

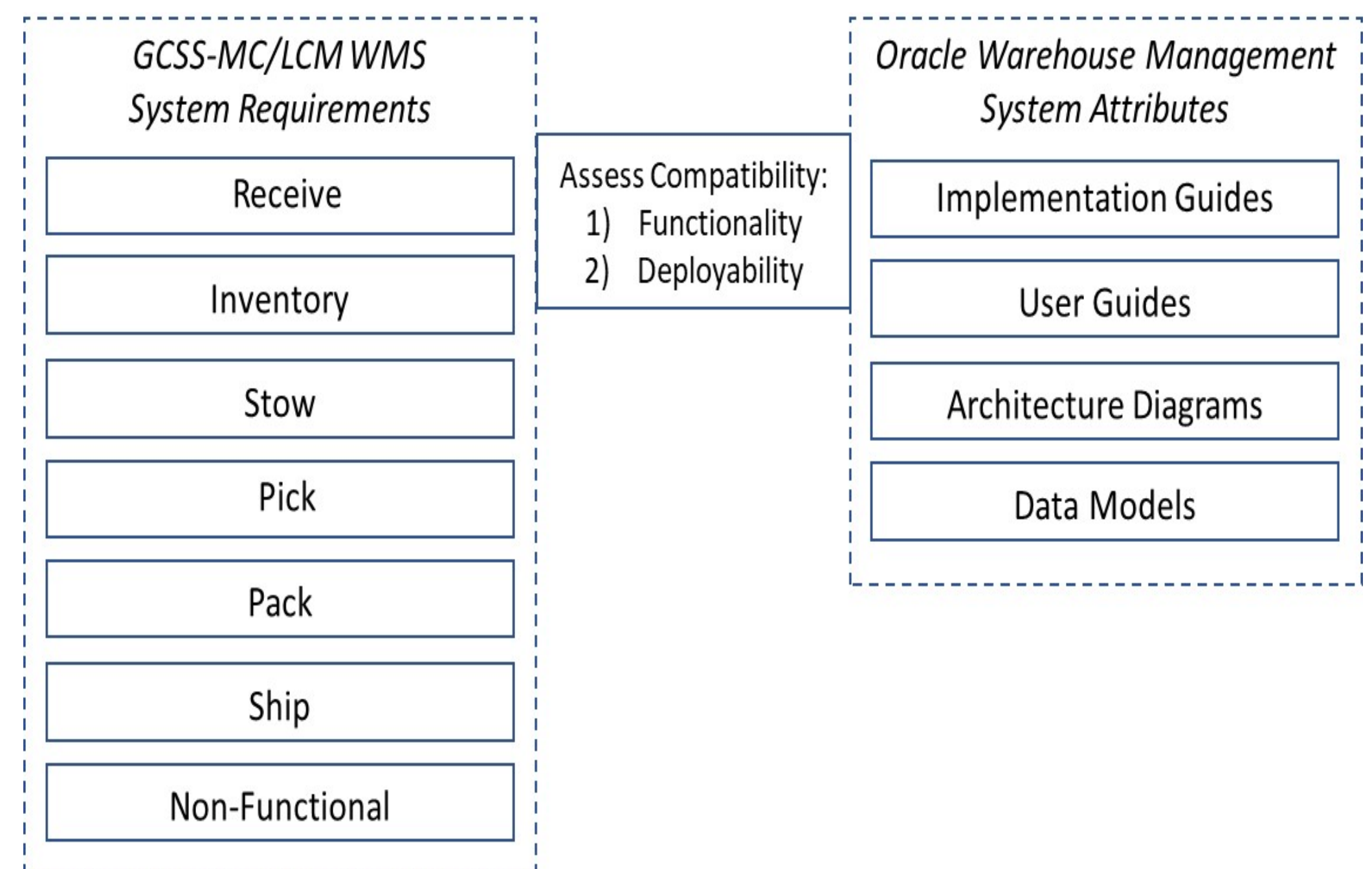
# Compatibility Assessment of Oracle's Warehouse Module with USMC Requirements



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## Abstract

Determining compatibility of a system against stakeholder requirements can be daunting and is complicated in DOD acquisition because of ever-increasing levels of weapon system complexity. This research extends knowledge management and systems engineering techniques to quantitatively determine compatibility and technical risk of the Oracle's warehouse module with USMC warehouse management requirements. Through a deliberate analytical process, the assessment concludes there is 63% compatibility and not all system functions can be met without modifying the Oracle product. Furthermore, the accompanying risk assessment indicates there is risk the Oracle WMS will not be deployable across the full range of operations without fundamental architecture changes.



