


The Design Structure Matrix (DSM)

Banding a DSM

Banding is the addition of alternating light and dark bands to a DSM to show independent (i.e. parallel or concurrent) activities (or system elements). Banding is similar to partitioning the DSM using the Reachability Matrix Method when the feedback marks are ignored (a band corresponds to a level). (Compare Grose, D. L.: *Reengineering the aircraft design process*, 5th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Panama City Beach, FL, 1994)

The collection of bands or levels within a DSM constitute the critical path of the system or project. Furthermore, one element or activity within each band is the critical or the bottleneck activity. Thus, fewer bands are preferred since they improve the concurrency of the system or project. For example, in the DSM shown below, tasks 4 and 5 do not depend on each other for information; therefore, they belong to the same band.

Note that in the banding procedure, as described above, feedback marks are not considered (i.e. they are ignored in the process of determining the bands).



	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		X		X	X	X	X		X			X	X	X
2			X											X
3				X	X				X					X
4									X	X				X
5						X								X
6					X		X	X		X	X	X		X
7									X	X	X			X
8					X				X	X	X			X
9		X												X
10											X	X		X
11									X			X		X
12					X			X					X	X
13					X									X
14														

([http://www.dsmweb.org/index.php?](http://www.dsmweb.org/index.php?eID=tx_cms_showpic&file=uploads%2FRTEmagicP_Bild29.png&width=800&height=600m&bodyTag=%3Cbody%20style%3D%22margin%3A0%3B%20background%3A%23fff%3B%22%3E&wrap=%3Ca%20href%3D%22javascript%3Aclose%28%29%3B%22%3E%20%7C%20%3C%2Fa%3E&md5=f583a6bbe2bc0cbbd8ddab1edd236aa)

[eID=tx_cms_showpic&file=uploads%2FRTEmagicP_Bild29.png&width=800&height=600m&bodyTag=%3Cbody%20style%3D%22margin%3A0%3B%20background%3A%23fff%3B%22%3E&wrap=%3Ca%20href%3D%22javascript%3Aclose%28%29%3B%22%3E%20%7C%20%3C%2Fa%3E&md5=f583a6bbe2bc0cbbd8ddab1edd236aa](http://www.dsmweb.org/index.php?eID=tx_cms_showpic&file=uploads%2FRTEmagicP_Bild29.png&width=800&height=600m&bodyTag=%3Cbody%20style%3D%22margin%3A0%3B%20background%3A%23fff%3B%22%3E&wrap=%3Ca%20href%3D%22javascript%3Aclose%28%29%3B%22%3E%20%7C%20%3C%2Fa%3E&md5=f583a6bbe2bc0cbbd8ddab1edd236aa)).

