MRH *Helping Managers and Businesses Succeed Through Real Experience*

Workload Analysis and Visualizing Resource Demands

7 Ways to Evaluate Employee Activities and Staffing Needs

The Importance of Visualization

- Visualization of Resourcing Helps You:
  - Communicate focus and priorities to your team
  - Align expectations with people outside your organization
  - Identify resource constraints, gaps and issues

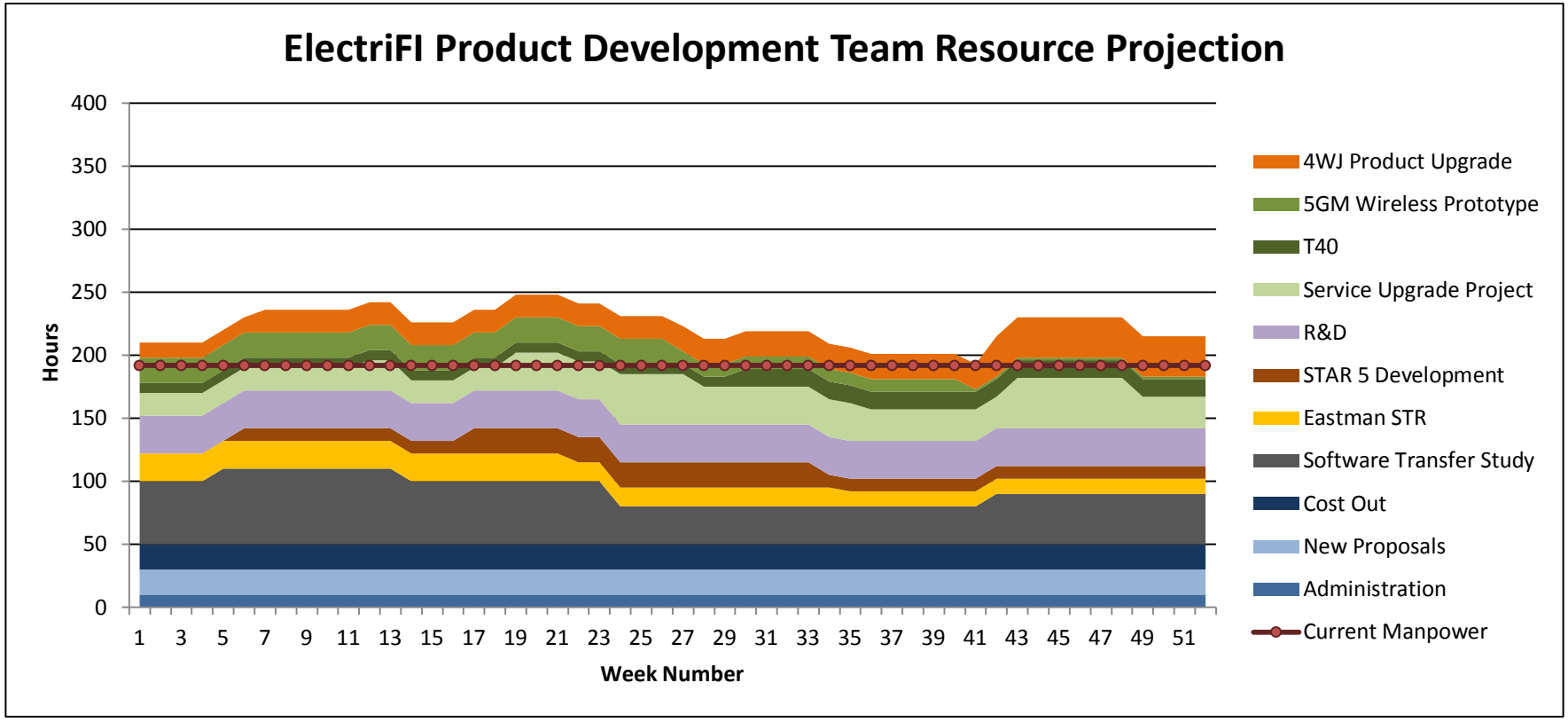
Defining Demand Vs. Capacity

- Resource Demand:
  - The total amount of work performed, or anticipated for your employees, regardless how many people you have, or how much time you need.