Compatibility Assessment Framework

## Methods

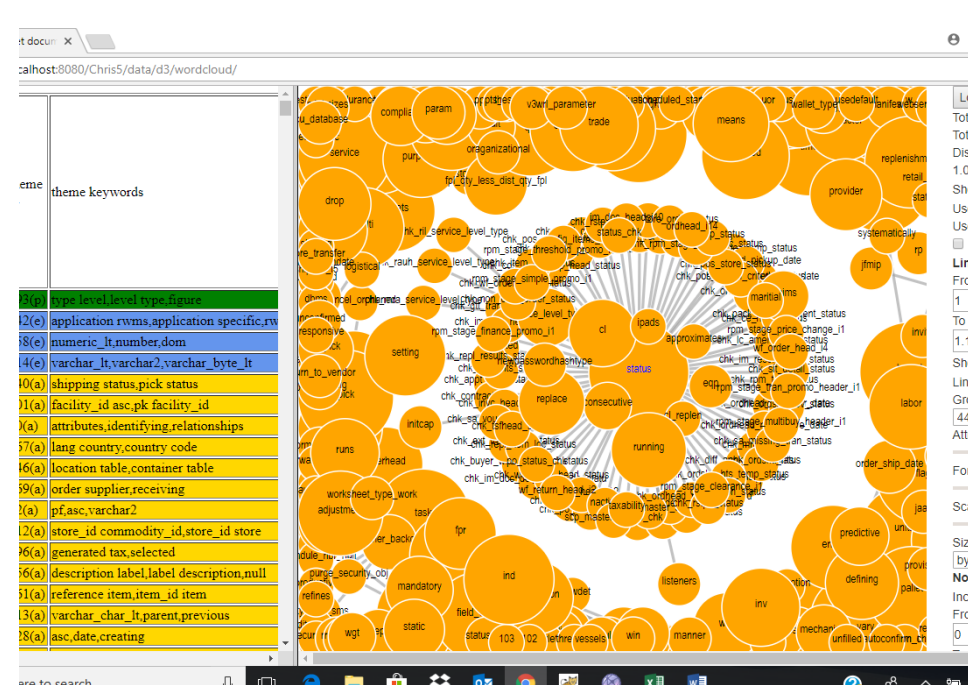
- Lexical Link Analysis (LLA) knowledge management / data-driven tool to determine matched theme association
- AutoMap as a second knowledge management / data-driven analysis tool
- Systems engineering Analysis evaluated proper matches theme association
- Architecture analysis to determine deployability across range of military operations

Match Score	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	G-WMS	Uniqueness Score	
1	3632		363	170	461	729	164	308	309	139	318	224	366	426	647	365	284	331	366	724	125	231	269	142	2975	310	291	121	2688
2	913	363		85	289	248	82	250	249	85	226	234	255	283	358	263	198	268	255	257	85	108	427	83	318	133	245	30	4410
3	971	170	85		102	135	507	119	120	88	121	79	133	163	231	125	107	111	133	114	87	140	89	405	184	582	117	80	818
4	750	461	289	102		361	102	245	235	87	227	216	253	264	330	244	219	249	253	337	83	114	228	98	463	138	238	25	936
5	1220	729	248	135	361		127	252	244	91	237	212	272	285	367	267	213	255	272	430	88	135	212	123	882	190	247	73	1601
6	906	164	82	507	102	127		112	114	82	108	78	121	156	216	125	107	98	121	118	77	129	91	502	186	491	132	79	696
7	1014	308	250	119	245	252	112		393	128	335	261	413	416	722	395	233	403	413	409	94	141	166	101	310	178	366	35	3722
8	1104	309	249	120	235	244	114	393		116	359	260	440	527	887	488	215	485	440	404	97	152	174	103	309	161	406	39	1739
9	660	139	85	88	87	91	82	128	116		169	75	179	178	308	121	138	159	179	155	175	319	76	75	139	131	125	32	3732
10	1146	318	226	121	227	237	108	335	359	169		236	378	611	845	526	240	399	378	337	129	212	154	97	314	212	318	48	6482
11	334	224	234	79	216	212	78	261	260	75	236		266	269	279	262	187	269	266	299	72	78	165	80	218	88	259	3	114
12	5669	366	255	133	253	272	121	413	440	179	378	266		597	984	525	270	528	5669	502	130	235	171	103	345	199	392	60	0
13	4386	426	283	163	264	285	156	416	527	178	611	269	597		4178	1851	271	626	597	435	150	304	174	125	422	294	475	87	1200
14	7490	647	358	231	330	367	216	722	887	308	845	279	984	4178		2784	357	1071	984	829	209	518	201	153	637	501	853	165	22673
15	2906	365	263	125	244	267	125	395	408	121	526	262	525	1851	2784		239	468	525	413	124	207	173	103	361	197	449	49	441
16	595	284	198	107	219	213	107	233	215	138	240	187	270	271	357	239		230	270	253	111	174	148	95	272	147	242	19	1272
17	6598	331	268	111	249	255	98	403	485	159	399	269	528	626	1071	468	230		528	435	111	190	178	89	323	166	454	59	0
19	5669	366	255	133	253	272	121	413	440	179	378	266	5669	597	984	525	270	528		502	130	235	171	103	345	199	392	60	0
20	1606	724	257	114	337	430	118	409	404	155	337	299	502	435	829	413	253	435	502		114	189	175	105	717	176	383	64	6546
21	1008	125	85	87	83	88	77	94	97	175	129	72	130	150	209	124	111	111	130	114		949	76	73	121	112	113	18	783
22	1700	231	108	140	114	135	129	141	152	319	212	78	235	304	518	207	174	190	235	189	949		85	102	219	230	176	78	6258
23	577	269	427	89	228	212	91	166	174	76	154	165	171	174	201	173	148	178	171	175	76	85	91	249	119	170	11	1377	
24	821	142	83	405	98	123	502	101	103	75	97	80	103	125	150	103	95	89	103	105	73	102	91	161	525	94	44	253	
25	3783	2975	318	184	463	882	186	310	309	139	314	218	345	422	637	361	272	323	345	717	121	219	249	161	321	283	125	2992	
26	1732	310	133	582	138	190	491	178	161	131	212	88	199	294	501	197	147	166	199	176	112	230	119	525	321	180	129	4863	
27	1041	291	245	117	238	247	132	366	406	125	318	259	392	475	853	449	242	454	392	383	113	176	170	94	283	180	32	2410	
G-WMS	474	121	30	80	25	73	79	35	39	32	48	3	60	87	165	49	19	59	60	64	18	78	11	44	125	129	32	1922	

