



eCult

Izobraževalne smernice



Projekt eCultSkills Transfer of Innovation je sofinanciran s strani Evropske komisije.

Vsebina te publikacije je izključno odgovornost avtorja in v nobenem primeru ne predstavlja stališč Evropske komisije.

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1. Kako uporabljati ta dokument

Izobraževalne smernice so zasnovane kot vodilo za evropske izobraževalne institucije in vse, ki na tem področju sodelujejo pri oblikovanju programskih shem, pri čemer natančno opredeljujejo katera znanja, veščine in kompetence je potrebno pridobiti tistim, ki se želijo kvalificirati za delovna mesta na digitalnem kulturnem področju. Sklicujejo se na temeljne evropske okvirje, ki omogočajo transparenten in primerljiv opis kvalifikacij: evropski kvalifikacijski okvir (EQF) ter evropski okvir e-kompetentnosti (e-CF).

Priročnik ima naslednjo strukturo:

Posamezna poglavja bralcu zagotavljajo osnovne informacije, pomembne za celovito razumevanje dokumenta. V poglavjih so izpostavljeni kazalniki ciljnih skupin, hkrati pa poudarjajo zelo pomemben vidik, ki ga je potrebno upoštevati, to je razlika med profili vlog in poklicnimi profili. Priročnik vsebuje tudi kratek uvod v razlago referenčnih nivojev (EQF in e-CF)¹. Spodaj je na kratko orisana vsebina posameznih poglavij in podpoglavij, obravnavanih v »Izobraževalnih smernicah«:

1. poglavje: Uvod ali Kako uporabljati priročnik

Na začetnih straneh Izobraževalnih smernic se nahaja splošni uvodni del z vsemi potrebnimi informacijami o tem, kako lahko ta priročnik uporabimo za usposabljanje e-strokovnjakov na področju kulture.

2. poglavje: Osnovna načela za izvajanje izobraževalnih dogodkov

Podpoglavja (od razdelka Odnos do izobraževanja do razdelka Kontrolni seznam) ponujajo nekaj namigov za oblikovanje, izvajanje, vrednotenje in prilagajanje učnega procesa za potrebe e-kulturnih poklicev oziroma funkcij. Poleg tega vsebujejo tudi kratek uvod v ocenjevalni proces.

3. poglavje: Profili vlog

V tem poglavju je opisanih pet profilov vlog, skupaj z referenčnimi nivoji in vsemi učnimi rezultati posameznih e-kompetenc².

4. poglavje: Metodologija izobraževanja

V tem delu je zbranih nekaj splošnih priporočil glede metodologij poučevanja in učenja. Uporabljena metodologija je opisana korak za korakom z namenom doseganja zastavljenih ciljev in zelenih učnih rezultatov.

5. poglavje: Ocenjevanje izobraževanja

Poglavje bralca seznanja s podrobno razlago o različnih ocenjevalnih tehnikah, ki jih lahko uporabijo vodje usposabljanja.

6. poglavje: Študija primera

¹ Referenčni nivoji so podrobno opisani v prilogah 8.3. in 8.4.

² Učni rezultati so podrobno opisani v prilogah 8.1.1. in 8.2.

Poklicni profil, ki ga na tem mestu opisujejo Izobraževalne smernice, se imenuje Upravljalec digitalnih kulturnih dobrin. V izobraževalnem tečaju za usposabljanje, pripravljenem za ta profil, so navedene in opisane informacije o tečaju, pet korakov do priprave ekosistema DAM, usposabljanje glede na e-kompetence DCAM ter učni rezultati za vsako posamezno kompetenco in metode ocenjevanja. Priložen seznam literature ter uporabne povezave do raznih priročnikov za postopke, standardov, prispevkov in člankov, predstavljajo dragocen vir za izobraževalni tečaj.

7. poglavje: Viri

V tem razdelku je naveden seznam literature, uporabljene pri nastajanju priročnika.

8. poglavje: Priloge

Vsebujejo osnovno uporabno dokumentacijo, vključno z metodologijo opredelitve učnih rezultatov za vsak profil vloge, metodo zapisovanja (podajanja) učnih rezultatov, evropske okvirje, ki so bili uporabljeni (EQF in e-CF), metodologijo za usposabljanje oseb za pridobitev 14 kompetenc izbranega profila kot študijo primera, ter seznam splošnih virov in literature za izobraževalni modul.

Naslovi poglavij so bili izbrani tako, da že na prvi pogled zagotovijo orientacijo pri uporabi priročnika. Zato dokumenta ni potrebno prebirati od začetka do konca: različne ciljne skupine z različnimi interesi bodo pritegnila različna izbrana poglavja.

Namen »Izobraževalnih smernic« je zagotoviti pregleden sklop učnih enot, ki so namenjene nadaljnemu razvoju in uporabi s strani organizacij za poklicno izobraževanje in usposabljanje (VET) v kulturnih organizacijah (v nadaljevanju: muzeji) in temeljijo na učnih rezultatih.

Za vsak profil je podan opis specifične vloge v kontekstu organizacije. Predstavljen je opis predlaganih učnih enot, ki je strukturiran s stališča usmerjenosti k rezultatom, kar pomeni, da se učni rezultati navezujejo na okvir EQF.

1.1 Ozadje

Po podatkih Mreže evropskega statističnega sistema za kulturo (oktober 2012) predstavlja število zaposlenih na področju kulture v Evropi okrog 3% vseh zaposlitev. Naložbe v kulturni sektor prinašajo osupljive rezultate v smislu ekonomskih učinkov in dosega tudi do desetkrat večji finančni donos za vsak investiran euro.

V preteklih dveh desetletjih so se zaradi vsesplošno razširjene uporabe interneta in intenzivne rabe numeričnih orodij in naprav navade evropskih državljanov povsem spremenile. Vedenjske spremembe imajo posledice tudi v institucijah kulturne dediščine, kot so muzeji ali arheološka najdišča. Muzeji so, po svojem poslanstvu, čuvaji preteklosti z vizijo usmerjeno v prihodnost. Razkrivajo podobe umetnosti, kulture, zgodovine in družbe. Ohranjajo neločljivo povezan konglomerat artefaktov, združenih v – najpogosteje – nepovezanem okolju. Obiskovalci lahko preprosto zgolj uživajo v lepoti objektov, ali pa se želijo o njih poučiti. Toda z razvojem novih digitalnih tehnologij želijo vse pogosteje tudi vstopati v interakcijo z objekti, preizkusiti digitalne zbirke (npr. Pinterest) ali postati sokuratorji (npr. Rijks-Studio). Navkljub takšnemu tehnološkemu napredku pa je imela le peščica strokovnjakov iz kulturnega sektorja priložnost, da se izobrazijo na področju digitalnih medijev, četudi je dandanes to znanje postalo nepogrešljivo pri opravljanju njihovih vsakodnevnih aktivnosti.

Projekt eCult Skills obravnava e-kompetence, ki so potrebne v poklicih, povezanih s področjem kulturne dediščine. E-kulturo lahko opredelimo kot digitalne tehnologije, ki pomagajo pri dostopanju in bogatijo doživljanje vsebin kulturne dediščine. To so tiste veščine in kompetence, ki digitalne tehnologije vpeljujejo v muzejske zbirke.

Projekt eCult Skills je bil razvit v okviru programa Leonardo da Vinci – Transfer inovacij. Rezultati temeljijo na analizah, izvedenih s strani platform e-Cult Skills Observatory in e-Jobs Observatory ter partnerjev projekta. Projekt je zaživel in bil financiran s strani programa Leonardo da Vinci Evropske komisije. Izvedle so ga organizacije iz šestih evropskih držav (Grčije, Nemčije, Slovenije, Francije, Portugalske, EU). V okviru partnerstva projekta so bile izvedene obsežne raziskave z namenom opredelitve ključnih *znanj, veščin in kompetenc*, ki jih bo v bližnji prihodnosti zahteval zaposlitveni trg v muzejskih in IKT institucijah.

Konzorcij organizacij je v tesnem sodelovanju z muzeji, izobraževalnimi institucijami in oblikovalci politik ter strokovnjaki na področju digitalnih zaposlitev v kulturnem sektorju oblikoval konsenz o izobraževalnih potrebah znotraj omenjenega področja na evropski ravni. Na teh temeljih je bila opredeljena zbirka petih (5) evropskih specialističnih profilov, ki so vključeni in opisani v pričujočih izobraževalnih smernicah.

Identificirali smo pet (5) e-kulturnih profilov vlog³, ki so opredeljene kot bistvene za bodočo premostitev vrzeli med področjem kulture in digitalnimi tehnologijami:

- Kulturni IKT svetovalec
- Kulturni IKT vodič
- Upravljalec digitalnih kulturnih dobrin
- Razvijalec interaktivnih kulturnih izkušenj
- Upravljalec spletnih kulturnih skupnosti

Cilj te publikacije je izpostaviti najpomembnejša znanja, veščine in kompetence, potrebne za izpolnjevanje strokovnih vlog, ki jih opisuje projekt eCult Skills.

Pri tem je bistvenega pomena, kako lahko učenci/kandidati/strokovnjaki uporabljajo te kvalifikacije v smislu znanj, veščin in kompetenc pri svojih vsakodnevnih nalogah ter na ta način podprejo napreden razvoj posamezne organizacije.

Te sposobnosti so lahko izražene v obliki učnih rezultatov, ki so posledica izobraževanja, delovnih izkušenj s podobnimi nalogami ali zaposlitvami, ali zunanjega delovnega področja.

Prav zato dokument pred vami ne predstavlja učne metode po posameznih korakih. Povedano drugače:

- Ne gre za zbirko navodil.

³ Glede e-zaposlitev vedno govorimo o profilih vlog in ne poklicnih profilih.

- Ne gre za tip vodiča v smislu »izpolnite manjkajoča prazna mesta«.
- Predstavlja posamezne pristope in primere, ki vodijo v smeri določenega učnega rezultata.

Vsi produkti tega dokumenta so rezultat tržnih analiz, temelječih na teoretičnih in terenskih raziskavah, torej intervjujih in anketah opravljenih s strokovnjaki, delodajalci, muzejskim osebjem in izobraževalnimi delavci, kar nam je omogočilo jasn vpogled v večšine, znanja in kompetence, potrebne na področju delovanja muzejev. S pomočjo raziskovalnega dela smo uspeli opredeliti in dognati kako se te naloge izpolnjujejo v podjetjih in organizacijah širom Evrope. Na podlagi tega smo opredelili natančne profile vlog v skladu s potrebami trga zaposlitev ter predlagali, vzporedno z izobraževalnimi smernicami, primer pristopa k izobraževanju in predajanju potrebnih znanj, veščin in kompetenc.

Dokument pred vami tako ni uporaben le za začetni proces izobraževanja, temveč tudi za vseživljenjsko učenje. Vsaka učna enota predlaga predvidene učne rezultate, ki naj bi jih dosegli strokovnjaki, ki želijo postati kvalificirani za omenjenih pet poklicnih vlog na področju e-kulture na evropskem trgu dela. Odprto ostaja še vprašanje, kdo natančno lahko pravzaprav pridobi korist od tega dokumenta: v spodnjem razdelku bomo govorili o ciljnih skupinah za uporabo priročnika.

1.2 Ciljne skupine

Izobraževalne smernice so zasnovane za naslednje institucije oziroma osebe delujoče na področju kulturne dediščine:

- Izobraževalne organizacije, ki izobražujejo strokovnjake na področju kulture.
- Kulturne organizacije
- Podjetja, aktivna v kreativnem sektorju in njihovi zaposleni
- Študenti in strokovnjaki v kulturnem sektorju

Smernice pomagajo izobraževalnim organizacijam opredeliti nivoje, ki jih zahteva trg dela, v skladu z evropskimi referenčnimi nivoji, izpeljanimi iz okvirja e-kompetentnosti, ki ga je izdal Evropski komite za standardizacijo. Okvir e-kompetentnosti temelji neposredno na evropskem kvalifikacijskem okvirju (EQF). Organizacije za poklicno izobraževanje in usposabljanje (VET) izkazujejo interes za prilagoditev njihove ponudbe izobraževanja glede na prihajajoče tržne potrebe na novih področjih na evropski ravni, saj želijo postati konkurenčnejše na trgu. Ta priročnik bo VET institucije podprl pri prilagoditvi njihovih izobraževalnih tečajev.

Kulturne organizacije, kot so muzeji ali kreativne institucije bodo s pomočjo priročnika lahko identificirale in primerjale kompetence, ki jih zahteva njihova organizacija ter opredelile nivoje, ki jih dosegajo (kot posledico izobraževanja ali izkušenj) njihovi zaposleni. Poleg tega bodo izobraževalne smernice muzejem pomagale opredeliti izobraževalne potrebe zaposlenih ter jih podprle pri sodelovanju z izobraževalnim kadrom, ki bo nadgradil večšine zaposlenih. Smernice jim bodo v pomoč tudi pri identifikaciji in opredelitvi zunanjih kompetenc, ki jih potrebujejo muzejski strokovnjaki za rekrutiranje novega, usposobljenega osebja.

Študenti ali strokovnjaki v kulturnem sektorju bodo lahko primerjali svoje kompetence s tistimi, ki jih zahteva trg dela. Lahko bodo identificirali svoje izobraževalne potrebe za doseganje zahtevanih nivojev ter identificirali tiste izobraževalne organizacije, v katerih bodo lahko svoje veščine nadgradili. Tako bodo lahko odgovorili na potrebe kulturnih organizacij in postali ustrezno kvalificirani za zaposlitve v zadevnem sektorju.

V splošnem torej Izobraževalne smernice predstavljajo relevantne informacije za vse nosilce interesa, ki jih zanima katera znanja, veščine in kompetence so potrebne za uspešno delovanje na trgu dela na področju Podpore iz okolja pri samostojnem življenju (Ambient Assisted Living) širom Evropske unije (EU).

2 Osnovna načela za izvajanje izobraževalnih dogodkov

2.1. Namen

V tem poglavju želimo povečati ozaveščenost o oblikovanju, izvajanju, vrednotenju in prilagoditvi učnih procesov za e-kulturne funkcije in poklice v skladu s priporočili Evropskega referenčnega okvirja za zagotavljanje kakovosti v poklicnem izobraževanju (EQAVET)⁴. Namen tega je zagotoviti odgovore na naslednja vprašanja:

- Kako lahko določite nivo udeležencev pred začetkom učnega procesa?
- Kako lahko načrtujete in vodite učni proces?
- Kako lahko vrednotite in restrukturirate proces usposabljanja?

2.2. Uvod

Ed Mahood (Dekra Akademie 2011) definira učni proces kot *»vse izvedene dejavnosti, ki osebi omogočijo, da se dobro seznaní z nalogami«*. V osnovi ima vsak izobraževalni delavec temeljno razumevanje procesa in je sposoben oceniti in izbrati najučinkovitejši pristop v dani situaciji, da bi dosegel želene rezultate glede na položaj vsakega posameznega udeleženca ter določil njegovo delovno mesto (položaj) po zaključenem učnem procesu.

Izobraževalni proces je uspešen, ko:

- so udeleženci vključeni v opredelitev in nadaljnjo izpopolnitev lastnih učnih ciljev,
- se vsebina navezuje na konkretne težave, s katerimi se udeleženci soočajo v konkretnih delovnih situacijah,
- se udeležencem in izobraževalni ekipi zagotovi smiselno vrednotenje in povratne informacije.

Izobraževalnega procesa ni mogoče učinkovito oblikovati, če ob tem ne upoštevamo predhodnega znanja oziroma izkušenj udeleženca, torej t. i. *»izobraževalne navade«*.

⁴ Priporočila najdete na spletni strani EQAVET: <http://www.eqavet.eu/gns/home.aspx>

2.2.1. Odnos do izobraževanja

Pogosto se zgodi, da se pri izbiri učnega programa nameni premalo pozornosti relevantnim izkušnjam ter splošnemu odnosu oziroma vedenju udeležencev. Pomembno je, da pri tem upoštevamo naslednja vprašanja:

- Katere veščine so potrebne za vstop v izobraževalni program z maksimalnimi možnostmi, da udeleženci od njega odnesejo korist?
- Katere osebne lastnosti lahko vplivajo na uspeh izobraževalnega procesa?

»Vstopno vedenje vključuje potrebno znanje, naravnost ali veščine, ki jih učenec že poseduje in so relevantne za učno nalogo ali tematiko, in za katere lahko učence prosimo, da jih demonstrirajo že **pred samim pričetkom izvajanja modula. Sem spadajo predhodna izobrazba in izkušnje, ki jih učenec prinese v nov učni kontekst. Pri tem je končni cilj modula napredovanje učenca od izhodiščne točke (vstopno vedenje) do točke, kamor ga želite pripeljati (obvladanje učnih ciljev oziroma končno vedenje.«*

(Russell, 1974, str. 65)

2.2.2. Ključna vprašanja

Poleg osnovnih vprašanj so spodaj navedena še ključna vprašanja v zvezi s profilom in ozadjem udeleženca, ki prispevajo k oblikovanju učnega procesa:

- Katere so specifične veščine, ki jih mora udeleženec obvladati, če želi uspešno izkoristiti izobraževanje?
- Kakšne lastnosti imajo udeleženci izobraževalnega tečaja?
- Kaj jih zanima?
- Kako je z njihovo motivacijo/razlogi za udeležbo?
- Ali imajo specifične skrbi oziroma težave?
- V katerem jeziku lahko sledijo izobraževanju?
- Koliko časa lahko posvetijo izobraževanju?
- Katere praktične organizacijske sposobnosti morajo obvladati za udeležbo na izobraževanju?
- Ali bodo udeleženci naučene veščine/kompetence uporabljali/izvajali neposredno po izobraževanju?

2.2.3. Opozorilo

Pri oblikovanju učnega procesa je potrebno posvetiti pozornost nekaterim pomembnim vidikom! V prvi fazi je bistvenega pomena, da sodelujoče seznanimo z znanji, veščinami in kompetencami, ki so predpogoj za pričetek izobraževalnega procesa. Ob tem je pomembno preveriti, ali njihove sposobnosti ustrezajo njihovim potrebam. V kolikor ne opredelimo natančno, kaj je potrebno za uspeh, lahko udeleženci predvidevajo uspešno sodelovanje, ki pa v resnici morda ni možno. Lahko se zgodi, da ne dosežejo zadanih izobraževalnih ciljev. To pa lahko pri napredku ovira tudi ostale, kar ima pogosto za posledico neprijetno ozračje v učnem okolju.

Raznolikost izkušenj in ozadij je prednost, ki lahko doprinese h kritičnemu mišljenju in ustvarjalnemu reševanju težav. Med ključnimi vprašanji je lahko pretirana regulacija prijav, toda hkrati sprejemanje udeležencev, ki ne morejo uspešno slediti procesu, vodi k frustraciji in neuspehu.

Udeležence je smiselno pozvati, naj izrazijo oziroma opišejo določene specifične trenutke iz svojega delovnega življenja, kjer situacije ustrezajo učnim rezultatom; to jih bo motiviralo in spodbudilo zanimanje za izobraževanje. Predlog lahko preizkusite na prvem srečanju: v zvezi s tematiko jih vprašajte, kaj vedo in česa ne. Pri tem bo podpora ostalih udeležencev v skupini pozitivno vplivala na enakovredno vključitev vseh in s tem na doseganje zastavljenih ciljev.

2.2.4. Učne ure

Učna ura je kakršenkoli načrtovan in organiziran dogodek, usmerjen v predpostavko, da bodo ob zaključku učnega postopka udeleženci sposobni vpeljati učne rezultate v svoje vsakodnevno delovno okolje.

V času učnih ur udeleženci pridobijo potrebno znanje, veščine, naravnosti in vedenje, s katerimi izboljšajo svoje sposobnosti in izpolnijo zadane naloge. Oblikovanje učne ure sledi specifičnim pravilom in pristopom.

2.2.5. Načela in prakse

Pri oblikovanju učne ure morate najprej opredeliti učne rezultate, ki jih želite doseči. Ti naj bodo v skladu s potrebami in pričakovanji udeležencev in se navezujejo na vloge in cilje posameznika in organizacije.

Cilji morajo biti dosegljivi, realistični, merljivi, spodbujajoči in zastavljeni v izvedljivem časovnem okvirju, ki omogoča njihovo doseganje.

Med ključna načela spadajo: aktivno vključevanje udeležencev v učni proces, prilagoditev participativnih učnih metod, ki omogočajo interakcijo, integracija znanj, veščin in kompetenc, ki so jih razvili drugi udeleženci, podpiranje izmenjave izkušenj prek diskusij, skupinskih srečanj, primerov situacij iz resničnega življenja, študij primerov, igre vlog ter posameznega ali skupinskega reševanja težav.

Razmislite o tem, kako bodo udeleženci lahko v praksi uporabili, kar so se naučili. Če naučenega ne bodo preizkusili v praksi oziroma jih pri tem ne boste spodbujali, bo učna ura ob zaključku zgolj potrata časa in denarja.

2.2.6. Opomnik

Pri uporabi izobraževalnih metod obstajajo pomembni pristopi. Spodaj je navedenih šest točk, ki naj bodo v pomoč pri izbiri ustrezne izobraževalne metode:

1. Razmislite o učnih rezultatih, na katere ciljate. Ali so to nove veščine, nova tehnologija, inovativne tehnike za že obstoječe veščine, drugačno vedenje na delovnem mestu?
2. Preverite metodo, ki jo želite uporabiti in njeno skladnost z zadanimi učnimi rezultati.
3. Razmislite o izkušnjah in pričakovanjih udeležencev. Koga izobražujete: nove zaposlene, kratkoročno zaposlene, višje vodstvo itd.?
4. Upoštevajte svoje lastne osebne veščine v smislu izobraževalnega delavca.
5. Kakšen je vaš finančni načrt za izobraževanje? Katere vire in infrastrukturo imate na razpolago? Ali lahko izvedete dejavnost, ki bo imela dodano vrednost za doseganje zastavljenih ciljev? Za finančno načrtovanje učnih ur morate upoštevati tudi vaš čas in čas, ki ga imajo na voljo udeleženci.
6. Če uporabite več metod, pazite, da ne preobremenite udeležencev.

2.2.7. Ocenjevanje

Čeprav nekateri strokovnjaki razlikujejo med ocenjevanjem in vrednotenjem, smo mnenja, da gre pri tem zgolj za manjše razlikovanje, ki temelji predvsem na kulturnih razlikah. Zato v tem dokumentu oba termina obravnavamo kot sinonima.

Proces ocenjevanja se prične z zasnovano učne ure in vključuje načrtovanje, diskusijo, doseganje soglasja, merjenje, analizo ter izboljšave v skladu z učnimi cilji.

Naj poudarimo, da za vrednotenje izobraževanja ne obstaja vnaprej določen recept; v določenih situacijah je lahko nek pristop smiseln, v drugih situacijah (oziroma pri drugih osebah) pa neustrezen.

Vrednotenje mora upoštevati:

- Utemeljene učne cilje
- Učne izide (vključno s stopnjo, doseženo ob koncu izobraževalnega procesa)
- Udeležence
- Komunikacijo
- Časovno razporeditev
- Okvir, v katerem bo uporabljeno
- Finančne vire

Cilj ocenjevanja je (iz)meriti, kako zna udeleženec aplicirati in uporabiti naučeno in to primerjati s ciljno stopnjo, ki smo jo določili pred pričetkom same učne ure oz. procesa. To lahko izvedemo s pomočjo vaj (nalog) ali v obliki dobro pripravljene diskusije.

Najučinkovitejši način ocenjevanja je, da preučimo konkretne delovne situacije ter analiziramo, kako je udeleženec uporabil naučeno.

2.2.8. Koristni namigi

Pri ocenjevanju učne ure je potrebno upoštevati šest ključnih točk:

1. Načrtujte vrednotenje od začetka priprave posamezne ure.
2. Jasno izrazite, kar želite vrednotiti.
3. Preverite, ali so vse povratne informacije udeležencev jasne in razumljive.
4. Dovolite udeležencem, da izrazijo vse povratne informacije (pozitivne ali negativne), vključno s priporočili za prihodnje naloge.
5. Izberite ustrezno obliko vrednotenja: miselni vzorci, intervju, vprašalniki, naloge, igra vlog, fokusne skupine, sezname itd.
6. Ovrednotite celoten učni proces in ne zgolj posameznega izobraževalnega dogodka.

2.2.9 Kontrolni seznam

Uporabite spodnji kontrolni seznam kot pomoč pri vrednotenju strukture vašega izobraževanja:

Ali učni načrt upošteva kaj morajo udeleženci znati in narediti kot rezultat tega izobraževanja?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali veste, kaj pomeni 'uspešna izvedba' oziroma kaj naj bi dosegel udeleženec glede na posamezni Profil vloge?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali se zavedate katere vrzeli obstajajo med tem, kar udeleženci vedo in tem, kar se morajo naučiti, če želijo uspešno izvajati posamezne vloge?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali bo izobraževanje pomagalo zapolniti te vrzeli?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali na začetku predlagana izobraževalna metoda ustreza veščinam, znanju in usmeritvam (tj. učnim ciljem), ki bodo predstavljeni?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali udeležence aktivno vključujete v njihovo učno izkušnjo s pomočjo diskusij in raznovrstnih aktivnosti?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali udeležence spodbujate k izmenjavi njihovega strokovnega znanja in izkušenj z drugimi udeleženci?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Ali ste vključili primerno obliko vrednotenja, s katero boste ocenili izobraževalni proces, učenje in uporabo naučenega?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>

2.3 Zaključek

Ne glede nato, ali ste izkušen izobraževalni delavec/izvajalec, ali ste na tem področju novinec, ali preprosto potrebujete več izkušenj na področju omogočanja in izvajanja učenja, je potrebno pri tem podrobno razmisliti o:

- Udeležencih s petimi specifičnimi profili vlog in njihovimi ozadji;
- Razlogih: zakaj boste izvajali izobraževanje; kakšna sporočila želite prenesti; katere učne in ocenjevalne metode bodo najustreznejše za izvedbo načrtovanega izobraževanja.

3. Profili vlog

Glavna tabela Profilov vlog vsebuje naslednje informacije⁵:

- *Naziv profila* in enakovredna poimenovanja.
- *Povzetek profila*, kjer je na kratko predstavljeno, kaj bo oseba opravljala v svoji funkciji.⁶
- *Poslanstvo* predstavlja povzetek vloge zaposlenega v organizaciji.
- V rubriki *Cilji* so predstavljene glavne zadolžitve, ki jih mora oseba opravljati v svoji vlogi.
- *Glavne naloge* navajajo, kaj bo oseba izvajala znotraj kulturne organizacije.
- Pod točko *Okolje* je opisan kontekst, v katerem se izpolnjuje poslanstvo.
- Pod *KKU* so opisani ključni kazalniki uspešnosti za posamezno vlogo v organizaciji.
- Sledi tabela s podrobno razloženimi e-kompetencami, ki so potrebne za posamezen profil vloge.

Za vsak Profil vloge so navedene ustrezne e-kompetence, kot izhajajo iz vsebine opisanih e-kompetenc v Evropskem okvirju e-kompetentnosti (e-CF). Poleg generičnega opisa (Dimenzija 2) so podane tudi informacije o stopnji izkazovanja oziroma izvajanja posameznih kompetenc (Stopnje 1 – 5; Dimenzija 3) ter relevantna znanja in veščine (Dimenzija 4).