- Resource Capacity
  - The total amount of work required by your employees before “overtime”. Typically quantified in terms of hours per week or month.

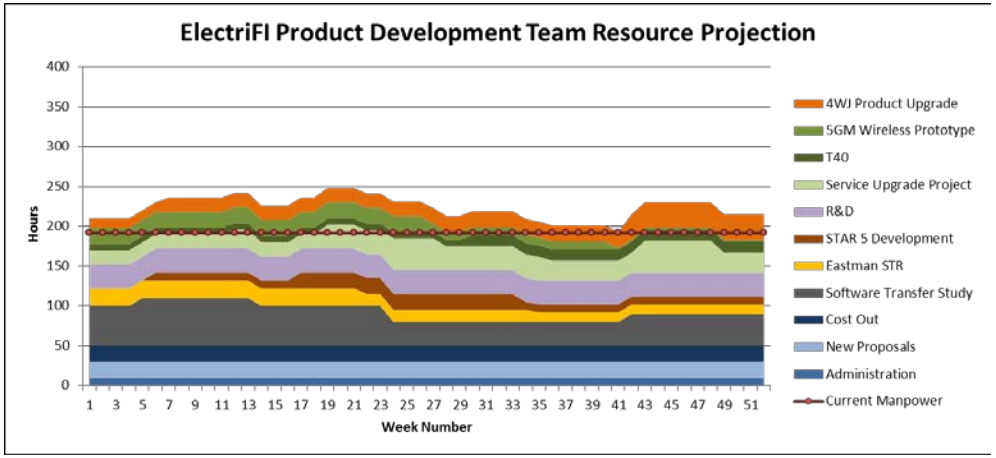
Example 1: Waterfall Chart

- Stack the estimated hours of effort across the team to compare future workload *demand* versus *capacity* over time



Example 1: Waterfall Chart

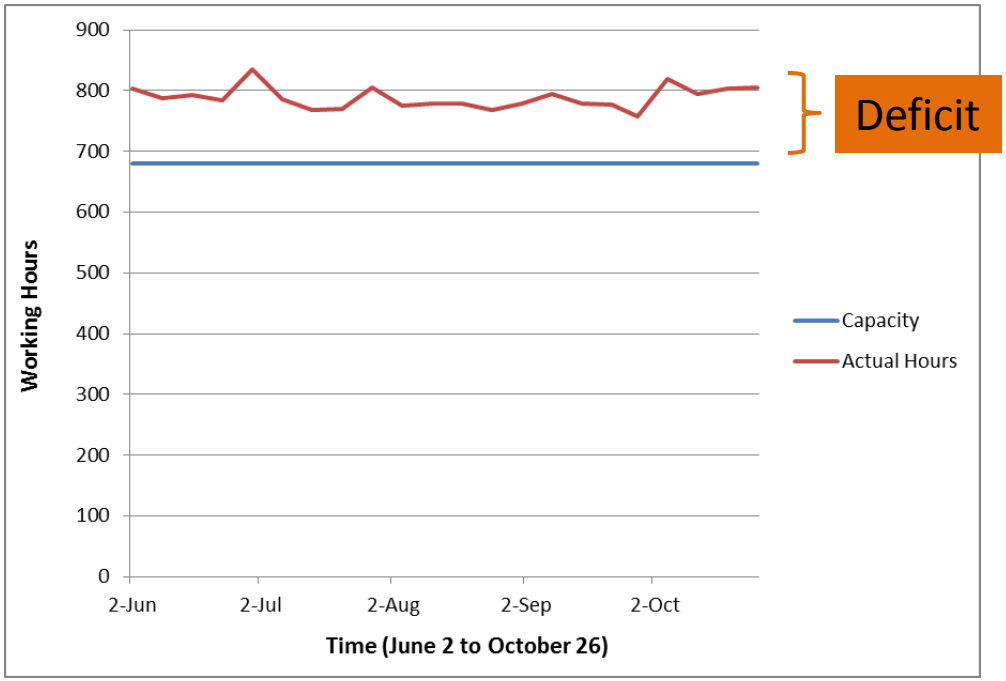
- Benefits:
  - Graphically show relative project resource demands
  - Visualize how the team's workload demand changes over time
  - Compare future demand to team capacity to identify gaps
- In this Example:
  - The estimates show a prolonged resource gap exists
  - The software transfer study project is consuming the most resources