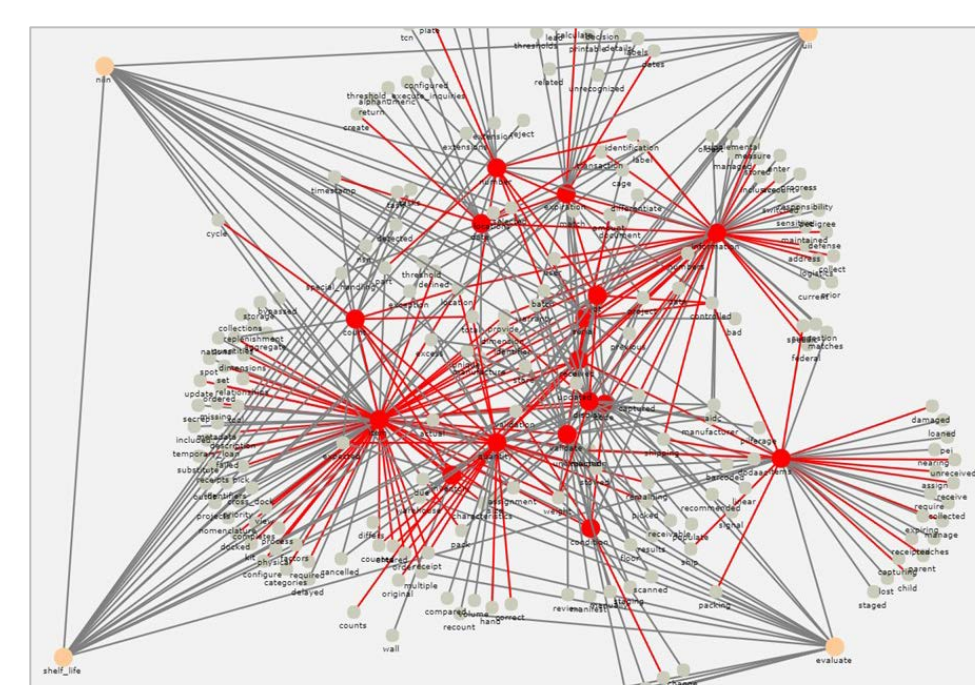
LLA Match Matrix Report

## Results

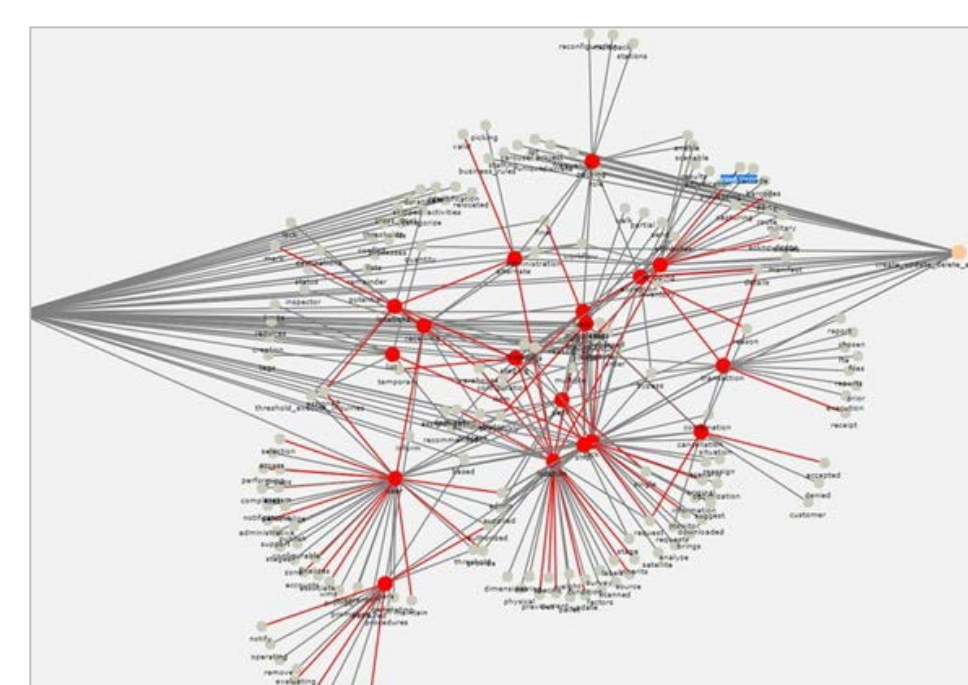
- Using LLA, a 19.8% match score was obtained
- Using AutoMap, a 10.8% match score was obtained
- Bonding process determined 63% of USMC requirements are associated to a match theme
