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The 25/25 rule: achieving more by doing less

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Many organisations suffer from a self-inflicted wound – they attempt to do too much! As a result, nothing is done well and profits suffer. Our article addresses this problem by suggesting that managers should focus on a subset of their current initiatives – a subset selected to maximise returns without overstraining resources. We address the following issues: What are the symptoms of work overload? How does an excessive workload adversely impact the bottom line? How can managers determine the throughput capacity of their organisation? What can be done to address the problem of excessive workload? Many, if not most, organisations attempt to operate beyond their capacity, with the result that inefficiencies abound, deadlines are missed and profitability drops. Based on research and consulting experience in many companies, our paper explains the basic concepts of ‘the 25/25’ approach to project portfolio management – an approach designed to increase profitability by concentrating only on the work that is essential to the survival and profitability of the organisation. The approach has been successfully applied to dozens of public and private sector organisations companies.

Keywords: project portfolio; efficiency; throughput maximisation; Theory of Constraints

1. Introduction

Is your company doing too much? Is it possible that a reduction in workload could bring significant improvements to the bottom line? For whatever reason, from our experience with over one hundred organisations, we note that most companies have over committed themselves. Some take on so much work that they cannot possibly be profitable!

The experience of many companies shows that greater value creation, higher throughput, greater profitability and greater market share can be achieved by abandoning some projects and trimming other projects to their barest essentials. A similar strategy is to focus on the company’s most important products and services, strip these down to only their essential features and market them only to the firm’s most important customers. This somewhat paradoxical principle – that companies can achieve more by doing less – can be readily understood, as we will explain in this article. The symptoms of an overloaded management system – missed project due dates, excessive overtime, costly rework – are fairly obvious and all too common. However, managers often do not diagnose the problem, or if they do, they lack the self discipline to assert control over the situation. The following case highlights the main problems of the resource capacity and workload relationship.

C is a large communications company¹ that develops and integrates infrastructure equipment. All 20 of their recently completed projects failed to meet due dates. A workload analysis of current projects revealed that 20% of their projects consumed 80% of the human resources, and that there were insufficient human resources to finish even the most important four projects by their given due dates. Top management decided to stop the development of one of the four projects and to eliminate certain features in the other three. Most of the small projects were continued. By focusing in this way, C was able to finish the three projects almost on time, and one of them produced a leading product.

The current economic crisis requires management to maintain cash flow and the value of their company under deteriorating market conditions. There has never been a greater need for organisations to focus on their most important activities and to increase the efficiency of their operations.

We begin by describing how an overload of work can destroy value and, conversely, how reducing the organisation’s workload to an appropriate level can bring extraordinary gains in throughput and profitability.

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Next we explain the major conceptual ideas underlying a new approach to controlling the workload of the firm and use a case study to illustrate how these ideas can be used to bring dramatic improvements to the bottom line.

2. Destroying value by doing too much

The temptation to take on too much work arises in any situation where demand can strain existing resources. In the private sector, companies compete on their ability to execute projects to develop new products and services. In government, there is increasing pressure to do more in the face of shrinking budgets. In the not-for-profit world, organisations almost always face demands and have aspirations that are beyond their resources to satisfy. Finally, all large organisations have departments whose main function is to provide services and execute projects on behalf of other parts of the organisation. Departments such as information systems often face huge backlogs of projects that are requested by other business units. Such service departments may be tempted to take on too much work for political reasons or may be forced to do so because they lack the power and authority to refuse to take on new obligations. In all of these situations, management should be aware that taking on too much work can adversely affect the organisation's ability to execute – with a resulting, sometimes catastrophic, reduction in efficiency and profitability.