Example 2: Analysis of Hours

- Track actual hours for a period of time and compare total hours consumed (demand) versus your team's capacity

	2-Jun	9-Jun	16-Jun	23-Jun	30-Jun	7-Jul	14-Ju
Capacity	680	680	680	680	680	680	68
Total	804	788	792	784	835	785	76
Employee 1	51	46	49	46	47	49	4
Employee 2	48	40	45	45	46	41	4
Employee 3	48	43	47	47	50	44	5
Employee 4	50	44	48	48	49	43	4
Employee 5	50	56	52	45	44	45	4
Employee 6	44	48	45	41	42	50	4
Employee 7	47	46	41	56	57	66	4
Employee 8	48	46	56	46	59	47	4
Employee 9	42	49	46	54	40	40	4
Employee 10	45	43	48	44	48	42	4
Employee 11	48	45	44	42	54	46	4
Employee 12	44	42	42	47	40	44	4
Employee 13	48	42	40	40	58	49	4
Employee 14	45	54	49	43	40	43	5
Employee 15	54	44	43	49	76	49	4
Employee 16	46	46	49	48	41	40	4
Employee 17	46	54	48	43	44	47	5
Heads (Cap)	**17**	**17**	**17**	**17**	**17**	**17**	**1**
Heads (Act)	**20.1**	**19.7**	**19.8**	**19.6**	**20.875**	**19.625**	**19.**
Deficit	**3.1**	**2.7**	**2.8**	**2.6**	**3.875**	**2.625**	**2.**



Example 2: Analysis of Hours

- Benefits:
  - Shows trend over time of your team's workload using historical data
  - Provides a visual representation of any resource gaps
  - Compares demand and capacity using objective, measured data
- In this Example:
  - 6 months of data shows a 3-person deficit exists

	2-Jun	9-Jun	16-Jun	23-Jun	30-Jun	7-Jul	14-Ju
Capacity	680	680	680	680	680	680	68
Total	804	788	792	784	835	785	76
Employee 1	51	46	49	46	47	49	4
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Employee 4	50	44	48	48	49	43	4
Employee 5	50	56	52	45	44	45	4
Employee 6	44	48	45	41	42	50	4
Employee 7	47	46	41	56	57	66	4
Employee 8	48	46	56	46	59	47	4
Employee 9	42	49	46	54	40	40	4
Employee 10	45	43	48	44	48	42	4
Employee 11	48	45	44	42	54	46	4
Employee 12	44	42	42	47	40	44	4
Employee 13	48	42	40	40	58	49	4
Employee 14	45	54	49	43	40	43	5
Employee 15	54	44	43	49	76	49	4
Employee 16	46	46	49	48	41	40	4
Employee 17	46	54	48	43	44	47	5
Heads (Cap)	**17**	**17**	**17**	**17**	**17**	**17**	**1**
Heads (Act)	**20.1**	**19.7**	**19.8**	**19.6**	**20.875**	**19.625**	**19.**
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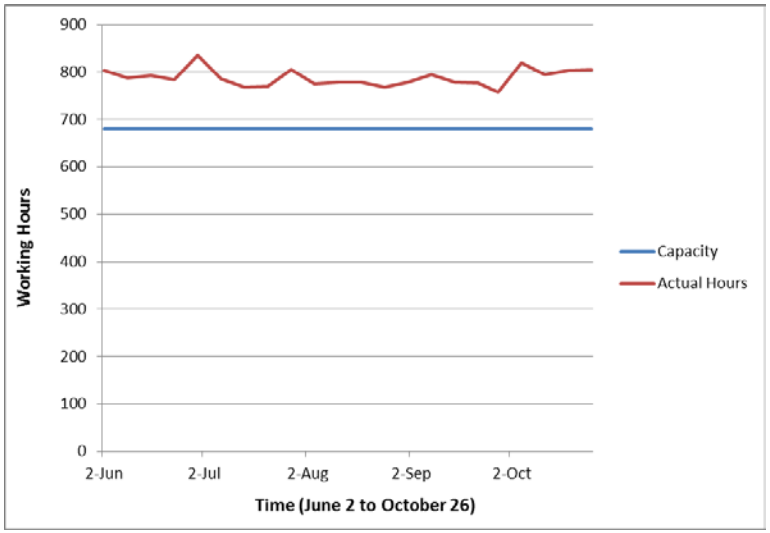