Glavni tabeli sledijo učni rezultati vsakega posameznega učnega modula. Za pripravo učnih ur moramo najprej opredeliti učne rezultate izobraževanja ter ustrezne ocenjevalne metode.

Za vsak izobraževalni tečaj so značilni specifični profili vlog, pri čemer je cilj omogočiti udeležencem pot do znanja in veščin, opisanih v posameznem profilu.

3.1 Profili vlog ↔ Poklicni profili

Opažamo, da je vsak poklicni profil, pa naj gre za delo v organizaciji, podjetju, na področju javnih storitev, v muzejih, kulturnih organizacijah itd. – preplet različnih vlog. Na primer: upravitelj skupnosti v muzeju pogosto skrbi tudi za trženje in odnose z javnostmi, vodi organizacijo ali je vodič ipd. Kdorkoli, ki je zaposlen v organizaciji, lahko opravlja različne vloge, če je poklic ustrezno poimenovan. Recimo, kulturni vodič, ki je hkrati tudi kurator in ima lahko različne zadolžitve znotraj organizacije.

Pri analizi profilov vlog se osredotočamo na vlogo samo, torej na poslanstvo, ki predstavlja srce zadolžitve, namenjene tej vlogi. Seveda pa lahko ima vsak zaposleni tudi druge zadolžitve in vloge, ki jih opravlja v okviru svojega poklicnega profila.

Analiza je v večini primerov pokazala, da je, še posebej na nivoju manjših struktur, poklicni profil mešanica različnih profilov vlog ter da vsaka organizacija vloge združuje na različen način. Vsaka ima

⁵ Tabele vseh petih Profilov vlog najdete v Aneksu 8.1.

⁶ Opozorilo: profili vlog niso poklicni profili; zaposleni v organizaciji lahko ima različne vloge, tudi če je poklic poimenovan drugače.

svojo posebno mešanico, ki je odvisna od notranje organizacije, od izkušenj organizacije ter od zaposlenih, od izkušenj in izobrazbe, ki jo imajo strokovnjaki v organizaciji ter od strokovnjakov, ki so na razpolago na trgu dela. V naslednjem podpoglavju so analizirane EQF in e-CF stopnje, ki so bile uporabljene v tem projektu.

3.2 Referenčni nivoji

Vsaka država članica EU ima svoj referenčni okvir, s katerim opredeljuje izobraževanja na akademskem nivoju, kakor tudi na nivoju vseživljenjskega učenja. V tem dokumentu se ne sklicujemo na nobenega izmed posameznih nacionalnih izobraževalnih okvirjev, ki so le težka primerljivi. Na evropski ravni je zato običajna referenca Evropski kvalifikacijski okvir (EQF); vsak nacionalni izobraževalni okvir se navezuje na EQF.

Medtem ko se nekateri evropski okvirji navezujejo na trajanje študija, je Evropski kvalifikacijski okvir utemeljen na učnih rezultatih in ne na učni vsebini. Ob koncu učnega procesa lahko rezultate opišemo s specifičnimi znanji, veščinami in kompetencami. Evropski kvalifikacijski okvir ima 8 stopenj, začne se s stopnjo 1 (osnovno znanje) in konča s stopnjo 8 (visoka stopnja strokovnosti).⁷

Od leta 2003 je Evropski komite za standardizacijo⁸ (European Committee for Normalization - CEN) sodeloval s strokovnjaki in izobraževalnimi delavci pri izdaji skupnega referenčnega okvirja za veščine na področju IKT, saj podjetja in organizacije potrebujejo primerjalne študije, da lahko ocenijo IKT veščine svojih (trenutnih in potencialnih prihodnjih) zaposlenih. Standardizirane definicije stopenj veščin so uporabne za različne nosilce interesov, kot so: vodstvo in kadrovske oddelke v podjetjih in drugih organizacijah (v zasebnem in javnem sektorju), ponudniki izobraževanj in izobraževalne institucije (vključno z institucijami visoke izobrazbe) ter raziskovalci in oblikovalci politik.

Evropski okvir e-kompetentnosti (e-CF) je izpeljan neposredno iz EQF, zato so njegovi deskriptorji neposredno prilagojeni veščinam, povezanim z IKT. Pri opisovanju e-kulturnih profilov vlog smo okvir e-kompetentnosti prilagodili specifičnemu področju e-kulture. e-CF ima 5 stopenj, neposredno povezanih z 8 stopnjami EQF. EQF stopnji 1 in 2 nista posebej prilagojeni področju IKT, saj predstavljata najosnovnejša znanja, veščine in kompetence; EQF stopnji 4 in 5 pa sta združeni v enotno e-CF stopnjo 2.⁹

Stopnja e-kompetenc	EQF stopnja
5	8
4	7
3	6
2	5 in 4

⁷ Za več informacij o EQF glej Aneks 8.3.

⁸ Comité Européen de Normalisation CEN (francosko). Spletna stran CEN : <http://www.cen.eu/Pages/default.aspx>

⁹ Za več informacij o okvirju e-kompetentnosti, ki ga izdaja CEN, glej Aneks 8.4.

1	3
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Tabela 1. Pet e-CF stopenj v navezavi na osem stopenj EQF

Kratek opis uporabljenih orodij, okvirjev EQF in e-CF, je podan spodaj.

3.2.1 Evropski kvalifikacijski okvir (EQF)

Evropski kvalifikacijski okvir je bil oblikovan v začetku tega stoletja z namenom omogočanja primerljivosti kvalifikacij na evropski ravni. Tradicionalni način izobraževanja je temeljil na vsebini, ob koncu izobraževalnega procesa pa je bila ocenjena stopnja znanja. Zaposljivost in identifikacija izobraževalnih potreb se odvijata v podjetjih, v mešanici znanja, veščin in kompetenc.

EQF je vzpostavil 8 stopenj, namenjenih vrednotenju nivoja znanja, veščin in kompetenc. Deskriptorji teh stopenj so precej preprosti in omogočajo vrednotenje samostojnosti in sposobnosti integracije vseh poslanstev neke organizacije, kakor tudi njenih dolgoročnih ciljev. EQF ni specifičen za katerokoli dejavnost na področju dela, temveč je prilagodljiv vsem področjem, kjer se uporablja.

3.2.2 Evropski okvir e-kompetentnosti (e-CF)

Okvir e-CF je bil zasnovan kot različica okvirja EQF, ki je specializirana za področje IT. CEN/ISSS (Evropski komite za standardizacijo, izdajatelj Sistema standardizacije informacijske družbe) je identificiral večje število ključnih sposobnosti in učnih rezultatov, pri čemer jih je več specifičnih za poklice in izobraževanje na področju IT in IKT.

Evropski okvir e-kompetentnosti (e-CF) navaja 40 kompetenc, ki jih zahteva oziroma se uporabljajo na delovnih mestih informacijsko-komunikacijskih tehnologij (IKT), pri čemer s skupnim jezikom opisuje kompetence, veščine in stopnje znanja, ki so razumljive po vsej Evropi.

Definicije kompetenc in stopenj so v glavnem generične, ne nanašajo se, na primer, na tehnična orodja, temveč na sposobnost izvajanja delovnih nalog. Ni pomembno, katero programsko opremo uporabljamo. Pomembno je, na primer, da grafični oblikovalec dostavi rezultat, npr. razvije podobo za organizacijo, ki bo spodbudila njihovo prodajo, okrepila ugled itd.

V e-CF okvirju so uporabljeni termini generični in se lahko uporabljajo pri vseh poklicih.

Cilj projekta eCult Skills je prilagoditev opisov posameznih učnih rezultatov in stopenj bolj specifičnim funkcijam vlog na področju kulture. Seveda morajo biti rezultati projekta eCult Skills v skladu z okvirjema EQF in e-CF. Biti morajo generični za opisovanje vseh funkcij, potrebnih na področju kulture.

Profili vlog so predstavljeni z več postavkami v 4 dimenzijah glede na strukturo Evropskega okvirja e-kompetentnosti.

- Dimenzija 1: je področje e-kompetenc, Načrtovanje, Gradnja, Omogočanje, Delovanje, Upravljanje (vodenje)
- Dimenzija 2: je generična razlaga kompetence

- Dimenzija 3: razloži stopnjo znanja s pomočjo deskriptorja, ki je drugačen za vsako stopnjo, ki jo doseže posameznik.
- Dimenzija 4: navaja primere za boljše razumevanje profila vloge pod posamezno postavko.

4. Metodologija izobraževanja

Na podlagi analize potreb trga dela lahko sklepamo, da so za vsak 'Profil vloge' potrebne specifične e-kompetence in e-veščine, če želimo doseči izpolnjevanje zahtevanih nalog in konkurenčnost na evropski ravni. Izobraževalne smernice so zato smiselni priročnik, ki natančno prikazuje kako prilagoditi obstoječa evropska okvirja in z njima povezane stopnje za potrebe izobraževanja bodočih strokovnjakov na področju kulture. Je pomemben vodnik pri pridobivanju lastnosti, opisanih v petih profilih vlog, skupaj z zahtevanimi veščinami in kompetencami.

Spodaj je opisana metodologija za načrtovanje in vodenje izobraževalnega programa za 'Profile vlog'. Pred pripravo učnih ur moramo najprej opredeliti **učne rezultate** izobraževanja ter ustrezne **ocenjevalne metode**. Z drugimi besedami, opredeliti moramo, kaj želimo, da se udeleženec nauči, da bo lahko pridobil kvalifikacije (znanja, veščine, kompetence) za posamezno vlogo ter opredeliti, kako bomo vrednotili ta izobraževalni postopek.

Vsak izobraževalni tečaj je specifičen za določen profil poklicne vloge in stremi k temu, da udeležencem omogoči pridobivanje znanja in veščin, potrebnih za opravljanje te vloge.¹⁰

Na podlagi tega sestoji metodologija za pripravo izobraževalnih tečajev iz sledečega:

1. Narediti tabelo, ki prikazuje pojavnost vsake kompetence za vsako poklicno vlogo posebej
2. Opredeliti posamezne učne enote/rezultate za vsako posamezno kompetenco poklicne vloge
3. Sestaviti izobraževalne smernice z zbiranjem definicij učnih enot
4. Prilagoditi oblikovane izobraževalne smernice glede na obseg poklicne vloge
5. Oceniti celoten izobraževalni postopek

Predlagana metodologija temelji na zaporednih predpostavkah:

1. Učne enote so modularne;
2. Izobraževalni moduli (usmerjeni v vložke – upoštevajoč izobraževalne materiale, metode, pristope, orodja) lahko temeljijo na eni ali več učnih enotah (usmerjene v rezultate – opisujoč bistvene rezultate, ki naj jih prinese izobraževanje)
3. Za vsako kompetenco bo opisana ločena učna enota, ki je del definicije želene poklicne vloge
4. Učna enota bo upoštevala vse bistvene učne rezultate na ustreznem kompetenčnem področju, kakor se pojavljajo v vsaki poklicni vlogi povezani s to kompetenco
5. Definiran bo sklop ocenjevalnih tehnik za vsako kompetenčno področje (in s tem za vsako učno enoto)
6. Izobraževalni proces lahko združimo z izbiro učnih enot za kompetenčna področja. Vseboval bo ustrezne ocenjevalne tehnike in jih prilagodil obsegu nastale poklicne vloge.

V naslednjem poglavju¹¹ tega priročnika so podani analitični opisi ter natančni koraki priporočene metodologije, ki jih boste razumeli in znali uporabiti v vseh primerih. Kot študija primera metodologije izobraževanja za poklicno vlogo je predstavljena paradigma Upravljalca digitalnih kulturnih dobrin.

¹⁰ Opisi poklicnih vlog temeljijo na ideji e-kompetenc in vsakič ustreznih stopnjah (višji stopnji 4 in 5 sta namenjeni strokovnemu znanju/bolj specializiranim strokovnjakom).

¹¹ Glej poglavje 6.

5. Ocenjevanje izobraževanja

Profili vlog, oblikovani v sklopu projekta eCult Skills so bili razviti s pomočjo analize trga dela in ustrezajo potrebam večine podjetij in organizacij. Kljub temu pa se lahko, zaradi neenotnosti trga, zgodovine in kulture, profili razlikujejo od ene organizacije do druge.

Oprelitev ocenjevalne metode, ki bo primerna za vse organizacije in različne profile vlog je ključnega pomena. Predlagana metodologija predstavlja globalni pristop k ocenjevanju, ki je primeren za izbrane bistvene učne rezultate posameznih profilov vlog. Lahko jih prilagodimo drugim profilom ali drugim učnim rezultatom, ki se za neko organizacijo izkažejo kot bistveni.

5.1 Cilji ocenjevanja

Ocenjevalni del je najbolj bistven in ključen del učnega procesa. Zato moramo pri tem ocenjevati stopnjo, ki naj bi jo udeleženec dosegel ob koncu učnega procesa. Ocenjevalni proces je pomemben iz naslednjih razlogov:

- ✓ vedeti želimo, ali so znanja, veščine in kompetence, ki smo jih podali, udeleženci doobra osvojili in ali jih znajo uporabiti in po potrebi prilagoditi svojim konkretnim delovnim situacijam. Izobraževalni delavci tako lahko identificirajo točke, ki jih je potrebno popraviti pri oblikovanju izobraževalnega procesa.
- ✓ ocenjevanje je v skladu s priporočili EQAVET.
- ✓ v primeru pridobitve certifikata, diplome ali potrdila o uspešnosti ob koncu izobraževanja (izda ga izobraževalna organizacija) je cilj jasno in razumljivo prepoznavanje kompetenc, ki ustrezajo potrebam kandidatov.
- ✓ kandidati ne morejo poznati vseh izobraževalnih organizacij, ki izvajajo izobraževalne programe
- ✓ vrednotenje je verodostojno za kandidate.
- ✓ je ključno orodje, ki kandidatom omogoča, da prepoznajo točke, ki jih morajo izboljšati, če želijo doseči zahtevano stopnjo znanja za uspešno delovanje na trgu dela.
- ✓ v smislu upravljanja s kadri je ocenjevanje zaposlenih bistvenega pomena za vodenje podjetja, za oblikovanje dobrih ekip z dobro organiziranimi kompetencami.

Redne evalvacije (vrednotenja, ocenjevanja) in posodobitve izobraževanja so ključnega pomena za dolgoročno vzdrževanje natančnega znanja, veščin in kompetenc v vsaki organizaciji.

5.2 Osnove za ocenjevanje

Cilj je opredeliti stopnjo, ki jo je udeleženec dosegel ob koncu učne ure (procesa) ter kako jo je sposoben uporabiti v konkretni delovni situaciji, v kontekstu kulturne organizacije, v skladu s cilji organizacije, v kontekstu trga.

Ob koncu učne ure (procesa) mora biti stopnja, dosežena s strani udeleženca, ovrednotena glede na sledeče: ali je udeleženec sposoben izpolniti naloge, opisane v Dimenziji 2 ter na nivoju, opisanem z deskriptorjem v Dimenziji 3.¹²

Cilj okvirja EQF je ovrednotiti kako je udeleženec sposoben uporabiti svoja znanja, veščine in kompetence pri vsakodnevnih delovnih nalogah, ne glede na to, v kakšnem učnem okolju (formalno/neformalno izobraževanje ali izkušensko učenje) jih je pridobil. Pri tem je potrebno ugotoviti, ali zna udeleženec uporabiti svoje sposobnosti na stopnji 2, na stopnjah 3, 4 ali 5, ali če je nad ali pod navedenimi deskriptorji.

V idealnem primeru se izobraževalni delavec in udeleženec strinjata glede dosežene stopnje. Če tega ne dosežeta, se udeležencu pripiše nižja izmed stopenj, ki sta ju predlagala oba. Na tej točki se morata udeleženec in izobraževalni delavec strinjati, da bo udeleženec naučeno znal uporabiti v konkretni delovni situaciji. Ocenjevanje temelji predvsem na deskriptorju dimenzije 3¹³. Deskriptor dimenzije 3 ima različne formulacije glede na želeno ciljno stopnjo. V deskriptorjih so torej zajete stopnje, ki nakazujejo prehajanje od enega nivoja znanja k drugemu, pri vsaki naslednji stopnji gre za več znanja, več samostojnosti v izvajanju strokovnega dela, več agilnosti, več sposobnosti vplivanja na druge člane ekipe, in prav to je tisto, kar moramo oceniti v izobraževalnem procesu.

5.3 Kako vrednotiti posamezne nivoje?

Najučinkovitejši način za doseganje strinjanja glede stopnje doseženega učnega rezultata med izobraževalnim delavcem in udeležencem je, da sledimo specifičnim tehnikam. Ker imamo opravka s kompetencami na delovnem področju, moramo tudi ocenjevanje umestiti v delovni kontekst.

Za to so na voljo različne tehnike, med njimi:

1. Študija primera

Definirajte študijo primera v kontekstu kulturne organizacije. Opredelite kateri tip organizacije je potreben, opredelite trg, ekipo, vse, kar je bilo narejeno v preteklosti, kakšne so omejitve, konkurenčne prednosti, ovire.

Ko bo kontekst natančno opredeljen, mora udeleženec razložiti, kaj bo naredil, kako bo to naredil, katera orodja bo uporabil in katerih virov se bo posluževal znotraj ali zunaj organizacije.

Lahko gre za pisno nalogo ali ustno razlago.

Ob koncu naloge udeleženec in izobraževalni delavec podata svoje predloge za doseženo stopnjo znanja in razložita, zakaj sta se odločila za to stopnjo. Nekaj minut posvetita vrednotenju. Če se strinjata, lahko postane ta stopnja overjena. Če se ne strinjata, obvelja nižja stopnja kot skupni imenovalec. (Pri tem lahko sodeluje tudi tretja oseba, recimo drug izobraževalni delavec ali izkušen

¹² Upoštevamo najvišjo stopnjo, ki jo je udeleženec sposoben učinkovito izvajati. Dimenzija 4 vključuje nepopolne primere znanj in veščin za to e-kompetenco (Dimenzija 2).

¹³ Naj spomnimo, da Dimenzija 3 razlaga stopnjo strokovnosti s pomočjo deskriptorja, ki se razlikuje za vsako stopnjo, ki jo doseže udeleženec.

strokovnjak, ki pomaga odločiti o končni stopnji, vendar mora biti celoten proces natančno dogovorjen pred začetkom samega izobraževanja).

2. Kontinuirana evalvacija

V času izobraževanja so bile različne situacije uporabljene kot vaje (naloge), izvedena so bila skupinska srečanja in diskusije itd. Tudi te primere lahko smatramo kot študije primerov.

Glede vrednotenja je proces enak kot zgoraj (razdelek 'Študija primerov'). Udeleženec in izobraževalni delavec predlagata stopnjo in se pogovorita o svoji izbiri. Če se strinjata, dogovorjeno stopnjo overita, če se ne strinjata, obvelja nižja kot skupni imenovalec. (Pri tem lahko sodeluje tudi tretja oseba, recimo drug izobraževalni delavec ali izkušen strokovnjak, ki pomaga odločiti o končni stopnji, vendar mora biti celoten proces natančno dogovorjen pred začetkom samega izobraževanja).

3. Vrednotenje po sistemu več možnosti

Ob upoštevanju konteksta določene situacije se predlaga več različnih dejanj, med katerimi udeleženec izbere ustrezne(ga).

Nato skupaj z izobraževalnim delavcem ovrednotita dobre in slabe odločitve in določita, h kateri stopnji spadajo.

4. Vprašanja / Odgovori

Predvsem za potrebe ocenjevanja znanja je smiselno udeležencem zastaviti nekaj vprašanj, na katera naj odgovorijo pisno ali ustno. Odgovori so nato ovrednoteni, sledi diskusija. Glede strinjanja o doseženi stopnji je postopek enak, v najslabšem primeru obvelja nižja, vedno z argumenti.

5.4 Povzetek

Opisana metodologija je primerna za vrednotenje vseh učnih rezultatov, ne glede na to, ali ti spadajo med izbrane bistvene učne rezultate ali ne. Uporabimo jo lahko glede na kontekst in omejitve določene organizacije. Vsi učni rezultati, ki so pomembni za udeležence, se lahko tudi prilagodijo.

Ključnega pomena je predvsem dobro zastavljen kontekst, v katerem bodo udeleženci lahko izbrali ustrezne odločitve. Pomembna je tudi utemeljitev izbire določene stopnje (s strani udeleženca in izobraževalnega delavca), saj na ta način bolje razumemo kandidata in mu omogočimo, da napreduje v učinkoviti uporabi svojega znanja v delovnem okolju.

Če je kontekst dobro definiran in proces dobro oblikovan, je možno hkrati ovrednotiti tudi več različnih učnih rezultatov. Prav zato ne predlagamo drugačne ocenjevalne metode za vsak učni rezultat ali vsak profil vloge.

Predstavljena metodologija je primerna za vse učne rezultate in vse profile vlog. Z njo lahko celo ocenimo dodatne učne rezultate, ki se bodo izkazali za pomembne, čeprav niso izrecno navedeni pod bistvenimi generičnimi učnimi rezultati.

5.5 Primer vrednotenja

Za boljše razumevanje tega dokumenta smo pripravili študijo primera in za izbrani profil vloge prikazali relevantne učne rezultate ter pojasnili, kako analizirati in ovrednotiti rezultate izobraževanja.

S tem namenom naj se vsakič v procesu učne ure tisti, ki vrednoti (izobraževalni delavec), kakor tudi udeleženec, vprašata: ali udeleženec zna (uporabite deskriptor učnih rezultatov)?

Kadar se kandidat ne nahaja v znani situaciji, ga skušajmo postaviti v kontekst, kjer ima več predznanja oziroma referenc (lokalni muzej ali muzej, ki ga bolje pozna). Vzemimo za primer muzej v okolju ali kraju, ki ga udeleženec dobro pozna. Primer zastavimo tako, da definiramo kontekst in zagotovimo uporabne podatke, kot so:

- Velikost in zgodovina muzeja, organizacija, število zaposlenih v muzeju, podizvajalci, partnerji, način organiziranja storitev; navedemo kontaktne osebe.
- Cilji muzeja, dolgoročni cilji, ki jih določi direktor, upravni odbor, organizacije, ki ga financirajo (mesto, regija)
- Obiskovalci, struktura občinstva, kakršnekoli težave ali pomanjkljivosti muzeja, konkurenčne prednosti
- Poslanstvo muzeja, kakršnakoli strategija, ki jo podpira direktor ter orodja, proračun, podpore/financiranje

Udeleženca prosimo, naj oblikuje načrt vodenja muzeja ter pri tem upošteva informacije, ki smo mu jih zagotovili. Izdela naj lasten predlog na podlagi opravljene SWOT analize ter učne ure oziroma predavanja, ki mu je prisostvoval. Prejete predloge nato analiziramo ter jih ovrednotimo glede na skladnost z učnimi rezultati profila vloge.

V procesu vrednotenja je bistvenega pomena, da ne ocenjujemo zgolj tega, kar je bilo predavano, temveč tudi druge (pretekle) izkušnje udeležencev. Upoštevati moramo formalno in neformalno izobraževanje ter tudi rezultate, ki so posledica delovnih izkušenj. Pomembna je stopnja učnih rezultatov, ki jo udeleženec doseže ob koncu izobraževanja.

Za boljše razumevanje in uporabo tukaj opisane metodologije smo izbrali enega izmed petih e-kulturnih poklicnih profilov, razvitih v sklopu projekta eCult Skills.

6. Študija primera 'Upravljalca digitalnih kulturnih dobrin': izobraževalni tečaj za usposabljanje

Kot študijo primera Izobraževalnih smernic smo izbrali profil Upravljalca digitalnih kulturnih dobrin. Predstavljena bo analiza profila in potrebne kvalifikacije, s poudarkom na tem, kako uporabiti opisano metodologijo v procesu usposabljanja za ta profil ter predlogi za pripravo tečaja od zasnove do izvedbe.

6.1. Informacije o tečaju (cilji, vrsta tečaja, ciljna skupina, povzetek vsebine)

- Cilji

Cilj izobraževalnega tečaja za usposabljanje upravljalcev digitalnih kulturnih dobrin ali digitalnih kuratorjev je predstaviti uvod v načrtovanje, gradnjo, delovanje, upravljanje in omogočanje ekosistema DAM (Digital Asset Management) v kulturnem sektorju.

- Vrsta tečaja

Izobraževalni tečaj za usposabljanje je spletni samoizobraževalni tečaj, ki vključuje nadzor mentorja. Materiali in viri so bili pridobljeni iz vodilnih raziskovalnih centrov in od kakovostnih ponudnikov storitev.

- Ciljna skupina

Kandidati za udeležbo na tečaju naj imajo osnovne izkušnje na področju dela z zbirkami iz kulturnih institucij, kot so muzeji, arhivi ali knjižnice. Brez težav morajo prepoznati in interpretirati politiko upravljanja zbirke ter poznati osnovne postopke fizičnega upravljanja z zbirkami in s tem povezane dokumentacije. Pomembno je tudi poznavanje temeljnih dokumentacijskih standardov, ki jih izdajajo ICOM (Mednarodni muzejski svet), ICA (Mednarodni arhivski svet) in IFLA (Mednarodna federacija knjižničnih združenj in ustanov).

Poznati morajo tudi osnovne veščine na področju tehnoloških vprašanj, kot so datotečni formati ali digitalna prezervacija ter znati uporabljati orodja, kot so aplikacije za urejanje metapodatkov ali strojna in programska oprema za digitalizacijo.

- Povzetek vsebine

Izobraževalni tečaj za usposabljanje je nastal v skladu s specifikacijami profila Upravljalca digitalnih kulturnih dobrin, razvitega v sklopu projekta eCult Skills (<http://ecultskills.eu>) in je dostopen na spletnem naslovu <http://www.e-jobs-observatory.eu/role-profiles/digital-cultural-asset-manager>. Osredotoča se na različna e-kompetenčna področja, ki so podrobno opisana v specifikaciji profila. Gre za naslednja področja e-kompetenc:

1. Načrtovanje;
2. Gradnja;
3. Omogočanje;
4. Delovanje;
5. Upravljanje.

Na tečaju bomo posamezna področja najprej predstavili, nato pa se poučili o specifičnih kompetencah, ki jih vključujejo ter pri tem identificirali vsako kompetenco za ustrezno področje (v oklepajih za naslovom). Kompetence, ki jih bomo obdelali v tem tečaju so naslednje:

- Razvoj načrta za upravljanje z digitalnimi dobrinami (NAČRTOVANJE)
- Načrtovanje produktov / storitev (NAČRTOVANJE)
- Nadzor tehnoloških trendov (NAČRTOVANJE)
- Inovativnost (NAČRTOVANJE)
- Ustvarjanje dokumentacije (GRADNJA)
- Nakupovanje (OMOGOČANJE)
- Upravljanje z informacijami in znanjem (OMOGOČANJE)
- Identifikacija potreb (OMOGOČANJE)
- Izvajanje storitev (DELOVANJE)
- Reševanje težav (DELOVANJE)
- Razvoj napovedi (UPRAVLJANJE)
- Obvladovanje tveganja (UPRAVLJANJE)
- Upravljanje z odnosi (UPRAVLJANJE)
- Kakovostno vodenje upravljanja z digitalnimi dobrinami (UPRAVLJANJE)

Udeležencem bo najprej predstavljen uvod v posamezne kompetence ter potrebe, ki iz njih izhajajo, kasneje pa še pomembne tematike v zvezi z njihovo vsebino, v obliki napotkov oziroma smernic za učenje. Za vsako kompetenco bodo navedeni specifični učni rezultati, ocenjevalne tehnike in seznam virov, ki bodo v pomoč pri obravnavani temi.