Consider the impact of increasing the project load in a system with a fixed amount of resources. At first, the firm will easily handle the project load and profitability will increase as new projects are added to its portfolio. At a certain point, however, the addition of new projects will start lowering the firm's profits. What happens when more projects are added into an already busy portfolio by a company with a fixed amount of resources? Naturally, work is started on the new projects. As a result, managers have more projects to supervise, more meetings to attend, more information to process, more customer relationships to be managed, and less time for considered thought. As problems arise, management spends its time firefighting: quick fixes are made, resources are moved from one project to meet the urgent demands of another, additional resources are allocated to critical activities,² activity performers are asked to multi-task, setup times are multiplied as workers restart tasks that they have previously began, overtime is introduced increasing the costs of the ongoing operation, worker fatigue increases and morale declines further lowering productivity per person hour. Worse still, project lead times increase and as a direct result, revenue streams are greatly reduced, customers are dissatisfied and future business is threatened.

All too many companies and project groups within companies have found themselves in exactly the situation of the above scenario. The illustrative cases presented in this paper are from the experience of one of the authors as a value creation leader. A number of these cases, and similar cases, have been partially documented elsewhere (Coman and Ronen 2007).

A hi-tech NASDAQ-traded company in the communication business had an excellent R&D department, which was one of its strengths. The company developed and integrated software solutions for large land line and cellular operators. At one time they had over 100 projects staffed by fewer than 400 people. The company's policy was to comply with all customers' needs, and thus every solution was unique. The company was losing money and investors and customers purchasing infrastructure products were worried that the 40 million dollars annual sales company would not survive. The company went through a filtering process in which about 25 of their 100 projects were discontinued and the other projects were substantially simplified. All of a sudden, the company was able to achieve on-time delivery of customer projects.

As the above two company examples illustrate, there is a limit to an organisation's capacity to execute projects profitably with a given set of resources. A major management task is to understand the company's project execution capacity and to ensure that it is not exceeded for a prolonged period of time. A simple analysis of the total work to be performed on current projects can provide an indication of the organisation's ability to handle its direct project workload. In performing this analysis it should be remembered that some surplus capacity will be needed to handle contingent work that arises due to project uncertainty. In any project, things will go wrong, support staff will be required to repair broken machinery or generate purchase orders for lost or damaged goods, and urgent issues will need to be studied and settled by managers. Thus, the uncertainty associated with project work will spawn numerous small 'fix it' projects and reappraisals of project directions that will consume the time of supporting staff and project managers.

In summary, if the organisation's project execution capacity is drastically exceeded, its value can be seriously impaired:

- Project durations are extended because each project will have fewer resources devoted to it.

- Benefits are realised later and penalties for late completion may be incurred. As a result, the company's reputation for on-time performance may be damaged with possible loss of future market share.
- The quality of the company's output of products and services may suffer because of 'scope creep' and/or reduced time for testing - again resulting in damage to the company's reputation.
- Communication and coordination activities will increase placing unanticipated demands on management and support staff.
- Rework may increase because management is swamped with work and unable to answer questions and provide guidance to project employees.
- Multitasking with its attendant cost in setup times will increase as resources switch from project to project in an attempt to make progress on all projects.

3. Adding value by doing less

When the organisation's workload is within its execution capacity, the adverse effects due to overloaded resources listed above disappear and throughput, response times and quality of work improve. The impact of increased throughput on profitability can be dramatic. Suppose that, without increasing resources, the firm could be 10% faster in bringing new ideas to market, developing effective marketing campaigns, or finishing its construction or software projects. Through the well-known 'financial leverage' effect, a given proportional increase in revenues can translate into a much larger proportional increase in profit. For example, in Table 1, because only variable costs change, a 10% improvement in revenues due to improved project performance translates into a 100% improvement in the bottom line!

Another advantage of reducing organisational workload, an advantage relevant to both not-for-profit and for-profit organisations, is to increase management's attention span allowing more attention on strategic issues, important clients and looming industry threats (Davenport and Beck 2003).

4. Focusing to achieve increased throughput and profitability

The literatures of R&D portfolio management and stage-gating in new product development provide excellent mechanisms for deciding which new projects should be pursued. We do not attempt to add to this literature. We note however that in other areas, such as software development, marketing, construction, job shop processing and maintenance facilities, the techniques for deciding on project portfolios are less well advanced or, at least, less often used.

