Quad Infotech in Q3 2022
- Dedicated scrum team focused on delivery of new .net RSP screens(UI/UX designer, 3 business analysts, 3 .net developers, RS product owner, RS scrum master)
- .net development of main RSP screens projected to be completed by end of Q2 2023

QMOS RSP Allocate screen (Current)

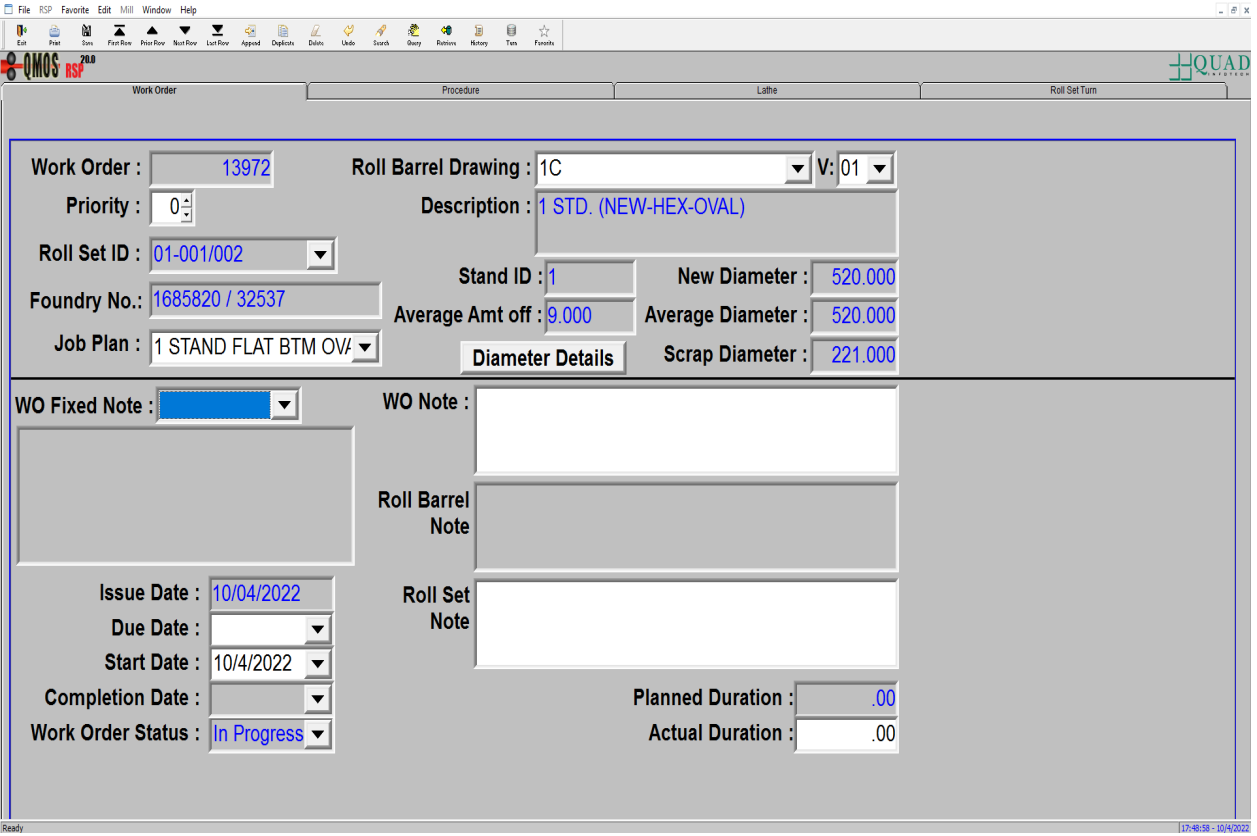


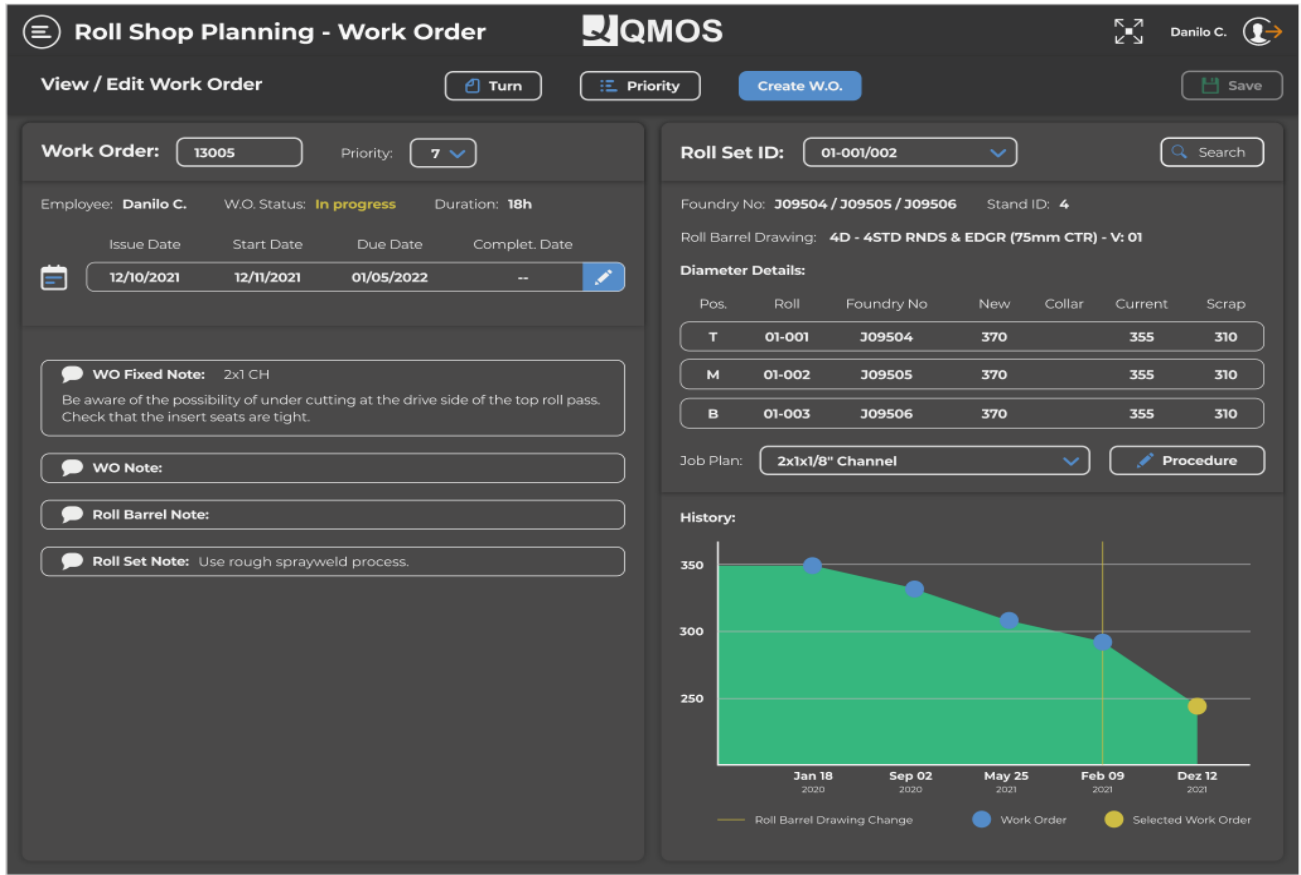
QMOS RSP Allocate screen (Evolution)



