

o*i*perations in practice




the newsletter of o&i consulting



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staying ahead

Operations improvement: we look at how making best use of existing space, resources and information can benefit airport and airline operators.

Every transport organisation strives to improve its operation or risks decline. Even when it is performing well, is profitable and a leader in its field, an operator will have its eye on where it can take its operations next and on the risks and opportunities of possible external factors.

Finding a concise definition of transport operations improvement is not an easy task. After all, it can mean so many things: Improving processes, layouts, work methods, planning, equipment, and technology, from a physical perspective. Achieving product differentiation, improving customer satisfaction and attracting new customers from a competitive perspective. And improving throughput, use of space, productivity and profitability or reducing costs, from a financial viewpoint.

For o&i consulting, transport operations improvements come in a number of categories:

- Helping clients to offer the “product” that their existing and target markets want.
- Achieving the level of quality and reliability that the organisation wishes to offer.

- Operating at efficiency levels that optimise use of equipment, facilities and resources, as well as increasing profit, while delivering other necessary controls.

Operations improvement, for o&i consulting, involves employing industrial engineering and operational research skills, our understanding of the aviation and distribution industries and the client operation, and our practical operations experience. We use this mix of skills and experience to help transport clients to achieve *their* goals, capitalise on opportunities within *their* operation and ultimately optimise *their* performance.

This combination is relevant in strong and weak economic times. It enables you to maximise your performance and minimise expenditure in tough times; and helps you to optimise throughput and maximise profit in good times.

This article continues by looking at two examples of operations improvement that are currently topical in aviation.

example 1: improving the efficiency of airline ground operations

Contrary to many perceptions, there is a repeating pattern to how and when passengers arrive at the airport which effects ground handling, in particular check-in planning and operations, passenger security screening, baggage capacity, and requirements for queue space. This pattern differs, often by airport, carrier type, individual carrier and even flight, time of day, day of the week and season. The pattern is not

a constant; it evolves over time. Researching the pattern once and assuming it will not change is a mistake.

If an airport was to be seen as a production environment, one would first establish patterns of demand, match this against capacity and then where demand exceeds capacity, one would ask the following questions:

- Can I increase the production rate per unit of production e.g. more transactions per desk per hour?
- Can I increase the units of production e.g. more check-in desks, and retime the units of production?
- Can I reduce demand in the peak hours, either by eliminating some production tasks or by re-timing some of the work?

Understanding the patterns of demand is the start of the process for planning your ground handling operation. For example, for your check-in facilities and resources you can predict the quality of service that your customers will receive and you will also be able to plan to operate efficiently. This may seem an obvious statement, however all too often we see airlines planning according to methods that are not demand driven or are based on outdated data. In these circumstances, resource and facility planning often becomes incompatible with passenger and baggage demand patterns. As a result in busy times queues ensue, baggage facilities become congested, service diminishes and delays occur, and in quiet times resource and facilities are under-utilised and money spent unnecessarily. Worst of all, these outcomes often arrive as a surprise to the operator!