How can a company do less and simultaneously achieve greater profitability? The answer is to achieve a high level of focus, from the highest level organisational goals down to the every day monitoring and control of work so that only high-priority activities are executed and non-essential work is eliminated.³

Bad multi-tasking (BMT) also prevents value creation (Goldratt 1997). Multi-tasking occurs when a resource simultaneously works on multiple activities and is forced to switch from activity to activity and from project to project. Consequently, the more jobs in the system handled by an employee the less effective and productive the employee. There is mounting evidence also that excessive multi-tasking has adverse cognitive impacts on employees (Rubinstein *et al.* 2001). The set-up costs associated with switching also increase coordination costs resulting in lower productivity (Leach 2000). In simulations it has been demonstrated that bad multi-tasking has a detrimental effect on the due date performance of a project portfolio (Goldratt 1998). On the other hand, too low a level of tasks

Table 1. Illustration of financial leverage.

	Existing project performance	Improved project performance
Sales	\$100	\$110
Variable costs (e.g. materials and commissions)	\$50	\$55
Fixed costs (e.g. management, plant)	\$45	\$45
Profit	\$5	\$10

assigned to an employee will also cause low effectiveness because of idle time. The problem of management is to seek for a reasonable number of assigned tasks per employee – which will usually be less than the current number.

By the nature of things, the output of every system, and organisational systems are no exception, is limited by the throughput capacity of one or more of its subsystems (Goldratt and Cox 1986). Looking at a company at its highest level, there are at least four crucial subsystems, each of which may constitute a bottleneck as illustrated in Figure 1. The problem may be in R&D and/or in IT – the firm needs new and better products and it needs to bring them to market faster. Alternatively, the constraining subsystem may be in marketing – the company has good products or services but is unable to attract buyers. If, alternatively, the firm is unable to satisfy demand, it should focus on improving the performance of its operations or logistics system, whichever is the more constraining. Production capacity was the constraining factor for Henry Ford in the 1920s when he is purported to have said: ‘They can have any color [of the Model T] as long as it is black.’ Capacity is less likely to be the bottleneck in today’s economy. Rather, the bottlenecks are likely to be in R&D and/or in Marketing and Sales as depicted in Figure 1, called the ‘Two-tower model’ of organisational capacity by Coman and Ronen (2007).

There are several approaches to achieving the right balance between workload and capacity in whichever subsystem is identified as the most constraining. All require management discipline to choose the organisation’s workload and to control the release of parcels of work into the system. In theory, the project portfolio problem can be formulated as an optimisation problem and solved periodically to choose the ideal mix of projects (Dickinson *et al.* 2001). However, this problem can be intractable for even small real world problems – especially if uncertainty is taken into account. Some, more heuristic approaches are outlined below.

In general, the organisation should move from a ‘push’ situation in which new work items are accepted into the system without considering the system’s capacity to absorb them, to a more controlled ‘pull’ situation as in Lean Manufacturing’s JIT concept.

If the firm has a fairly stable ‘product mix’ of projects as in a maintenance repair shop or manufacturing job shop, it is feasible to identify the most heavily used resources across the typical project mix. The maximum working capacity of these resources can be used as a gating mechanism to control the pace at which new work is accepted into the system. As an example, in a major software development house, the data administration function was most in demand. Efficiency of the software development process was improved and tensions between contending projects were reduced simply by scheduling each project’s use of the data administrators. A number of other heuristic approaches to controlling the release of work into the system have also been successful; for example, a simple but effective rule of thumb in some situations is simply to limit the number of projects that are being actively worked on – only as one project is finished can the next one be added.