Kompetence bodo opremljene tudi s seznamom ključnih besed za lažje spletno iskanje in organizacijo tečaja glede na lastna pričakovanja, preference in potrebe.

6.2. Uvod

Upravljanje z digitalnimi dobrinami (tudi: upravljanje z digitalnimi sredstvi; angl. Digital Asset Management) je po definiciji spletnega slovarja DAM Glossary¹⁴ »skupni izraz za proces hranjenja, katalogiziranja, iskanja in dostopanja do računalniških datotek (ali digitalnih dobrin)«. Slednje so lahko v različnih oblikah: avdio, besedilo (tekst), podobe, pisave, 3D modeli, programska oprema, kode itd. in predstavljajo ključen del informacijske družbe, v kateri živimo.

Dandanes smo priča množični proizvodnji informacij. Kot je dejal Eric Schmidt (nekdanji izvršni direktor Googla) na konferenci Technomy leta 2010: »ljudje danes vsaka dva dni ustvarimo toliko informacij, kot jih je človeštvo skupno ustvarilo vse od svojega začetka pa do leta 2003. To je približno pet eksabajtov podatkov.« Čeprav bi lahko (in moramo) to impresivno število zmanjšati vsaj za odstotek tistih informacij, ki niso uporabne ali predstavljajo informacije, ki jih njihovi avtorji namerno zbršijo – s tem navajamo zgolj dva možna primera informacij, ki niso namenjene večkratni uporabi – se moramo pripraviti (kakor tudi institucije, v katerih delamo) na ta nov scenarij. Če želimo to narediti, moramo načrtovati in ustvarjati digitalne strategije, ki bodo zmogle obvladati količino ustvarjenih informacij ter nam zagotovile potrebna orodja, s katerimi bomo lahko poželi sadove vloženega truda in investicij.

V kulturnem sektorju so takšne digitalne dobrine, torej kulturne digitalne dobrine ali sredstva, pogosto v obliki digitalnih reprezentacij fizičnih zbirk, toda v številnih primerih gre za izvorno digitalne vsebine,

¹⁴ See <http://damglossary.org> for more information.

kot so računalniški programi, digitalna umetnost, interaktivni mediji in mnoge druge vrste digitalnih informacij, ki jih svojim občinstvom ponujajo muzeji, arhivi in knjižnice. Takšne digitalne zbirke sledijo svojim pravilom, organizaciji, pravnemu kontekstu in drugim specifikacijam, h katerim mora Upravljalca digitalnih (kulturnih) dobrin oziroma Digitalni kurator, pristopati na specifičen način.

Ob koncu tečaja bi morali znati načrtovati, zgraditi, zagnati, omogočiti in upravljati z zbirkami digitalnih dobrin v kulturnih institucijah ob uporabi ustreznih orodij, kar bo vašemu občinstvu (eksternemu in internemu) prineslo želen rezultat.

Pri doseganju tega cilja vas bo tečaj vodil po osnovnih temah, ki se v kulturnem sektorju nanašajo na upravljanje z digitalnimi dobrinami. Poleg mnogih drugih bomo predelali opredelitev in razvoj digitalnih strategij, standarde, specifične sistema DAM v kulturnem sektorju, ponovno uporabo informacij (več o konceptu COPE – Create Once, Publish Everywhere si preberite na naslovu: <http://www.programmableweb.com/news/cope-create-once-publish-everywhere/2009/10/13>) ter vprašanja v zvezi s pravnim kontekstom za področje Evrope.

Kaj je Upravljalca digitalnih kulturnih dobrin, kot ga definira profil razvit v okviru projekta eCultSkills?

Znan tudi pod nazivoma Upravljalca digitalnih dobrin in Digitalni kurator se ukvarja z »ohranjanjem, upravljanjem in koriščenjem (vključno z monetizacijo) izvorno digitalnih ali digitaliziranih kulturnih vsebin v muzeju ali drugi kulturni instituciji (v nadaljevanju: muzej), v fizičnem ali virtualnem prostoru.« Njegovo poslanstvo je, ponovno v skladu s profilom vloge, lotiti se oblikovanja, administracije in koriščenja digitalne muzejske zbirke, kot je to opredeljeno v poslanstvu oziroma strateškem načrtu muzeja.

Čeprav takšna specifična funkcija v večini evropskih muzejev še ne obstaja, smo prepričani, da bosta tehnološki razvoj in množičnost uporabe novih tehnologij, skupaj z javnim zavedanjem o pomembnosti naše kulturne dediščine, zagotovila idealne okoliščine v majhnih in srednje velikih kulturnih institucijah, iz katerih bodo lahko spremenile dano situacijo ter v svoje organizacijske načrte vključile tak profil.

Navsezadnje so številni muzeji in kulturne institucije ob soočenju s potrebami resnične informacijske družbe že razvili in ustvarili nove strategije in pristope k omenjeni tematiki, pri čemer so pogosto sodelovali strokovnjaki, ki imajo nekatere kompetence, ki jih opisuje profil. Ogledate si lahko na primer najbolj priznana dela amsterdamskega Rijksmuseum v njihovi spletni muzejski zbirki (<https://www.rijksmuseum.nl/en>), več o delovanju muzeja pa si lahko preberete v besedilu z naslovom *Democratising the Rijksmuseum* avtorja Jorisa Pekela, ki ga je napsial za fundacijo Europeana Foundation in je dostopno na spletnem naslovu: http://pro.europeana.eu/files/Europeana_Professional/Publications/Democratising%20the%20Rijksmuseum.pdf.

Kaj se pričakuje od Upravljalca digitalnih kulturnih dobrin glede na profil razvit v okviru projekta eCultSkills?

Hiter in kontinuiran tehnološki razvoj, ki smo mu priča v zadnjem desetletju je radikalno vplival na način kako muzeji in njihovo strokovno osebje obravnavajo digitalne informacije, ki nastajajo v takšnih institucijah, tj. digitalne dobrine, ki jih sedaj lahko gledamo kot muzejske zbirke. Gre za digitalne zbirke, ki potrebujejo, ravno tako kot fizične, strukturirano in natančno opredeljeno politiko vodenja in ki lahko služijo svojemu namenu v muzeju.

Kompetence digitalnega kuratorja, kakor so opisane v poklicnem profilu, torej opredeljujejo orodja, ki mu omogočajo izpolnjevanje naslednjih nalog:

1. organizirati digitalne kulturne zbirke, po postopkih izbiranja in klasifikacije ter s tem omogočiti odkrivanje, dostop in uporabo teh zbirk;
2. prezervirati digitalne kulturne dobrine v skladu z mednarodnimi standardi (transformacija formatov, emulacija strojne in programske opreme);
3. raziskovati, uporabljati (vključno z monetizacijo) in zagotoviti dostop do digitalnih vsebin/objektov v smislu funkcionalnosti, tehnične izvedljivosti ter zanesljivosti (metode dostopanja, preverjanja pristnosti in združljivosti) in monetizacije;
4. varovati in ščititi muzejsko digitalno zbirko (avtorske pravice, vsebine z vodnim žigom, kriptografija).

Odgovoren je tudi za:

1. trajnostno naravnost in operabilnost produktov digitalnih dobrin – operativno vzdrževanje digitalnih dobrin;
2. svetovanje vodstvu muzeja o izboljšavah kateregakoli vidika zbirke digitalnih dobrin.

Aktivno mora prispevati k:

1. analizi uporabnosti (sistem DAM, spletna stran, družabna omrežja itd.)
2. optimizaciji iskalnikov;
3. primerjalnim študijam konkurence.

Tečaj vas vodi do dokumentov, priročnikov, spletnih virov (drugi tečaji, spletni seminarji itd.), ki pojasnjujejo osnove opisanih kompetenc.

6.3. Pet korakov do priprave ekosistema DAM (Načrtovanje – Gradnja – Omogočanje – Delovanje – Upravljanje)

Ta izobraževalni tečaj je, kot že rečeno, organiziran glede na specifikacije profila Upravljalca digitalnih kulturnih dobrin, razvitega v sklopu projekta eCult Skills.

V tem profilu je navedenih 5 različnih področij e-kompetentnosti, ki zajemajo specifične kompetence, potrebne za profil Upravljalca digitalnih kulturnih dobrin. Teh pet področij predstavlja pet osnovnih korakov za pripravo muzeja na vzpostavitev in uporabo sistema DAM kot ključnega orodja za upravljanje z digitalnimi zbirkami, ki instituciji pomagajo izpolniti njeno poslanstvo.

V poglavju bomo teh pet korakov predstavili v obliki smernic, ki udeležencem omogočajo prepoznavanje pomembnosti vzpostavitve sistema DAM znotraj kulturne institucije. Vseh pet korakov je usklajenih s potrebami udeležencev in kot celota predstavljajo osnovno izhodišče za učenje o sistemu DAM, če udeležence zanimajo specifična vprašanja, recimo nakup sistema DAM, pa se jih lahko lotijo tudi posamezno.

V vsakem primeru je v okviru tega tečaja potrebno slediti tem korakom, saj predstavljajo reference za vsako posamezno kompetenco in vodilo na poti k organizaciji sistema DAM.

Načrtovanje

Prva stvar, ki jo morate narediti, če želi vaša institucija upravljati z zbirko digitalnih dobrin, je pripraviti organizacijo na kombinacijo potreb in specifičnih zahtev ter z njimi povezanih novih nalog. Za vsak sektor so značilne specifične potrebe, to velja tudi za kulturni sektor.

Če se torej želite pripraviti na razvoj ustreznega načrta za upravljanje z digitalnimi dobrinami v tem sektorju, morate biti seznanjeni z izzivi in poznati rezultate, ki vodijo do tega. Na tem mestu priporočamo, da si preberete besedilo z naslovom *Digital Asset Management Systems for the Cultural and Scientific Heritage Sector*, ki ga je izdal konzorcij DigiCULT Consortium. Tematska razprava je dostopna na spletnem naslovu:

http://www.digicult.info/downloads/thematic_issue_2_021204_low_resolution.pdf. Seznanila vas bo z osnovami na temo pomebnosti upravljanja z digitalnimi dobrinami v kulturnem sektorju. Članka **How Do Cultural Artefacts Become Digital Assets?** Michaela Moona in **DAMS versus CMS** Norberta Kanterja sta prav tako ključna za razumevanje dela, ki ga želite opraviti.

V tem viru boste našli tudi zelo uporaben seznam literature (glej **Selected Literature** na strani 38). Za nadaljnje baranje priporočamo tudi knjigo **Defining the DAM Thing: How Digital Asset Management Works** avtorja Davida Doeringa.

Nekaj uporabnih virov je navedenih tudi na spletni strani konzorcija DigiCULT Consortium: (<http://www.digicult.info>).

Še en pomemben vir je besedilo **Digital Asset Management and Museums - An Introduction**, dostopno na repozitoriju Canadian Heritage Information Network (CHIN):

(http://www.rcip-chin.gc.ca/contenu_numeriquedigital_content/fiches_techniques-tip_sheets/gestion_contenus_numeriques-digital_assets_management-eng.jsp).

V kratkem članku je predstavljen uvod v sisteme DAM v muzejskem sektorju ter navedenih nekaj referenc na sorodne dokumente.

Poznavanje specifičnih podrobnosti in potreb kulturnega sektorja v zvezi s sistemi DAM je za ta tečaj ključnega pomena, vendar so tudi osnove vodenja muzeja nekaj, s čimer morate biti vsaj okvirno seznanjeni. Čeprav ta tečaj v osnovi ni namenjen obravnavi vprašanj v zvezi z vodenjem muzeja ali kulturne institucije, smo mnenja, da je pomembno, da vsak upravljalec digitalnih dobrin ve, kako se sistem DAM vzpostavi v takšnih organizacijah.

Kulturni sektor ima dolgo in pomembno tradicijo dokumentiranja in upravljanja z zbirkami. Del tradicije so opazna (in kontinuirana) prizadevanja na področju raziskovanja in razvoja novih orodij, standardov in postopkov ob vpeljavi novih tehnologij. Britanska institucija Museum Documentation Association (MDA), danes znana kot Collections Trust (CT), je na tem področju pomembno prispevala z razvojem standarda za upravljanje z zbirkami SPECTRUM (Collections Management Standard), ki ga uporablja prek 20.000 institucij v več kot 40 državah.

V sklopu omenjenega standarda je bil razvit okvir, ki temelji na izjavi o poslanstvu muzeja ter politiki upravljanja z zbirkami kot osrednjima dokumentoma, ki ju je potrebno implementirati znotraj ustreznega sistema upravljanja z zbirkami in ki zagotavljata izvajanje pravih postopkov:

1. razvoja zbirk;
2. informacij zbirk;
3. prezervacije zbirk (fizičnih in digitalnih);

4. dostopnaj do zbir.

Standard SPECTRUM je na voljo za prenos na spletni strani Collections Trust (CT). URL:

<http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum>.

Nedavno so poleg zgornjega pri CT izdali še SPECTRUM DAM. Gre za podporni dokument, ustvarjen v obliki vodnika po najboljših praksah, ki pojasnjuje integracijo upravljanja z digitalnimi dobrinami v obstoječo prakso vodenja zbirke na podlagi prej omenjenega standarda. Tudi ta dokument je na voljo za prenos na spletnem naslovu:

<http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/item/1688-spectrum-digital-asset-management>.

Ob upoštevanju specifičnih potreb kulturnega sektorja je zdaj čas, da pripravite in razvijete načrt za implementacijo sistema DAM v vaši instituciji.

Za specifične kompetence v tej fazi prosimo sledite poglavjem:

Digital Asset Management Plan Development (Razvoj načrta za upravljanje z digitalnimi dobrinami)
Product/Service Planning (Načrtovanje produktov/storitev)
Technology Trend Monitoring (Nadzor tehnoloških trendov)
Innovating (Inoviranje/inovativnost)

Gradnja

Čeprav mora vsaka institucija pri procesu vzpostavitve sistema DAM slediti istim pravilom, standardom in pravnim zahtevam, obstajajo specifična vprašanja in potrebe, h katerim je treba pristopiti na drugačen način, upoštevajoč posebnosti posamezne institucije.

Pri doseganju tega cilja mora upravljalec digitalnih dobrin, v skladu z načrtom sistema DAM, ustvariti in vzpostaviti podporno dokumentacijo, ki omogoča načrtovanje ekosistema skupaj s predhodno definiranimi funkcijami in lastnostmi. V istem smislu mora upravljalec digitalnih dobrin pripravljati in vzdrževati specifične priročnike, ki muzejskemu osebju omogočajo produktivnost ob podpori orodij, ki so jim za to na voljo.

Ti dokumenti predstavljajo uporabno orodje za osebje v organizaciji in so običajno nujni pri muzejskih akreditacijskih shemah, kakršna je recimo vzpostavljena v Združenem kraljestvu (za več informacij o britanski muzejski akreditacijski shemi, ki jo upravlja Arts Council glejte:

<http://www.artscouncil.org.uk/what-we-do/supporting-museums/accreditation-scheme/>).

Za specifične kompetence v tej fazi prosimo sledite poglavjem:

Documentation Production (Produkcija dokumentacije)

Omogočanje

Po pripravi prvih dveh korakov v tem tečaju, se bomo v naslednjem posvetili fazam, ki so potrebne za omogočanje sistema DAM v muzeju.

Dober način, kako vas kot upravljalca digitalnih dobrin pripraviti, da postanete »DAM prvak« v procesu implementacije sistema v vaši instituciji, je opisan v zanimivem članku Jamesa Rourkeja, ki ga je

objavila fundacija DAM Foundation: *The Role of the DAM manager pre and post implementation* in je dostopen na naslovu: <http://damfoundation.org/?p=31235>.

Preberite ga in ga upoštevajte pri tem koraku ter tudi pri naslednjih dveh (Delovanje in Upravljanje). Nekatera tukaj obravnavana vprašanja so pomembna in jih je treba upoštevati tudi pri produkciji dokumentacije, torej predhodnem koraku (Gradnja).

Posvetili se bomo tudi potrebnim administrativnim nalogam v procesu zagotavljanja, glede na pravni kontekst ter glede na pravila in politiko muzeja.

Kot smo že omenili, je upravljanje z digitalnimi dobrinami sestavljeno iz nalog na področju vodenja (upravljanja) ter odločitev v zvezi z vnosom, označbo, katalogiziranjem, hranjenjem, pridobivanjem in distribucijo digitalnih sredstev (dobrin). (Glej Wikipedia: https://en.wikipedia.org/wiki/Digital_asset_management).

Naloge in odločitve se izvajajo v skladu s standardi, procesi in postopki, ki omogočajo transformacijo surovih podatkov v znanje, torej v obliko dostopnih kulturnih informacij.

Na tej točki bomo podrobneje pojasnili, kako omogočiti kompetenco **Needs identification (Identifikacija potreb)**. Čeprav so naloge upravljanja z digitalnimi dobrinami zasnovane na standardih in specifikacijah, ki so skupne vsem institucijam in digitalnim zbirkam, se vedno pojavijo specifične potrebe (uporabnikov, zbirke, muzeja), ki jih je potrebno prepoznati in obravnavati v okviru vzpostavitve sistema DAM.

Za potrebe tega izobraževalnega tečaja je ključnega pomena prepoznavanje bistvenih značilnosti sistema DAM. Te predstavljajo naše smernice v procesu nakupa in vzpostavitve sistema.

Pred oblikovanjem seznama bistvenih značilnosti, ki bo služil kot referenčni seznam, si oglejte prispevek fundacije DAM Foundation: *Ten Core Characteristics of a DAM* – http://damfoundation.org/?page_id=31752.

Navedenih je 10 bistvenih značilnosti, ki jih je treba uporabiti kot osnovni kriterij pri izbiri in vrednotenju (primerjavi) različnih sistemov, ki so na voljo na trgu.

Za specifične kompetence v tej fazi prosimo sledite poglavjem:

Purchasing (Nakupovanje)

Information and Knowledge Management (Upravljanje z informacijami in znanjem)

Needs Identification (Identifikacija potreb)

Delovanje

Sedaj, ko smo osvojili prve korake na poti do vzpostavitve sistema DAM v kulturni instituciji, je čas, da pričnemo z njim delati, ga uporabljati, zagotoviti, da sistem deluje in da ga lahko vzdržujemo brez večjih težav. Delovanje oziroma zagon sistema DAM po opravljenih začetnih korakih načrtovanja in omogočanja vzpostavitve sistema je neke vrste preizkus predhodnih faz vašega projekta. Če je bilo karkoli slabo načrtovano ali ste nenatančno identificirali potrebe, boste to izvedeli, ko bo vaš sistem začel delovati, torej upravljati digitalno zbirko.

Ponovno s pomočjo članka Jamesa Rourkeja o tem, kako postati »DAM prvak« (dostopen na naslovu: <http://damfoundation.org/?p=31235>, kot referenca), lahko rečemo da je sedaj, po zagotovitvi in

vzpostavitvi, upravljalec digitalnih dobrin odgovoren za »številne dodatne vloge oziroma zadolžitve [...] ki se v glavnem nanašajo na promocijo, vzdrževanje in vodenje.«

Te vloge skupaj s predhodnimi namigujejo na to, da mora upravljalec digitalnih dobrin obravnavati celotno vzdrževanje internih in eksternih relacij v sistemu, zagotoviti upoštevanje standardov (terminologija se lahko izkaže za zelo kaotično področje, če je ne nadziramo), poskrbeti, da delovni postopek teče v skladu s končnimi rezultati, zagotavljati delujočo infrastrukturo, upravljati z osebjem ter med drugim delovati tudi kot osrednja kontaktna točka med vsemi nosilci interesa (institucijo, posameznimi oddelki, osebjem, ponudniki itd.).

Na tej stopnji mora upravljalec digitalnih dobrin delovati kot vzor vsem ostalim. Trdno mora zagovarjati izbrano strategijo in zagotoviti izpolnjevanje zadanih ciljev. Za to mora nadzirati vsak posamezni vidik ekosistema DAM posebej (infrastrukturo, programsko opremo, standarde, potek dela, metapodatke, iskalni sistem in končne izsledke ali dosežke) ter poskrbeti za kakršnekoli težave, ki se ob tem pojavijo.

Zelo dober vir za omenjeno tematiko predstavlja drugi del vodnika po najboljših praksah sistema DAM (Extensis DAM Best Practices Guide) z naslovom ***Making the most of your DAM***, ki je na voljo na spletnem naslovu:

<http://doc.extensis.com/DAM-Best-PracticesGuide-EN.pdf>.

Za specifične kompetence v tej fazi prosimo sledite poglavjem:

Service Delivery (Izvajanje storitev)

Problem Management (Reševanje težav)

Upravljanje (vodenje)

Zaključni korak predstavlja pregled nalog, ki so potrebne za vzdrževanje ekosistema DAM, njegovega delovanja ter doseganja ciljev, zadanih v strategiji, hkrati pa je ta faza namenjena pripravi upravljalca digitalnih dobrin za bodoče delo v muzeju.

Ena največjih težav, s katerimi se soočajo muzeji (in druge institucije) v današnjem času nenehnih sprememb je zastarelost sistemov. To je precej pogosta težava, ki se v glavnem pojavlja v majhnih in srednje velikih muzejih kot posledica nizkih proračunov in nestabilne finančne podpore ali maloštevilčnih in nestalnih ekip, ki vzpostavljajo različne vrste sistemov, ki čez nekaj let postanejo zastareli in potrebujejo nadgradnjo. Pogosto se zgodi, da je potrebno zamenjati celoten sistem z novim, sodobnejšim in tehnološko naprednejšim. V takšnih situacijah se lahko pojavijo vprašanja o izgubi oziroma škodi, ki zahteva veliko truda in finančnih virov, če jo želimo minimizirati.

Če želi upravljalec digitalnih dobrin (digitalni kurator) to preprečiti, mora delovati kot »glasnik« oziroma nekdo, ki lahko predvidi prihodnji razvoj dogodkov na podlagi dejstev in informacij v zvezi z različnimi vidiki ekosistema DAM. Povedano drugače, demonstrirati mora kakovostno raziskovalno delo, organizacijo in analitične veščine, s katerimi lahko identificira potencialne težave, potrebe, koristi ali trende, ki lahko posledično pomagajo vzdrževati ali izboljšati delovanje sistema.

V kulturnem sektorju to pomeni, da mora digitalni kurator ostati osredotočen na potrebe notranjih nosilcev interesa, ki jim mora zagotoviti ustrezne produkte ali storitve. Na primer, ustrezna storitev ali

produkt, ki ga je bilo potrebno predstaviti uporabnikom arhivov, ko je postala zastarela in draga tehnologija mikrofilma, je bila digitalizacija in spletna dostopnost tega medija. Podoben primer se je pojavil z množično uporabo pametnih telefonov in aplikacij, ko so klasične muzejske in galerijske avdio vodiče nadomestile cenovno ugodne in bogate medijske interaktivne aplikacije.

Danes nekateri muzeji že »napovedujejo prihodnost«, denimo Cooper Hewitt – Smithsonian Design Museum, ki k temu pristopa z izkušnjo **The New Cooper Hewitt Experience**. Za več informacij o tem zanimivem projektu se obrnite na spletni naslov: <http://www.cooperhewitt.org/new-experience/>.

Kako so omogočili izvedbo celotne zadeve si preberite v članku na naslovu: <http://www.cooperhewitt.org/new-experience/designing-pen/>.

Za specifične kompetence v tej fazi prosimo sledite poglavjem:

Forecast Development (Razvoj napovedi)

Risk Management (Obvladovanje tveganja)

Relationship Management (Upravljanje z odnosi)

Digital Asset Management Quality Management (Kakovostno vodenje upravljanja z digitalnimi dobrinami)

6.4. Usposabljanje

Upravljalec digitalnih kulturnih dobrin je zelo specifičen in pomemben nov poklicni profil, ki se je oblikoval kot posledica množične uporabe tehnologije v kontekstu informacijske dobe, v kateri živimo. Kulturni sektor se dandanes pravzaprav ves čas sooča s potrebami občanov po informacijah, ki promovirajo različne interpretacije in omogočajo ustvarjanje znanja zunaj tradicionalno pristojnih institucij, kot so muzeji, knjižnice in arhivi.

Nastala situacija je za muzeje in kulturne institucije nekaj povsem novega, saj so bile še nekaj let nazaj navajene (zgolj) sporočati rezultate raziskovanja zbirk svojim občinstvom, medtem ko danes, ko se odvija resničen digitalni scenarij, ta kličejo po vzpostavitvi dialoga, v katerem bodo njihova mnenja in prispevki dobrodošli. Digitalne zbirke (rezultat procesov digitalizacije ali združevanja izvorno digitalnih materialov) predstavljajo pomemben del muzejevega poslanstva in so ključne pri zagotavljanju skladnosti z eno izmed osnovnih funkcij muzeja, to je komunikacija.

Če želi biti pripravljen na to odgovornost, mora digitalni kurator pridobiti določene kompetence in veščine, ki so potrebne za načrtovanje, vzpostavitev in upravljanje z ekosistemom DAM ob upoštevanju specifičnih potreb muzeja ali druge kulturne institucije.

V tem delu tečaja bomo obravnavali vse kompetence, ki so zajete v poklicnem profilu Upravljalca digitalnih kulturnih dobrin. Vsak udeleženec lahko te kompetence uporabi pri izgradnji specifične učne strukture v skladu s svojimi potrebami, ali preprosto sledi predlaganim petim korakom, ki smo jih opisali v zadnjem poglavju.

Za vsako kompetenco bomo predstavili uvodno besedilo, kjer bo razložen kontekst in vse potrebne veščine. Znotraj tega besedila bodo navedene osnovne reference in viri, ki jih je priporočljivo prebrati oziroma se z njimi seznaniti, če se želite poučiti o določeni specifični kompetenci.

Viri bodo dopolnjeni s seznamom obvezne literature, ki jo je treba prebrati oziroma preučiti, če želite uspešno zaključiti usposabljanje. O vsakem viru se morate pogovoriti z mentorjem in soudeleženci preko učne platforme.

Vsakemu posameznemu opisu kompetence bodo sledili navedeni učni rezultati za posamezne kompetence ali posamezne učne ure, skupaj s specifičnimi ocenjevalnimi metodami za vrednotenje uspešnosti usposabljanja. V zvezi s predlaganimi ocenjevalnimi metodologijami morajo, kot to opredeljuje projekt eCultSkills, udeleženci tečaja (mentor in kandidati) doseči dogovor glede stopnje, ki bo ocenjevana v vsaki posamezni učni uri.

Seznam ključnih besed, ki predstavljajo vsebino posamezne učne ure/kompetence bo uporabniku/udeležencu omogočil izbiro najprimernejšega modula tečaja glede na njegove potrebe. Profil Upravljalca digitalnih kulturnih dobrin predstavlja štirinajst (14) specifičnih e-kompetenc, ki so podrobno analizirane v poglavju Aneks¹⁵.