the effects of demand-driven planning

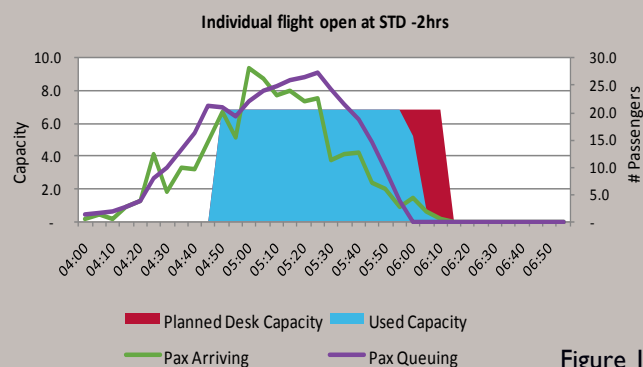


Figure 1

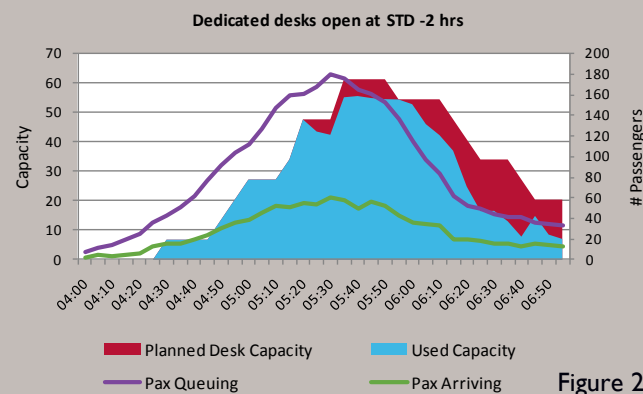


Figure 2

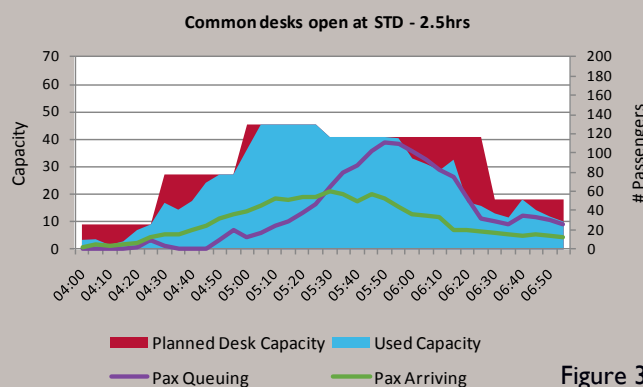


Figure 3

The chart in Figure 1 looks at planned and used desk capacity for an individual flight. It demonstrates the effects of not planning resourcing according to demand: insufficient resource / desks open as the peak period builds up, passenger queues that exceed service standards, and surplus resource after most passengers have checked-in.

Figure 2 shows check-in desk planning for a number of flights with dedicated desks. The desk planning method used in Figure 1 is applied for all flights checking in during the same busy morning period. The result is that queues build due to passengers arriving before the desks open for their flight at STD -2hrs. Additionally, desks are underutilised for the final period of check-in as the queue has been processed and the passenger arrival rate reduces demand to less than the provided capacity.

Figure 3 shows planning for the same range of flights as in Figure 2. However, here demand-driven planning is applied, and common check-in desks are used. Due to demand patterns desks are opened at STD -2.5 hrs.

By understanding the passenger arrival profile and planning check-in resource accordingly it is possible to resource more effectively, and reduce the queues. In this example, the peak desk requirement reduced from 14 to 10, the maximum queue reduced from 180 to 111 passengers, and the queue duration from 39 to 15 minutes.

The diagram provides an understanding of the benefits of applying demand driven check-in desk planning methods and using alternative resourcing / planning strategies.

Demand driven planning can be just the start to check-in operations improvement. Further cost saving, efficiency and service improvements are possible. Airlines can make efforts to flatten passenger reporting profiles, i.e. reduce the peak in passenger arrivals, through communications to passengers to influence them to arrive at the airport at a time outside of the main peak or to encourage them to use alternative check-in methods. Resource plans should then be revised to reflect the changing pattern. This “manipulation” of passenger arrivals profiles can be achieved successfully to excellent effect.

Additional efforts can be made to flatten resource plans and reduce the number of total staff hours required, without affecting service standards and customer satisfaction. Addressing processes, work methods and layouts to improve efficiency and productivity is one example. This will reduce transaction times, the total time required to process all passengers and therefore the number of desk hours required.

Another good example is through introducing alternative resourcing strategies. Roster efficiencies can be achieved through an effective mix of part-time and full-time resource, employing part-time staff to help cover demand peaks. The cross-utilisation of staff, to combine job functions and allocate non-time specific jobs into off-peak periods, will also help to achieve a more balanced work pattern and

increase resource utilisation. This is also a realistic approach in ground operations, where ground handling functions are required to complete a large number of tasks.

The key to ensuring these approaches continue to produce good results is to ensure that your passenger reporting profiles are routinely recorded and revised, and plans are adjusted accordingly. The status quo, we find, is not necessarily a given. Passenger habits can be changed over time, processes can typically be improved and resource plans frequently present opportunities for improvement.