The governing mechanism adjusting the flow of work can operate at either or both ends of the organisation’s value-added chain. At the input end, in a project-oriented firm, for example, attention can be focused on the entry of work by decreasing the number of bids for new projects to only those that are most strategic for the firm and limiting to the extent possible, the work commitment on each project. Alternatively, at the output end of its value chain, the company should focus only on its most important customers, products and services.

Company B is a communication services provider. Its business customer division and private customer division are responsible for most of the company’s income. The company’s practice for years was to accept request for proposals from all potential customers. As a result, their ratio of winning to losing bids was quite low. Using the methods proposed in this paper, B introduced a screening process for new customer projects that took into account their current workload and the potential value of the new customer associated with each bid. This resulted in a higher proportion of winning bids and increased revenues.

In the following section, we describe a simple heuristic, which strikes at the heart of the overload problem and has proven successful in many organisations.

5. Strategic gating: the 25/25 rule

‘Strategic gating’ refers to the process by which management chooses the set of projects to execute. The ‘25/25’ approach was developed by one of the authors and has been applied successfully to a number of companies over the last 10 years. The first step in this heuristic approach is to eliminate about 25% of the currently active projects. This demands deep thought and some hard political decisions that require top management involvement and leadership. The ‘focusing matrix’ in Figure 2 can be used as a discussion tool in this process. Here, an attempt is made to take into account both the perceived importance and profitability of projects and their degree of difficulty/time to

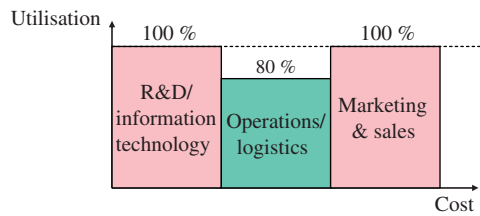


Figure 1. Two-tower model of firm-level bottlenecks.

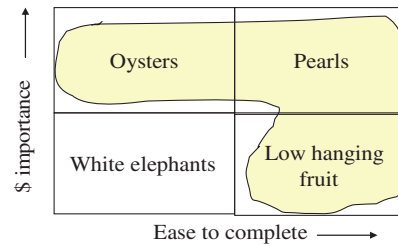


Figure 2. Focusing matrix.

complete. Projects in the 'Pearls' category are the most desirable both from the point of view of revenue and ease to complete, the 'Oysters' are difficult to complete but may turn out to be Pearls, and the 'Low Hanging Fruit' projects are easy to complete but have low associated payoffs. Obviously, the 'White Elephants', projects that are hard to complete but show little promise of contributing in a major way to the organisation, should be among the first projects considered for elimination. Additional projects may be eliminated from each of the other three project quadrants to bring the desired 25% reduction in project load.

Once 25% of the total project portfolio is eliminated, the second '25' in the heuristic's name suggests that a further 25% reduction in workload can be obtained by simplifying the remaining active projects: either by eliminating project features or relaxing product specifications and tolerances when these do not adversely impact quality. Our experience shows that about 25% of the development effort does not bring value to the customer, as it involves over specification or over design. In most projects, there are features that are not needed by the customer. Often, engineers specify tighter tolerances 'to be on the safe side' and add design features 'to use state of the art technology' or to keep open options for possible 'growth'. Sometimes the over specification comes from the wish to produce a 'general purpose' product or service. Unnecessary features and over specification can waste precious R&D or software development time. These are the features that will be the first to be eliminated if a project begins to exceed cost and time estimates. (The classical project trade-off between the 'triple goals' of time, cost and scope usually involves reduction in scope.) If a feature of a product or software program, for example, is not really necessary, and will possibly be eliminated when push comes to shove, it is wasteful to devote valuable design, development and management resources to its development. It is far better to strip projects to the barest essentials and to concentrate resources on achieving the lead time, revenue and strategic goals of these 'lean projects' rather than to waste time and effort on project features that take time and effort but bring little in the way of real value to the organisation or its customers.

