

## CAMC Phase 2 lessons Learnt

v0.4

project team feedback, meeting August 2nd 2012

ref	Lesson title	Description	Good practice/ Improvement	Category	Recommendation	Action needed by	Author	Aug 2nd workshop category
26	EA contract structure	The outline contract structure was not well suited to SAAS/ cloud hosted software. It required a lot of discussion and negotiation to get it fit for purpose to deliver the CAMC phase 2 project	Improvement	Procurement		CIS procurement		Req's, Biz case, proc, Contract
27	Benefits definition at business case	CAMC Phase 2 benefits case in FBC was too optimistic/not tested and not clear how measurement/evidence would be gathered.	Do differently/Av	Project management	Make benefits SMART and honest from the start. Bring in corporate benefits expertise early. Set out benefits in a way that can be easily managed throughout the benefits lifecycle. Avoid over-inflation, optimistic, or vague benefits for the sake of getting approvals as they will probably not be measurable or even delivered and will have a detrimental effect on the project reputation.			Req's, Biz case, proc, Contract
28	Pre-ITT workshop	CAMC Phase 2 ran a workshop and invited suppliers to presentations from key EA staff. This provided the vision/ context for the project and set out some of the considerations for suppliers. This proved very useful to suppliers in tailoring their bids and eliminating some misunderstanding.	Good practice	Procurement	Offer opportunities to suppliers within the formal procurement process to engage with EA to better understand context and requirements.			Req's, Biz case, proc, Contract
29	Business Analyst resource	The BA was also committed through requirement gathering, procurement and config/design steps with the supplier, in parallel to the development of detailed processes.	Improvement	Specifications and requirements	Projects should aim for a clear scope, sufficient resource and continuity wherever possible from BAs. Early engagement with CIS is key. Also key to try and get a good 'fit' with the project and how it needs to work.			Req's, Biz case, proc, Contract
30	Business input into requirements	CAMC phase 2 convened a 'technical working group' of business representatives to help define requirements. This worked well at a technical level but lacked engagement with some key stakeholders	Do differently/Av	Specifications and requirements	early involvement of business reps from early definition of the project. Needs clear scope, management and regular engagement to get the best out of the group. Need to make sure it includes the right representation - not just users but managers/decision makers/key stakeholders.			Req's, Biz case, proc, Contract
31	Change management	We used the 'change authorisation note' (CRN) process in the EA contract as a mechanism for change. This could be quite cumbersome for supplier/EA decision/sign off, and raising of EA POs. For some small changes, a 'small works' work order/PO was set up which allowed more agile decision making for low-risk/cost changes.	Good practice	Project management	From the outset following contract, set up mechanisms for smaller changes for reactive/urgent work.			Req's, Biz case, proc, Contract
33	Proof of concept	CAMC Phase 2 introduced a step in the procurement process where shortlisted suppliers were given EA data and asked to demonstrate their solutions to EA staff. The timescales and technical difficulty of integrating EA data into supplier solutions was very challenging.	Do differently/Av	Procurement	though a valuable exercise, needs time, considerable resources on both sides and is often limited in scope. Preparation needs to be planned into project timeline. Need to be sure that the outcomes are valid and that both supplier and EA take away the right information/outcomes, or that those assumptions need to be checked in design/config stage.			Req's, Biz case, proc, Contract