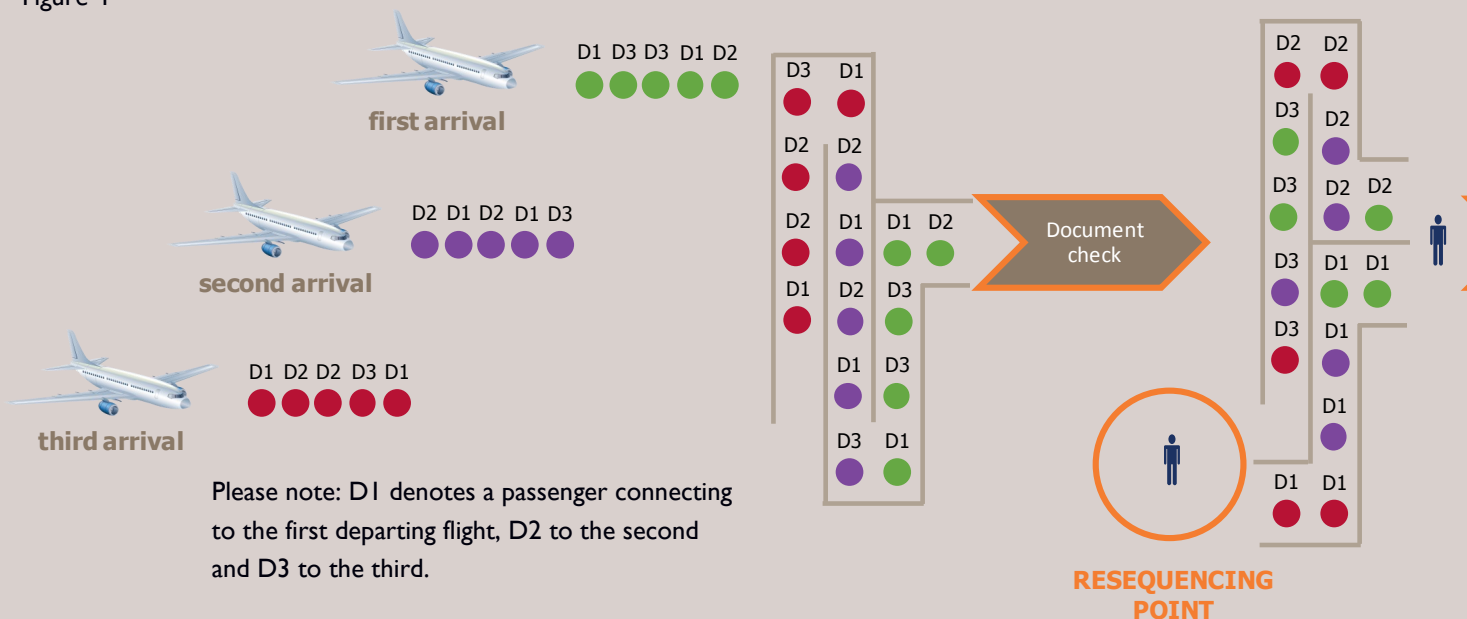
example 2: managing hub activity for major airports

Transfer operations performance is an important factor influencing the reputation and business model of hub airports. Short connection times, long distances between arrival and departure gates, sometimes extensive bussing operations for non pier served stands, and long queues at processing points are some of the issues that both airports and transfer passengers have to contend with.

Improving the efficiency of the end-to-end process and intelligent use of information are important elements in improving the performance of transfer operations. Sub-optimal processes, inefficient layouts and poor resource planning can slow down transfer passenger security, document control and gate operations. Failing to use available

transfer operations: improving on-time performance

Figure 4



Transfer passengers do not enter the airport building in the sequence of their departing flight. Therefore passengers with short connection times may be required to queue at processing points behind later departing passengers.

By resequencing passengers into the order of their departing flight, it is possible to ensure that those time critical passengers can be processed first.

It is important to ensure that the resequencing process is efficient and appropriately placed.

information to anticipate connection failures and to respond where necessary is also an opportunity wasted.

Poor connections planning, processes and control can impact on customer service, increase costs, and most importantly for the passenger, airport and airline, affect the passenger's ability to reach his connecting flight on-time. Resulting in either a missed connection or flight delay.

However, processing passengers in a timely manner is perhaps the key component in an optimally performing transfer process. Some passengers have much shorter connection times than others. The issue here is that those passengers with short transfer times may be in a passenger security or document check queue behind passengers who have much longer connection times.