IC is a credit card company. Part of its business comes from bidding on tenders from certain groups of customers. IC's policy was to respond to all bid opportunities with the result that their success ratio was quite low. After establishing a Bid/No bid decision process using the Focusing Matrix, about 25% of the bids were rejected on the spot. The salespeople had the time to build winning proposals and the company increased its revenue from tenders.

A leading R&D communication company is one of the world leaders in developing wireless solutions designed in a chip form. In the first generation of the product about 20% of the chip's 'real estate' was occupied by 'options' nobody ever used. This resulted in a large dimension chip that was relatively expensive and relatively unreliable. In the 'nextgen' version, the engineers focused only on the useful and important features, and abandoned options that had low probability of usage. This design strategy cut time-to-market substantially and created a more reliable and less expensive chip.

Why does the 25/25 rule work? Because when the overall reduction in organisational workload allows the organisation to devote more resources, time and energy to its most important projects, multi-tasking is reduced, the management and support bottleneck is relieved and overhead and communication costs are lowered.

The IT department of a cellular phone service provider had approximately 1500 projects under development at the same time. The throughput was about 500 projects per year. The lead time for completing simple applications was too long. The company decided to adopt the 25/25 rule. Using the Focusing Matrix concept, management classified their project portfolio and terminated about 25% of the projects. Then, about 25% of the features of the remaining projects were eliminated. As a result, the number of projects completed per year increased by roughly 50% to approximately 750 per year.

A private-label manufacturer of exclusive high end textiles was attempting to develop 600 prototypes. The management team decided to use the 25/25 rule and stopped developing about 150 units. Then they analysed the most difficult product developments and relaxed their tolerances and eliminated some of their features. By this means, they further reduced the

workload by about 25%. It should be emphasised that if the relaxed features were completed, it would be at the expense of more valuable ones. The company began to develop new products on time and to increase their customers' satisfaction as well as shareholder value.

The 25/25 approach can be used initially to correct a crisis situation or continuously as a management discipline to ensure that the project organisation is focused on projects that really achieve value and that can be delivered rapidly to help improve the company's competitive position. Obviously, the '25/25' goal could become a '20/20' goal or even a '15/10' goal; however, it is necessary to set high aspiration levels to achieve a meaningful focusing of organisational effort. The 25/25 approach is not 'scientific' – we have indicated above that more scientific, quantitative approaches to developing the organisation's work portfolio are possible and may be desirable in some situations. However, if the organisation is suffering from a surfeit of poorly chosen projects and is, as a consequence, experiencing frequent project overruns and rising expenses, our experience shows that the 25/25 approach can be very helpful.

6. Case study: implementation of the 25/25 approach at P company

P is a world leader in the manufacture and supply of irrigation equipment and systems. Over a relatively short period of time, P grew from a small plant manufacturing plastic pipes and basic irrigation products, to a full service provider (i.e. from supplier of components to project integrator.) P has annual sales in excess of \$80 million, employs 600 people, operates 14 international subsidiaries, has over 100 distributors and agents, and is active in over 60 countries worldwide.

In early 2002, the company was losing money and went through a turnaround process led by one of the authors who conducted a six-day seminar involving the 20 top managers of the company. The seminar topics included focusing via the 25/25 rule and performance measurement. Improvement teams carried out the action plan derived in the last day of the seminar. They changed production methods and procedures, cut the average manufacturing lead time almost by half, reduced inventories, improved quality and increased throughput. Inventories went down about 30%, throughput increased by 40%, setup times were reduced from 2 hours to less than 10 minutes. This was achieved without any major investment. After 18 months of hard work led personally by the CEO, the company was again profitable.

By the end of 2002, it was obvious that production was no longer constraining performance and that the bottlenecks were in R&D and in Sales and Marketing. The Sales and Marketing department made a significant improvement by transferring some work from senior salespeople to the administrative workforce. Next, the focus moved to the R&D department. A two-day seminar covering the basics of project management and the 25/25 approach was conducted. Following this, the heads of the R&D Department, together with top management and leading marketing people – altogether about 25 people – spent a full day applying the Strategic Gating process. This resulted in the elimination of approximately 25% of the current R&D projects.

