Project Management

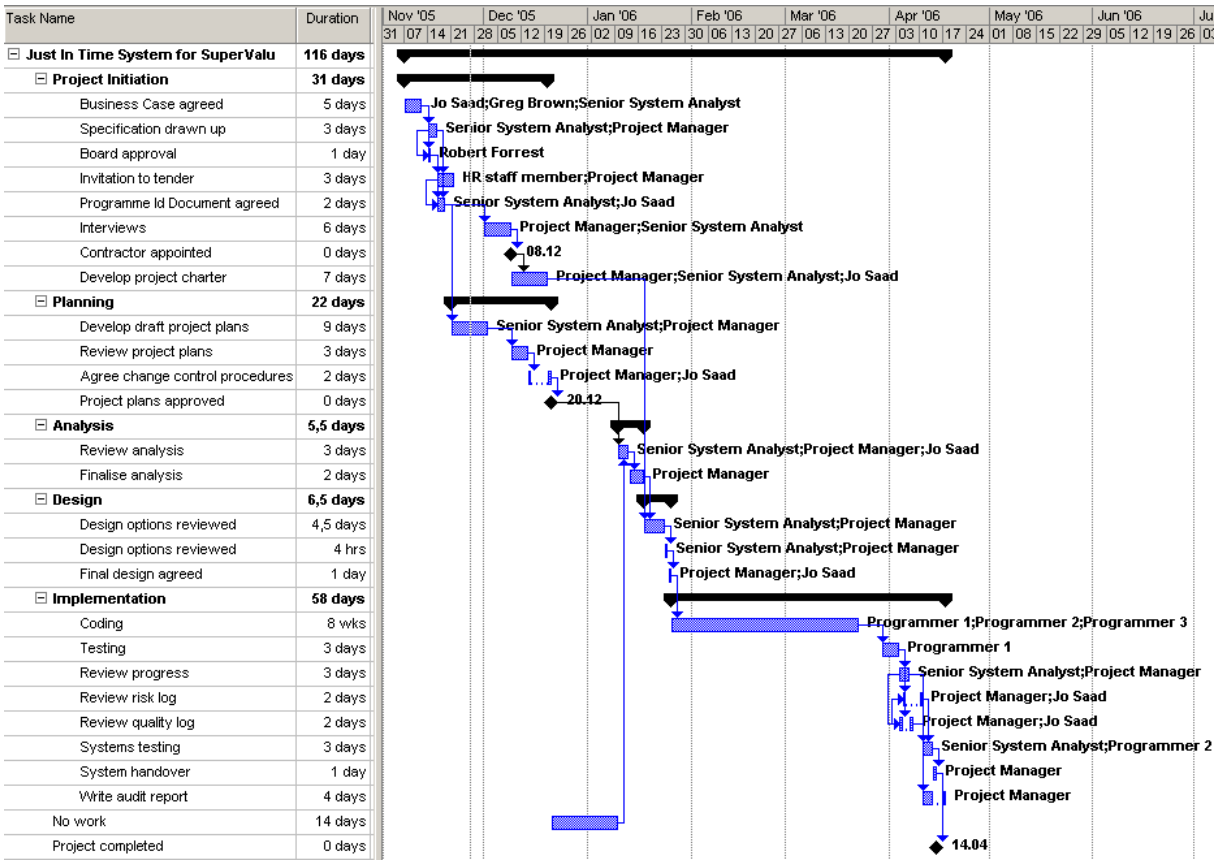
Completion Date of the Project

An additional assumption about no overtime work is made. Having it in mind, resources were levelled to prevent working 16 or 24 hours per day, because initially Project Manager and Senior System Architect were overloaded.

The completion date of the project is estimated on Monday, 14th April 2006. To complete the project by this date, two milestones should be kept: Contractor approved on Thursday, 8th December 2005 and Project plans approved on Tuesday, 20th December 2005. If any of these milestones is not achieved in time, the completion of the project will be delayed.

Also, if some bugs are found during Testing, an additional time will be required for code revision and this also may delay the completion date.