Resequencing passengers at the screening area is an opportunity to reduce this problem. This means that those passengers arriving at security screening with critically short connection times pass through screening ahead of later departing passengers, irrespective of the order in which they arrived at the area. In this way, overall capacity does not need to be significantly improved. The power of information is applied to make sure that where there is excess demand, the process carries out its work in the optimal sequence.

Combined with an efficient end-to-end process, this reduces

the risk of missing the connection or delaying the outbound flight therefore improving customer service and reducing costs for all parties.

staying ahead

These examples highlight how you can use existing skills and knowledge to improve your operation, costs and service. New technologies, new equipment and differentiated products are certainly important factors in influencing the customer experience, an organisation's reputation, profitability and staying ahead of competitors. However, these have less significance if the surrounding operation is not functioning optimally and is the cause of poor service and eventual delays.

Making optimal use of available space, facilities, resources and information is as much a part of achieving client goals and staying ahead as is being an innovative, progressive organisation.

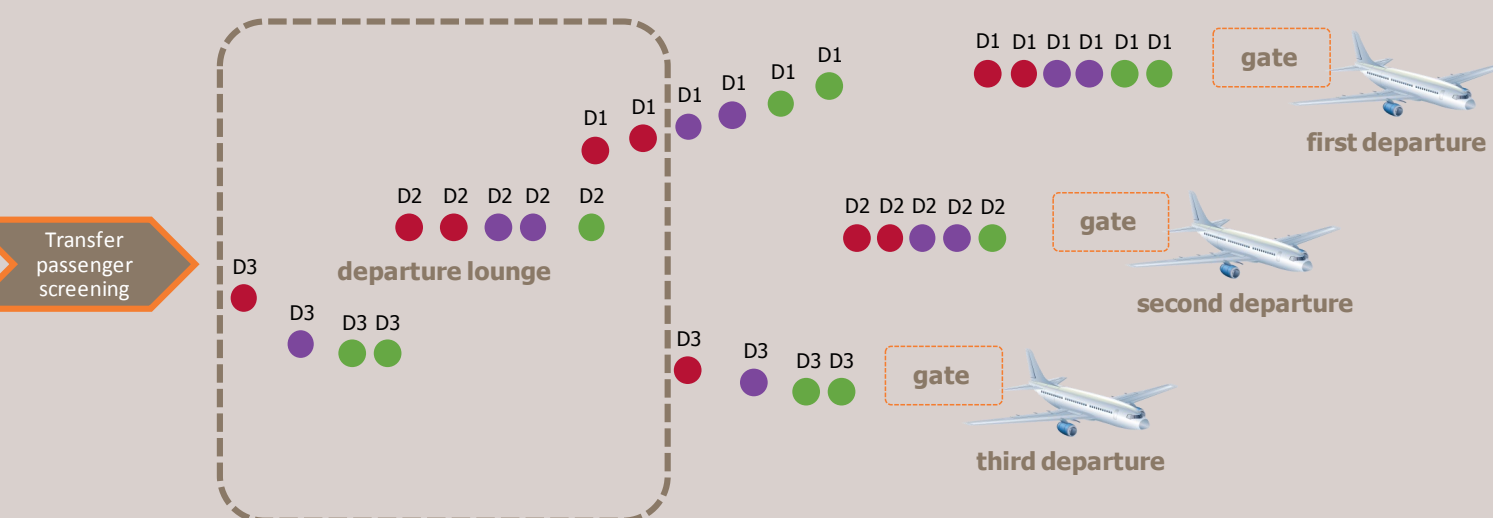
We explore the relevance of operations improvement for air cargo operations in the next issue of *operations in practice*.

Should you wish to learn more about our skills and work, or discuss how we can help your operation, please contact:

Paul Bloch, Director

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The below diagram provides a simplified illustration of how resequencing passengers at an appropriate, early point in the transfer process can help to deliver time critical passengers to their departure flight ahead of those passengers with longer connection times.



A successful resequencing process that is combined with an efficient end-to-end transfer process helps to streamline the journey to gate and aircraft for time critical passengers.

This plays an important role in ensuring passengers do not miss their connection and aircraft are not delayed.

reference projects

Operations Improvement

ASIG, Process improvement

o&i consulting provided operations optimisation expertise to ASIG in support of their aircraft cleaning operations, and assisted the organisation in developing a greater understanding of allocation systems.