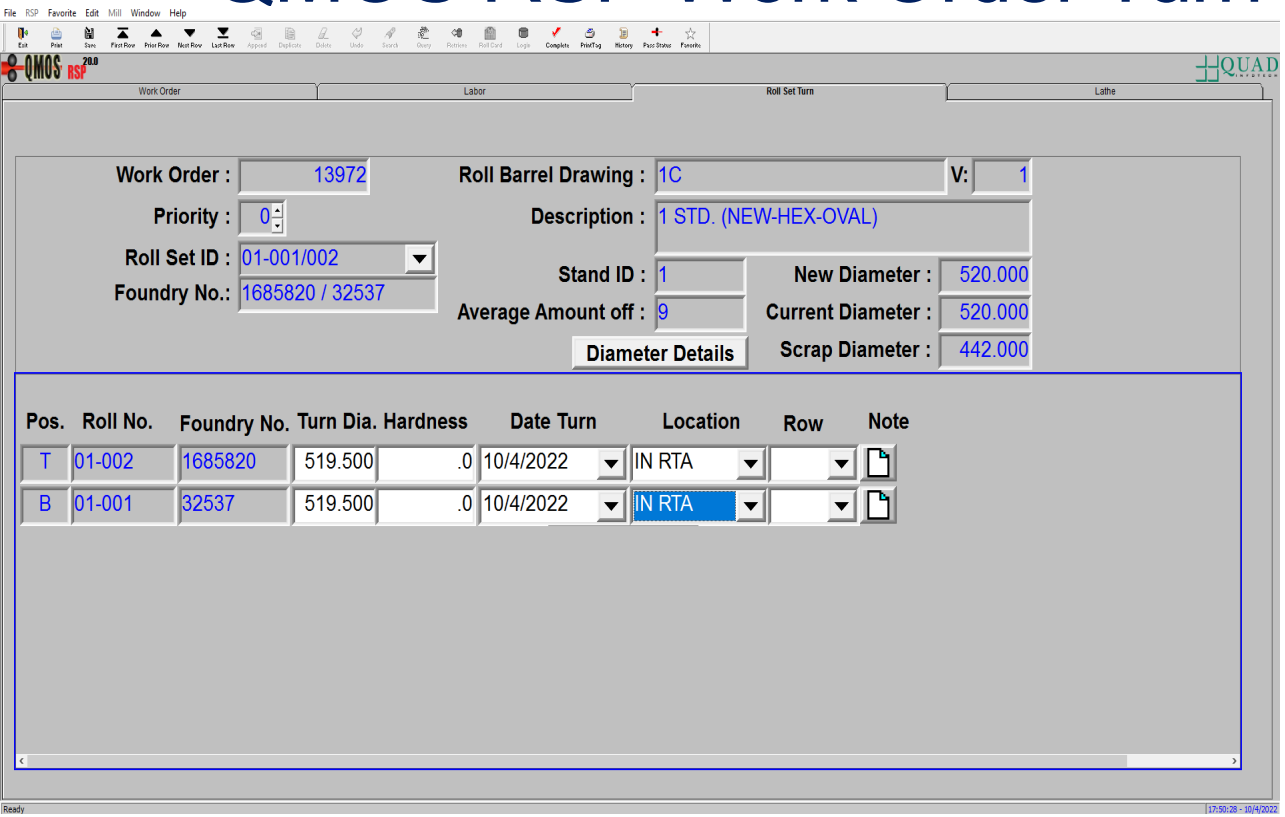


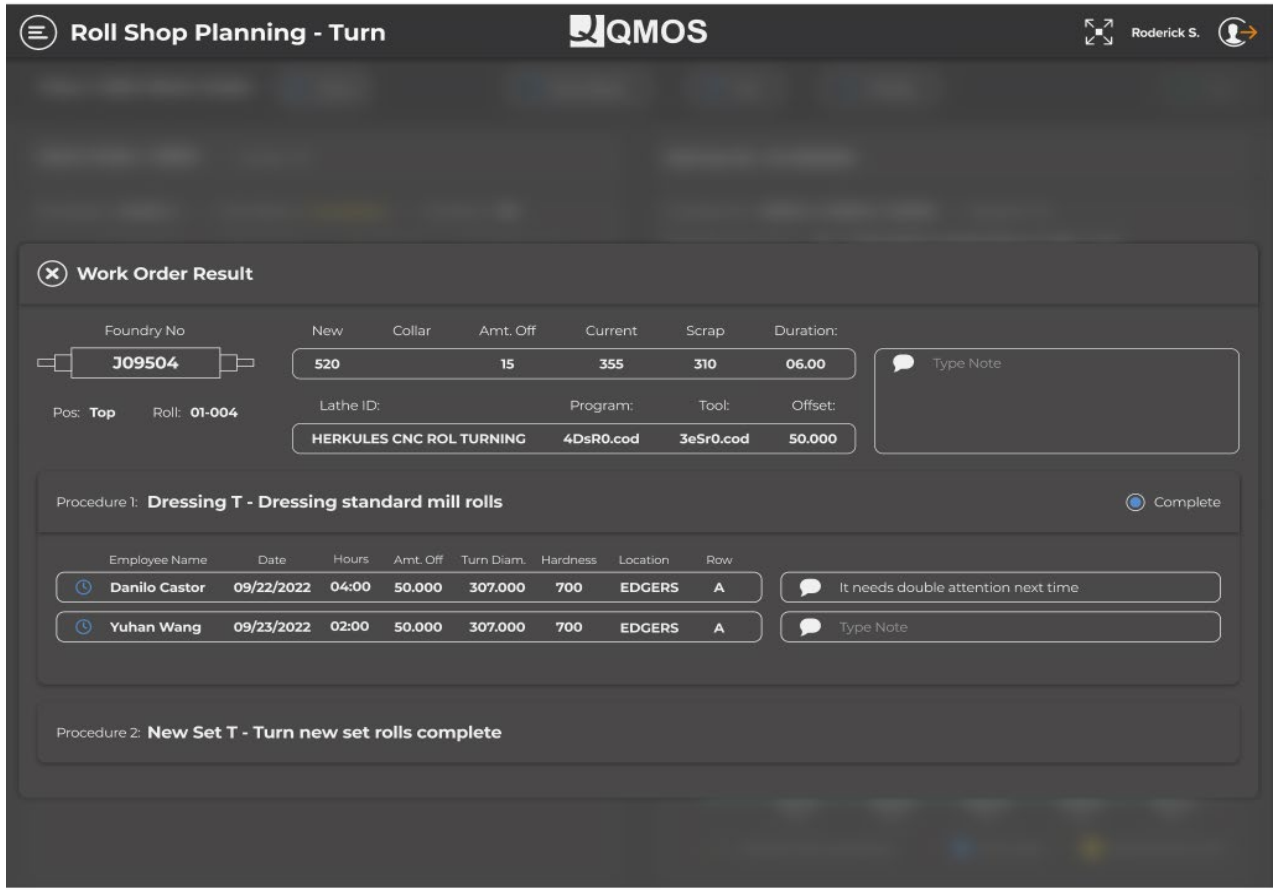
QMOS RSP Work Order Planning – Current vs Evolution