The Gantt chart for the project is shown below:

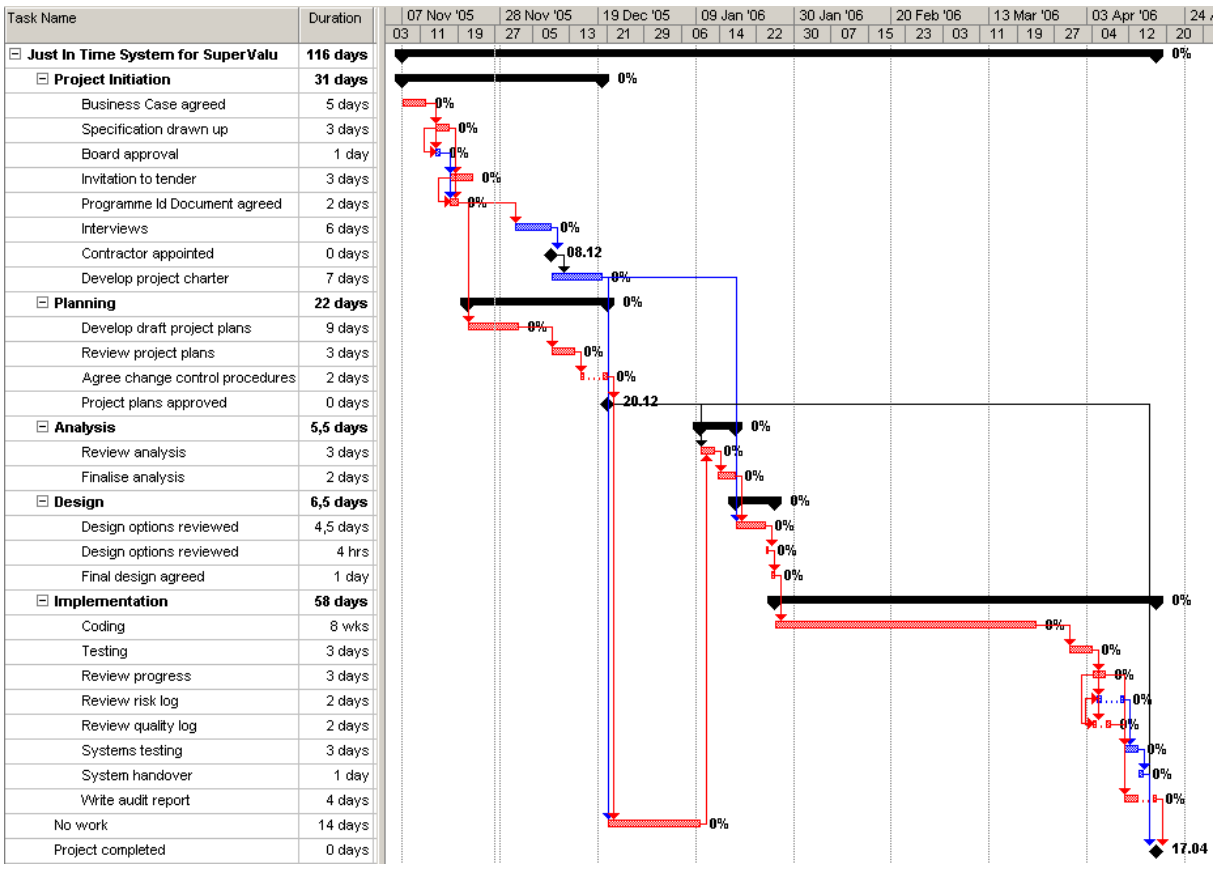


Task (2)

Critical Path of the Project

The critical path of the project takes 116 days. It includes following activities: Business Case agreed, Specification drawn up, Invitation to tender, Programme Id Document agreed, Develop draft project plans, Review project plans, Agree change control procedures, Review analysis, Finalise analysis, Design options reviewed, Design options reviewed, Final design agreed, Coding, Testing, Review progress, Review quality log, and Write audit report.

Adding the times for the activities in each sequence and determining the longest path in the project determine the critical path. The critical path determines the total calendar time required for the project. If activities outside the critical path speed up or slow down (within limits), the total project time does not change. The amount of time that a non-critical path activity can be delayed without delaying the project is referred to as slack time.