¹⁵ Glej Aneks 8.5. Študija primera: 14 e-kompetenc Upravljalca digitalnih kulturnih dobrin, razvitih in ovrednotenih v procesu usposabljanja

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8. Annexes

Annex 8.1. The 5 Role Profiles

Cultural ICT Consultant

Role title	Cultural ICT Consultant		
Also known as	Cultural ICT Ambassador / Cultural ICT Advisor/ Cultural ICT Specialist		
Relevant professions			
Summary statement	Analyses museums' (or other cultural institutions') and their audiences' needs, defines and specifies solution requirements and evaluates installed solutions.		
Mission	To identify the best-suited solutions, according to the museums' and audiences' needs, requirements and financial resources and deliver advice on how new technologies can enhance collections and make them more attractive to all types of audiences on- and off-line, but also attract new audiences and ensure their return.		
Deliverables	Accountable for	Responsible for	Contributor to
	Evaluation of customer needs.	Solution specifications.	Market analysis.

	<p>Provision of advice on the development of an ICT strategy, which will benefit both the museum and its audiences.</p> <p>Development of guidelines for the implementation of this strategy in the most effective and efficient manner.</p> <p>Advice on selection of adequate products and services.</p>	<p>Liaising between ICT providers and museum staff.</p>	<p>User requirements definition.</p> <p>Suggestion of relevant ICT products/services.</p> <p>Quality control.</p> <p>Assessment of ethical issues.</p>
<p>Main task/s</p>	<p>Related to museums' and audiences' needs:</p> <ul style="list-style-type: none"> • To evaluate museums' and audiences' needs and formulate options. • To interface technology and museum needs. • To understand the expectations of museums and audiences. • To foresee the impact of technological solutions responding to the museums and its audiences' needs. 		

	<p>Related to the provision of advice on the ICT strategy and solutions:</p> <ul style="list-style-type: none"> • To advise on the elaboration of the institution’s ICT strategy. • To plan time, cost and quality of the designed and specified solution including a return on investment analysis of the deployment of ICT solutions. • To raise awareness on information technology innovations and their potential value to the museum. • To engage museums in the adoption of new technologies for improved access to cultural heritage. • To remain informed of the state-of-the art as well as new and emerging technologies and systems and to share this information with museums • To provide advice on the selection of products and solutions. • To advise on the preparation and negotiation of contracts with suppliers. • To advise on compliance with standards and regulations on ICT. • To provide advice on how to optimize the use of existing tools and systems. • To act as a relay between ICT providers/commercial service providers and museums.
<p>Environment</p>	<p>Works as an external consultant or internally within (larger) museums. Is at the crossroad of the museum management team, permanent or temporary exhibitions curators, communication and marketing teams (incl. web services) and audience services teams.</p>

KPI's

- Percentage of recommendations accepted by management.
- Spread of recommendations on strategic, tactical and operational level.
- Percentage of projects delivered on time, within budget, within scope and according to quality requirements.
- Increased interest shown by audiences in the museum on- and off-line.
- Promotion of museums as a showcase of effective use of new technologies.

Cultural ICT Guide

Role title	Cultural (ICT-enabled) Guide
Also known as	ICT-enabled interdisciplinary interpreter of Cultural Heritage
Relevant professions	<ul style="list-style-type: none">- Art historian *- Curator *- Cultural Heritage Interpreter *- Tour guide *- Cultural experience developer- Multimedia content developer**- Pedagogical professions related to art, culture, history and multimedia*- Museum staff (guards) that are trained by a specialist to act as intermediary between the museum collections, the technologies used and the audience.

	<p>*with additional relevant knowledge of ICT ** with additional relevant knowledge of museology</p>		
Summary statement	<p>Has a flawless knowledge of content which s/he interprets to the audience/visitors and high-level familiarity with technology (ICT) used as new / innovative way of presenting art work, exhibitions or any other form of cultural heritage.</p>		
Mission	<p>The Cultural ICT Guide’s fundamental mission is the presentation of cultural heritage content through ICT tools to improve audience experience. A specific quality of the ICT Cultural Guide is to understand the interactivity of ICT devices or solutions favourable to attracting audiences in terms of transforming them from passive to active participants, using ICT in her/his investigative process.</p>		
Deliverables	Accountable for	Responsible for	Contributor to
	<p>Audience satisfaction in terms of use of the technology and experience of the cultural collection. Documenting user feedback. Encouraging users / audience to use ICT for a better interdisciplinary experience in understanding</p>	<p>Effective and competent interpretation with use of technology. Comprehensive use of technology. Understandable instructions for users /audience.</p>	<p>Proposal for upgrading technology.</p>

	and learning about cultural heritage.	Correct and safe use of technology.	
Main task/s	<ul style="list-style-type: none"> • To promote knowledge and understanding of cultural heritage through ICT. • To promote improved understanding of cultural diversity and cross-cultural dialogue through ICT. • To define target groups (children, local visitors, tourists, educational institution representatives, Cultural Heritage professionals, VIPs, etc.) for different types of interaction. • To identify target visitors based on their knowledge level of ICT. • To explain / present an ICT-enabled supportive environment in museums. 		
Environment	<p>The Cultural ICT Guide works in museums and other cultural heritage institutions. Usually s/he works in a team alongside ICT specialists and experts of cultural heritage, museologists, curators, art historians, education experts.</p> <p>The Cultural ICT Guide can be a specially trained, museum staff member who has been up-skilled to understand the technologies used and the</p>		

	opportunities they offer in interacting with the audience.
KPI's	<ul style="list-style-type: none">• Number of new audience willing to undergo a new experience and time spent on the tools (quantitative measurement).• Level of interest/excitement (qualitative measurement).• Positive impact for cultural heritage stakeholders obtained by innovative experience and/or edutainment concepts for visitors.

Digital Cultural Asset Manager

Role title	Digital Cultural Asset Manager		
Also known as	Digital Asset Manager, Digital Curator		
Relevant professions	Cultural Informatics / Cultural ICT Manager		
Summary statement	Deals with the preservation, management and exploitation (incl. monetization) of the born-digital or digitized cultural content in a museum or other cultural institution (hereinafter referred to only as museums), whether in a physical or virtual space.		
Mission	To undertake the design, administration, and exploitation (incl. monetization) of a digital museum collection, according to the management plan.		
Deliverables	Accountable for	Responsible for	Contributor to

	<p>Organization of the digital cultural collections, after selection and classification, to facilitate the collections' discovery, access and use.</p> <p>Preservation of the digital cultural asset according to international standards (format transformation, hardware/ software emulation).</p>	<p>Evaluation of the final format of the digital asset.</p> <p>Documentation of the management of the digital asset.</p> <p>Form of metadata selected (descriptive, administrative, structural or technical) – semantic management of the digital assets.</p>	<p>Usability analysis (website, application).</p> <p>Search engine optimization.</p> <p>Competitor benchmarking.</p>
	<p>Exploitation (incl. monetization) and provision of access to the digital content/objects in terms of functionality, technical feasibility and reliability (methods of access, authentication, compatibility) and</p>	<p>Sustainability and operability of the digital assets – operational maintenance of the digital assets</p> <p>Advice the museum management on improvements.</p>	

	<p>monetization.</p> <p>Protection and safeguarding of the museum digital collection (copyright, watermarked content, cryptography).</p>		
<p>Main task/s</p>	<ul style="list-style-type: none"> • To develop, administer and improve on an ongoing basis the museum’s digital preservation, management and exploitation plan for all born-digital or digitized cultural content/objects (aka digital assets). • To develop, manage and optimize the museum’s digital collection. • To be aware of the national/international conventions or/and legal frameworks for the protection of digital cultural property. • To collaborate with museum staff in facilitating their work with digital cultural assets. • To develop a robust grounding within the museum in theories, methods and concepts of digital cultural asset management. • To remain informed about new technologies and developments in ICT. 		

Environment	<p>Collaborates with technology suppliers and, within the museum, with the:</p> <ul style="list-style-type: none"> • Management • Physical curation departments • Communication department
Role title	Interactive Cultural Experience Developer
Also known as	Exhibit interactive designer
Relevant professions	Cultural informatics developer, Designer in digital cultural products, Digital exhibition planner
Summary statement	Designs, develops and implements innovative and interactive experiences involving digital content through physical and virtual interfaces and channels.
Mission	To contribute to an exhibition, by designing, developing and implementing interactive and multimedia installations that result in a meaningful experience for all types of audiences, and serve the transmission of the message of the exhibition.

	Accountable for	Responsible for	Contributor to
Deliverables	<p>Development of interactive and multimedia experience and their ICT requirements that are relevant to the exhibition's content.</p>	<p>Description of the ICT requirements for each application.</p> <p>Assuring links between on-site installations and online tools.</p>	<p>Design of the exhibition together with the curators and the educational department.</p> <p>Audience research.</p>
	<p>Design of the scripts for the interactive experience in the exhibitions.</p>	<p>Development of accessibility tools for all types of visitors including those with special needs.</p> <p>Development of interactive guidelines by evaluation and impact analysis.</p>	

Main task/s	<ul style="list-style-type: none"> • To develop interactive installations and tools that are relevant to the content of the museum/exhibitions and that result in a meaningful experience to all types of audiences. • To facilitate the relation between the different museum teams: curators, ICT, education, marketing, communication. • To remain informed of new technological solutions. • To guarantee that the interactive installations and tools fit well to the needs of all types of the audiences
Environment	<p>Works with the exhibition curators and the educational service, with the goal of detecting interactive potential in the exhibition design. Works with the ICT team, acting as intermediary between exhibition design, ICT, education, marketing and communication.</p>
KPI's	<ul style="list-style-type: none"> • Diversity of relevant means/supports/installations used to connect the audiences with the exhibition content • Size and frequency of museum audience (traffic) • Evaluation of the museum experience (qualitative and quantitative analysis)

Online Cultural Community Manager

Role title	Online Cultural Community Manager
Also known as	New Media Manager, Digital Communication Manager

Relevant professions			
Summary statement	<p>Being aware of the needs of the online community, the Online Cultural Community Manager creates and manages an engaging, attractive, accessible and collaborative online community for all stakeholders (audiences, colleagues, educational institution representatives, Cultural Heritage professionals, donors, decision makers, etc.). S/He designs and implements guidelines for the museum's or other cultural institution's (hereinafter referred to only as museums) online communication strategy.</p>		
Mission	<p>To create and manage a sense of community between the museum and its online stakeholders through a strategic communication plan that meets the objectives of the first and the needs of the latter.</p>		
Deliverables	Accountable for	Responsible for	Contributor to
	Management of content of all online channels	Research of the online community	Organisation of events and other PR activities.

	<p>(website, newsletter, social media, forums, blogs, Pinterest...) of the museum.</p> <p>Online communication strategy and plan.</p> <p>Quick and effective resolution of issues and reply to inquiries (feedback mechanism for the museum).</p>	<p>(background, motivation, etc.).</p> <p>Online interaction with all stakeholders of the museum, according to the museum's protocol.</p> <p>Promotion of community engagement online activities.</p> <p>Analysis of user feedback.</p>	<p>(in order to create physical community);</p> <p>Loyalty/maintenance of user community.</p> <p>Overall communication strategy and plan of the museum.</p>
<p>Main task/s</p>	<ul style="list-style-type: none"> • To design guidelines for the museum's online communication strategy. • To research the characteristics of the online community. • To create and add relevant curated content in all online channels of communication of the museum that meets its objectives and the needs of its stakeholders. • To respond to and follow-up all online incoming inquiries. • To moderate forums. • To conduct web analytics and analyse them in order to assess 		

	whether objectives are met.
Environment	Usually works in tandem with the communication, marketing and PR team. Spends much of her/his time online, validating the effectiveness of the collaboration tools.
KPI's	<ul style="list-style-type: none">• Stakeholder satisfaction and loyalty.• Community engagement.• Statistics/analytics of stakeholders' online activity.• Museum's webpage ranking.

Cultural ICT Consultant

A1. IS and Organizational Strategy Alignment

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
IS solutions		Recognizes the impact of the two long IS solutions to the museum	Can apply two long term innovative IS solutions in the museum	Can determine the requirements for the proposed processes related to ICT services	Can present at least three long term innovative IS solutions for the museum	Can decide the best suited IS solution for the museum
			Can contribute to the museum's ICT strategy	Can analyze feasibility in terms of costs/ benefits		
Organization/ Museum	Knows five museum's aims and organizational objectives	Can identify five museum needs		Can analyse five long term museum needs	Can suggest two strategic IS policy decisions to the museum	Can optimize the organizational/ museum processes through ICT apps
		Understands the museum benefits in deploying the new technologies				
		Understands the museum benefits in deploying the new technologies				
Stakeholders/audience	Knows five audience needs	Can identify five audience needs		Can analyse five long term audience needs	Can suggest two strategic IS policy decisions to the stakeholders	
ICT strategy			Can provide IS strategic leadership	Can analyse feasibility of cost/ benefit	Can develop an ICT strategy suitable for the museum	
			Can demonstrate high degree of interpersonal skills			
Impact of ICT		Understands the impact of deploying new technologies in the museum	Can interpret five advantages of implementing ICT	Can analyse the effects of implementing ICT		Can review the effects of ICT implementations

A2. Service Level Management

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
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Service Level Agreement	Knows the definition of the Service Level Management	Can use three quality management techniques	Can establish three contracts for service performance levels	Can analyse the service provision records	Can formulate the SLAs based on an ICT strategy	Can select the appropriate quality management techniques
	Knows the SLA documentation		Can apply the Service Level Agreements upon the museum ICT strategy			Can predict and measure the potential service disruptions
	Presents three elements forming the metrics of SLA					
Organization/ museum	Defines five needs of the museum	Recognizes the museum's service performance levels			Can revise the SLAs according to the museum objectives	
Stakeholders/ audience/ decision makers	Defines five needs of stakeholders					
ICT Standards	Knows three ICT security standards		Can operate the three ICT security standards			
	Knows three ICT quality standards		Can operate three ICT quality standards			
Impact analysis	Knows the impact of service level non – compliance on museum's performance			Can analyse the impact of service level non – compliance on museum's performance		Can evaluate the impact of service level non – compliance on museum's performance

A3. Business Plan Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT and management	Knows three emerging technologies (interactive/ multimedia installation/tool/ application)	Can report three present market needs	Can demonstrate three emerging technologies (interactive/ multimedia installation/tool/ application)	Provides analysis of the present market environment	Addresses the design and structure of a business plan	Evaluates the product features based on the business plan
	Knows three present market needs	Can identify four main milestones in a management				

		plan				
Organization/ museum		Can identify five museum needs and goals	Can use the web technology for the museum's benefit	Can analyse the museum's environment	Can make a SWOT analysis based on the museum's strategy	
Stakeholders/ audience/ users		Can identify five stakeholders needs and goals	Can record five requirements of stakeholders and users			
Strategy (IS/ Online Communication/ Digital Asset Management)		Can conduct an IS/ online communication/ digital asset management strategy	Applies strategic thinking in exploitation of ICT		Can manage the creation of the best suited IS strategy	Can recommend the best online communication plan
			Can apply three risk and opportunity assessment techniques		Can explain how the online communication plan complement the overall communication strategy	Can evaluate the best digital asset management strategy
Impact analysis		Can identify the risks and the opportunities of the plan		Can analyse the impact of two business management plans on stakeholders		
				Can analyze the impact of functional/ technical changes on users		

A4. Product/ Service Planning						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Planning	Can label four basic decision – making methods	Can describe four basic decision – making methods	Can apply four basic decision – making methods	Can produce quality plans	Can generate optimization methods in the product/ service planning	Can evaluate basic decision – making methods
	Can define the different plans		Can use optimization methods			
Management Methodologies	Knows two structured project management methodologies		Can operate two project management methodologies	Can analyze two project management methodologies	Can formalize two project management methodologies	Can assess two project management methodologies
Organization/ museum		Can identify five museum needs				

		and goals				
Decision makers/users	Knows five organization need analysis techniques	Can identify five decision makers/users needs and goals Can identify the key users			Can manage adequate information for the decision makers	
Documentation	Knows how to document a plan	Can classify complex documents	Can predict three documentation requirements for the digital asset management plan	Can identify three additional documentation requirements for the digital asset management plan	Can develop two digital asset management plans and the related documentation	
Impact analysis		Can identify ten museum advantages and improvements of managing the change request process				

A7. Technology Trend Monitoring						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology	Can name three emerging technologies and their relevant applications			Can investigate three latest ICT technological developments Can investigate three ICT technological developments in managing digital assets	Can propose three latest ICT technological developments	Can recommend three latest ICT technological developments
Market		Can identify three vendors and providers of the ICT solutions	Can select two vendors/providers of the most promising ICT solutions			Can evaluate and justify the proposed vendors/providers of ICT solutions

Information	Knows the relevant sources of information (magazines, conferences, events, newsletters, opinion- leaders, on-line – forum etc.)	Can discriminate the two most promising sources of information			Can propose the two most promising sources of information	Can assess the two most promising sources of information in the strategic decision - making
Museum	Knows five museum goals and needs	Identifies five museum advantages and improvements of adopting ICT	Can relate the existing products with the museum's needs	Can illustrate expert guidance and advice to the museum teams	Can propose three options for strategic decisions	Can decide the best ICT for the museum
Audience	Knows five audience goals and needs					Can take strategic decisions predicting ICT solutions for audience- oriented processes

A8. Sustainable Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT energy consumption	Knows the term "ICT energy consumption"	Can clarify the meaning of "ICT energy consumption"	Can manipulate "ICT energy consumption"			Can relate the ICT energy consumption with the ICT purchasing/ sales policy
Sustainable IS Development	Can name three eco responsibilities	Can predict two constraints to sustainability	Can apply two latest sustainable development strategies	Can examine the two sustainable development strategies		
Museum	Knows five museum's goals	Can report two sustainable solutions for the museum		Can connect the sustainable development strategies with the museum's goals	Can explain to the museum staff the deployment of sustainable development	
Impact	Knows the impact of ICT solution in the museum's strategy					

A9. Innovating						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Thinking	Can present novel and open thinking		Applies innovative thinking	Can identify four appropriate resources	Can generate two innovation processes techniques in the provision of solutions	Can assess the two innovation processes techniques in the provision of solutions
			Can demonstrate revolutionary concepts		Can devise two creative solutions for supporting the digital asset management plan	
Technology	Knows three latest technological applications		Applies technological awareness	Can identify five advantages of adopting new technologies		Can recommend innovative changes to the ICT strategy
Business/ Market	Knows three business and market trends					
Museum	Knows five museum's goals and needs		Applies the technological solutions to the museum needs			Evaluates the technological solutions to the museum needs
Audience/users	Knows five audience goals and needs		Applies the technological solutions to the audience needs	Can analyse different target groups of audience (needs/ characteristics)		Evaluates the technological solutions to the audience needs
Impact				Analyze the impact of functional/ technical changes on audience/ users		

C2 . Change Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows existing ICT application technical architecture	Can identify functional specifications of the information system		Can analyse how business processes are integrated and their dependency upon ICT applications		
	Knows at least three ICT solutions	Can identify the advantages of at least three information security management				

Organisation			Can transfer information to ICT team	Can connect museum needs and ICT solutions		
Communicatio	Know at least three communication techniques		Can apply at least three communication techniques with ICT staff members			
	Recognises the importance of preciseness		Demonstrates a high degree of interpersonal skills			
Impact Analysis	Knows at least three management tools and technique	Can estimate actions to mitigate the impact of changes (training, documentation, new processes...)		Can analyse the impact of functional/technical changes on users	Can manage change management tools and technique	
					Can plan evaluation, design and implementation methodologies	

D1. Information Security Strategy Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Strategy	Knows the definition of information security strategy		Can develop a formal information security strategy		Can design the best information security strategy	Decide the best information security strategy
Museum	Knows the Information strategy of the museum			Analyses critically the museum's information security strategy	Makes the required changes in museum's information security strategy	Recommends the best information security strategy for the museum
Standards/ best practices	Knows the potentials and opportunities of standards		Uses two standards and best practices for information security		Can create through standards/ best practices, objectives for information, integrity, availability and data privacy	
Mobile Technology	Knows four threats in mobile security		Can use different service models and operational translations			Can predict all external and internal threats

D2. ICT Quality Strategy Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Museum	Knows four museum needs	Can decode the museum's culture			Can establish ICT quality in museum culture	Can match museum needs with the existing products
	Can define three museum objectives				Can establish online communication applications quality in museum culture	
Audience	Knows four audience needs			Can identify four audience expectations	Can manage to satisfy four audience expectations	Can match audience needs with the existing products
Standards/ best practices	Knows the potentials and opportunities of standards for ICT quality	Can indicate three ICT quality standards	Uses two standards and best practices for ICT quality		Can create through standards/ best practices, objectives for service management, product and process quality	
		Can identify two standards for online community applications/ tools/solutions	Applies two standards for online community applications/ tools/solutions			
Communication	Can list three online communication applications (existing & emerging)			Can identify the best online communication applications (existing & emerging)		
Impact analysis				Can analyse the impact of functional/ technical changes on museum and audience needs		

D3. Education and Training Provision						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT training programs	Defines two ICT training programs	Identifies five training needs	Can organize two ICT training programs		Can propose two ICT training programs	Can assess the ICT training programs so to address change demand
					Can develop alternative training programs	Assesses the alternative training programs
Skills	Can enumerate five existing learning skills	Can identify learning skills gaps		Can analyse systematically the skills gaps	Can formulate means to address the skills gaps	Can decide which skills are in-house and which out-sourced
Museum staff	Knows four museum needs		Can organize training/ education schedules to meet		Can design curricula and training programs to meet the	Can match museum needs with the existing products

	Can identify three museum staff ICT education needs		museum staff ICT education needs		museum staff ICT education needs	
Audience	Knows four audience needs		Can organize training/ education schedules to meet audience ICT education needs		Can design curricula and training programs to meet the audience ICT education needs	Can match audience needs with the existing products
	Can identify three audience ICT education needs					
Methodologies	Can record two training needs analysis methodologies					
	Can name two competence and skill analysis methodologies					

D4. Purchasing						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Market	Knows the current market for relevant products/services	Can select two suppliers/ products/services	Can select two products/ services that improve digital asset management	Can investigate the best suppliers/ products/services for the museum		Can decide on the ultimate procurement policy
			Can select two products/ services that improve museum ICT strategy	Can examine the evaluation of process/ timeliness/cost/quality for products/ services		
			Can use two benchmarking methods to find best tools/ systems	Can analyses received proposals/ offers		
Museum	Knows four museum needs				Can make recommendations on the best purchasing policy for the museum	Can match museum needs with the existing products
	Knows the museum purchasing policy/ budget				Can manage museum purchasing budget	

Audience	Knows four audience needs					Can match audience needs with the existing products
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D10. Information and Knowledge Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Process	Knows two digital asset management processes	Can select the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use)	Can apply the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use)	Can analyse two digital asset management processes	Makes available the digital assets	Can justify the most suitable digital asset management process
	Knows two data mining methods		Correlates digital assets and knowledge	Can apply two data mining methods	Can set up the most appropriate digital asset structures	
Museum	Knows four museum needs					Can recommend the most appropriate digital asset structure for the museum
Audience	Knows four audience needs/ requirements				Can formalize the audience requirements	
Information	Knows two information distribution policies	Translate museum behavior into structured information	Can create the appropriate information structure	Applies two innovative solutions according to appropriate the information structure	Makes information available	
			Correlates information and knowledge			

D11. Needs Identification						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit	Can assess emerging ICT and their possible application in museum context

					Can present digital asset management solution cost / benefit	Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes.	Can formalize three digital asset management processes.	
				Can analyze three online communication processes	Can formalize three online communication processes	
Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users.	Can demonstrate the application of three needs analysis techniques	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria
			Can record twenty requirements of museum key stakeholders and users			Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
			Can present ICT solution cost / benefit			
			Can present digital asset management solution cost / benefit			

E.1 Forecast Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows the market size and relevant fluctuations	Can identify at least two methods to generate sales	Can apply at least three large scale data analysis techniques (data mining)	Can connect museum and audience needs with products in the market	Can combine museum and audience needs with interactive and multimedia installations/tools/application	

		forecasts in relation to current market share			s developed	
	Knows accessibility of the market according to current conditions (e.g. government policies, emerging technologies, social and cultural trends, etc.)	Can interpret external research data and analyse information	Can apply new emerging technologies (e.g. distributed systems, virtualisation, mobility, data sets)			
			Can apply at least three methods to analyze information and business processes			
Organisation	Can interpret the extended supply chain operation			Can identify organisational processes and the way they are integrated and their dependency upon ICT applications	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
	Knows museum's budget dedicated to ICT development			Can compare sales and production forecasts of forthcoming/newly launched ICT tools and solutions and analyse potential mismatches		
				Can connect museum and audience needs with products in the market		
Stakeholders and Users	Knows museum and audience needs			Can connect museum and audience needs with products in the market		
	Knows at least three museum and audience need analysis techniques					

Communication				Can analyze in at least three different ways information and online communication processes		
Impact Analysis			Can apply at least three what-if techniques to produce realistic outlooks	Can identify organisational processes and the way they are integrated and their dependency upon ICT applications		
				Can identify four business advantages and improvements of adopting emerging technologies for the museum		
				Can analyze three future developments in business process and technology application		
				Can analyse feasibility in terms of costs and benefits		

E.3 Risk Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows at least three evaluation, design and implementation methodologies					
Organisation	Can identify at least four corporate values and interests		Can solve at least three conflicts			
Communication			Can interpret museum's risk analysis outcomes and risk management processes			

			Can interpret museum's risk analysis outcomes and risk management processes applicable to interactive and multimedia installations/tools/applications			
			Can interpret museum's risk analysis outcomes and risk management processes to digital asset management			
Risk Management	Knows at least three good practices (methodologies) and standards in risk analysis		Can apply at least three risk and opportunity assessment techniques	Can develop risk management plan to identify required preventative actions		
			Can apply risk analysis taking into account corporate values and interests	Can design and document the processes for risk analysis and management		
			Can calculate the return on investment compared to risk avoidance	Can design and document the processes for risk analysis and management applicable to interactive and multimedia installations/tools/applications		

E.4 Relationship Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Organisation/Museum	Knows at least four museum processes including decision making, budgets and management structure	Can identify at least four objectives of the museum	Can demonstrate empathy towards museum staff needs	Can determine museum's challenges and risks as long as they are relevant to digital asset management	Can establish realistic expectations to support development of mutual trust	
		Can identify museums, staff and technology		Can examine ongoing commitments to ensure fulfillment	Can propose at least three solutions to meet museums, staff and technology providers	

		providers needs			needs	
		Can identify at least three challenges and risks of the museum				
Stakeholders /audience/users		Can identify at least three objectives of stakeholders		Can determine stakeholders' objectives as long as they are relevant to digital asset management	Can examine and arrange resources to meet stakeholder requirements	
		Can identify at least three potential win-win opportunities for user/audience and museum			Can propose at least three techniques to respond to audience needs and their motivation	
Communication	Can present good and bad news to avoid surprises	Can express him/herself also at least in one foreign language	Can demonstrate good interpersonal skills			

E.5 Process Improvement						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Process	Can show a high level of innovation and creativity	Can identify at least three research methods, benchmarks and measurements methods		Can identify how museum's organisational processes are integrated and their dependency upon ICT applications	Can design (compose, document and catalogue) essential processes and procedures	
	Know at least two techniques to resource optimisation and waste reduction	Can identify three evaluation, design and implementation methodologies			Can propose three process changes to facilitate and rationalise improvements	
		Can explain existing internal processes			Can manage to implement two process changes	