Example 3: Allocation Table

- Identify the % of time employees work on each project

% of Time Spent on Projects							
	Project						
Employee	**CTS40**	**CTS44**	**APII-3X**	**20KC**	**Hi-Rol**	**KR-200**	**Total**
Bob		50	25		25		100
Mary	100						100
Brian			40			60	100
Jessica	20			30		50	100
Steve		100					100
Sarah	10	20	10	10		50	100
Connie	40	40	20				100
Jack	10	30	20	40			100
Kyle		40	30			30	100
Total People	1.8	2.8	1.45	0.8	0.25	1.9	9

Example 3: Allocation Table

- Benefits:
  - Visualizes where the team's time and capacity is going (not time specific)
  - Validate through employee self-assessments of time, not detailed data
  - Can identify employees who are 'over committed' and working too many projects.
- In this Example:
  - Project Hi-Rol may be lacking resources
  - CTS44 is taking a large number of people
  - Sarah and Jack are both stretched across a number of projects (consider reducing)

% of Time Spent on Projects							
	Project						
Employee	CTS40	CTS44	APII-3X	20KC	Hi-Rol	KR-200	Total
Bob		50	25		25		100
Mary	100						100
Brian			40			60	100
Jessica	20			30		50	100
Steve		100					100
Sarah	10	20	10	10		50	100
Connie	40	40	20				100
Jack	10	30	20	40			100
Kyle		40	30			30	100
Total People	1.8	2.8	1.45	0.8	0.25	1.9	9

Example 4: Utilization Forecast

- Estimate expected future demand (as a % of time or hours) for each employee in order to assign work appropriately

% of Time Committed for Next 12 Weeks													
	Week #												
Employee	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Bob	100	100	100	100	100	100	100	50	50	50	50	50	50
Mary	100	100	75	75	75	75	50	50	50	50	50	50	50
Brian	100	50	50	50	50	50	100	100	100	100	100	100	100
Jessica	100	100	100	100	100	100	100	100	100	100	100	100	100
Steve	50	50	50	50	75	75	75	100	100	100	100	100	100
Sarah	100	75	75	25	25	25	25	25	25	25	25	25	25
Connie	100	100	80	80	80	30	30	30	30	30	30	30	30
Jack	80	80	80	70	70	60	60	60	60	50	50	25	25
Kyle	100	100	100	100	100	100	100	100	100	100	100	100	100