From 2002 through 2005, P company adopted and practised the 25/25 approach in most departments. However, the R&D Department, headed by a brilliant scientist, neglected the 25/25 approach, which was seen as overly bureaucratic. Because the company did not have a strong tradition of good project management practice, reporting mechanisms, which might have warned management that they had a problem, were not in place. As a result, 'workload drift' slowly took place in the R&D Department. By the beginning of 2006, the number of projects in process exceeded 40 and the symptoms of missed project deadlines, excessive overtime, and increased time spent on client support, indicated that R&D had exceeded its project execution capacity. A second one-day 25/25 session took place in the R&D department with personnel from Production, Sales, Marketing, R&D, Finance, and top management. The participants built a focusing matrix in which each project was given an importance score according to expected sales contribution and an ease of development score measured in person months to completion. Only 14 of the 40 R&D projects in the current portfolio passed the screening. Some of the eliminated projects involved solving production problems in existing products. These 'low-hanging fruit' projects were offloaded to the engineering support group. Other eliminated projects were 'Oysters' – 'wishful thinking' projects with high risk and extensive development requirements that would absorb most of the company's high-skilled resources. Other eliminated projects had a positive ROI but were dominated by other projects in terms of estimated effort to complete and contribution to the company. At the end of the day, the company was sold to an international corporation at a price that exceeds more than 10 times the company's initial value at the beginning of the process.

The experience at P company illustrates a number of important points. First, the elimination of the least important project work was highly instrumental in returning P to profitability. However, other elements of good manufacturing practice, such as the reduction of setup times, were also used. Second, the participation of top management in the training and Strategic Gating processes at P was an essential ingredient for success of the approach. Without top management leadership, the hard politics and tough decisions concerning the projects to be abandoned could never have been made. Finally, as illustrated by P's R&D department, there is often a need for the organisation to sustain its efforts beyond the quick fix provided by the initial application of the 25/25 approach.

To do this, the essential elements of good project management need to be in place and adequate monitoring mechanisms need to be installed as discussed below.

7. Implementing the 25/25 approach

In the authors' experience, the elimination of 25% of the projects is usually carried out by marketing, development and finance people working together. It is difficult for engineers and computer scientists to terminate their own projects. A similar difficulty occurs in relaxing specifications and eliminating product features. Sometimes the person who created the over specification or over design is the same person who has to carry out the opposite action. To overcome these difficulties, it is necessary to educate staff members in the philosophy and techniques that are outlined in this article. It usually takes a couple of days of education and discussion to initiate the paradigm shift and have development, production, marketing and finance people speaking the same language. After the education and training sessions, the ownership of the project screening process is usually transferred to the senior employees of the company.

The execution of the 25/25 rule has an impressive impact on a company's performance the first time it is carried out. Roughly 25% of the projects are discontinued, over specified product or system features are relaxed and, as a result, the remaining projects run much more smoothly, project deadlines are met, throughput is increased, and the firm becomes more profitable. A problem may arise over time if management fails to control the size of the project portfolio. If 'workload creep' takes place and the familiar signs of overstrained capacity occur in the form of missed project deadlines and decreased throughput, it may be necessary to apply the 25/25 approach a second time as illustrated in the preceding case study.

8. Monitoring and control of organisational workload

How can management monitor the workload on the company and check it has not allowed workload drift to dangerously exceed its project execution capacity? The indicators of a severely overloaded system that have been mentioned above should be measured regularly and systematically reported. For example, reports of an increased percentage of project overruns, missed deadlines, resources working overtime, and late penalties incurred, provide after-the-fact indications of damaging workload creep and value loss.