		Can identify at least three relevant developments in ICT and their potential impact on processes				
Organisation/Museum				Can identify at least three organisational advantages and improvements of adopting emerging technologies for the museum		
Communication					Can explain (defend, argue, justify)	

E.6 ICT Quality Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Standards/Best practices/Quality	Knows which methods, tools and procedure are applied within the museum and where they should be applied	Understands regulations and standards in energy efficiency and e-waste	Can apply the IS internal quality audit approach	Can determine technologies and standards to be used during the deployment	Can manage quality audits	
	Knows three ICT quality standards	Understands the museum's enterprise architecture and internal standards	Can operate three ICT quality standards	Can analyse (monitor, understand and act upon) quality indicators		
		Can recognize the potential and opportunities of relevant standards and best practices	Can apply digital asset management quality standards			
		Understands the importance of being ethical				

Technology			Can apply all the required technologies (web/cloud/mobile) and environmental requirements	Can determine at least three technologies and standards to be used during the deployment		
Museum		Understands the museum's enterprise architecture and internal standards	Can illustrate how methods, tools and procedures can be applied to implement the museum's quality policy			
Process			Can select at least three measures to evaluate effectiveness and efficiency of the overall process	Can analyse process steps to identify at least three strengths and weaknesses		

E.7 Business Change Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Business Process			Can apply at least three evaluation, design and implementation methodologies	Can analyse information and online communication processes in at least three different ways	Can construct and document a plan for implementation of process enhancements	Can optimize museum business strategy and processes
			Can apply at least four project management standards and tools	Can connect how business processes are integrated and their dependency upon ICT applications		Can interpret information and business processes in at least three different ways
				Can connect how museum's online communication processes are integrated into the online marketing mix and dependent upon ICT applications		Can evaluate costs and benefits of business changes
						Can predict future developments in organisational process and technology application

ICT strategy	Knows at least three digital strategies		Can apply digital strategies		Can propose at least two appropriate ICT solutions based upon benefit, risks and overall impact	
					Can propose at least three organisational advantages and improvements of adopting emerging technologies	
Communication					Can explain (defend, argue, justify)	
Impact				Can analyse costs and benefits of museum's organisational changes	Can propose at least three appropriate ICT solutions based upon benefit, risks and overall impact	Can predict the impact of business changes on the museum and human resources
					Can revise and explain effects of implementations	Can predict the impact of business changes on legal issues
						Can predict the impact of business changes related to online communication on the museum and human resources
						Can predict organisational advantages and improvements of adopting emerging technologies

Cultural (ICT-enabled) Guide

C1. User Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and Market	Know two software distribution methods	Can identify tree relevant ICT user application in museums	Can solve at least two online incidents following prescribed procedures	Can analyse at least three symptoms of user error or technical failure	Can combine software distribution methods to software fixes	
	Knows at least two sources of information for identifying potential solutions	Can deploy at least three support tools to systematically trace source of error or technical failure				
	Knows two techniques to structure database and to organize content					
	Knows at least two ICT users applications					
Organisation	Knows at least two sources of information for identifying potential solutions					
Stakeholders and Users	Knows at least two techniques to interrogate users	Can identify user's errors	Can apply at least two techniques to solve minor incidents			
	Knows at least three techniques to record users feedback					
Communication	Knows communication techniques (such as defend, argue, justify)	Recognizes the importance of clear communication in at least two incidents of mis-communication with users	Can demonstrate the application of three communication techniques			
	Knows at least one foreign language		Can provide clear instructions on how to progress in three different cases			

Impact Analysis		Can deploy at least three support tools to systematically trace source of error or technical failure		Can analyse at least three symptoms of user error or technical failure	Can manage to code issues to support growth and integrity of online support tools	
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D11. Needs Identification						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit	Can assess emerging ICT and their possible application in museum context
					Can present digital asset management solution cost / benefit	Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes	Can formalize three digital asset management processes	
				Can analyze three online communication processes	Can formalize three online communication processes	
Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users	Can demonstrate the application of three needs analysis techniques	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria
			Can record twenty requirements of museum key stakeholders and users			Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
			Can present ICT solution cost / benefit			

		Can present digital asset management solution cost / benefit		
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Digital Cultural Asset Manager

A3. Business Plan Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT and management	Knows three emerging technologies (interactive/ multimedia installation/tool/ application)	Can report three present market needs	Can demonstrate three emerging technologies (interactive/ multimedia installation/tool/ application)	Provides analysis of the present market environment	Addresses the design and structure of a business plan	Evaluates the product features based on the business plan
	Knows three present market needs	Can identify four main milestones in a management plan				
Organization/ museum		Can identify five museum needs and goals	Can use the web technology for the museum's benefit	Can analyse the museum's environment	Can make a SWOT analysis based on the museum's strategy	
Stakeholders/ audience/ users		Can identify five stakeholders needs and goals	Can record five requirements of stakeholders and users			
Strategy (IS/ Online Communication/ Digital Asset Management)		Can conduct an IS/ online communication/ digital asset management strategy	Applies strategic thinking in exploitation of ICT		Can manage the creation of the best suited IS strategy	Can recommend the best online communication plan
			Can apply three risk and opportunity assessment techniques		Can explain how the online communication plan complement the overall communication strategy	Can evaluate the best digital asset management strategy
Impact analysis		Can identify the risks and the opportunities of the plan		Can analyse the impact of two business management plans on stakeholders		
				Can analyze the impact of functional/ technical changes on users		

A4. Product/ Service Planning						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Planning	Can label four basic decision – making methods	Can describe four basic decision – making methods	Can apply four basic decision – making methods	Can produce quality plans	Can generate optimization methods in the product/ service planning	Can evaluate basic decision – making methods
	Can define the different plans		Can use optimization methods		Can develop and maintain plans	
					Can manage the change request processes	
Management Methodologies	Knows two structured project management methodologies		Can operate two project management methodologies	Can analyze two project management methodologies	Can formalize two project management methodologies	Can assess two project management methodologies
Organization/ museum		Can identify five museum needs and goals				
Decision makers/users	Knows five organization need analysis techniques	Can identify five decision makers/users needs and goals			Can manage adequate information for the decision makers	
		Can identify the key users				
Documentation	Knows how to document a plan	Can classify complex documents	Can predict three documentation	Can identify three additional documentation	Can develop two digital asset management plans and the related documentation	
			requirements for the digital asset management plan	requirements for the digital asset management plan		
Impact analysis		Can identify ten museum advantages and improvements of managing the change request process				

A7. Technology Trend Monitoring						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Technology	Can name three emerging technologies and their relevant applications			Can investigate three latest ICT technological developments	Can propose three latest ICT technological developments	Can recommend three latest ICT technological developments
				Can investigate three ICT technological developments in managing digital assets		
Market		Can identify three vendors and providers of the ICT solutions	Can select two vendors/ providers of the most promising ICT solutions			Can evaluate and justify the proposed vendors/ providers of ICT solutions
Information	Knows the relevant sources of information (magazines, conferences, events, newsletters, opinion- leaders, on-line - forum etc.)	Can discriminate the two most promising sources of information			Can propose the two most promising sources of information	Can assess the two most promising sources of information in the strategic decision - making
Museum	Knows five museum goals and needs	Identifies five museum advantages and improvements of adopting ICT	Can relate the existing products with the museum's needs	Can illustrate expert guidance and advice to the museum teams	Can propose three options for strategic decisions	Can decide the best ICT for the museum
Audience	Knows five audience goals and needs					Can take strategic decisions predicting ICT solutions for audience- oriented processes

A9. Innovating						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Thinking	Can present novel and open thinking		Applies innovative thinking	Can identify four appropriate resources	Can generate two innovation processes techniques in the provision of solutions	Can assess the two innovation processes techniques in the provision of solutions

			Can demonstrate revolutionary concepts		Can devise two creative solutions for supporting the digital asset management plan	
Technology	Knows three latest technological applications		Applies technological awareness	Can identify five advantages of adopting new technologies		Can recommend innovative changes to the ICT strategy
Business/ Market	Knows three business and market trends					
Museum	Knows five museum's goals and needs		Applies the technological solutions to the museum needs			Evaluates the technological solutions to the museum needs
Audience/users	Knows five audience goals and needs		Applies the technological solutions to the audience needs	Can analyse different target groups of audience (needs/ characteristics)		Evaluates the technological solutions to the audience needs
Impact				Analyze the impact of functional/ technical changes on audience/ users		

B5. Documentation Production						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Documentation	Knows two standards in documentation	Can clarify the requirements of documentation	Applies standards to define document structure			
	Knows four objectives of documentation		Can produce documents describing interactive products/ tools/ applications			
			Can produce documents describing products/ tools/ applications for online communication			

			Can produce documents describing products/ tools/ applications used for digital asset management			
Technical documents	Knows different documents for designing/ developing and deploying products/ applications/ services					
Tools	Knows three tools for production/ editing and distribution of professional documents					
	Knows two tools for multimedia presentation tools					
Technology	Knows two museum ICT technologies					

C3. Service Delivery						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows how to interpret digital asset management application requirements	Can identify at least three digital asset management applications delivery actions	Can examine digital asset management applications	Can analyze three practices and standards in digital asset management applications		
	Knows how to complete documentation used in digital asset management applications delivery	Can identify failures in digital asset management applications delivery actions	Can examine digital asset management infrastructure management	Can analyse at least three web, cloud and mobile technologies		
				Can examine digital asset management applications delivery provision		

Organisation		Can interpret the organisation's digital asset management strategy		Can identify at least three processes which comprise the organisation's digital asset management strategy		
Stakeholders and Users				Can determine manpower workload / requirements for efficient and cost effective service provision		
Communication		Can report digital asset management applications delivery provision to superiors				

C4. Change Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market		Can identify at least three evaluation, design and implementation methodologies				
		Can identify at least two applications and availability of diagnostic tools				
Organisation	Knows the museum's overall ICT infrastructure and key components		Can select digital asset management solution that fits the budget of the museum	Can critically analyse at least three digital asset management solutions		
	Knows the museum's critical situation escalation procedures					

Communication		Recognises the importance of preciseness	Can demonstrate the application of three communication techniques	Can identify the appropriate resources to deployed internally or externally to minimise outages		
Impact Analysis	Knows at least three risk management techniques	Can identify the link between system infrastructure elements and impact of failure on related business processes	Can identify progress of issues throughout lifecycle		Can propose solutions to at least two critical component failure	
					Can manage risk management audits	
					Can propose appropriate resources to maintenance activities, balancing cost and risk	

D4. Purchasing						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Market	Knows the current market for relevant products/services	Can select two suppliers/ products/services	Can select two products/ services that improve digital asset management	Can investigate the best suppliers/ products/services for the museum		Can decide on the ultimate procurement policy
			Can select two products/ services that improve museum ICT strategy	Can examine the evaluation of process/ timeliness/cost/quality for products/ services		
			Can use two benchmarking methods to find best tools/ systems	Can analyse received proposals/ offers		
Museum	Knows four museum needs				Can make recommendations on the best purchasing policy for the museum	Can match museum needs with the existing products

	Knows the museum purchasing policy/ budget				Can manage museum purchasing budget	
Audience	Knows four audience needs					Can match audience needs with the existing products

D10. Information and Knowledge Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Process	Knows two digital asset management processes	Can select the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use)	Can apply the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use)	Can analyse two digital asset management processes	Makes available the digital assets	Can justify the most suitable digital asset management process
	Knows two data mining methods		Correlates digital assets and knowledge	Can apply two data mining methods	Can set up the most appropriate digital asset structures	
Museum	Knows four museum needs					Can recommend the most appropriate digital asset structure for the museum
Audience	Knows four audience needs/ requirements				Can formalize the audience requirements	
Information	Knows two information distribution policies	Translate museum behavior into structured information	Can create the appropriate information structure	Applies two innovative solutions according to appropriate the information structure	Makes information available	
			Correlates information and knowledge			

D11. Needs Identification						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit	Can assess emerging ICT and their possible application in museum context

					Can present digital asset management solution cost / benefit	Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes	Can formalize three digital asset management processes	
				Can analyze three online communication processes	Can formalize three online communication processes	
Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users.	Can demonstrate the application of three needs analysis techniques	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria
			Can record twenty requirements of museum key stakeholders and users			Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
			Can present ICT solution cost / benefit			
			Can present digital asset management solution cost / benefit			
Impact analysis		Can identify ten museum advantages and improvements of adopting new technologies based		Analyse the impact of functional/technical changes on key stakeholders and users		Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis

		on user experience				Can evaluate the impact of functional/technical changes on key stakeholders and users
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E.3 Risk Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows at least three evaluation, design and implementation methodologies					
Organisation	Can identify at least four corporate values and interests		Can solve at least three conflicts			
Communication			Can interpret museum's risk analysis outcomes and risk management processes			
			Can interpret museum's risk analysis outcomes and risk management processes applicable to interactive and multimedia installations/tools/applications			
			Can interpret museum's risk analysis outcomes and risk management processes to digital asset management			
Risk Management	Knows at least three good practices (methodologies)		Can apply at least three risk and opportunity assessment techniques	Can develop risk management plan to identify required preventative actions		

	and standards in risk analysis		Can apply risk analysis taking into account corporate values and interests	Can design and document the processes for risk analysis and management		
			Can calculate the return on investment compared to risk avoidance	Can design and document the processes for risk analysis and management applicable to interactive and multimedia installations/tools/applications		

E.4 Relationship Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Organisation/Museum	Knows at least four museum processes including, decision making, budgets and management structure	Can identify at least four objectives of the museum	Can demonstrate empathy towards museum staff needs	Can determine museum's challenges and risks as long as they are relevant to digital asset management	Can establish realistic expectations to support development of mutual trust	
		Can identify museums, staff and technology providers needs		Can examine ongoing commitments to ensure fulfillment	Can propose at least three solutions to meet museums, staff and technology providers needs	
		Can identify at least three challenges and risks of the museum				
Stakeholders/audience/users		Can identify at least three objectives of stakeholders		Can determine stakeholders' objectives as long as they are relevant to digital asset management	Can examine and arrange resources to meet stakeholder requirements	
		Can identify at least three potential win-win opportunities for user/audience and museum			Can propose at least three techniques to respond to audience needs and their motivation	
Communication	Can present good and bad news to avoid surprises	Can express him/herself also at least in one foreign	Can demonstrate good interpersonal skills		Can explain (defend, argue, justify)	

		language			
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E.6 ICT Quality Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Standards/Best practices/Quality	Knows which methods, tools and procedure are applied within the museum and where they should be applied	Understands regulations and standards in energy efficiency and e-waste	Can apply the IS internal quality audit approach	Can determine technologies and standards to be used during the deployment	Can manage quality audits	
	Knows three ICT quality standards	Understands the museum's enterprise architecture and internal standards	Can operate three ICT quality standards	Can analyse (monitor, understand and act upon) quality indicators		
		Can recognize the potential and opportunities of relevant standards and best practices	Can apply digital asset management quality standards			
		Understands the importance of being ethical				
Technology			Can apply all the required technologies (web/cloud/mobile) and environmental requirements	Can determine at least three technologies and standards to be used during the deployment		
Museum		Understands the museum's enterprise architecture and internal standards	Can illustrate how methods, tools and procedures can be applied to implement the museum's quality policy			

Process			Can select at least three measures to evaluate effectiveness and efficiency of the overall process	Can analyse process steps to identify at least three strengths and weaknesses		
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Interactive Cultural Experience Developer

A3. Business Plan Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT and management	Knows three emerging technologies (interactive/ multimedia installation/tool/ application)	Can report three present market needs	Can demonstrate three emerging technologies (interactive/ multimedia installation/tool/ application)	Provides analysis of the present market environment	Addresses the design and structure of a business plan	Evaluates the product features based on the business plan
	Knows three present market needs	Can identify four main milestones in a management plan				
Organization/ museum		Can identify five museum needs and goals	Can use the web technology for the museum's benefit	Can analyse the museum's environment	Can make a SWOT analysis based on the museum's strategy	
Stakeholders/ audience/ users		Can identify five stakeholders needs and goals	Can record five requirements of stakeholders and users			
Strategy (IS/ Online Communication/ Digital Asset Management)		Can conduct an IS/ online communication/ digital asset management strategy	Applies strategic thinking in exploitation of ICT		Can manage the creation of the best suited IS strategy	Can recommend the best online communication plan
			Can apply three risk and opportunity assessment techniques		Can explain how the online communication plan complement the overall communication strategy	Can evaluate the best digital asset management strategy

Impact analysis		Can identify the risks and the opportunities of the plan		Can analyse the impact of two business management plans on stakeholders		
				Can analyze the impact of functional/ technical changes on users		

A4. Product/ Service Planning						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Planning	Can label four basic decision – making methods	Can describe four basic decision – making methods	Can apply four basic decision – making methods	Can produce quality plans	Can generate optimization methods in the product/ service planning	Can evaluate basic decision – making methods
	Can define the different plans		Can use optimization methods		Can develop and maintain plans	
				Can manage the change request processes		
Management Methodologies	Knows two structured project management methodologies		Can operate two project management methodologies	Can analyze two project management methodologies	Can formalize two project management methodologies	Can assess two project management methodologies
Organization/ museum		Can identify five museum needs and goals				
Decision makers/users	Knows five organization need analysis techniques	Can identify five decision makers/users needs and goals			Can manage adequate information for the decision makers	
		Can identify the key users				
Documentation	Knows how to document a plan	Can classify complex documents	Can predict three documentation requirements for the digital asset management plan	Can identify three additional documentation requirements for the digital asset management plan	Can develop two digital asset management plans and the related documentation	
Impact analysis		Can identify ten museum advantages and improvements of managing the change request				

		process				
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A6. Application Design						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT and Designing	Knows how to design data structures	Defines four requirements for designing	Organizes the overall planning of the design		Integrates all aspects needed in designing (interoperability, usability, security)	Assesses the models designed based on a common framework
	Knows the general functional specifications in design					
	Can outline three software developments methods and their rationale					
	Can name two mobile technologies					
Museum	Knows five museum needs	Associates the application with the museum needs				
Audience	Knows five audience needs	Associates the application with the museum needs				
Techniques	Knows two need analysis techniques	Can recognize threat modeling techniques	Applies three different application development methods			Evaluates the suitability of the three application methods
			Selects appropriate technical options for optimization			
Communication					Establishes systematic communication with the users	
Impact				Can analyze the impact of functional/ technical changes on audience		

A7. Technology Trend Monitoring						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology	Can name three emerging technologies and their relevant applications			Can investigate three latest ICT technological developments	Can propose three latest ICT technological developments	Can recommend three latest ICT technological developments
				Can investigate three ICT technological developments in managing digital assets		
Market		Can identify three vendors and providers of the ICT solutions	Can select two vendors/providers of the most promising ICT solutions			Can evaluate and justify the proposed vendors/ providers of ICT solutions
Information	Knows the relevant sources of information (magazines, conferences, events, newsletters, opinion- leaders, on-line – forum etc.)	Can discriminate the two most promising sources of information			Can propose the two most promising sources of information	Can assess the two most promising sources of information in the strategic decision - making
Museum	Knows five museum goals and needs	Identifies five museum advantages and improvements of adopting ICT	Can relate the existing products with the museum's needs	Can illustrate expert guidance and advice to the museum teams	Can propose three options for strategic decisions	Can decide the best ICT for the museum
Audience	Knows five audience goals and needs					Can take strategic decisions predicting ICT solutions for audience- oriented processes

A9. Innovating						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Thinking	Can present novel and open thinking		Applies innovative thinking	Can identify four appropriate resources	Can generate two innovation processes techniques in the provision of solutions	Can assess the two innovation processes techniques in the provision of

			Can demonstrate revolutionary concepts		Can devise two creative solutions for supporting the digital asset management plan	solutions
Technology	Knows three latest technological applications		Applies technological awareness	Can identify five advantages of adopting new technologies		Can recommend innovative changes to the ICT strategy
Business/ Market	Knows three business and market trends					
Museum	Knows five museum's goals and needs		Applies the technological solutions to the museum needs			Evaluates the technological solutions to the museum needs
Audience/users	Knows five audience goals and needs		Applies the technological solutions to the audience needs	Can analyse different target groups of audience (needs/ characteristics)		Evaluates the technological solutions to the audience needs
Impact				Analyze the impact of functional/ technical changes on audience/ users		

B1. Application Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Applications	Can name three applications	Can develop systemically three applications	Can operate three applications	Can optimize application development, maintenance, performance		
	Can design applications					
Software	Knows the appropriate software programs		Applies software architectures			
	Knows two power consumption models		Can operate systems & software platforms			
Hardware	Knows hardware tools/components/architectures		Can apply hardware tools/components/architectures			
Museum	Knows five needs of the museum staff					

Audience	Knows all types of audiences		Can develop documentation applications according to audience needs			
	Knows five audience needs		Can operate validation tests with the audience representatives			
Documentation	Can document applications					

B2. Component Integration						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
System	Knows the hardware/ software/ sub system components		Can employ integration of hardware/ software/ sub system components into an existing/new system			
			Can examine the system's capacity and performance			
Documentation			Can employ documentation on all activities			
Integration	Knows four integration testing techniques		Operates integration techniques		Can create an integration process for the entire integration cycle	
Audience	Knows five audience needs		Can match the audience needs with existing products			
Impact	Knows the impact of the system integration on the organization					

B3. Testing						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Test programs	Knows how to organize test programs		Can design tests of interactive and multimedia installations/ tools/applications			

			Can prepare and conduct tests of interactive and multimedia installations/ tools/applications			
Documentation		Can report tests and results	Can demonstrate documentation of tests and results to users/ designers/ maintainers			
Test Process	Knows different sorts of tests		Can develop the management & evaluation of test process			

B4. Solution Deployment						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology	Knows four technologies & standards during implementation	Can select a technological solution that will result in a meaningful interactive experience	Can apply all the required technologies (web/cloud/mobile)			
			Can operate implementation of solutions			
System	Can identify the components of a system		Can demonstrate accountability for solution provision			
			Can solve the interoperability of a system			
			Can operate under guidance and in accordance with detailed instructions			
Documentation	Can record all relevant information (equipment addresses, configuration, performance data)		Can operate documentation of all relevant information (equipment addresses, configuration, performance data)			

Communication			Illustrates comprehensive communication with stakeholders		
			Can show the transition of the message of a specific museum exhibition/collection		

B5. Documentation Production						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Documentation	Knows two standards in documentation	Can clarify the requirements of documentation	Applies standards to define document structure			
	Knows four objectives of documentation		Can produce documents describing interactive products/ tools/ applications			
			Can produce documents describing products/ tools/ applications for online communication			
			Can produce documents describing products/ tools/ applications used for digital asset management			
Technical documents	Knows different documents for designing/ developing and deploying products/ applications/ services					
Tools	Knows three tools for production/ editing and distribution of professional documents		Applies tools for production/ editing and distribution of professional documents			

	Knows two tools for multimedia presentation tools					
Technology	Knows two museum ICT technologies					

C1. User Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and Market	Know two software distribution methods	Can identify tree relevant ICT user application in museums	Can solve at least two online incidents following prescribed procedures	Can analyse at least three symptoms of user error or technical failure	Can combine software distribution methods to software fixes	
	Knows at least two sources of information for identifying potential solutions	Can deploy at least three support tools to systematically trace source of error or technical failure				
	Knows two techniques to structure database and to organize content					
	Knows at least two ICT users applications					
Organisation	Knows at least two sources of information for identifying potential solutions					
Stakeholders and Users	Knows at least two techniques to interrogate users	Can identify user's errors	Can apply at least two techniques to solve minor incidents			
	Knows at least three techniques to record users feedback					
Communication	Knows communication techniques (such as defend, argue, justify)	Recognizes the importance of clear communication in at least two incidents of mis-communication with users	Can demonstrate the application of three communication techniques			
	Knows at least one foreign language		Can provide clear instructions on how to progress in three different cases			

Impact Analysis		Can deploy at least three support tools to systematically trace source of error or technical failure		Can analyse at least three symptoms of user error or technical failure	Can manage to code issues to support growth and integrity of online support tools	
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C2. Change Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows existing ICT application technical architecture	Can identify functional specifications of the information system		Can analyse how business processes are integrated and their dependency upon ICT applications		
	Knows at least three ICT solutions	Can identify the advantages of at least three information security management				
Organisation			Can transfer information to ICT team	Can connect museum needs and ICT solutions		
Communication	Know at least three communication techniques		Can apply at least three communication techniques with ICT staff members			
	Recognises the importance of preciseness		Demonstrates a high degree of interpersonal skills			
Impact Analysis	Knows at least three management tools and technique	Can estimate actions to mitigate the impact of changes (training, documentation, new processes...)		Can analyse the impact of functional/technical changes on users	Can manage change management tools and technique	
					Can plan evaluation, design and implementation methodologies	

C4. Change Support

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market		Can identify at least three evaluation, design and implementation methodologies				
		Can identify at least two applications and availability of diagnostic tools				
Organisation	Knows the museum's overall ICT infrastructure and key components		Can select digital asset management solution that fits the budget of the museum	Can critically analyse at least three digital asset management solutions		
	Knows the museum's reporting procedures					
	Knows the museum's critical situation escalation procedures					
Communication		Recognises the importance of preciseness	Can demonstrate the application of three communication techniques	Can identify the appropriate resources to deployed internally or externally to minimise outages		
Impact Analysis	Knows at least three risk management techniques	Can identify the link between system infrastructure elements and impact of failure on related business processes	Can identify progress of issues throughout lifecycle		Can propose solutions to at least two critical component failure	
					Can manage risk management audits	
					Can propose appropriate resources to maintenance activities, balancing cost and risk	

D11. Needs Identification						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit	Can assess emerging ICT and their possible application in museum context
					Can present digital asset management solution cost / benefit	Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes.	Can formalize three digital asset management processes.	
				Can analyze three online communication processes	Can formalize three online communication processes	
Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users.	Can demonstrate the application of three needs analysis techniques	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria
			Can record twenty requirements of museum key stakeholders and users			Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
			Can present ICT solution cost / benefit			
			Can present digital asset management solution cost / benefit			

E.1 Forecast Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Technology and market	Knows the market size and relevant fluctuations	Can identify at least two methods to generate sales forecasts in relation to current market share	Can apply at least three large scale data analysis techniques (data mining)	Can connect museum and audience needs with products in the market	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
	Knows accessibility of the market according to current conditions (e.g. government policies, emerging technologies, social and cultural trends, etc.)	Can interpret external research data and analyse information	Can apply new emerging technologies (e.g. distributed systems, virtualisation, mobility, data sets)	Can connect museum and audience needs with products in the market	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
			Can apply at least three methods to analyze information and business processes			
Organisation	Can interpret the extended supply chain operation			Can identify organisational processes and the way they are integrated and their dependency upon ICT applications	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
	Knows museum's budget dedicated to ICT development			Can compare sales and production forecasts of forthcoming/newly launched ICT tools and solutions and analyse potential mismatches		
				Can connect museum and audience needs with products in the market		
Stakeholders and Users	Knows museum and audience needs			Can connect museum and audience needs with products in the market		
	Knows at least three museum and audience need analysis techniques					