- Engineering analysis reviewed all 1121 USMC requirements and assessed met, partially met, or not met for each
- Analysis indicates 40% of requirements are met, and an additional 23% are partially met



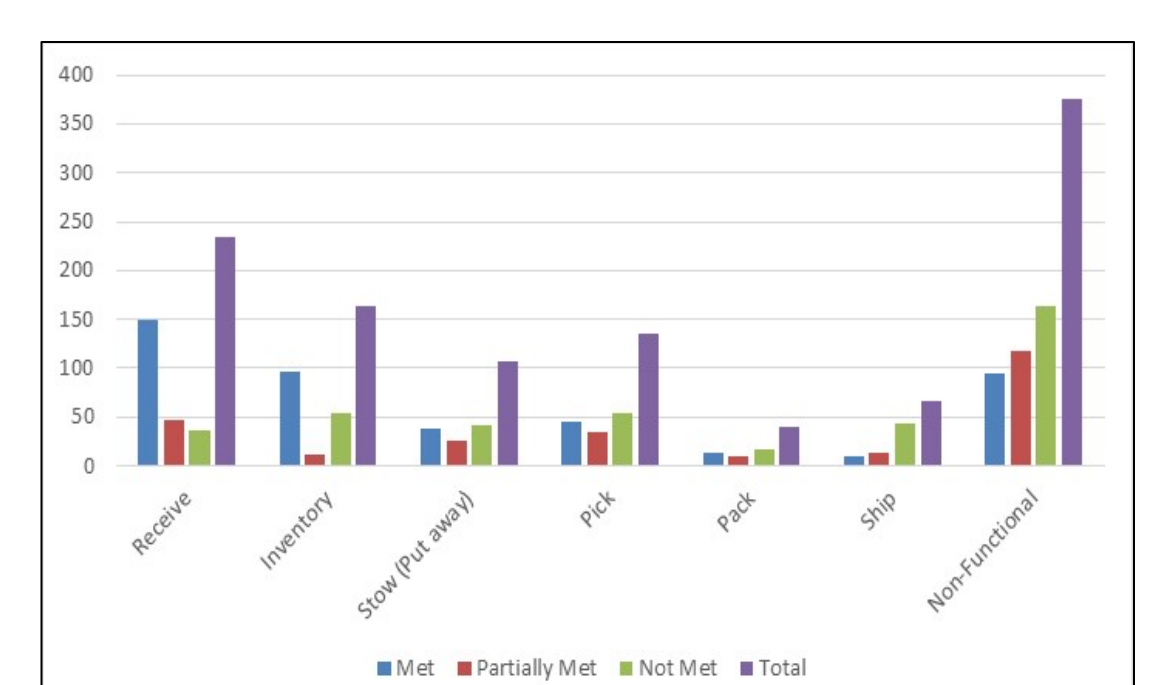
LLA Word Cloud for "Shipping Status" Theme



InfoVis for "Item Information" Theme



InfoVis for "User Pick, User Stow" Themes



Results