International Airport, Baggage and check-in expertise

- Baggage handling system demand and capacity study for two terminals
- Baggage handling system process and capacity improvement
- Design and management of a survey of passenger arrival profiles
- Runway capacity study including development of a SIMMOD model of the airport's airfield, scenario testing and analysis of runway mode capacities

London City Airport, Arrivals operations improvement

o&i consulting applied operations planning methodologies to identify constraints in London City Airport's arrivals operation. We recommended and illustrated operations improvement strategies to enable the airport to achieve its desired service proposition.

Swissport, Operations efficiencies

Identified resource efficiencies through improved alignment of capacity and demand, and improved resource planning at the ground handling agent's Heathrow operation.

Virgin Atlantic Cargo, Cargo expertise

Cargo process improvement review and recommendations

current projects

We are currently working on a variety of projects that include:

- Performing a check-in demand and capacity study for a major international airport
- Providing continued self and positive boarding process design and implementation skills to BAA
- Performing the role of interim process improvement manager in a passenger screening operation at a UK airport terminal
- Providing support services to DHL



o&i consulting has been providing operations expertise to national and international organisations in the aviation, rail and distribution sectors.

Recent projects have included:

Operations Planning

**London Railway Station,
Goods management plan**

Conducted a goods and waste survey and developed a goods management plan for a UK railway station

**Qatar Airways Cargo,
Development of operating plan**

o&i consulting is supporting Qatar Airways Cargo in developing its cargo ground handling operations at Doha Airport.

We are developing an operating plan, including manpower and equipment requirements, operations timelines, key performance metrics and high level standard operating plans to deliver reliable and efficient operations.

Operations Design

**BAA,
Process design and implementation**

An o&i consultant is working with BAA Heathrow Airport on developing a number of IATA Fast Travel initiatives (self boarding and positive boarding).

Consultant deliverables include stakeholder engagement, process design, solution development, trialling technology and solution implementation.

**European Investment Bank,
Baggage systems advice**

Provided baggage systems and operations expertise and analysis of cost and functionality to support the EIB on its funding decision for a major European airport.



“In our first year of trading we are pleased to have worked with a broad range of international clients in a variety of sectors. We have worked in places such as Chicago, Doha, Dublin, Durban, Moscow, New York and Sydney, as well as across the UK, in the areas of airport passenger, baggage, ramp and cargo operations; in ferry, rail and express parcel operations. We look forward to building on these credentials in 2011.”

Paul Bloch, Director

depending on data

The value of a good operations survey is often underestimated. Well designed and well executed, it can help you to keep your planning parameters up-to-date, understand where your operation is inefficient, determine passenger preferences, and understand emerging patterns in your operation and sector.

“I know what happens in my operation,” “lower throughput is due to the change in regulation”, “we already have good data to plan with”. Some operators just don’t think surveys are necessary. Understandably, some are also sceptical about the value a survey will add: “It won’t help us, the report from the last survey we did was never used...”

However, it may be worth thinking about what has changed in your operation since you last collected data or assessed your available data. Have there been changes in your product mix? Have flight or public transport schedules changed significantly? Have there been changes in regulations, processes, layouts or equipments?

Can you be sure they have not affected demand patterns? Do you know specifically how and where they have impacted your operation? Are you confident that a ‘hunch’ is a good base for decision making?

What is a good survey?

Don’t underestimate the advantages a survey can bring to your operation. If carefully designed; conducted professionally for an appropriate length of time at the right times; performed routinely, where necessary; and if the

information collected is utilised appropriately, surveys are very informative, identify issues and opportunities, and provide a trigger to realising business benefits.

A good survey can help you to understand what is currently happening throughout your operation and in your sector, what your customers think and experience, and how trends may shape the future.

Most importantly, a good survey answers *your* questions, it helps to resolve *your* operational or business issues, or it helps *you* to understand where the key opportunities lie in your operation.

What makes a good operations survey?

In short: knowledge, structure, attention to detail, analytical skill and good management.

An understanding of industry and client operations is invaluable throughout the survey process. It is also essential to fully understand client issues, aims and reasons for conducting a survey. At o&i consulting we work with clients to define exactly what they wish to understand about their operation and business, and how they intend to use the information.