Communication				Can analyze in at least three different ways information and online communication processes		
Impact Analysis			Can apply at least three what-if techniques to produce realistic outlooks	Can identify organisational processes and the way they are integrated and their dependency upon ICT applications		
				Can identify four business advantages and improvements of adopting emerging technologies for the museum		
				Can analyze three future developments in business process and technology application		
				Can analyse feasibility in terms of costs and benefits		

E.3 Risk Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows at least three evaluation, design and implementation methodologies					
Organisation	Can identify at least four corporate values and interests		Can solve at least three conflicts			
Communication			Can interpret museum's risk analysis outcomes and risk management processes			

			Can interpret museum's risk analysis outcomes and risk management processes			
			applicable to interactive and multimedia installations/tools/applications			
			Can interpret museum's risk analysis outcomes and risk management processes to digital asset management			
Risk Management	Knows at least three good practices (methodologies) and standards in risk analysis		Can apply at least three risk and opportunity assessment techniques	Can develop risk management plan to identify required preventative actions		
			Can apply risk analysis taking into account corporate values and interests	Can design and document the processes for risk analysis and management		
			Can calculate the return on investment compared to risk avoidance	Can design and document the processes for risk analysis and management applicable to interactive and multimedia installations/tools/applications		

E.4 Relationship Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Organisation/Museum	Knows at least four museum processes including, decision making, budgets and management structure	Can identify at least four objectives of the museum	Can demonstrate empathy towards museum staff needs	Can determine museum's challenges and risks as long as they are relevant to digital asset management	Can establish realistic expectations to support development of mutual trust	
		Can identify museums, staff and technology		Can examine ongoing commitments to ensure fulfillment	Can propose at least three solutions to meet museums, staff and technology providers	

		providers needs			needs	
		Can identify at least three challenges and risks of the museum				
Stakeholders/audience/users		Can identify at least three objectives of stakeholders		Can determine stakeholders' objectives as long as they are relevant to digital asset management	Can examine and arrange resources to meet stakeholder requirements	
		Can identify at least three potential win-win opportunities for user/audience and museum			Can propose at least three techniques to respond to audience needs and their motivation	
Communication	Can present good and bad news to avoid surprises	Can express him/herself also at least in one foreign language	Can demonstrate good interpersonal skills		Can explain (defend, argue, justify)	

E.6 ICT Quality Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Standards/Best practices/Quality	Knows which methods, tools and procedure are applied within the museum and where they should be applied	Understands regulations and standards in energy efficiency and e-waste	Can apply the IS internal quality audit approach	Can determine technologies and standards to be used during the deployment	Can manage quality audits	
	Knows three ICT quality standards	Understands the museum's enterprise architecture and internal standards	Can operate three ICT quality standards	Can analyse (monitor, understand and act upon) quality indicators		

		Can recognize the potential and opportunities of relevant standards and best practices	Can apply digital asset management quality standards			
		Understands the importance of being ethical				
Technology			Can apply all the required technologies (web/cloud/mobile) and environmental requirements	Can determine at least three technologies and standards to be used during the deployment		
Museum		Understands the museum's enterprise architecture and internal standards	Can illustrate how methods, tools and procedures can be applied to implement the museum's quality policy			
Process			Can select at least three measures to evaluate effectiveness and efficiency of the overall process	Can analyse process steps to identify at least three strengths and weaknesses		

Online Cultural Community Manager

A3. Business Plan Development

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
ICT and management	Knows three emerging technologies (interactive/multimedia installation/tool/application)	Can report three present market needs	Can demonstrate three emerging technologies (interactive/multimedia)	Provides analysis of the present market environment	Addresses the design and structure of a business plan	Evaluates the product features based on the business plan

	Knows three present market needs	Can identify four main milestones in a management plan	installation/tool/application)			
Organization/ museum		Can identify five museum needs and goals	Can use the web technology for the museum's benefit	Can analyse the museum's environment	Can make a SWOT analysis based on the museum's strategy	
Stakeholders/ audience/ users		Can identify five stakeholders needs and goals	Can record five requirements of stakeholders and users			
Strategy (IS/ Online Communication/ Digital Asset Management)		Can conduct an IS/ online communication/ digital asset management strategy	Applies strategic thinking in exploitation of ICT		Can manage the creation of the best suited IS strategy	Can recommend the best online communication plan
			Can apply three risk and opportunity assessment techniques		Can explain how the online communication plan complement the overall communication strategy	Can evaluate the best digital asset management strategy
Impact analysis		Can identify the risks and the opportunities of the plan		Can analyse the impact of two business management plans on stakeholders		
				Can analyze the impact of functional/ technical changes on users		

A4. Product/ Service Planning						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Planning	Can label four basic decision - making methods	Can describe four basic decision - making methods	Can apply four basic decision - making methods	Can produce quality plans	Can generate optimization methods in the product/ service planning	Can evaluate basic decision - making methods
	Can define the different plans		Can use optimization methods		Can develop and maintain plans	
					Can manage the change request processes	
Management Methodologies	Knows two structured project management methodologies		Can operate two project management	Can analyze two project management methodologies	Can formalize two project management methodologies	Can assess two project management methodologies

			methodologies			
Organization/ museum		Can identify five museum needs and goals				
Decision makers/users	Knows five organization need analysis techniques	Can identify five decision makers/users needs and goals			Can manage adequate information for the decision makers	
		Can identify the key users				
Documentation	Knows how to document a plan	Can classify complex documents	Can predict three documentation	Can identify three additional documentation	Can develop two digital asset management plans and the related documentation	
			requirements for the digital asset management plan	requirements for the digital asset management plan		
Impact analysis		Can identify ten museum advantages and improvements of managing the change request process				

A7. Technology Trend Monitoring						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology	Can name three emerging technologies and their relevant applications			Can investigate three latest ICT technological developments	Can propose three latest ICT technological developments	Can recommend three latest ICT technological developments
				Can investigate three ICT technological developments in managing digital assets		
Market		Can identify three vendors and providers of the ICT solutions	Can select two vendors/ providers of the most promising ICT solutions			Can evaluate and justify the proposed vendors/ providers of ICT solutions

Information	Knows the relevant sources of information (magazines, conferences, events, newsletters, opinion-leaders, on-line – forum etc.)	Can discriminate the two most promising sources of information			Can propose the two most promising sources of information	Can assess the two most promising sources of information in the strategic decision - making
Museum	Knows five museum goals and needs	Identifies five museum advantages and improvements of adopting ICT	Can relate the existing products with the museum's needs	Can illustrate expert guidance and advice to the museum teams	Can propose three options for strategic decisions	Can decide the best ICT for the museum
Audience	Knows five audience goals and needs					Can take strategic decisions predicting ICT solutions for audience- oriented processes

A9. Innovating						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Thinking	Can present novel and open thinking		Applies innovative thinking	Can identify four appropriate resources	Can generate two innovation processes techniques in the provision of solutions	Can assess the two innovation processes techniques in the provision of solutions
			Can demonstrate revolutionary concepts		Can devise two creative solutions for supporting the digital asset management plan	
Technology	Knows three latest technological applications		Applies technological awareness	Can identify five advantages of adopting new technologies		Can recommend innovative changes to the ICT strategy
Business/ Market	Knows three business and market trends					
Museum	Knows five museum's goals and needs		Applies the technological solutions to the museum needs			Evaluates the technological solutions to the museum needs
Audience/users	Knows five audience goals and needs		Applies the technological solutions to the audience needs	Can analyse different target groups of audience (needs/ characteristics)		Evaluates the technological solutions to the audience needs

Impact				Analyze the impact of functional/ technical changes on audience/ users	
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B5. Documentation Production						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Documentation	Knows two standards in documentation	Can clarify the requirements of documentation	Applies standards to define document structure			
	Knows four objectives of documentation		Can produce documents describing interactive products/ tools/ applications			
			Can produce documents describing products/ tools/ applications for online communication			
			Can produce documents describing products/ tools/ applications used for digital asset management			
Technical documents	Knows different documents for designing/ developing and deploying products/ applications/ services					
Tools	Knows three tools		Applies tools for production/ editing and distribution of professional			
	for production/ editing and distribution of professional documents					

	Knows two tools for multimedia presentation tools		documents			
Technology	Knows two museum ICT technologies					

C1. User Support						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and Market	Know two software distribution methods	Can identify tree relevant ICT user application in museums	Can solve at least two online incidents following prescribed procedures	Can analyse at least three symptoms of user error or technical failure	Can combine software distribution methods to software fixes	
	Knows at least two sources of information for identifying potential solutions	Can deploy at least three support tools to systematically trace source of error or technical failure				
	Knows two techniques to structure database and to organize content					
	Knows at least two ICT users applications					
Organisation	Knows at least two sources of information for identifying potential solutions					
Stakeholders and Users	Knows at least two techniques to interrogate users	Can identify user's errors	Can apply at least two techniques to solve minor incidents			
	Knows at least three techniques to record users feedback					
Communication	Knows communication techniques (such as defend, argue, justify)	Recognizes the importance of clear communication in at least two incidents of mis-	Can demonstrate the application of three communication techniques			

	Knows at least one foreign language	communication with users	Can provide clear instructions on how to progress in three different cases			
Impact Analysis		Can deploy at least three support tools to systematically trace source of error or technical failure		Can analyse at least three symptoms of user error or technical failure	Can manage to code issues to support growth and integrity of online support tools	

C4. Problem Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market		Can identify at least three evaluation, design and implementation methodologies				
		Can identify at least two applications and availability of diagnostic tools				
Organisation	Knows the museum's overall ICT infrastructure and key components		Can select digital asset management solution that fits the budget of the museum	Can critically analyse at least three digital asset management solutions		
	Knows the museum's reporting procedures					
	Knows the museum's critical situation escalation procedures					
Communication		Recognises the importance of preciseness	Can demonstrate the application of three communication techniques	Can identify the appropriate resources to deployed internally or externally to minimise outages		
Impact Analysis	Knows at least three risk management techniques	Can identify the link between system infrastructure	Can identify progress of issues throughout lifecycle		Can propose solutions to at least two critical component failure	

		elements and impact of failure on related business processes			Can manage risk management audits	
					Can propose appropriate resources to maintenance activities, balancing cost and risk	

D2. ICT Quality Strategy Development						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Museum	Knows four museum needs	Can decode the museum's culture			Can establish ICT quality in museum culture	Can match museum needs with the existing products
	Can define three museum objectives				Can establish online communication applications quality in museum culture	
Audience	Knows four audience needs			Can identify four audience expectations	Can manage to satisfy four audience expectations	Can match audience needs with the existing products
Standards/ best practices	Knows the potentials and opportunities of standards for ICT quality	Can indicate three ICT quality standards	Uses two standards and best practices for ICT quality		Can create through standards/ best practices, objectives for service management, product and process quality	
		Can identify two standards for online community applications/ tools/solutions	Applies two standards for online community applications/ tools/solutions			
Communication	Can list three online communication applications (existing & emerging)			Can identify the best online communication applications (existing & emerging)		
Impact analysis				Can analyse the impact of functional/ technical changes on museum and audience needs		

D11. Needs Identification						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation

Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit	Can assess emerging ICT and their possible application in museum context
					Can present digital asset management solution cost / benefit	Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes	Can formalize three digital asset management processes	
				Can analyze three online communication processes	Can formalize three online communication processes	
Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users.	Can demonstrate the application of three needs analysis techniques	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria
			Can record twenty requirements of museum key stakeholders and users			Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
			Can present ICT solution cost / benefit			
			Can present digital asset management solution cost / benefit			

Impact analysis		Can identify ten museum advantages and improvements of adopting new technologies based on user experience		analyse the impact of functional/technical changes on key stakeholders and users		Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
						Can evaluate the impact of functional/technical changes on key stakeholders and users

D12. Digital Marketing						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Strategy	Knows two digital marketing plans	Can identify two digital marketing plans	Can apply two digital marketing tactics		Can develop an effective digital marketing plan	
Technological tools	Can record three analytical tools		Can use three analytical tools			
	Can name the digital marketing areas (search/display/email/social media/mobile marketing)					
Web technologies	Knows five social media	Can recognize four web technologies	Can assess the effectiveness of websites (technical performance/speed)	Can inspect the web analytics	Can manage the e-reputation	
		Understands the online environment (how it works)				
User/ audience	Knows four user needs		Can assess the engagement of the user based on analytical reports			
	Knows all user target groups		Uses the web technology to increase user/ audience satisfaction			

E.1 Forecast Development

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Knows the market size and relevant fluctuations	Can identify at least two methods to generate sales forecasts in relation to current market share	Can apply at least three large scale data analysis techniques (data mining)	Can connect museum and audience needs with products in the market	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
	Knows accessibility of the market according to current conditions (e.g. government policies, emerging technologies, social and cultural trends, etc.)	Can interpret external research data and analyse information	Can apply new emerging technologies (e.g. distributed systems, virtualisation, mobility, data sets)			
			Can apply at least three methods to analyze information and business processes			
Organisation	Can interpret the extended supply chain operation			Can identify organisational processes and the way they are integrated and their dependency upon ICT applications	Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed	
	Knows museum's budget dedicated to ICT development			Can compare sales and production forecasts of forthcoming/newly launched ICT tools and solutions and analyse potential mismatches		
				Can connect museum and audience needs with products in the market		
Stakeholders and Users	Knows museum and audience needs			Can connect museum and audience needs with products in the market		
	Knows at least three museum and audience need analysis techniques					

Communication				Can analyze in at least three different ways information and online communication processes		
Impact Analysis			Can apply at least three what-if techniques to produce realistic outlooks	Can identify organisational processes and the way they are integrated and their dependency upon ICT applications		
				Can identify four business advantages and improvements of adopting emerging technologies for the museum		
				Can analyze three future developments in business process and technology application		
				Can analyse feasibility in terms of costs and benefits		

E.4 Relationship Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Organisation/Museum	Knows at least four museum processes including, decision making, budgets and management structure	Can identify at least four objectives of the museum	Can demonstrate empathy towards museum staff needs	Can determine museum's challenges and risks as long as they are relevant to digital asset management	Can establish realistic expectations to support development of mutual trust	
		Can identify museums, staff and technology providers needs		Can examine ongoing commitments to ensure fulfillment	Can propose at least three solutions to meet museums, staff and technology providers needs	

		Can identify at least three challenges and risks of the museum				
Stakeholders/audience/users		Can identify at least three objectives of stakeholders		Can determine stakeholders' objectives as long as they are relevant to digital asset management	Can examine and arrange resources to meet stakeholder requirements	
		Can identify at least three potential win-win opportunities for user/audience and museum			Can propose at least three techniques to respond to audience needs and their motivation	
Communication	Can present good and bad news to avoid surprises	Can express him/herself also at least in one foreign language	Can demonstrate good interpersonal skills		Can explain (defend, argue, justify)	

E.6 ICT Quality Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Standards/Best practices/Quality	Knows which methods, tools and procedure are applied within the museum and where they should be applied	Understands regulations and standards in energy efficiency and e-waste	Can apply the IS internal quality audit approach	Can determine technologies and standards to be used during the deployment	Can manage quality audits	
	Knows three ICT quality standards	Understands the museum's enterprise architecture and internal standards	Can operate three ICT quality standards	Can analyse (monitor, understand and act upon) quality indicators		
		Can recognize the potential and opportunities of relevant standards and best practices	Can apply digital asset management quality standards			
		Understands the importance of being ethical				

Technology			Can apply all the required technologies (web/cloud/mobile) and environmental requirements	Can determine at least three technologies and standards to be used during the deployment		
Museum		Understands the museum's enterprise architecture and internal standards	Can illustrate how methods, tools and procedures can be applied to implement the museum's quality policy			
Process			Can select at least three measures to evaluate effectiveness and efficiency of the overall process	Can analyse process steps to identify at least three strengths and weaknesses		

E.7 Business Change Management						
Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Business Process			Can apply at least three evaluation, design and implementation methodologies	Can analyse information and online communication processes in at least three different ways	Can construct and document a plan for implementation of process enhancements	Can optimize museum business strategy and processes
			Can apply at least four project management standards and tools	Can connect how business processes are integrated and their dependency upon ICT applications		Can interpret information and business processes in at least three different ways
				Can connect how museum's online communication processes are integrated into the online marketing mix and dependent upon ICT applications		Can evaluate costs and benefits of business changes
						Can predict future developments in organisational process and technology application

ICT strategy	Knows at least three digital strategies		Can apply digital strategies		Can propose at least two appropriate ICT solutions based upon benefit, risks and overall impact	
					Can propose at least three organisational advantages and improvements of adopting emerging technologies	
Communication					Can explain (defend, argue, justify)	
Impact				Can analyse costs and benefits of museum's organisational changes	Can propose at least three appropriate ICT solutions based upon benefit, risks and overall impact	Can predict the impact of business changes on the museum and human resources
					Can revise and explain effects of implementations	Can predict the impact of business changes on legal issues
						Can predict the impact of business changes related to online communication on the museum and human resources
						Can predict organisational advantages and improvements of adopting emerging technologies

Annex 8.1.1. Methodology for defining the learning outcomes for each role profile – the example of e-competence D11.

In figure 1, is shown the description of a sample competence (D.11. Needs identification). In the following, the steps of the proposed methodology will be described in detail. The activities of each step will be analyzed and examples based on the competence D.11. will be provided.

Dimension 1 e-Comp. area	D. ENABLE	
Dimension 2 e-Competence: Title + generic description	D.11. Needs Identification Actively listens to key stakeholders. e.g. children, local audiences, tourists, decision makers, educational institution representatives, Cultural Heritage professionals, museum employees, to articulate and clarify their needs. Manages the relationship with all stakeholders to ensure that the solution is in line with business requirements. Proposes different solutions (e.g. make-or-buy), by performing contextual analysis in support of user centered system design. Advises the museum on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solution.	
Dimension 3 e-Competence proficiency levels	Level 1	
	Level 2	
	Level 3	Establishes reliable relationships with key stakeholders, e.g. children, local audiences, tourists, decision makers, educational

e-1 to e-5, related to EQF levels 3 to 8		institution representatives, Cultural Heritage professionals, museum employees, and helps them clarify their needs.
	Level 4	Exploits wide ranging specialist knowledge of the key stakeholders to offer possible solutions to their needs.
	Level 5	Provides leadership in support of the management team’s strategic decisions. Helps key stakeholders to envisage new ICT solutions, fosters partnerships and creates value propositions.
Dimension 4	K1 emerging technologies and the relevant market applications K2 museum needs K3 key stakeholders needs K4 organisation processes and structures K5 customer need analysis techniques K6 communication techniques K7 “Story telling” techniques	
Knowledge examples <i>Knows/Aware of/Familiar with</i>		
Skills examples <i>Is able to</i>	S1 analyse and formalise business processes S2 analyse customer requirements S3 present ICT solution cost / benefit S4 match key stakeholders needs with existing products S5 analyse the impact of functional/technical changes on key stakeholders	

Figure 1. Sample description of an e-CF competence (D.11. Needs identification)

STEP 1: Create a table showing the occurrence of each competence across job roles

Table 1 shows the e-CF competences that are being used in the definition of eCulture job roles. In each cell, the e-CF levels that each competence has to be mastered per profile are shown. Overall, 31 competences are used.

e-CF Competences	Cultural ICT Consultant	Cultural (ICT-enabled) Guide	Digital Cultural Asset Manager	Interactive Cultural Experience Developer	Online Cultural Community Manager
A.1. IS and Museum Strategy Alignment	4, 5				
A.2. Service Level Management	3,4				
A.3. Management Plan Development	4,5		3, 4, 5	3,4	3,4
A.4. Product / Service Planning	2,3, 4		2,3,4	2, 4	2,3,4
A.6. Application Design				1,2,3	
A.7. Technology Trend Monitoring	4,5		4	4	4
A.8. Sustainable Development	3,4				
A.9. Innovating	4,5		4	4,5	4,5
B.1. Application Developing				1,2,3	
B.2. Component Integration				2,3,4	
B.3. Testing				2,3	
B.4. Solution Deployment				1,2,3	
B.5. Documentation Production			1,2,3	1,2,3	1,2,3
C.1. User Support		2		1,2	1,2,3
C.2. Change Support	2, 3			2,3	
C.3. Service Delivery			2		
C.4. Problem Management			2,3	2,3	2,3
D.1. Information Security Strategy Development	4,5				
D.2. ICT Quality Strategy Development	4,5				2
D.3. Education and Training Provision	1,2,3,4				
D.4. Purchasing	2,3,4		2,3		
D.10. Information and Knowledge Management	4,5		3,4,5		
D.11. Needs Identification	3,4,5	3,4	3,4	3,4	3,4
D.12. Digital Marketing					2,3

E.1. Forecast Development	3,4			3,4	3,4
E.3. Risk Management	2,3,4		2,3	2,3	
E.4. Relationship Management	3,4		3	3	4
E.5. Process Improvement	3,4				
E.6. Quality Management	2,3,4		2,3,4	2,3,4	2,3,4
E.7. Change Management	3,4,5				3,4

Table 1. Participation of e-CF competences per job role (with e-CF level)

STEP 2: Define learning unit for each competence

The definition of a learning unit contains the following activities:

- a. Write competence transversal description
- b. Write learning outcomes
- c. Define assessment techniques

STEP 2a. Writing the competences transversal description

Since each competence may take part in several job roles, albeit with slightly different content, in this step, for each competence, a table containing all definitions (Table 2) and level descriptions (Table 3) is compiled.

In Table 2, all definitions of D.11 competence across all job roles are gathered. These correspond to Dimension 2 of e-CF. Similar requirements or sub-competences are marked using the same color. Then, one can see that, a generic description of D.11 competence can be as follows (colors match the ones used in Table 2):

1. **Be able to actively listen** (to internal / external key stakeholders and users, e.g. children, local audiences, tourists, decision makers, educational institution representatives, Cultural Heritage professionals, museum employees)
2. **Be able to articulate and clarify their needs and perform contextual analysis**
3. **Manage the relationship with all stakeholders** (to ensure that the solution is in line with museum and user requirements)
4. **Propose different solutions** (i.e. make or buy) and **advise the museum** (on appropriate solution choices)
5. **Engage in the implementation or configuration process** of the chosen solutions

Cultural ICT consultant	Actively listens to key stakeholders. e.g. children, local audiences, tourists, decision makers, educational institution representatives, Cultural Heritage professionals, museum employees, to articulate and clarify their needs. Manages the relationship with all stakeholders to ensure that the solution is in line with business requirements. Proposes different solutions (e.g. make-or-buy), by performing contextual analysis in support of user centered system design. Advises the museum on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solution.
Cultural ICT guide	Actively listens to audience, articulates and clarifies their needs. Proposes different solutions customised to the identified audience needs. Advises the museum's management team on appropriate solution choices.
Digital cultural asset manager	Actively listens to internal / external users, articulates and clarifies their needs. Manages the relationship with all stakeholders to ensure that digital asset management is in line with museum requirements. Proposes different solutions (e.g. make-or-buy), by performing contextual analysis in support of user centered system design. Advises the museum's management team on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solutions.
Interactive cultural experience developer	Actively listens to internal / external key stakeholders, e.g. museum staff and representatives of its audience, articulates and clarifies their needs. Manages the relationship with all stakeholders to ensure that the solution is in line with museum and user requirements. Proposes different solutions (e.g. make-or-buy), by performing contextual analysis in support of user centered system design. Advises the museum's management team on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen solution.
Online cultural community manager	Actively listens to internal / external key stakeholders, articulates and clarifies their needs. Manages the relationship with all stakeholders to ensure that the solution is in line with museum requirements. Proposes different solutions, by performing contextual analysis in support of user centered online communication plan. Advises the organisation's management team on appropriate solution choices. Acts as an advocate engaging in the implementation or configuration process of the chosen components of the plan.

Table 2. Definitions of D.11 competence across job roles

In Table 3, the description of the proficiency levels for competence D.11 across all job roles are given. These correspond to Dimension 3 of e-CF (note that e-CF levels map to EQF levels). One can see that D.11 competence in all profiles is required to be demonstrated at e-CF levels 3 and 4, while in one profile, level 5 must be demonstrated as well.

One can see that in level 3, the professional should be able to:

1. Establish reliable relationships with key stakeholders and users, and
2. Clarify their needs

Clearly, the ability to actively listen is necessary in order to establish reliable relationships.

In level 4, the professional should be able to:

1. Offer possible solutions to key stakeholders and users, using his/her expert knowledge of their needs (therefore level 4 supersedes level 3), and
2. Provide expert guidance (by proposing solutions and supplier)

In some cases, the professional should also engage in the implementation or configuration process of the chosen solutions.

In level 5, the professional should be able to:

1. Provide leadership in support of the management team’s strategic decisions,
2. Help key stakeholders to envisage new ICT solutions,
3. Foster partnerships and
4. Create value propositions

Clearly these call for the competence to be exercised to the highest possible EQF level.

	LEVEL 3	LEVEL 4	LEVEL 5
Cultural ICT consultant	Establishes reliable relationships with key stakeholders, e.g. children, local audiences, tourists, decision makers, educational institution representatives, Cultural Heritage professionals, museum employees, and helps them clarify their needs.	Exploits wide ranging specialist knowledge of the key stakeholders to offer possible solutions to their needs.	Provides leadership in support of the management team’s strategic decisions. Helps key stakeholders to envisage new ICT solutions, fosters partnerships and creates value propositions.
Cultural ICT guide	Establishes reliable relationships with audience and helps them clarify their needs.	Uses her/his knowledge on the audience needs to suggest possible solutions, customisations of tools/applications/services.	
Digital cultural asset manager	Establishes reliable relationships with users and helps them clarify their needs.	Exploits wide ranging specialist knowledge of the user needs to offer possible solutions to their-needs. Provides expert guidance to the user by proposing solutions and supplier.	

Interactive cultural experience developer	Establishes reliable relationships with key stakeholders, museum staff and representatives of the audience, and helps them clarify their needs.	Exploits wide ranging specialist knowledge of the key stakeholders, museum staff and representatives of the audience to offer possible solutions their—needs. Provides expert guidance to all by proposing solutions and supplier.	
Online cultural community manager	Establishes reliable relationships with key stakeholders and helps them clarify their needs.	Exploits wide ranging specialist knowledge of the key stakeholders (see summary statement) to offer possible solutions to their needs. Provides expert guidance to the key stakeholders by proposing solutions and supplier.	

Table 3. Description of various levels for D.11 competence across job roles

STEP 2b. Writing the learning outcomes

Firstly, a table containing all knowledge and skill items (e-CF dimension 4) is compiled (Table 4). Note that, most of these items are in effect the result of the contextualization of the generic knowledge and skill items listed in the D.11 competence of e-CF (shown in the first row of Table 4); extra items are colored in red.