>75% Utilization
50-75% Utilization
<50% Utilization

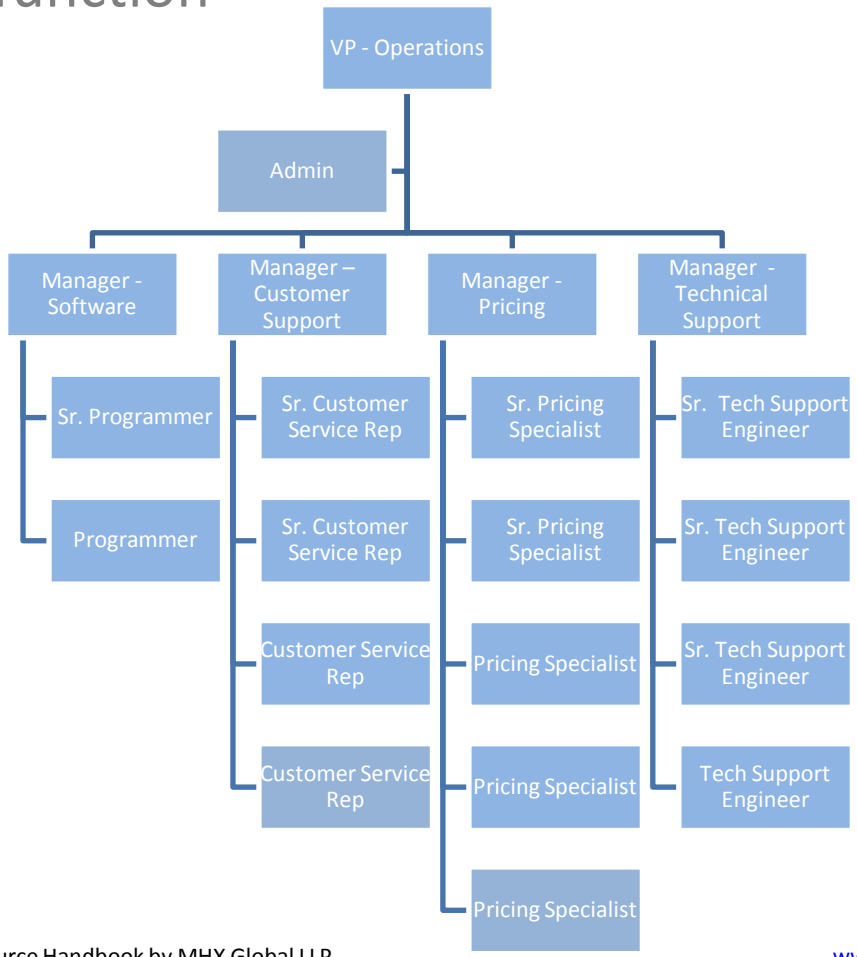
Example 4: Utilization Forecast

- Benefits:
  - Identifies who has future demand and who has capacity to take on new work
  - Especially useful when resources are strained and when more capacity is needed
- In this Example:
  - Jessica and Kyle are expected to be fully utilized for the next 12 weeks
  - Steve has some capacity now, but is expected to see an increase in workload
  - Sarah will need more work assigned to her by week 25 to keep her busy

% of Time Committed for Next 12 Weeks													
	Week #												
Employee	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Bob	100	100	100	100	100	100	100	50	50	50	50	50	50
Mary	100	100	75	75	75	75	50	50	50	50	50	50	50
Brian	100	50	50	50	50	50	100	100	100	100	100	100	100
Jessica	100	100	100	100	100	100	100	100	100	100	100	100	100
Steve	50	50	50	50	75	75	75	100	100	100	100	100	100
Sarah	100	75	75	25	25	25	25	25	25	25	25	25	25
Connie	100	100	80	80	80	30	30	30	30	30	30	30	30
Jack	80	80	80	70	70	60	60	60	60	50	50	25	25
Kyle	100	100	100	100	100	100	100	100	100	100	100	100	100

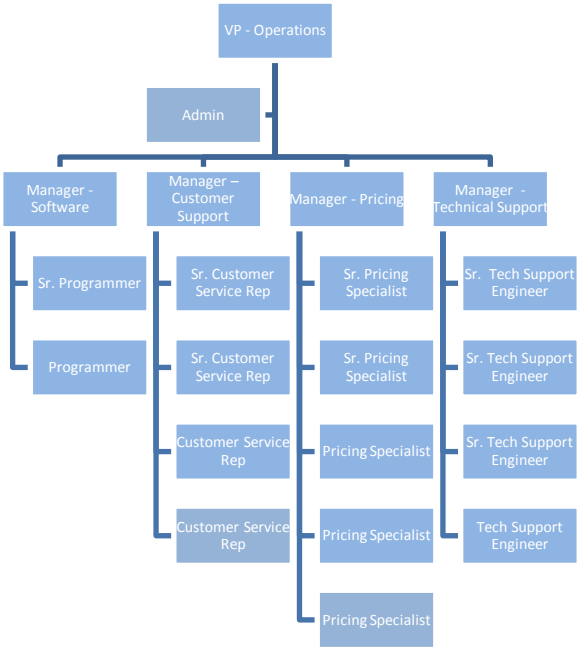
Example 5: Organizational Chart

- Visualize team's structure and number of people assigned to each area or function



Example 5: Organizational Chart

- Benefits:
  - Provides a visual representation of staffing levels across organization
  - Qualitative way to show alignment of roles and resources to respective teams
  - Identifies capacity gaps when bottlenecks are identified on team by team basis
- In this Example:
  - The software team has the fewest resources, and only one 'senior' employee
  - The pricing team has the largest staffing level
  - Technical support has the most 'senior' employees



Example 6: Responsibility Matrix

- Identify responsibilities for projects and align expectations across organization.