QMOS RSP Work Order Turn Results – Current vs Evolution



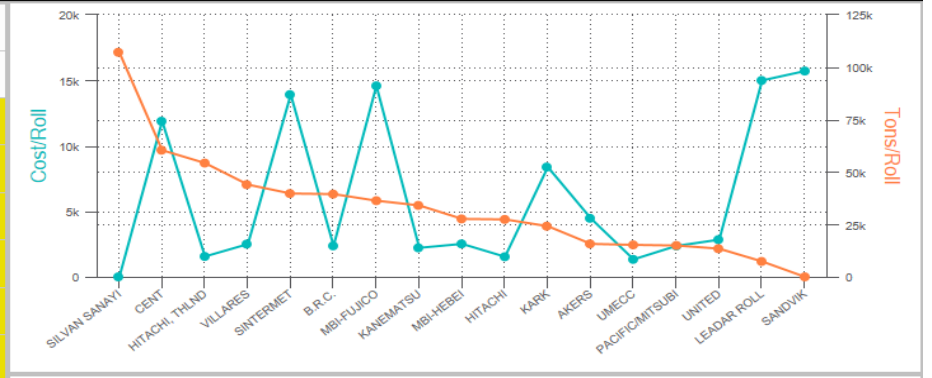


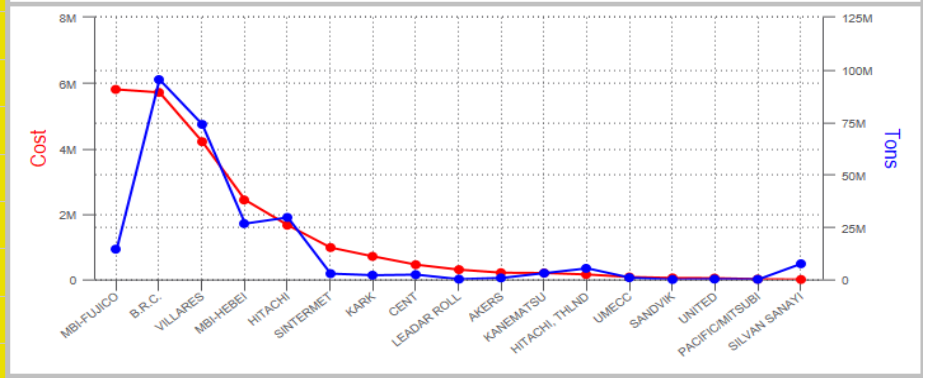
Roll Shop Cost Analysis

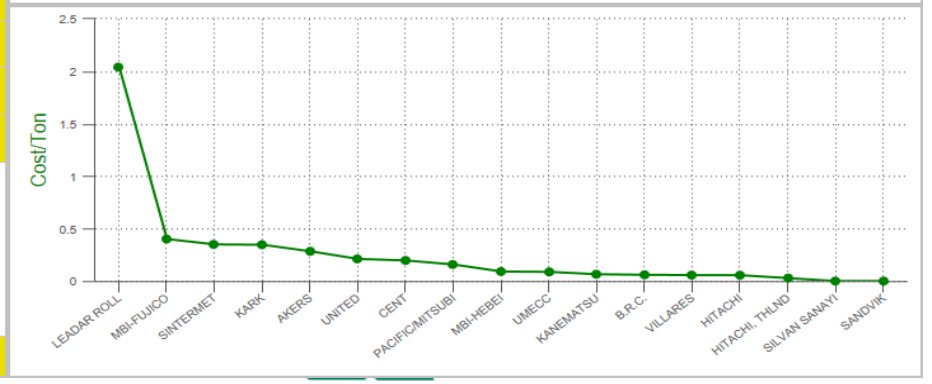
APEX Digital Factory | 5604 - Roll Cost Analysis

Roderick

	SUPPLIER - TOTALS				SUPPLIER - ROLL ANALYSIS			
SUPPLIER	ROLLS	TONS	COST	TURN TIME (HR)	TONS / ROLL	COST / ROLL	TURN TIME / ROLL	COST / TON
VILLARES	1,681	73,990,055	$4,206,866	11,227	44,015	2,503	7	$0.0569
UNITED	14	188,231	$39,766	199	13,445	2,840	14	$0.2113
UMECC	56	854,173	$74,854	459	15,253	1,337	8	$0.0876
SINTERMET	70	2,782,187	$973,930	752	39,746	13,913	11	$0.3501
SILVAN SANAYI	70	7,500,034	$0	359	107,143	0	5	$0.0000
SANDVIK	3	0	$47,130	0	0	15,710	0	$0.0000
PACIFIC/MITSUBI	4	59,789	$9,453	49	14,947	2,363	12	$0.1581
MBI-HEBEI	964	26,650,885	$2,427,604	8,765	27,646	2,518	9	$0.0911
MBI-FUJICO	398	14,463,379	$5,802,881	6,024	36,340	14,580	15	$0.4012
LEADAR ROLL	20	146,904	$299,860	371	7,345	14,993	19	$2.0412
KARK	84	2,030,520	$704,024	475	24,173	8,381	6	$0.3467
KANEMATSU	89	3,033,206	$197,268	504	34,081	2,216	6	$0.0650
HITACHI, THLND	98	5,321,505	$152,775	669	54,301	1,559	7	$0.0287
HITACHI	1,079	29,592,854	$1,657,056	8,100	27,426	1,536	8	$0.0560
CENT	38	2,296,318	$451,476	853	60,429	11,881	22	$0.1966
B.R.C.	2,414	95,352,872	$5,711,006	18,928	39,500	2,366	8	$0.0599
AKERS	46	724,759	$205,845	310	15,756	4,475	7	$0.2840
	TOTAL: 7,128	264,987,670	$22,961,794	58,043				







Our Goal

To be the leading provider of cutting edge steel manufacturing software in the age of industry 4.0

Additional focus on:

- Roll Shop Analytics
- Preventative forecasting
- Process optimization
- Operator mobility, collaboration and communication
- Cutting-edge technologies

Thank You!

Questions?

Presented by: **Roderick Sandiford Jr.**

Director of Rolling and Finishing Operations

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