	KNOWLEDGE	SKILL
Generic e-CF	K1 emerging technologies and the relevant market applications K2 business needs K3 organisation processes and structures K4 customer need analysis techniques K5 communication techniques K6 "Story telling" techniques	S1 analyse and formalise business processes S2 analyse customer requirements S3 present ICT solution cost/benefit
Cultural ICT consultant	K1 emerging technologies and the relevant market applications K2 museum needs K3 key stakeholders needs K4 organisation processes and structures K5 customer need analysis techniques K6 communication techniques K7 "Story telling" techniques	S1 analyse and formalise business processes S2 analyse customer requirements S3 present ICT solution cost / benefit S4 match key stakeholders needs with existing products S5 analyse the impact of functional/technical changes on key stakeholders
Cultural ICT guide	K1 technologies and their relevant applications K2 museum's goals K3 audience needs / expectations K4 museum processes and structures K5 audience needs' analysis techniques K6 communication techniques K7 "Story telling" techniques	S1 analyse audience requirements S2 match audience needs with existing ICT applications S3 analyse the impact of functional/technical changes on audience S4 identify museum advantages and improvements of adopting new technologies based on user experience
Digital cultural asset manager	K1 emerging technologies and the relevant market applications K2 museum's needs K3 user needs K4 museum processes and structures K5 user need analysis techniques K6 communication techniques K7 "Story telling" techniques	S1 analyse and formalise digital asset management processes S2 analyse user requirements S3 present digital asset management solution cost / benefit S4 match user needs with existing products S5 analyse the impact of functional/technical changes on user
Interactive cultural experience developer	K1 emerging technologies and the relevant market applications K2 key stakeholders needs K3 museum processes and structures K4 user need analysis techniques K5 communication techniques K6 "Story telling" techniques	S1 analyse and formalise asset management processes S2 analyse audience requirements S3 evaluate interactive and multimedia installations/tools /applications cost / benefit S4 match key stakeholders needs with existing products

		\$5 analyse the impact of functional/technical changes on key stakeholders
Online cultural community manager	K1 emerging technologies and the relevant market applications K2 museum’s communication needs K3 key stakeholders needs K4 museum processes and structures K5 audience need analysis techniques K6 communication techniques K7 “Story telling” techniques	S1 analyse and formalise online communication processes S2 analyse museum and audience requirements S3 present ICT solution cost / benefit \$4 match key stakeholders needs with existing products \$5 analyse the impact of functional/technical changes on key stakeholders

Table 4. Knowledge and skill items for D.11 competence across all job roles

Secondly, similar knowledge and skill items are merged, resulting to broad (knowledge and skill) items. For the D.11 competence, these are:

1. **Technology and market** (knowledge of emerging technologies and the relevant market applications, present ICT solution cost/benefit)
2. **Organization** (business needs, museum needs, museum goals, organisation processes and structures, museum processes and structures, museum communication needs, analyse and formalise business processes, analyse and formalise digital asset management processes, analyse and formalise online communication processes)
3. **Stakeholders and users** (customer need analysis techniques, audience needs analysis techniques, user need analysis techniques, key stakeholders needs, audience needs / expectations, user needs, analyse customer requirements, analyse museum and audience requirements, analyse user requirements, match key stakeholders needs with existing products, match audience needs with existing ICT applications match user needs with existing products, match key stakeholders needs with existing products)
4. **Communication** (communication techniques, “Story telling” techniques, present ICT solution cost / benefit, present digital asset management solution cost / benefit, analyse and formalise online communication processes)
5. **Impact analysis** (analyse the impact of functional/technical changes on key stakeholders, identify museum advantages and improvements of adopting new technologies based on user experience, analyse the impact of functional/technical changes on user, evaluate interactive and multimedia installations/tools /applications cost / benefit)

These five broad items will form the Core learning outcomes of the learning units.

In the third step, for each of the broad knowledge and skill items, learning outcomes are produced, following the ABCD approach and using verbs appropriate to the Bloom taxonomy level. This step entails allocation of learning outcomes to one of the six levels of Bloom taxonomy. In Table 5, the outcome of this step regarding D.11 competence is shown.

The Learning Outcomes that relate to specific job roles (contextualized learning outcomes) have been colored.

The outcome of this step is a list of learning outcomes per unit of the module.

STEP 2c. Define assessment techniques

STEP 3: Prepare training material – one separate training session for each of the job roles on the basis of the learning units (and core competences defined therein)

STEP 4: Adapt training methods/ Fine-tuning

When all learning units are ready and all profiles covered, we need to check whether learning outcomes, evaluation methods, KPIs, responsibilities and deliverables are covered

Module	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Technology and market	Can look for and enumerate three ICT suitable for museums	Can describe three ICT and their application in museums	Can operate or apply three ICT in museums	Can analyze cost / benefit of three ICT in museums	Can present ICT solution cost / benefit Can present digital asset management solution cost / benefit	Can assess emerging ICT and their possible application in museum context Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis
Organization		Can identify museum needs and goals, organizational chart, information, communication and control processes		Can analyze three digital asset management processes. Can analyze three online communication processes	Can formalize three digital asset management processes. Can formalize three online communication processes	

Stakeholders and users	Knows five stakeholder and user need analysis techniques	Can identify ten museum key stakeholders and users.	Can demonstrate the application of three needs analysis techniques Can record twenty requirements of museum key stakeholders and users	Can analyze twenty requirements of museum key stakeholders and users		Can select the appropriate needs analysis technique based on criteria Can match user key stakeholder and user needs with existing ICT applications and products
Communication	Knows five communication techniques		Can demonstrate the application of three communication techniques Can present ICT solution cost / benefit Can present digital asset management solution cost / benefit	Can analyze online communication processes	Can formalize online communication processes	Can select the appropriate communication technique based on criteria
Impact analysis		Can identify ten museum advantages and improvements of adopting new technologies based on user experience		analyse the impact of functional/technical changes on key stakeholders and users		Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis Can evaluate the impact of functional/technical changes on key stakeholders and users

Table 5. Learning outcomes per module for D.11 competence

Annex 8.2. – Writing the learning outcomes

The adoption of learning outcomes in the educational process marks a shift from the traditional “teacher centred” approach to a “student centred” approach. In the former model, only teachers were responsible for the content to be taught and the instructional strategy to be used. Course descriptions consisted of the content that would be covered in lectures, while assessment focused on how well the students absorbed this content. The “student centred” model adopts an “outcome-based” approach, focusing on what the students will learn, master and be able to do as they progress through the course.

Various definitions of a learning outcome appear in the literature. The common ground among them is that learning outcomes describe:

- what the learner has achieved rather than the intentions of the teacher;
- what the learner can demonstrate at the end of a learning activity.

In this document we shall adopt the following definitions (EQF, 2008):

- A **“learning outcome”** is a statement of what a learner knows, understands and is able to do on completion of a learning process, which is defined in terms of knowledge, skills and competence;
- **“Knowledge”** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;
- **“Skills”** means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);
- **“Competence”** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.
- **“Qualification”** means a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards;

The learning outcome approach requires, first of all, a change in perspective and a new way of approaching teaching goals, in order to develop valid courses. Then, the actual process of writing the learning outcomes is a consequence of these changes.

The following general guidelines may be of assistance when writing learning outcomes:

- Use the ABCD / SMART approaches in writing the learning outcomes

- Each learning outcome should refer to one and only level in Benjamin Bloom's taxonomy
- Avoid complicated sentences. If necessary use more than one sentence to ensure clarity
- Each learning outcome should contain one and only one action verb; use the list of verbs associated with each level in the taxonomy
- Avoid vague terms like know, understand, learn, be familiar with, be exposed to, be acquainted with, and be aware of. These terms are associated with teaching objectives rather than learning outcomes
- The learning outcomes must be observable, measurable and capable of being assessed
- Bear in mind the timescale within which the outcomes are to be achieved. There is always the danger that one can be over-ambitious when writing learning outcomes. Ask yourself if it is realistic to achieve the learning outcomes within the time and resources available
- Before finalizing the learning outcomes, ask your colleagues and possibly former students if the learning outcomes make sense to them

The ABCD and SMART approaches

In order to write useful learning outcomes, we suggest adopting the ABCD approach (Mager, 1984):

- **Audience:** determines who will master the outcome. A very common way to begin a learning outcome is: "The student will be able to..."
- **Behavior:** says what a learner is expected to be able to perform as a result of achieving the learning outcome, or, in other words, how will the student demonstrate achievement of the outcome
- **Condition:** describes the important conditions (if any) under which student's performance is to occur
- **Degree:** wherever possible, describes the criterion of acceptable performance by describing how well the learner must perform in order to be considered acceptable.

Note that the verb used to describe a desirable behaviour in a learning outcome must be observable. However, a performance can be overt or covert. The former refers to any kind of performance that can be observed directly, whether that performance be visible or audible, while the latter refers to performance that cannot be observed directly, performance that is mental, invisible, cognitive, or internal. A performance can be covert as long as there is a direct way determining whether it satisfies the outcome. "A direct way" means a single behavior that will indicate the covert skill.

When specifying the condition, one should be detailed enough to be sure the desired performance would be recognized by another competent person. Here are some questions to ask:

- What will the learner be allowed to use?
- What will the learner be denied?

- Under what conditions the desired performance is expected to occur?
- Are there any skills that the student specifically should not develop?

Examples of degrees: time limits, accuracy, quality. By specifying the acceptable level of performance for each outcome, one has the means for determining whether instruction is successful. Both the teacher and the student would know the quality of performance necessary to work for or exceed.

Examples of well written outcomes are:

- “Given a sentence written in the past or present tense, the student will be able to re-write the sentence in future tense with no errors in tense or tense contradiction.”
- “Given the opportunity to work in a team with several people of different races, the student will demonstrate a positive increase in attitude towards non-discrimination of race, as measured by a checklist utilized/completed by non-team members.”
- “Given 3 minutes of class time, the student will solve 9 out of 10 multiplication problems of the type: $5 \times 4 = \underline{\quad}$.”
- “Given a map of Europe, the student will be able to list 8 capital cities in 5 minutes”.

Legend:

- Audience - Green
- Behavior - Red
- Condition - Yellow
- Degree - Blue

The ABCD approach can be combined with the SMART approach for better results:

- **Specific** means that the learning outcome describes the knowledge, skills and competences that a learner should be able to demonstrate following exposure to a learning activity.
- **Measurable** means that achievement of learning objectives can be measured by specific evaluation methods during or after the session.
- **Action-oriented** means that the objective includes an action verb that demonstrates change or acquisition of knowledge, skills or competences.
- **Reasonable** means that the objective reflects realistic expectations of knowledge, skills and competences acquisition/change given the conditions for instruction.
- **Time-bound** means that the objective specifies a time frame in which learners are expected to achieve the learning objective(s)—usually by the end of the session.

Examples of SMART outcomes:

- Following this session, participants will describe four factors that increase the risk of HIV transmission in women.
- After attending the lecture and studying the assigned handouts, participants will list three types of tests.

Legend:

- Specific - Magenta
- Measurable - Blue
- Action oriented - Red
- Reasonable - Green
- Time bound - Yellow

To include:

The taxonomy of Benjamin Bloom

Contemporary approaches to writing learning outcomes are based on the work of Benjamin Bloom (1913 – 1999), who studied in Pennsylvania State University, USA and graduated with bachelor and master degrees from that institution. He then worked with Ralph Tyler at the University of Chicago and graduated with a PhD in Education in 1942. Bloom identified three domains of learning – cognitive, affective and psycho-motor – each of which is organized as a series of levels or pre-requisites. It is suggested that one cannot effectively — or ought not try to — address higher levels until those below them have been covered (it is thus effectively serial in structure). The three domains can be defined as follows (Atherton, 2011):

- **Cognitive:** it is the most widely used of the three domains. It refers mostly to knowledge structures and contains a classification (or taxonomy) of thinking behaviors from the simple recall of facts up to the process of analysis and evaluation (Bloom et al, 1956). A revised taxonomy of levels has been proposed by Anderson and Krathwohl (2001).
- **Affective:** it is concerned with values, or more precisely perhaps with perception of value issues, and ranges from mere awareness (Receiving), through to being able to distinguish implicit values through analysis (Bloom, Krathwohl and Masia, 1964).
- **Psycho-Motor:** it mainly emphasizes physical skills involving co-ordination of the brain and muscular activity and is commonly used in areas like laboratory science subjects, health sciences, art, music, engineering, drama and physical education. Bloom never completed work on this domain, and there have been several attempts to complete it. One of the simplest versions has been suggested by Dave (1970); a more detailed one by Simpson (1972).

As well as providing a basic sequential model for dealing with topics in the curriculum, Bloom's taxonomy also suggests a way of categorizing levels of learning, in terms of the expected ceiling for a given course.

Cognitive domain

Bloom's work is most advanced in the cognitive domain and provides a framework in which one can build upon prior learning to develop more complex levels of understanding. It is frequently used for writing learning outcomes, since it provides a ready-made structure and list of verbs. The use of the correct verbs is the key to the successful writing of learning outcomes.

Bloom's taxonomy of cognitive domain consists of the following six levels (Bloom et al, 1956, Kennedy et al, 2006):

1. **Knowledge:** may be defined as the ability to recall or remember facts without necessarily understanding them. Some of the action verbs used to assess knowledge are:
Arrange, collect, define, describe, duplicate, enumerate, examine, find, identify, label, list, memorise, name, order, outline, present, quote, recall, recognise, recollect, record, recount, relate, repeat, reproduce, show, state, tabulate, tell.

2. **Comprehension:** may be defined as the ability to understand and interpret learned information. Some of the action verbs used to assess comprehension are:
Associate, change, clarify, classify, construct, contrast, convert, decode, defend, describe, differentiate, discriminate, discuss, distinguish, estimate, explain, express, extend, generalise, identify, illustrate, indicate, infer, interpret, locate, paraphrase, predict, recognise, report, restate, rewrite, review, select, solve, translate.

3. **Application:** may be defined as the ability to use learned material in new situations, e.g. put ideas and concepts to work in solving problems. Some of the action verbs used to assess application are:
Apply, assess, calculate, change, choose, complete, compute, construct, demonstrate, develop, discover, dramatise, employ, examine, experiment, find, illustrate, interpret, manipulate, modify, operate, organise, practice, predict, prepare, produce, relate, schedule, select, show, sketch, solve, transfer, use.

4. **Analysis:** may be defined as the ability to break down information into its components, e.g. look for inter-relationships and ideas (understanding of organisational structure). Some of the action verbs used to assess analysis are:
Analyse, appraise, arrange, break down, calculate, categorise, classify, compare, connect, contrast, criticise, debate, deduce, determine, differentiate, discriminate, distinguish, divide, examine, experiment, identify, illustrate, infer, inspect, investigate.

5. **Synthesis:** may be defined as the ability to put parts together. Some of the action verbs used to assess synthesis are:
Argue, arrange, assemble, categorise, collect, combine, compile, compose, construct, create, design, develop, devise, establish, explain, formulate, generalise, generate, integrate, invent, make, manage, modify, organise, originate, plan, prepare, propose, rearrange, reconstruct, relate, reorganise, revise, rewrite, set up, summarise.

6. **Evaluation:** may be defined as the ability to judge the value of material for a given purpose. Some of the action verbs used to assess evaluation are:
Appraise, ascertain, argue, assess, attach, choose, compare, conclude, contrast, convince, criticise, decide, defend, discriminate, explain, evaluate, grade, interpret, judge, justify, measure, predict, rate, recommend, relate, resolve.

A more detailed classification of verbs per level can be found in BCIT (1996) and online.

Bear in mind that, when writing learning outcomes, try to avoid overloading the list with outcomes which are drawn from the lower levels of Bloom's taxonomy, but also try to challenge the students to use what they have learned by including some learning outcomes drawn from the higher levels.

Affective domain

In order to describe the way in which we deal with things emotionally, Bloom and his colleagues developed five major categories (Bloom, Krathwohl and Masia, 1964):

1. **Receiving.** This refers to a willingness to receive information, e.g. the individual accepts the need for a commitment to service, listens to others with respect, shows sensitivity to social problems, etc.
2. **Responding.** This refers to the individual actively participating in his or her own learning, e.g. shows interest in the subject, is willing to give a presentation, participates in class discussions, enjoys helping others, etc.
3. **Valuing.** This ranges from simple acceptance of a value to one of commitment, e.g. the individual demonstrates belief in democratic processes, appreciates the role of science in our everyday lives, shows concern for the welfare of others, shows sensitivity towards individual and cultural differences, etc.
4. **Organisation.** This refers to the process that individuals go through as they bring together different values, resolve conflicts among them and start to internalise the values, e.g. recognises the need for balance between freedom and responsibility in a democracy, accepts responsibility for his or her own behaviour, accepts professional ethical standards, adapts behaviour to a value system, etc.
5. **Characterisation.** At this level the individual has a value system in terms of their beliefs, ideas and attitudes that control their behavior in a consistent and predictable manner, e.g. displays self reliance in working independently, displays a professional commitment to ethical practice, shows good personal, social and emotional adjustment, maintains good health habits, etc.

A set of verbs that can be used to express learning outcomes in the affective domain includes: *act, adhere, appreciate, ask, accept, answer, assist, attempt, challenge, combine, complete, conform, cooperate, defend, demonstrate (a belief in), differentiate, discuss, display, dispute, embrace, follow, hold, initiate, integrate, justify, listen, order, organise, participate, practice, join, share, judge, praise, question, relate, report, resolve, share, support, synthesise, value*

A more detailed classification of verbs per level can be found in BCIT (1996) and online.

Psychomotor domain

Dave (1970) proposed a hierarchy consisting of five levels:

1. **Imitation:** Observing the behaviour of another person and copying this behaviour. This is the first stage in learning a complex skill.
2. **Manipulation:** Ability to perform certain actions by following instructions and practicing skills.

3. **Precision:** At this level, the student has the ability to carry out a task with few errors and become more precise without the presence of the original source. The skill has been attained and proficiency is indicated by smooth and accurate performance.
4. **Articulation:** Ability to co-ordinate a series of actions by combining two or more skills. Patterns can be modified to fit special requirements or solve a problem.
5. **Naturalisation:** Displays a high level of performance naturally (“without thinking”). Skills are combined, sequenced and performed consistently with ease.

Subsequently, Simpson (1972) developed a more detailed hierarchy consisting of seven levels:

1. **Perception:** The ability to use observed cues to guide physical activity.
2. **Set (mindset):** The readiness to take a particular course of action. This can involve mental, physical and emotional disposition.
3. **Guided response:** The trial-and-error attempts at acquiring a physical skill. With practice, this leads to better performance.
4. **Mechanism:** The intermediate stage in learning a physical skill. Learned responses become more habitual and movements can be performed with some confidence and level of proficiency.
5. **Complex Overt Responses:** Physical activities involving complex movement patterns are possible. Responses are automatic and proficiency is indicated by accurate and highly coordinated performance with a minimum of wasted effort.
6. **Adaptation:** At this level, skills are well developed and the individual can modify movements to deal with problem situations or to fit special requirements.
7. **Origination:** The skills are so highly developed that creativity for special situations is possible.

A set of verbs that can be used to express learning outcomes in the affective domain includes:

Adapt, adjust, administer, alter, arrange, assemble, balance, bend, build, calibrate, choreograph, combine, construct, copy, design, deliver, detect, demonstrate, differentiate (by touch), dismantle, display, dissect, drive, estimate, examine, execute, fix, grasp, grind, handle, heat, manipulate, identify, measure, mend, mime, mimic, mix, operate, organise, perform (skilfully), present, record, refine, sketch, react, use.

A more detailed classification of verbs per level can be found in BCIT (1996) and online.

Methodology for writing learning outcomes

Given the above, we propose the following methodology for developing usable learning outcomes:

- **Step 1:** Collect data related to the topic of the course or the knowledge / skill / competence of the module and prepare a textual description
- **Step 2:** Analyze the meaning of every word given and define every unknown term
- **Step 3:** Differentiate between knowledge, skill and competence; these correspond to different levels in Bloom’s taxonomy
- **Step 4:** Apply the ABCD approach to create one learning outcome for each knowledge, skill or competence

- **Step 5:** Evaluate the learning outcomes for clarity, coherence, completeness (with respect to the domain AND to Bloom’s taxonomy levels) and ability to be assessed
- **Step 6:** Go to step 1 if any of the above conditions is not met and repeat the cycle

Note that steps 1 and 2 belong the Preparation phase, steps 3 and 4 belong to the Development phase and steps 5 and 6 belong to the Evaluation phase. Here is an example of the application of the methodology to the definition of learning outcomes for Webmaster, one job profile developed in project PIN. For the construction of learning outcomes specific data was used: the job profile of Webmaster, the competence B1, Design and development (e-Competence Framework), which belongs to competence area Build and a set of Technical skills, including:

- T01: Has knowledge of netiquette, interactive virtual environment, Social networks, etc.
- T02: Has knowledge of online usability requirements
- T04: Can create media elements
- T05: Can draft texts clearly, concisely, correctly

Preparation Phase

- Step 1: Collect data for the Webmaster’s job, research associated qualifications and get additional information from a professional Webmaster.
 - E.g. read the analytical description of this job profile from the text developed in the context of PIN.
- Step 2: Analyze the descriptions, especially those that refer to qualifications or competences. Link qualifications with a curriculum that develops Webmaster related degrees. Research the study guide, find related courses and study the content and purpose of these courses.
 - E.g. For the technical skill “T01: Has knowledge of netiquette, interactive virtual environment, Social networks, etc.”, the word netiquette must be clarified and how it can be linked to studies leading to Webmaster related degrees

Development Phase

- Step 3: Take under consideration the words used in description of outcomes. This will help classification of the learning outcomes in the taxonomy.
 - E.g. For the technical skill “T04: Can create media elements”, the verb can states capability, as a result there are expected learning outcomes mainly at the higher levels of Application and Synthesis and probably less at levels of Knowledge and Comprehension.
 - In contrast the technical skill “T01: Has knowledge of netiquette, interactive virtual environment, Social networks, etc.”, the substantive knowledge refers more to the low levels of Knowledge and Comprehension.

- Step 4: After getting a direction for the levels, which will represent the expected action to be performed, follows the choice of the appropriate verb (from the verb-list which is included in each Bloom level). This verb supports conceptually the learning outcome.
 - E.g. For the technical skill “T01: Has knowledge of netiquette, interactive virtual environment, social networks, etc.” after understanding the words netiquette and virtual environment and having comprehended Webmaster’s responsibilities, follows the choice of verb that completes the learning outcome and relates it to the appropriate level. In this case, the verb is chosen for the Knowledge level and will be associated with the background that Webmaster has in Network Theory. As a result, the following learning outcome is derived:
 - Knowledge: After completing this course, the student will be able to define using 500 words how network theory views social relationships.

Evaluation Phase

- Step 5: The learning outcomes are evaluated for clarity, coherence, completeness (with respect to the domain AND to Bloom’s taxonomy levels) and ability to be assessed. E.g. the above learning outcome adopts both ABCD and SMART approaches; it can be assessed by asking the student to write an essay using 500 words on how network theory views social relationships.

Annex 8.3. The EQF leaflet

Please see document attached

Annex 8.4. The European e-Competence Framework 3.0.

Please see document attached

Annex 8.5. Case study: The 14 e-competences of Digital Cultural Asset Manager developed and evaluated in the training sessions

There will be a complete methodology analyzed on how to train the 14 e-competences so to achieve the competences and the skills according to the Profile. Specifically there will be a statement, the learning outcomes, keywords, the resources and the assesment methods for each e-competence required for the DCAM.

8.5.1 Digital Asset Management Plan Development

When the institutions start to make the preparatory arrangements to implement DAM, they should create in advance, like with the physical collections, a collections’ policy. This document is the basis of a good system implementation and should allow the answering of all questions derived from the museum employees during the process.

In order to learn how to design and develop a collection management policy please follow the American Alliance of Museums (AAM) “**Developing a Collections Management Policy**” resource available at: <http://www.aam-us.org/docs/continuum/developing-a-cmp-final.pdf?sfvrsn=2> or use an example of the Metropolitan Museum’s collection policy available at: <http://www.metmuseum.org/about-the-museum/collections-management-policy>.

Taking that in consideration you can start working on the museum’s Digital Asset Management Plan focusing on three essential areas:

1. **Human resources or Digital People;**
2. **Digital Strategy;**
3. **Digital systems.**

These three focus areas are described in the former Collections Trust CEO, Nick Poole, posts on Going Digital. Please read them. They are available at:

1. **Going Digital Part 1: Digital People** - <http://www.collectionstrust.org.uk/blog/past-posts/item/13500-going-digital-part-1-digital-people>;
2. **Going Digital Part 2: Digital Strategies** - <http://www.collectionstrust.org.uk/blog/past-posts/item/13506-going-digital-part-2-digital-strategy>;
3. **Going Digital Part 3: Digital Systems** - <http://www.collectionstrust.org.uk/blog/latest-posts/item/13509-going-digital-part-3-digital-systems>.

In this posts Nick Poole tries to explain all the aspects in a Collection Trust campaign in order to promote the development of Internet and new technology used in the UK museums. These three detailed materials can be implemented in your Digital Asset Management Plan.

The resources published by CT in the Going Digital program page can help you see in a wider picture the issues concerning the plan. These are available at: <http://www.collectionstrust.org.uk/collections-link/going-digital>.

You can prepare a detailed business plan with costs, risks, strengths and weakness based on these three areas. These resources will help you preparing the next issue of this course.

Learning outcomes

At the end of the training session the learner:

- Knows three emerging technologies (interactive/ multimedia installation/tool/ application);
- Knows three present market needs;
- Can report three present market needs;
- Can identify four main milestones in a management plan;
- Can identify five museum needs and goals;
- Can identify five stakeholders needs and goals;

- Can conduct an IS/ online communication/ digital asset management strategy;
- Can identify the risks and the opportunities of the plan
- Can demonstrate three emerging technologies (interactive/ multimedia installation/tool/ application);
- Can use the web technology for the museum’s benefit;
- Can record five requirements of stakeholders and users;
- Applies strategic thinking in exploitation of ICT;
- Can apply three risk and opportunity assessment techniques;
- Provides analysis of the present market environment;
- Can analyse the museum’s environment;
- Can analyse the impact of two business management plans on stakeholders;
- Can analyse the impact of functional/ technical changes on users;
- Addresses the design and structure of a business plan;
- Can make a SWOT analysis based on the museum’s strategy;
- Can manage the creation of the best suited IS strategy;
- Can explain how the online communication plan complement the overall communication strategy;
- Evaluates the product features based on the business plan;
- Can recommend the best online communication plan;
- Can evaluate the best digital asset management strategy;

Keywords

Museum Mission; Collections Policy; DAM Planning; DAM Ecosystem; Build; Needs; Strategies; Communication; Analysis; Evaluation;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
10 Steps to a Successful Digital Asset Management Implementation	http://www.opentext.com/connect/global/sso_download_open?docpath=/product/opentext/media-management/ten-steps-to-a-successful-digital-asset-management-implementation-pdf	A 10 step approach to DAM system implementation.
A Framework of Guidance for Building Good Digital	http://www.niso.org/publications/rp/framework3.pdf	A guideline from the National Information Standards Organization to build digital collections with quality.

Resource	Available at:	Description
Collections		
A Business-Planning Template: Considerations for Cultural Heritage Organizations and Their Digital Asset Programs	http://www.clir.org/pubs/reports/pub124/template.html	The template described here is intended to help cultural heritage institutions prepare a plan about DAM.
How to Develop a Digital Asset Management Strategy [Infographic]	http://www.cmswire.com/cms/digital-asset-management/how-to-develop-a-digital-asset-management-strategy-infographic-022899.php	A specific infographic about DAM Strategy development.
Digital Asset Management: Implementing A Strategy	http://www.daydream.co.uk/digital-asset-management-implementation.asp	The process of implementing a Digital Asset Management strategy using a DAM system.
A global DAM strategic planning methodology – FirmCo: Business strategy and goals.	http://www.palgrave-journals.com/dam/journal/v6/n2/pdf/dam20104a.pdf	An article by Skiff Wager describing a case study about a DAM implementation and strategy development in a business company.
DAM, You Can Do It: Getting Started with Digital Asset Management	http://wcanada.sla.org/2012/05/22/dam-you-can-do-it-getting-started-with-digital-asset-management/	An article by Dawn Bassett on how to get started with DAM.
Digital Asset Management: Elements of an Institutional Program	http://www.dartmouth.edu/~library/col/0607/docs/DukeDartmouth.pdf?mswitch-redirect=classic	A report about the Duke/Dartmouth project on Digital Asset Management.

