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|  | <b>OR-AS</b><br>Operations Research - Applications and Solutions<br>Hoorndriesstraat 10,<br>9820 Merelbeke,<br>Belgium<br>VAT: BE 0891.335.275 | Data Sets Measuring Time  |
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## Information on the data sets used in the book

### “Measuring Time: Improving Project Performance using Earned Value Management”

On our website ([www.or-as.be/measuringtime](http://www.or-as.be/measuringtime)), you can download the 4,100 generated project networks proposed in the book and used in several academic papers. We have classified the projects in four different data sets, as follows:

#### Set 1. Network topology indicator

Serial or parallel network (SP)

SP = 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 0.9 and AD, LA and TF random from interval [0, 1]

Using 100 instances for each setting, 900 project networks have been randomly generated.

#### Set 2. Activity indicator

Activity distribution (AD)

Set 2.1: AD = 0.2; 0.4; 0.6; 0.8, SP = 0.2 and LA and TF random from interval [0, 1]

Set 2.2: AD = 0.2; 0.4; 0.6; 0.8, SP = 0.5 and LA and TF random from interval [0, 1]

Using 100 instances for each setting,  $2 * 400 = 800$  project networks have been randomly generated.

#### Set 3. Precedence relations indicator

Length of arcs (LA)

Set 3.1: LA = 0.2; 0.4; 0.6; 0.8, SP = 0.2 and AD and TF random from interval [0, 1]

Set 3.2: LA = 0.2; 0.4; 0.6; 0.8, SP = 0.5 and AD and TF random from interval [0, 1]

Set 3.3: LA = 0.2; 0.4; 0.6; 0.8, SP = 0.8 and AD and TF random from interval [0, 1]

Using 100 instances for each setting,  $3 * 400 = 1,200$  project networks have been randomly generated.

#### Set 4. Float indicator

Topological float (TF)

Set 4.1: TF = 0.2; 0.4; 0.6; 0.8, SP = 0.2 and AD and LA random from interval [0, 1]

Set 4.2: TF = 0.2; 0.4; 0.6; 0.8, SP = 0.5 and AD and LA random from interval [0, 1]

Set 4.3: TF = 0.2; 0.4; 0.6; 0.8, SP = 0.8 and AD and LA random from interval [0, 1]

Using 100 instances for each setting,  $3 * 400 = 1,200$  project networks have been randomly generated.

Each project has 30 activities and the files can be downloaded in two formats:

- Patterson format: Text files used in academic research (see Patterson (1976)).
- ProTrack format: Files that can be read by ProTrack and P2Engine (see [www.or-as.be](http://www.or-as.be)).

For more information about the specific calculations of the four indicators, the reader is referred to Vanhoucke et al. (2008) and Vanhoucke (2010).

#### References

Patterson, J.H., 1976, “Project scheduling: the effects of problem structure on heuristic scheduling”, Naval Research Logistics, 23, 95-123.

Vanhoucke, M., Coelho, J.S., Debels, D., Maenhout, B. and Tavares, L.V., 2008, “An evaluation of the adequacy of project network generators with systematically sampled networks”, European Journal of Operational Research, 187, 511–524.

Vanhoucke, M., 2010, “Measuring Time - Improving Project Performance using Earned Value Management”, International Series in Operations Research and Management Science, Vol. 136, Springer.