The knowledge we build enables us to determine the relevant elements to measure; the right questions to ask; the right times of day / week to survey; and the operational drivers and interdependencies, and how these can influence the survey. This is where our operational experience comes into play. We understand the relationships between the

data elements, how to structure them in a user-friendly manner and how to perform thorough, reliable and insightful analysis.

A good structure ensures that the relevant details are collected in the most effective manner. It ensures that they are structured with the analytical phase and the end goal of the data in mind. This means that the survey will produce results that *mean* something to the client and that can be used to the benefit of the business, rather than simply producing a report consisting of interesting statistics.

Of course, a good structure means nothing if the survey is conducted poorly. It is important to employ experienced individuals to perform and manage surveys. They need to understand the operating environment in which they are working, and how to collect the relevant data to provide a high quality of data. We know only too well how difficult it is to work with incomplete or inaccurate data. It makes our and our clients' jobs easier if we achieve a high quality of data from the outset.

And from a practical perspective it is important to show respect for the client operation and its customers. Our team understands the pressures and needs of live operation and the importance of allowing it to continue around us, whilst ensuring that we conduct our work well.

In summary, a good survey does not just collect a set of data - it is so much more. It provides a client with important and reliable information about his business, with answers, and with insights to the appropriate way forward. So, it is possible to identify exactly which part of your process is slowing down throughput; to understand what current demand patterns are and how schedule changes can affect these; to measure the effect of changes in product and technology, and so much more. Then all you need to do is make the change.

o&i consulting performs and manages transport surveys, helping clients to better understand their operation, customers, and sector. Our mix of operational expertise and a strong analytical skill set benefits all aspects of our survey offering.

For more information about our approach or how we can help you with your research, please contact:

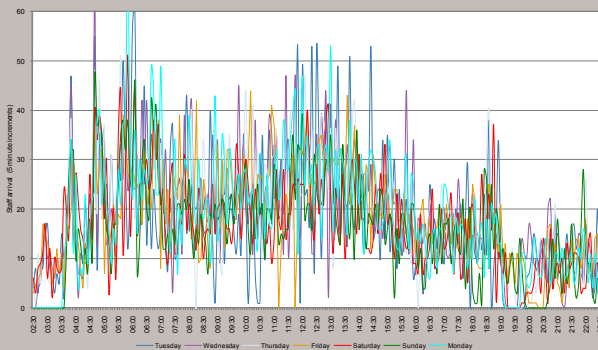
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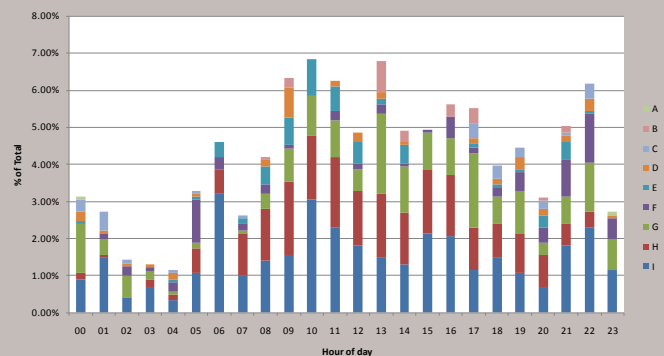
We also invite you to view our survey capability statement:

www.oandiconsulting.com/transport

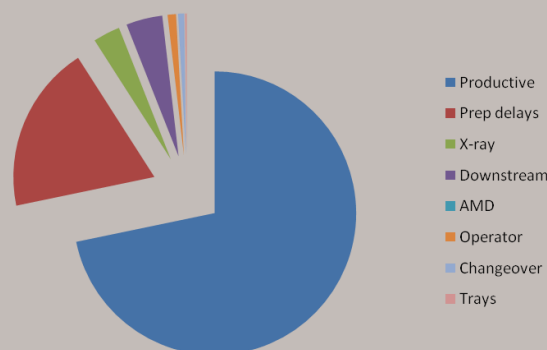
does your data provide you with...?



Workload profile at staff security search for every 5 minutes



The proportion (%) of vehicle movements arriving at a logistics facility by vehicle type across all days of the week



The reasons for delay at passenger security screening and time lost to each cause of delay

A good operations survey can provide many insights into your operation. The above diagrams provide just a few examples: arrival profiles, types of workload, causes of constraint and the proportion of time lost to these.

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