34	Supplier Interface with EA hosted systems	web-hosted asset maintenance solution, interfacing with an internally hosted asset inventory. Not enough was known at the procurement and design stage about the complexity of the interface or impact of decisions made at the time. Issues with the interface are now emerging on both sides as the technical design stages have completed. This will require further investigation and may incur considerable further investment to resolve.	Do differently/Av	Specifications and requirements	Expectation and reality are very different. Information provided to suppliers about the requirement need to be really clear and accurate. Full exploration of interface options needs to be done. Interfaces such as this are likely to be the highest and longest-lasting risk element for the project. Invest time on understanding and reducing risk. Do not rush to implementation without thorough investigation and even piloting/prototyping of the interface.			Req's, Biz case, proc, Contract
35	Business requirements	Reality and temptation to only write high-level requirements for tender process. Misunderstanding/interpretation can start in early engagement with suppliers (on both sides). Also harder to demonstrate whether what is delivered meets requirements.	Do differently/Av	Specifications and requirements	Where possible, write as much detail as possible (supporting notes/ITT workshops) and ensure the requirements are properly understood by supplier, and can be tracked through delivery. Avoid 'exploratory' requirements, be specific. Also consider NFRs such as usability.			Req's, Biz case, proc, Contract
36	Milestone definition	At contract award a high-level plan was agreed with milestones linked to supplier deliverables/stages. These were defined by 'readiness' rather than actual completion of delivery or EA business milestones/acceptance. The definition of what/when became problematic and cause difficulty in concluding stages.	Do differently/Av	Project management	Define supplier milestones better, agree definition, set against EA acceptance/ business capability delivered and deployed. Ensure realistic e.g.. Include multiple cycles of UAT and time built in for addressing defects, not just completion of 1 or 2 cycles of UAT and no supplier response. also, greater commercial weight should be put on post live/final payment milestones.			Req's, Biz case, proc, Contract
37	Set up of Local Implementation leads	The LIL roles were set up, based on previous learning from BTIM. From the start there was good definition of the role, request sent out to Ops managers to resource, induction events to set scene and regularly (bi-weekly calls and tasking). Gained early tactical engagement and progress on technical implementation and data tasks	Good practice	Implementation	Early engagement, clear role and plan for tasking essential. CAMC had a lot of data prep so worked well as mostly the LILs came from key user group.			Stage 1 and MAI
38	In-house development of MAI app	From the start the development team were strong. Early engagement of users in 'agile' model meant good relationships and good progress made. Product very user-centered.	Good practice	Technical	Developer-user interaction key to delivery of products. Co-working (if not collocation) is very desirable. Continuity of resource is also important. We lost some of the developers part way through, and lost knowledge and skill.			Stage 1 and MAI
39	In-house development of MAI app	For something that looks simple to a user, there was a lot of complexity to the development of the MAI. Including BES deployment, testing etc. CAMC Phase 2 then picked up a number of corporate issues wrt hardware/ software/ licences/ infrastructures MDM etc. Should have been run as a separate project with its own timeliness and resources to avoid conflict with Trimble/IPL development and to resolve emerging issues.	Do differently/Av	Technical	There were a number of assumptions about the MAI dev. The scope was identified late, perhaps the corporate strategy for mobile should have been thought through and matured before deployment was attempted. Pioneering projects should consider dependencies and maturity of under-pinning technology before deploying new products. If those things are not in place, more time should be given to identify and overcome emerging issues. Don't have multiple 'firsts' in one project.			Stage 1 and MAI
40	Supplier Interface with EA hosted systems	Once design of the interface was agreed, a number of issues arose due to infrastructure limitations and data quality on EA side (CMMS data quality, issue with config of SFTP).	Do differently/Av	Technical	EA need to ensure they can consider and address issues where dependencies exist for the supplier. Testing needs to include more representative data sets - size/quality to draw out issues.			Stage 1 and MAI