Task Name	Duration
Just In Time System for SuperValu	**116 days**
Project Initiation	**31 days**
Business Case agreed	5 days
Specification drawn up	3 days
Board approval	1 day
Invitation to tender	3 days
Programme Id Document agreed	2 days
Interviews	6 days
Contractor appointed	0 days
Develop project charter	7 days
Planning	**22 days**
Develop draft project plans	9 days
Review project plans	3 days
Agree change control procedures	2 days
Project plans approved	0 days
Analysis	**5,5 days**
Review analysis	3 days
Finalise analysis	2 days
Design	**6,5 days**
Design options reviewed	4,5 days
Design options reviewed	4 hrs
Final design agreed	1 day
Implementation	**58 days**
Coding	8 wks
Testing	3 days
Review progress	3 days
Review risk log	2 days
Review quality log	2 days
Systems testing	3 days
System handover	1 day
Write audit report	4 days
No work	14 days
Project completed	0 days

Task (3)

Delays Estimation

Without delays the project costs £ 287,000 and takes 116 days. If estimated durations for tasks Contractor appointed, Develop project charter and Coding are delayed by 5 days each, following implications will be expected:

- The project duration becomes 15 days longer, or 131 days
- The project delivery date becomes Monday, 8th May 2006
- The project costs £ 38,000 more, or £ 325,000.

All these tasks (Contractor appointed, Develop project charter and Coding) belong to critical path. If they are delayed by 5 days each, the whole project will be delayed for 15 days.

Additional £ 38,000 occurs because Project Manager and Senior System Analyst work additional 10 days for tasks Contractor appointed and Develop project charter; and three Programmers work 5 days for task Coding.

Task (4)

Summary of the Cost of the Project

The project costs £ 287,000. This sum may be broken down into sections by resources or by tasks.

Cost breaking down by resources:

Resource	Hours	Cost
Jo Saad	144 hrs	0 £
Greg Brown	40 hrs	9,600 £
Senior System Analyst	368 hrs	65,600 £
Project Manager	464 hrs	57,600 £
Robert Forrest	8 hrs	0 £
HR staff member	24 hrs	3,000 £
Programmer 1	384 hrs	51,600 £
Programmer 2	384 hrs	51,600 £
Programmer 3	360 hrs	48,000 £
Just In Time System for SuperValu	1,936 hrs	287,000 £

Cost breaking down by tasks:

Task	Hours	Cost
Project Initiation	432 hrs	61,000 £
Planning	168 hrs	27,200 £
Analysis	88 hrs	10,800 £
Design	96 hrs	15,200 £
Implementation	1,152 hrs	172,800 £
Just In Time System for SuperValu	1,936 hrs	287,000 £

Project costs often exceed forecast as Project Sponsors are lying with their original estimates to ensure funding for their projects

One of the three important project characteristics is project cost. Correct project costs estimation is a significant distinguishing feature of a good project manager. But very often project costs exceed forecast because Project Sponsors are lying with their original estimates to ensure funding for their projects.

Many other reasons for costs overrun may be mentioned. Some studies show that it is quite normally for the projects to exceed planned costs. In the report of Standish Group about the commercial software industries following conclusions were made:

- U.S. companies would spend $81 billion on cancelled software in 1995
- 31% of software studied was cancelled before they were completed
- 53% of software projects overrun by more than 50%
- Only 9% of software projects for large companies were delivered on time and within budget. For medium-sized and small companies the numbers improved to 16% and 28% respectively. (Standish Group, 1995)

I think that one of the major reasons for project costs overrun is lying of project principals to ensure funding for their projects. It is documented in the study “Underestimating Costs in Public Works Projects: Error or Lie?” by Danish economists Flyvbjerg, Holm and Buhl. They have found that, on average, comparable works come in over budget 9 times out of 10. For a randomly selected project, the likelihood of actual costs being larger than estimated costs is 86%. The likelihood of actual costs being lower than or equal to estimated costs is 14%. Actual costs are on average 28% higher than estimated costs.

Of the 258 projects studied in "Underestimating Costs in Public Works Projects: Error or Lie?" all completed over the past 70 years, the researchers found that rail projects typically see the greatest overruns, usually costing about 45 percent more than the public was told at the outset. Tunnel and bridge projects usually cost about 34 percent more than initial estimates, and road projects about 20 percent more. In the developing world, the 16 projects studied saw average cost escalation of 65 percent. None of the project had overruns of 300 percent, and

only 2 percent of the projects studied came in over 200 percent. They also conclude that transportation infrastructure projects do not appear to be more prone to cost underestimation that are other types of large projects.