A good measure of the efficiency of a project organisation is given by 'work-in-progress' (WIP). This is defined as the amount of work (say in person days) remaining on project activities that have been started but not finished. As the firm takes on more projects, WIP increases with several bad consequences:

- expenses per period will increase to maintain progress on the total portfolio of projects;
- work on all projects will slow down because each project will have fewer resources devoted to it;
- multi-tasking with its attendant cost in setup times will increase as resources switch from project to project; supporting staff (such as computer personnel and maintenance staff) may be overloaded causing delays on critical activities; and, importantly,
- management's span of control will increase so that critical decisions will be delayed or missed.

A necessary precondition for successful workload monitoring and control is the existence of good project management skills and the organisational discipline to adhere to project management reporting and control standards. Commercial project management software packages produce standard reports containing information on project lead times, resource utilisation and schedule and cost variances. This data should be monitored regularly to ensure that the project system is working within its capacity.

9. Conclusion

The 25/25 approach requires top management to choose and manage the work performed by the organisation. As our examples demonstrate, great gains can be made if there is sufficient management leadership and discipline to avoid the temptation to do too much and to overcome the political opposition that may develop as difficult decisions are made to eliminate some projects and streamline others. Once the strategic workload has been determined, careful monitoring of workloads should be used to maintain peak performance.

The techniques discussed in this article can be successful in a wide range of situations and industries. However, there are several critical success factors. Most importantly, top management leadership and attention is necessary to change the company culture and to make the tough decisions required to eliminate pet projects and product features that clutter the work load and reduce profitability. A second critical success factor, as illustrated by the Company P case, is that the company must have an effective project organisation with roles and responsibilities clearly identified and management systems for scheduling, accounting and reporting progress. To avoid workload creep and the associated loss of value, a third critical success factor is that the reporting system provide regular reports on system load such as those described in the preceding section.

Using a total systems approach based on the principles discussed in this article, many companies have obtained a 30% improvement in throughput with existing resources. Furthermore, the reduction of the workload capacity relation does not only increase the due date performance of the projects but more important it has a direct and significant effect on cutting the Lead Time of projects and processes.

Notes

1. The names of the companies cited in this paper are kept anonymous but are known to the authors.
2. Adding more resources may not help. According to Brook's Law 'Adding manpower to a late software project makes it later' – because of the additional setup, communication and integration costs involved (Brooks 1975).
3. A full description of the focusing approach described in this paper is described in Ronen *et al.* (2006) and Ronen and Pass (2007).

References

- Brooks, F.P., 1975. *The mythical man month*. Boston, MA: Addison-Wesley.
- Coman, A. and Ronen, B., 2007. Managing strategic and tactical constraints in the hi-tech industry. *International Journal of Production Research*, 45 (4), 779–788.
- Davenport, T.H. and Beck, J.C., 2001. *The attention economy: understanding the new currency of business*. Boston, MA: Harvard Business School Press.
- Dickinson, M.W., Thornton, A.C., and Graves, S., 2001. Technology portfolio management: optimising interdependent projects over multiple time periods. *IEEE Transactions on Engineering Management*, 48 (4), 211–245.
- Goldratt, E.M., 1997. *Critical chain*. 2nd ed. Croton-on Hudson, NY: North River Press.
- Goldratt, E.M., 1998. Critical chain. *IIE Transactions*, 30, 759–763.
- Goldratt, E.M. and Cox, J., 1986. *The goal*. Croton-on Hudson, NY: North River Press.
- Leach, L.P., 1999. Critical chain project management improves project performance. *Project Management Journal*, 30 (2), 39–51.
- Ronen, B., Pliskin, J., and Pass, S., 2006. *Focused operations management for health services organisations*. Hoboken, NJ: Wiley, Jossey-Bass.
- Ronen, B. and Pass, S., 2007. *Focused operations management: achieving more with existing resources*. Hoboken, NJ: John Wiley and Sons.
- Rubinstein, J.S., Meyer, D.E., and Evans, J.E., 2001. Executive control of cognitive processes in task switching. *Journal of Experimental Psychology: Human Perception and Performance*, 27 (4), 763–797.