Activity	Project Manager	Customer Service	Engineering	Sales	Operations	Accounting	Quality
Customer Communication	●	○		○			
Product Development			●				
Project Budgeting	○					●	
Customer Invoicing		●		○			
Product Testing	○		●				
Customer Deliverables	●						
Product Integrity			○		○		●
Product Delivery					●		○

Key:

- ● Primary Responsibility
- ○ Supporting Responsibility

Example 6: Responsibility Matrix

- Benefits:
  - Clearly identifies primary and supporting functions for given activities
  - Identifies organizational gaps when certain activities aren't being completed
- In this Example:
  - Project Management owns customer communication, with support from Customer Service and Sales
  - Accounting owns project budgeting

Activity	Prject Manager	Customer Service	Engineering	Sales	Operations	Accounting	Quality
Customer Communication	●	○		○			
Product Development			●				
Project Budgeting	○					●	
Customer Invoicing		●		○			
Product Testing	○		●				
Customer Deliverables	●						
Product Integrity			○		○		●
Product Delivery					●		○

Example 7: Prioritization Tracker

- List priorities and the number of employees assigned to each. Gaps identified where available capacity/people do not exist.

Project	Category	Priority	Employees Needed	Resources Available?
Callahan	Contract	High	4	Yes
InterLok	Contract	High	5	Yes
Liverpool	Contract	High	3	Yes
Blaze 73	R&D	High	3	Yes
UltraServ	Contract	Med	2	Yes
ServLine	R&D	Med	0	No
Tri-Mec	Proposal	Med	0	No
ILP 47	Proposal	Low	0	No
Royston	Potential	Low	0	No

Example 7: Prioritization Tracker

- Benefits:
  - Clearly identifies priorities of team
  - Identifies gaps where capacity does not exist to support contracted or high priority work
- In this Example:
  - Project's Callahan, InterLok and Liverpool are high priority and staffed.
  - The ServLine R&D Project has some priority, but there is no capacity to support
  - If the Tri-Mec or ILP47 projects are awarded, there are no available resources to support them until something else is completed

Project	Category	Priority	Employees Needed	Resources Available?
Callahan	Contract	High	4	Yes
InterLok	Contract	High	5	Yes
Liverpool	Contract	High	3	Yes
Blaze 73	R&D	High	3	Yes
UltraServ	Contract	Med	2	Yes
ServLine	R&D	Med	0	No
Tri-Mec	Proposal	Med	0	No
ILP 47	Proposal	Low	0	No
Royston	Potential	Low	0	No

Example 8: Throughput Analysis

- Identify the average throughput of your team's tasks on a weekly basis. Quantify the total number of tasks you see each week, and calculate the number of people needed to meet that need.

Report Writing Services Inc. Headcount Analysis			
Task	Average Throughput per Employee (per Week)	Total per Week	Resources Required
Test Reports	2.6	13	5
Financial Reports	4	24	6
Business Analysis Reports	3	10	3.3
New Proposal Documents	14	35	2.5
Total Staff Needs			16.8

Example 8: Throughput Analysis

- Benefits:
  - Quantifies headcount demand based on throughput needs
  - Easily compares resource needs between types of tasks and activities
- In this Example:
  - Test Reports require the most time compared to other activities
  - New Proposal documents are the most frequent, but require the few resources
  - The total staff capacity is approximately 16.8 people to meet current client needs

Report Writing Services Inc. Headcount Analysis			
Task	Average Throughput per Employee (per Week)	Total per Week	Resources Required
Test Reports	2.6	13	5
Financial Reports	4	24	6
Business Analysis Reports	3	10	3.3
New Proposal Documents	14	35	2.5
Total Staff Needs			16.8

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