		Mobile asset inspection app(MAI) was set out to use 'agile' methodology. This was early in the EA journey to adopt this approach. It ended up being a bit half hearted and expectations not met/understood.	Improvement	Expertise within the organisation	though the product was probably viable for agile, it was perhaps too early to take such a bold step, it's felt MVP did not deliver.		Stage 1 and MAI	
41	Agile methodology							
42	Supplier design workshops	<Supplier>ran design workshops at the start of each technical stage of development. The purpose was to define the final config for their developers based on EA requirements. The process identified many, many options, questions and decisions points but it was hard for EA to understand the questions, or the impacts of decisions. Decisions made in earlier stages impacted on later stages, we didn't know what we were being asked, or what the options were. The result is that we have had compromise in some aspects of the system and how it is set up.	Do differently/Av	Specifications and requirements	EA felt they needed to have more time to consider and understand decision points. More time should be given to the process to define system design. An overview of all technical stages and the key decision points should be covered before the detail of any individual stage is defined. More engagement within EA required up front to understand impact of key decisions and whether they will fit with how we want to work.		Stage 1 and MAI	
43	NOSG	CAMC Phase 2 implemented a layer of governance and decision making to support the LILs - the AIGs and the National Ops steering groups. NOSG took some time to bed in due to changes of membership/leadership. It would have been an advantage to gain earlier buy in from Area/Ops managers to help the project with decisions and resourcing.	Improvement	Implementation	Consider setting up the strategic implementation structures at the same time as the tactical (LILs) change roles. Ensure the right leadership and buy-in from the start. Work with the strategic groups to solve problems, take decisions, provide assurance and remove blockages to progress.		Stage 1 and MAI	
44	Testing/UAT	Either intentionally, or due to unplanned, shifting timelines for delivery, we had cycle of UAT of more than one product running at similar times. Attempts were made to alternate testing cycles to maintain momentum with both products. This is risky and leaves no resource ( EA or supplier) to respond.	Do differently/Av	Technical	Avoid parallel/alternate testing cycles of multiple products. Allow time between testing cycles for response and analysis of defects. Plan for appropriate levels of Test/QITG resource and ensure availability around test cycles. Ensure sufficient business resource for testing and sign off of products - don't underestimate testing effort even for COTS package.		Stage 1 and MAI	
45	National ownership of national products/processes	PSRA implementation has suffered due to lack of national leadership and process governance. Process is ill-defined and not described 'nationally'. CAMC is struggling to migrate PSRA to BAU as a result.	Do differently/Av	Expertise within the organisation	For national products/process, national governance and ownership should be in place. A senior user should be identified to lead. INHO if this is into the case, it should be an issue for the project and the project should escalate until resolved rather than trying to fix at the project level.		Stage 1 and MAI	
46	Config and prep tasks	Considerable resource was required from EA staff to configure the system and prepare data to set it all up. We had to bring in data resource to complete some of the work. This requirement was not clear from the start. For some aspects of the set up, the timing/availability of that data was critical and resources had to be diverted to ensure it was complete for testing.	Do differently/Av	Project management	Some work needs to be done early in a project to assess the need to create/ modify/collate data for the system, especially if there is a dependency on it for testing and set up. Plan for either internal or contractor resource. Investment in training is also an overhead to train staff working on data so try to plan a sustainable level of input using the same resources to cut down on the overhead.		Stage 2 and EAM Works	
47	User input to design of EAM Works app	We engaged with Field teams and asked for volunteers to get involved in early testing. This allowed us to refine not only the functionality of the app but also address issues with process design.	Good practice	Expertise within the organisation	Engage with end users early in specification, design and build of products. Also helps with credibility of products to be able to reassure others that their peers have been involved.		Stage 2 and EAM Works	

		trainers worked well. We brought them in on supplier training then they worked alongside the team whilst we tested and signed off the products. The trainers were able to develop manuals and get a firm grasp on the processes.	Good practice	Training	It's hard for external trainers to pick up the language, culture and context of EA. Bring trainers in early, engage them in productive activities such as creation of training materials and manuals. It may seem a luxury, but it pays off.			Stage 2 and EAM Works
48	Training planning	CAMC Phase 2 NOSG brought in a project manager, sitting in operations to lead the coordination of the roll out. The Ops PM worked directly with the CAMC team. They issued all tasks picked up issues and maintained a dialogue, bringing feedback back to the team. This greatly improved communications and 'bridged the gap' between national projects and area Operations.	Good practice	Implementation	For national roll out to areas, ensure there is dedicated resource in Operations to coordinate and communicate between the project and the groups receiving the change.			Stage 2 and EAM Works
49	Interface with Operations	EA felt that there were some aspects of the development where we could have learnt from other clients of the supplier. The project did take up references during procurement, but it was helpful to engage with other clients through their user Group	Good practice	Supplier management	if available, use the experience of the suppliers other clients to inform decisions based on their experience, test out ideas etc.			Stage 2 and EAM Works
50	Learning from the supplier	Several scenarios occurred where we failed to complete or even start testing as the products still had bugs or were not fully configured, or were not visible to us to develop test scripts/clarify what we were accepting. We introduced a step prior to UAT where the supplier demonstrated the features in advance of UAT. This allowed us to - fully develop test scripts, prove the test-readiness of the products, required quality assurance of the supplier, confirmed the functionality delivered was as per expectations.	Do differently/Av	Technical	Especially for complicated configurations, introduce supplier demonstrations of the features prior to the test cycles. Ensure the functionality is ready to test before committing to test cycles.			Stage 2 and EAM Works
51	Pre-testing prep	The intention of the CAMC procurement process was to buy a COTS package and do the minimum of bespokeing to take full advantage of the existing functionality. In the end, we have heavily configured the products and funded multiple product changes through change control. This has increased costs and introduced complexity of its own for supplier support.	Improvement	Technical	be clear from the outset on the benefits of configuring/bespokeing. Ensure procurement sets out the right requirements. Ensure the project team manage expectations about scope fo config/dev on COTS packages.			Stage 2 and EAM Works
52	COTS vs bespoke	It was problematic throughout CAMC Phase 2 to resource comms, the whole team was so busy. We made numerous attempts to get in resource without success. The project suffered somewhat from this.	Do differently/Av	Communications	A large project delivering complex change into the business needs dedicated comms resource.			Stage 2 and EAM Works
53	Communications	questions coming from area managers/ Ops manager and their TEs. We devised a 'roadtrip' to visit each area, demonstrate the products and answer questions to build confidence and understanding, and manage expectations about what the system will or won't do.	Do differently/Av	Communications	Travelling round the country can be resource-heavy, but for a large project, with complex change, it can be worth the investment of time and resource vs dealing with the issues left by not engaging, not answering questions, not building confidence.			Stage 3
54	Road trip/area visits		Improvement					