Flyvbjerg, Holm and Buhl examined technical, economic, psychological and political explanations and found with overwhelming statistical significance that the cost estimates used to decide whether such projects should be built are highly and systematically misleading. That underestimation cannot be explained by error and is best explained by strategic misrepresentation, that is, lying. The policy implications are clear: legislators, administrators, investors, media representatives, and members of the public who value honest numbers should not trust cost estimates and cost-benefit analyses produced by project promoters and their analysts. (Flyvbjerg, Holm and Buhl, 2002)

One vivid example of costs overrun is the Big Dig, whose cost has escalated 300 percent since work began in 1991. Lewis (2002) writes that the project suffered overruns before work even began. In 1986, the Big Dig was said to cost $3.2 billion, then $4.4 billion a year later, and by July 1990, it had gone up to $4.97 billion. Work began the following year, and at that time, the public was told that the new estimate took inflation into account. But hints of cost explosions were there in 1988: project officials were whispering, occasionally to the press, that the project might cost more than $10 billion when finished - in 1998. In 2002, four years after the Big Dig was supposed to be completed, the Central Artery/Tunnel project is expected to cost $14.637 billion, and will not be finished until at least 2005. (Lewis, 2002)

Lewis also mention some other research, which has found that, quite frequently, officials on a variety of transportation projects have lied to ensure that the projects get built. Martin Wachs, of the Institute of Transportation Studies at the University of California at Berkeley, published a paper in the Business and Professional Ethics Journal in 1990 in which dozens of officials on several projects admitted to lying.

Edwards (2003) states that federally funded projects often turn into debacles plagued by large cost overruns, as illustrated by a wide range of examples. For example, in the 1980s Denver's mayor Federico Pena sold the public on a new international airport on the basis of bad cost estimates. The public agreed to a $1.7 billion airport in a 1989 referendum, but the cost

mushroomed to $4.8 billion by the time the airport was opened in 1995. In 1994 Virginia officials claimed that the Springfield interchange or “mixing bowl” project would cost $241 million. The cost has now soared to $676 million. On the other side of the Potomac, there are cost overruns at the $300 million Capitol Hill Visitors Center, and the cost of the Kennedy Center parking lot has jumped to $88 million from the original 1998 estimate of $28 million. High above the Potomac, the cost of NASA’s Space Station has skyrocketed from $17 billion in 1995 to $30 billion today. (Edwards 2003)

Edwards also cites the study of Flyvbjerg, Holm and Buhl who found that cost overruns are routine and stem from government deceit, not honest errors. Their study concluded that lying, or intentional deception, by public officials was the source of the problem: “Project promoters routinely ignore, hide, or otherwise leave out important project costs and risks in order to make total costs appear low.” Edwards writes that politicians use “salami tactics” whereby costs are only revealed to taxpayers one slice at a time in the hope that the project is too far along when true costs are revealed to turn back. Salami tactics are just one problem that makes federal funding of state, local, and private activities wasteful. Another problem is that the states compete with each other to secure federal dollars, and thus they are prone to exaggerate benefits and minimize costs of projects. When cost overruns occur, state officials seek to cover up poor contractor performance in order to conceal their own bad oversight, as occurred with the Big Dig. In addition, the federal government does not ensure efficient use of funds sent to states. For example, the GAO cited in Edwards found that half of the federally funded highway projects it examined recently had cost overruns of greater than 25 percent. (Edwards 2003)

I agree with Flyvbjerg, Holm and Buhl that the cost estimates used in public debates, media coverage and decision-making are highly, systematically and significantly deceptive. These cost underestimations cannot be explained by error only and seems to be best explained by lying of project sponsors.

Therefore I come to conclusion that big projects which are sponsored from government or federal budget exceed planned costs due to lie of the project principals about their original

estimates. Of course, this is not the only reason for the costs overrun, because in this case all commercial projects would be kept within budget.

I think that principals of big projects sponsored from government or federal budget have two opportunities: to tell the truth about the real cost and to be refused, or to lie and to get funding, and then to ask for more and more funding.

The reason of the lie is that decision about executing these projects is made on a competitive basis, so the less expensive project has more chances to win. Moreover, when the project has been already started, no one would cancel it for fear of being responsible for the project failure.

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