		From the outset, the project team worked as one. Particularly the Project managers. Weekly calls to discuss progress were open and honest. Change control and other negotiations were collaborative, refining the process on both sides so it worked better for the project. Risk and issue sessions were held regularly to explore areas of concern.	Good practice	Project management	Working as one team with the supplier, working in collaboration is key to success. As long as the appropriate measures are in place for control and escalation of issues, outside of the project (through governance/Commercial)		Stage 3		
55	One team' working with supplier	Through Cabinet office approval at BC, the project was required to undertake OGC gateway reviews. These are a surprisingly resource-intensive events, but provide rich feedback and insight which helped shape and improve the next stag in each case.	Good practice	Project management	If not OCG-style reviews, external/independent project review is recommended. Our reviewers also shared some best practice with us, and offered follow up workshops which we took up on risk management.		Stage 3		
56	Independent review	CAMC has been working on process development since early in the project. Many times we had to re-work process due to new technical functionality/understanding (technical stages of delivery) or after pilot roll out when users were able to feedback.	Good practice	Implementation	Projects should not underestimate the resource requirement, engagement needed with business and process owners, time needed to sign off and 'proving' of process (when rolled out it might need tweaking). Start complex process dev as soon as possible. Even before the technical tools are available. Pilot, pilot, pilot.		Stage 3		
57	Process development	Project resources who are heavily involved in design and development will gain detailed understanding of new IT systems. If the business teams who will manage and own the systems are into brought in until the end of the projects, that knowledge will be lost and it will take time for the BAU team to develop their knowledge/skills. one or two key team members in CAMC became the only people who know how it all works, so we have issues with resilience to manage the system and support new users.	Good practice	Expertise within the organisation	Get investment of staff from the start if possible, ensure resilience by engaging the staff who will intimately run/manage the IT tools so they develop with the products. Ensure more than one person knows how it all works!		Stage 3		
58	Initiation of BAU team to take on products	Our supplier delivered the products in 3 technical stages. There was logic to this as one built on the next. the difficulty was that we had to make technical and process decisions at each stage without knowing impacts for later stages/ not having familiarity with the system. this meant re-working / issues as we progressed.	Do differently/AV	Expertise within the organisation	Phased/staged technical development should include an overview of the total solution and key decisions. Impacts of decisions made at each stage should be impact assessed and recorded, so the client fully understand the consequences.		Stage 3		
59	Managing decisions in sequential technical stages	dedicated resource is required to plan and execute a big roll out where you are training lots of staff the logistics and detail are key> things go wrong almost daily and need a reposne/trouble shooting, so the resource needs to be available throughout . There was quite a lot of data and information needed by the trainers in advance of sessions, we struggled to get that data on occasion.	Do differently/AV	Training	make sure there is a long lead time to get organised, agree approach, plan resources, understand roles and responsibilities clearly. Dedicate resource to this and make sure it is available all the way through the events. Be clear on all data/ information requirements and structure requests going out to areas to capture everything you need, avoid having to go backwards an forwards to get it.		Implementation		
60	Planning and administering a big role out/training	manuals, user guides and process documentation cannot be an after-thought. It requires lots of resource, and the minute users are trained, they need it ready. We struggled to finalise documentation as the completion of products development was so close (days) away from the start of the roll out	Improvement	Training	plan in time/resource for development of material, try to plan a gap between product development being complete and the start of a roll out so that any final tweaks can be made. Pilot if at all possible		Implementation		
61	process/training documentation		Do differently/AV						

62	Pilot new tools and processes	After consideration, we did a pilot roll out in one area which allowed us to test the training, materials, system etc and get feedback to make improvements before the main roll out. We learnt an incredible amount and made many improvements. This was invaluable.	Improvement	Implementation	Always pilot if possible. Make sure plenty so of opportunity to get feedback from pilot - we had training evaluation, direct observation and participation from the project team, daily area calls, daily national calls and various wash up events.			Implementation	
63	Reports	Due to capabilities of the reporting tools, it proved difficult to deliver the reports required by EA. This has affected the go live of the system and to the reports should have been available at the start. This has caused a reputation issue for the project.	Do differently/Av	Technical	difficulties with understanding the core data structure have made it difficult for EA trained staff to use the reporting tools provided. Though reporting might seem like a less important deliverable, it is something that requires a lot of thought up front. Don't skimp on time invested to get it right. Ensure the tools are fit for purpose and invest in staff getting familiar with reporting functions, or use specialist reporting teams/ tools in EA.			Implementation	
64	Use of checkpoints and shadowing	We had a phase roll out with areas going live in a sequence. Checkpoint calls were set up a couple of weeks in advance to go through preparations, and check everything was on track. Then every day for areas going live to check on progress. Other areas going live later were also invited to share on learning emerging from previous areas. Shadowing opportunities were encouraged to get first-hand experience.	Good practice	Implementation	take nothing for granted that the requirements for preparation are understood or underway. The project will always know more about the detail, so make sure you create opportunities to share. More support is always welcome and assurance is vital. Encourage sharing and support between groups/areas for sharing ideas/ problem solving, coaching etc.			Implementation	
65	User support in early stages of roll out	Once training is complete and staff go back to their offices to start using the products, the questions start! We had a project mailbox, but very limited capacity to answer all the questions and individuals in the team quickly get overwhelmed.	Do differently/Av	Implementation	Ensure enough people have sufficient knowledge to support users. Produce good documentation, trouble shooting docs, hints and tips, encourage users / super users to support each other - use tools like Yammer, local SU events etc. Consider running additional /follow up refresher training events.			Implementation	
66	Corporate issues/external dependencies	the Mobile asset inspection app (MAI) had a dependency on Bes. Due to issues with Bes on iPads, development and deployment of MAI releases has been heavily impacted and significant costs of resolving the Bes issues transferred to the project	Do differently/Av	Technical	External dependencies need to be managed carefully anyway. Where they are due to a corporate issue, make sure responsibility and priority is recognised rather than just passed to project. Make sure early technical feasibility properly explores resilience of existing/pilot solutions that underpin project products.			Implementation	
67	IT support for external trainers/contractors	We had an issue where our external trainers were able to set up the products on their machines. Our supplier was not willing to support them as they were 3rd parties. This caused significant delay and wasted resource before the issues were resolved. There was no clear responsibility for this issue.	Do differently/Av	Technical	For any third party resources working on the project, make clear/set out formal agreements for support. If it's IT support, it can be complicated and be a cost, but it is essential. EA also looking at provision of EA equipment pool for trainers to ensure we can support them directly.			Implementation	
68	Developing trainers	A large investment was required to get the trainers up to speed. We planned for resilience, and even then, had trainers drop out last minute. We also had issues with confidence and consistency. Once the pool of trainers was set up, manuals completed and the pilot completed, things settled down and they got great feedback.	Do differently/Av	Training	think you need. Invest lots of time in the individuals. Run pilot if possible, with real users, it helps the trainer bed in. Don't be afraid to raise concerns if trainers are struggling/weak. Evaluate all training sessions and monitor feedback. Spend time sharing knowledge about process/context as well as system.			Implementation	

69	pre-work/prep for trainees	Some areas ran familiarisation session before their training started. Trainers reported these groups were much better prepared and accepting and got most out of the training as many of their questions had been answered. CAMC did send prereading and advised areas on the prep to answer many local questions	Improvement	Training	Project should identify relevant preparations and materials for areas to brief team prior to training. Assure that these preparations are part of the local plans.		Implementation
70	Service desk	environment, we had our service arrangements established but not tested/matured. When the main implementation and roll out started, this meant that the service had to mature at the same rate as the user base expanded, rather than the more gentle ramping up originally planned to match the original training plan. Some issues occurred as a result which are being tackled but we needed more time for the service to mature before the bulk of users were accessing the system.	Improvement	Technical	Set up service arrangement in a timely fashion, if possible, bring in the Service alongside the earlier stages of roll out so that the knowledge base and processes can mature in a more controlled way.		