Assessment methods

To assess the training session the tutor should prepare/ask a case study using relevant context regarding the learner's situation or specific needs (if the training session occurs in a museum they should use the museum situation to build the case study). An example of context for a case study to a DAM plan development could be:

The X Museum has a collection of 10000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum staff is composed by one historian, two guards, one administrative official and one curator. The museum wants to be more relevant for its community and has in

place a digital strategy with the main goal to be recognized as a important references to the study of X city and a place of edutainment for younger audiences. The museum want to use the digital collection to promote the museum and engage more audiences (virtual and physical ones) to their premises.

Please discuss with your tutor and colleagues and write a DAM plan based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the first step to prepare a DAM ecosystem - PLAN. Please read also the specific chapter above.

8.5.2 Product / Service Planning

For product and service planning you will need to have in mind the resources read above so to define the overall management plan. Nevertheless you will need to assess the institution status on digital asset management. To do so, the DAM Foundation created this tool: The DAM Maturity Model (available at <http://dammaturitymodel.org>).

Using this tool will enable you and your institution to audit and improve the DAM capabilities. The DAM Maturity Model (DAM-MM) uses 15 dimensions organized in four categories to define the digital asset management ecosystem:

1. People;
2. Information;
3. Systems;
4. Processes.

Please read the information at the DAM-MM website and download the Maturity Model and asses your institution ecosystem by using that MM. It will help you to define current and target status, regardless the point of development of your organisation.

The DAM case studies published by DAM Foundation will be helpful at this (and other) point of the plan development. They are available at <http://damfoundation.org/?cat=11>.

Another must-read resource is the presentation entitled **“Implementation of systems for Media / Digital Asset Management Systems in 10 Steps”** by Kara van Malssen, from the Poland National Audiovisual Institute, available at:

<http://pt.slideshare.net/kvanmalssen/implementation-mam-10steps>.

Learning outcomes

At the end of the training session the learner:

- Can label four basic decision – making methods;
- Can define the different plans;
- Knows two structured project management methodologies;
- Knows five organization need analysis techniques;

- Knows how to document a plan;
- Can describe four basic decision – making methods;
- Can identify five museum needs and goals;
- Can identify five decision makers/users needs and goals;
- Can identify the key users;
- Can classify complex documents;
- Can identify ten museum advantages and improvements of managing the change request process;
- Can apply four basic decision – making methods;
- Can use optimization methods;
- Can operate two project management methodologies;
- Can predict three documentation requirements for the digital asset management plan;
- Can produce quality plans;
- Can analyse two project management methodologies;
- Can identify three additional documentation requirements for the digital asset management plan;
- Can generate optimization methods in the product/ service planning;
- Can develop and maintain plans;
- Can manage the change request processes;
- Can formalize two project management methodologies;
- Can manage adequate information for the decision makers;
- Can develop two digital asset management plans and the related documentation;
- Can evaluate basic decision – making methods
- Can assess two project management methodologies

Keywords

Planing; Project methodology; Technical documentation; Reports; Digital Asset Management Models; Implementation; Diagnosis and analysis;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Getting the product and service plan right	http://pt.slideshare.net/roymogg/the-marketing-mix-price-the-bizface-on-line-mba	A brief presentation about product and service planning. Not focused on DAM, but it can help the discussion.
Introduction to Decision	http://academic.evergreen.edu/projects/bdei/documents/decisionm	An article by János Fulop about decision-making

Resource	Available at:	Description
Making Methods	akingmethods.pdf	methods.
Building a Scalable Digital Asset Management Platform in the Cloud	https://youtu.be/kJq0y1wwioY	A presentation about the a scalable DAM platform in the cloud.
Service focus	http://www.optimityadvisors.com/IndustryExperience/MediaEntertainment/ServiceFocus/	A brief but important text about Service focus.
Information Governance Maturity Model	http://eiarquivos2013.weebly.com/uploads/1/6/7/0/16700556/a_maturity_model_for_information_governance.pdf	A presentation about Information Governance and service delivery.
Guidelines for producing effective documentation	http://www.technical-communicators.com/articles/Guidelines_for_producing_effective_documentation.pdf	A short article with a 9 rules approach to produce effective documentation.
Digital Asset Management Plan template	https://www.idigbio.org/wiki/images/2/20/NMNH_Digital_Asset_Plan_Template.pdf	A digital asset management plan template from the Smithsonian Institution that can be analysed in this context.
How to maximize your content management strategy with DAM	http://www.widen.com/blog/how-to-maximize-your-content-management-strategy-with-digital-asset-management-part-1	A two part article about DAM implementation and best practices.

Assessment methods

To assess the training session the tutor should prepare/ask a case study using relevant context regarding the learner's situation or specific needs (if the training session occurs in a museum they should use the museum situation to build the case study). An example of context for a case study to product or service planning could be:

The X Museum has a collection of 10000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum staff is composed by one historian, two guards, one administrative

official and one curator. The museum wants to be more relevant for its community and has in place a digital strategy with the main goal to be recognized as an important reference to the study of X city and a place of edutainment for younger audiences.

The museum wants to use the digital collection to promote the museum and engage more audiences (virtual and physical ones) to their premises. The museum is using a digital management system for almost one year and has only 500 objects/digital assets recorded. The only person using the system is the museum curator, but the museum board wants to make available at last 75% of the collection in 6 months.

Please discuss with your tutor and colleagues and write a product/service plan based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the first step to prepare a DAM ecosystem - PLAN. Please read also the specific chapter above.

8.5.3 Technology Trend Monitoring

Trend monitoring in the cultural sector regarding the use of technologies that can benefit in some way the digital collection management is a huge task.

Everyday we find new technology, new tools, faster systems, new hardware, etc. that can help museums to accomplish the tasks implied in DAM management. In many ways these technologies can help us, but some times they can be a problem to a well-implemented management and documentation system, because they have an extended learning and implementation curve or they don't reply to the institution needs or to the expectations of their audiences.

Therefore a digital curator needs to stay informed about the most recent developments and research in issues like standards, technology (hardware or software), web development, etc. Usually a curator can stay informed by subscribing and reading selected and renowned scientific journals and by participating in conferences, workshops, scientific meetings or trade fairs organised by vendor associations.

These more traditional forms of trend monitoring are still important, but today a digital asset manager can't forget the online tools at his disposal. Above all, the social networks have the power to quickly disseminate information about a new technology, standard or a specific and important event about DAM. To learn more about this subject you can read "What's Trending In Dam, Take-Home Messages From Henry Stewart Dam New York" by James Rourke at the DAM Foundation blog (available at <http://damfoundation.org/?p=31799>).

There are some monitoring tools for social networks that a digital asset manager should learn about and use regularly. A list of these tools, with a small description, can be found at <http://smallbiztrends.com/2012/09/20-free-social-media-monitoring-tools.html>.

You can also monitor trends through professional associations (the International Council of Museums (ICOM), which is the most important at the museum sector – www.icom.museum) or by participating in webinars and online courses available regularly on the web.

The participation in professional associations will help the digital curator to stay informed in implementing and using specific DAM systems and strategies since many times these associations develop training sessions and courses in this field of expertise. The DAM Foundation has a free online course entitled “Introduction to Digital Asset Management” that will help the newcomers into the DAM issues. This five parts course is available at <http://damfoundation.org/?course=intro>.

Visiting thematic blogs, vendor websites and experimenting online software demos are another forms to monitor technology trends. A specific DAM systems vendor, Canto, has a diverse offer of resources, including webinars, available for free online as well (<https://www.canto.com/dam-resources/>).

Trend monitoring is an essential part for the innovation competences investigated to a digital curator.

Learning outcomes

At the end of the training session the learner:

- Can name three emerging technologies and their relevant applications;
- Can investigate three latest ICT technological developments;
- Can investigate three ICT technological developments in managing digital assets;
- Can propose three latest ICT technological developments;
- Can recommend three latest ICT technological developments;
- Can identify three vendors and providers of the ICT solutions;
- Can select two vendors/ providers of the most promising ICT solutions;
- Can evaluate and justify the proposed vendors/ providers of ICT solutions;
- Knows the relevant sources of information (magazines, conferences, events, newsletters, opinion- leaders, on-line – forum etc.);
- Can discriminate the two most promising sources of information;
- Can propose the two most promising sources of information
- Can assess the two most promising sources of information in the strategic decision – making;
- Knows five museum goals and needs;
- Identifies five museum advantages and improvements of adopting ICT;
- Can relate the existing products with the museum’s needs;
- Can illustrate expert guidance and advice to the museum teams;

- Can propose three options for strategic decisions;
- Can decide the best ICT for the museum;
- Knows five audience goals and needs;
- Can take strategic decisions predicting ICT solutions for audience- oriented processes;

Keywords

New technology; Analysis; Needs diagnosis; Market knowledge; Strategy; Information sources; Social Networks; Training; Research;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Digital Asset Management News	http://digitalassetmanagementnews.org	DAM News is a website with relevant information about DAM (Vendors, resources, news, features, etc.).
CMS Wire	http://www.cmswire.com	CMSwire is a web magazine that covers a range of useful topics to DAM.
Top 10 social media analytics tools: The VentureBeat index	http://venturebeat.com/2013/12/20/top-10-social-media-analytics-tools-the-venturebeat-index/	10 Social Media analytics tools described by VentureBeat that can be used to analyse social networks about DAM.
Social Media Analysis tool	http://sysomos.com	A product to analyse data from Social Media
Social Media Analysis services	http://www.socialbakers.com/products/analytics	A service from SocialBakers to analyse social media.
Free Social Media Analysis tools	http://www.socialmediatoday.com/marketing/2015-03-10/9-best-free-social-media-analytics-tools	Some free and online available tools for social network monitoring.

Assessment methods

The most appropriate method to use in this training session is a questionnaire (Questions/answers) to determine the knowledge and skills absorbed by the learners. The questionnaire should focus on the learning outcomes defined to the session according with the level of expertise and specific needs of each learner. The tutor and learner should discuss the answers after the period determined to finish this task.

Some questions examples could be:

1. Please list five museum goals on the digital asset management ecosystem?
2. Please name the principal and most reliable source of information about DAM in the cultural sector?
3. Why do you think that is the most reliable source of information about DAM in the cultural sector?
4. Please name three emergent technologies and their application in the DAM ecosystem of a museum?
5. If your institution needs to buy a specific system for DAM who may they contact and why? Please name three or more vendors.
6. If your museum wants to make the collection available online what kind of tools do you recommend for them to use?
7. According with the plan defined in the training session “DAM Plan Development” please name a specific product to deal with the Digital Asset Collection online accessibility?

This training session is a specific part of the first step to prepare a DAM ecosystem - PLAN. Please read also the specific chapter above.

8.5.4 Innovating

This is the most difficult competence for a digital asset manager or a digital curator to attain. To accomplish this competence he must have proficiency with all the competences needed to plan, implement and manage a DAM ecosystem, but he also needs to do research regarding any DAM issue (technology, standards, terminology, informatics, etc.).

In some countries there are university degrees and other technical courses that can help a digital curator to be involved in research and innovation. The Digital Curation Center, a “world-leading centre of expertise in digital information curation with a focus on building capacity, capability and skills for research data management” has published a list of some international courses that might be useful to check: (<http://www.dcc.ac.uk/training/data-management-courses-and-training>).

In Portugal, for instance, there is a postgraduate course at the Nova University of Lisbon that is focused on information management and digital curation (in Portuguese available at <http://fctsh.unl.pt/ensino/pos-graduacoes-pt/gestao-e-curadoria-da-informacao>), but is very common to find this kind of courses in universities with archives, libraries and museum studies.

The digital curator should have, alongside with the research habits referred, implemented in the institution a system to receive feedback from the internal users and from external sources (audiences, costumers, in-house visitors, etc.). This kind of interaction will potentiate creative thinking, new concepts, public engagement and social impact through the products delivered by a DAM ecosystem.

There are many forms to do this (social networks monitoring, user feedback, surveys, website analytics, etc.), but a Return on investment (ROI) approach such as the one described by Ralph Windsor (available at <http://digitalassetmanagementnews.org/features/how-to-avoid-wasting-your-dam-budget-an-roi-oriented-approach-to-digital-asset-management-implementation/>) can give us a perspective with financial data alongside with the more qualitative information about the implementation of a DAM system.

Another way to promote innovation within internal and external audiences is to engage them in the innovation process. Smithsonian Institution (<http://www.si.edu>) has done it by creating an wiki called “**SI Web and New Media Strategy Wiki**” (available at <https://smithsonian-webstrategy.wikispaces.com>) for the Smithsonian's Web and New Media strategy development (2009-2014) that is (still) open for public (internal and external) participation in that process.

These kinds of tools should be used according to the mission and policies of your institution and they don't apply in any scenario. So you must use those more appropriate for your case.

Learning outcomes

At the end of the training session the learner:

- Can present novel and open thinking;
- Knows three latest technological applications;
- Knows three business and market trends;
- Knows five museum's goals and needs;
- Knows five audience goals and needs;
- Applies innovative thinking;
- Can demonstrate revolutionary concepts;
- Applies technological awareness;
- Applies the technological solutions to the museum needs;
- Applies the technological solutions to the audience needs;
- Can identify four appropriate resources;
- Can identify five advantages of adopting new technologies;
- Can analyze different target groups of audience (needs/ characteristics);
- Analyze the impact of functional/ technical changes on audience/ users;
- Can generate two innovation processes techniques in the provision of solutions;
- Can devise two creative solutions for supporting the digital asset management plan;
- Can assess the two innovation processes techniques in the provision of solutions;
- Can recommend innovative changes to the ICT strategy;

- Evaluates the technological solutions to the museum needs;
- Evaluates the technological solutions to the audience needs;

Keywords

Research; Training; New technologies; Market knowledge; Audience feedback; Innovation; New tools; Creative thinking; Teamwork; Strategy;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
The New Cooper Hewitt Experience	http://www.cooperhewitt.org/new-experience/	This project intend to change the way that museum visitors interact with the museum collection with the help of a interactive tool with the shape of a pen.
Cleveland Art Museum Collections Wall	http://www.clevelandart.org/gallery-one/collection-wall	The Collection Wall, a 40-foot interactive, multitouch, MicroTile wall, displays in real time all works of art from the permanent collection currently on view in the galleries.
Cleveland Art Museum ArtLens app	http://www.clevelandart.org/gallery-one/artlens	ArtLens is an app developed by the Cleveland Museum of Art that allows you to explore works in the permanent collection both at the museum and from home.
Museums and the Web	http://www.museumsandtheweb.com	A useful platform with a lot of information about recent museum innovation and new technologies applied to the sector.
MuseumNext	http://www.museumnext.com/conference/	MuseumNext is a major conference on the future of museums.

Assessment methods

Innovation is difficult to learn and therefore is difficult to assess as well. However this training session can be assessed with the help of a case study where the tutor and the learner(s) could evaluate the skills needed to develop this competence. An example of context for a case study about innovating could be:

The Museum X had digitised the physical collection to respond to the continuous educational and promotional needs identified with their staff and external audiences. 30.000 art objects dated from the 17th and 18th centuries compose the museum collection. This university museum uses this collection with educational and research purposes and the museum audiences (mainly art history students and researchers) need specific raw metadata information (according with standards) and also tools for information analysis. Nevertheless the museum wants also to engage with other audiences to increase their online and onsite visitors. They will need, as well, to transform the metadata in curated information that could be transformed in knowledge by this specific audience target.

This situation is quite common but the museum board wants to develop a single answer to the scientific community and to the other audiences with a single and innovative web platform where you can learn about the collections and also use the information available in art history studies and research.

Please discuss with your tutor and colleagues and write an essay discussing on a innovative answer for the museum website needs based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the first step to prepare a DAM ecosystem - PLAN. Please read also the specific chapter above.

8.5.5 Documentation Production

In the museum sector the production of documentation to use, support and enable collections management systems (CMS) or DAM systems, is quite common. They are often called Procedure Manual or Staff Handbook and they provide the details needed to guide the institution staff across the processes and procedures established. They are already in use for the physical museum collections, so in order to assure the integration of the digital asset management specifications they must be reviewed according with the specifications detailed at the DAM plan.

A good procedural manual must start to define the organisation work environment (that must be checked with safety and health regulations and laws applied in) and the specific roles and responsibilities of every department and staff that is involved in digital asset management tasks.

This documentation should focus on the four areas determined by Collections Trust in the framework cited in the Plan topic of this course:

1. Collections development;
 - a. Defines procedures and processes for acquisition, entry, disposal and deaccession;
2. Collections information;
 - a. Defines procedures and processes for inventory control, location, cataloguing, valuation, audit, rights management, documentation metadata, etc.;
3. Collections preservation;
 - a. Defines procedures and processes for risk management, loss or damage, digital preservation, condition checking, formats, etc.;
4. Collections accessibility;
 - a. Defines procedures and processes for loans, exploitation (including monetization) and every use of the digital assets collection.

This document shouldn't be a repetition of the Collections Management Policy, but it should be instead a how-to guide with step-by-step instructions on how to proceed, according with the institution mission and collections policy, when a specific task is needed.

Alongside with these step-by-step instructions the procedural manual should also include definitions on:

1. Information input:
 - a. Rules for terminology, metadata, file formats, edition tools and other issues related with collections management;
2. Information output:
 - a. Standards, templates, classification on different categories of information, legal context and all the other issues related with collections' use and accessibility. In this area you might consider to define the system reporting (internal and external) capabilities.

At the end you should also include information about the document version and establish the review period of the procedures manual. The review process is fundamental for a up-to-date manual according to the DAM specifications and needs and should be established if anything is altered in the DAM ecosystem.

The SPECTRUM DAM document (available at <http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/item/1688-spectrum-digital-asset-management>), cited above in the Plan session, is a essential guide to enable the production this documentation.

To prepare the production of this documentation you can read and use the following examples:

- California State Parks Museum: Collections Management Handbook (PDF) - http://www.parks.ca.gov/pages/22491/files/museum_collections_mgmt_handbook_revised_2007.pdf.
- MIT Museum Collections Manual (PDF) - <http://web.mit.edu/museum/collections/manual.html>.
- University of California Santa Barbara Libraries: Collections Manager's Manual (HTML) - <http://collman.library.ucsb.edu>.
- Museum of Texas Tech University: Collections Management Procedures (PDF) - <https://www.depts.ttu.edu/museumttu/Materials%20for%20web/operations/CM%20Procedures%20final%206-14-06.pdf>.
- Birmingham Museums: Collections Management Framework (PDF) - <http://www.birminghammuseums.org.uk/system/resources/W1siZiIsIjIwMTUvMDYvMDkvdmN6N2JxbHRtX0NvbGxIY3Rpb25zX01hbmFnZW1lbnRfRnJhbWV3b3JrXzlwMTVfMTkucGRml1d/BMT%20Collections%20Management%20Framework>.

It is also useful to read the reference book “The Manual of Museum Management” by Gail and Barry Lord (available also online) as a guide for the documentation process.

At the end of the training session, the learner is able to create and develop a Procedure Manual that is a guide for all the processes, procedures, rules, tools and outputs of the museum's DAM system.

Learning outcomes

At the end of the training session the learner:

- Knows two standards in documentation;
- Knows four objectives of documentation;
- Knows different documents for designing/ developing and deploying products/ applications/ services;
- Knows three tools for production/ editing and distribution of professional documents;
- Knows two tools for multimedia presentation tools;
- Knows two museum ICT technologies;
- Can clarify the requirements of documentation;
- Applies standards to define document structure;
- Can produce documents describing interactive products/ tools/ applications;
- Can produce documents describing products/ tools/ applications for online communication;
- Can produce documents describing products/ tools/ applications used for digital asset management;

Keywords

Standards; Documentation; Planning; Strategy; Product development; Service development; Reporting; Data structure definition; Information interchange; Information reuse; Knowledge creation;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Object ID	http://archives.icom.museum/objectid/	Object ID is an international standard for describing cultural objects. It is the result of years of research in collaboration with the museum community, international police and customs agencies, the art trade, insurance industry, and valuers of art and antiques.
A day in the life – Museum registrar	https://youtu.be/wUw-VWILF0Q?list=PL4xukRGEJAJPreqi--B4VFFHnBikbiGVP	A short video about the work of museum registrars with the physical collections and documentation production.
Collections Trust	http://www.collectionstrust.org.uk	The Collections Trust is the UK professional association for collections management.
SPECTRUM	http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum	SPECTRUM is the most used collection management standard in the museum sector. It's available in different languages.
The SPECTRUM Community	http://www.slideshare.net/nickpoole/welcome-to-the-spectrum-community	An introduction to the SPECTRUM Community by Nick Poole.

Resource	Available at:	Description
SPECTRUM DAM Resources	http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/spectrum-dam-resources	SPECTRUM resources about DAM.
What is Digital Asset Management & why should you do it?	https://youtu.be/C-ZbG2iS21c	A presentation by David Walsh from the Imperial War Museums about DAM

Assessment methods

The best way to assess the acquisition of skills and competences needed in this training session is to build a case study that helps the learners to produce a specific documentation manual to be used in the daily work with the collections. An example of context for a case study about innovating could be:

The X Museum has a collection of 10000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum staff is composed by one historian, two guards, one administrative official and one curator. The museum wants to be more relevant for its community and has in place a digital strategy with the main goal to be recognized as an important reference to the study of X city and a place of edutainment for younger audiences.

The museum wants to use the digital collection to promote the museum and engage more audiences (virtual and physical ones) to their premises. The museum is using a digital management system for almost one year and has only 500 objects/digital assets recorded. The only person using the system is the museum curator, but the museum board wants to make available at last 75% of the collection in 6 months.

Please discuss with your tutor and colleagues and write the information input needs in a documentation manual to respond to this situation based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the second step to prepare a DAM ecosystem - BUILD. Please read also the specific chapter above.

8.5.6 Purchasing

Purchasing a DAM system isn't simple. There are many relevant issues to consider before the final choice or even before starting the procurement process to buy the wanted solution.

The first step needed to do when your institution decides to manage the digital assets collection is to analyse its current state.

You can do it by analysing the processes used before the implementation of a DAM system and the needs defined in the DAM plan. You should consider at this point the user's roles and responsibilities, staff skills and number, existing technological infrastructure (hardware and software), internal and external publics, digital collection dimension, physical collections digitization status, digital preservation issues, terminology used, processes with failures, excessive documentation backlogs, etc.

You can use the approach defined by Collections Trust in SPECTRUM and examine the current status according with collection development, documentation, preservation and accessibility (Cf. SPECTRUM at:

<http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum>).

The DAM Maturity Model (<http://dammaturitymodel.org>) cited above is also a good tool for the current status analysis.

The second step needed to acquire and implement a DAM system is to identify and involve the stakeholders. You should involve everyone affected by a DAM implementation in your institution (IT department, curators, other digital curators, partners, marketing and communication departments, vendors and (above all) the institution board and managers) since their contribution will lead to a successful system. From the stakeholders you can get information about:

1. Priorities;
2. Current status of digital assets management;
3. Current ecosystem problems and non resolved issues;
4. Defining strategies to accomplish success in the medium and long run;
5. Specific needs and audience requests.

Afterwards, you can establish a representative task force that can manage the purchasing and implementation processes, according to the specifications determined in the DAM plan and the information gathered from the stakeholders' participation.

This task force, or DAM implementation managing team, will have the responsibility for all the projects, but still the involvement of stakeholders is crucial for success.

The task force should be responsible for:

1. Implementing the strategy defined in the DAM plan;
2. Defining the short, medium and long-term objectives;
3. Setting selection criteria;
4. Selecting the system;

5. Defining standards;
6. Defining training and creating training documentation;
7. Defining user's roles;

This project management team would be a great help for implementation, but now in many small museums throughout Europe is quite common to have a very small team, or even only one technician with the skills necessary for this task. In that case you should consider bringing in an outside expert in DAM. He/she can help these small institutions with the implementation process.

Another issue of extreme relevance for the purchasing process is the definition of standards that you should include in your ecosystem. In the cultural sector there is a wide range of relevant standards (some of them for the same purpose) that you must know and include in your selection criteria. They'll be fundamental for the success of a DAM System's implementation. This wide array include standards for metadata, terminology, formats, descriptions, cataloguing, etc. and a organized list that can be read at the Athena Project (<http://www.athenaeurope.org>) booklet entitled **"Digitisation: standards landscape for European museums, archives, libraries"** that is available at: <http://www.athenaeurope.org/index.php?en/110/promotional-material/11/10-booklet-digitisation-standards-landscape-for-european-museums-archives-libraries>.

In most cases available on the market you should be able to have a demo or trial software to experiment the applications proposed to you by vendors, but you should always ask or find referrals or experiences from similar customers to evaluate every single functionality publicized.

Last, but not least, you should take a deep look at the administrative part of your procurement process. This part of the process presupposes that the digital asset manager understands and applies the mission statement of the museum and the legislature.

Since purchasing and implementing your DAM system, is a complex project, you should read these guiding documents:

- SPECTRUM Digital Asset Management - <http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/item/1688-spectrum-digital-asset-management>.
- SPECTRUM DAM Resources - <http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/spectrum-dam-resources>.
- Extensis¹⁶: Digital Asset Management Best Practice Guide - <http://doc.extensis.com/DAM-Best-PracticesGuide-EN.pdf>.

¹⁶ Extensis is a vendor of DAM Systems (<http://www.extensis.com>).

For selection criteria or software comparison you can use the following tools available online:

- Choose a DAM System – by Collections Trust – <http://www.collectionstrust.org.uk/collections-link/collections-management/spectrum/item/13715-choose-a-dam-system>.
- 10 Core Characteristics Listing Of Qualified Dam Vendors¹⁷ – by DAM Foundation - <http://damfoundation.org/?p=31619/>.
- Bynder¹⁸ Vendor Comparison Guide - <http://info.getbynder.com/vendor-comparison-guide>.

It might also be useful to take in consideration the example budget, published by Collections Trust, that is available at: http://www.collectionstrust.org.uk/media/documents/c1/a924/f6/DAM_example_budget.pdf. It will help you defining the cost structure of a DAM system implementation.

Learning outcomes

At the end of the training session the learner:

- Knows the current market for relevant products/services;
- Knows four museum needs;
- Knows the museum purchasing policy/ budget;
- Knows four audience needs;
- Can select two suppliers/ products/services;
- Can select two products/ services that improve digital asset management;
- Can select two products/ services that improve museum ICT strategy;
- Can use two benchmarking methods to find best tools/ systems;
- Can investigate the best suppliers/ products/services for the museum;
- Can examine the evaluation of process/ timeliness/cost/quality for products/ services;
- Can analyse received proposals/ offers;
- Can make recommendations on the best purchasing policy for the museum;
- Can manage museum purchasing budget;
- Can decide on the ultimate procurement policy;
- Can match museum needs with the existing products;
- Can match audience needs with the existing products;

Keywords

¹⁷ In this article you'll find a tool to measure any vendor compliance with the 10 core characteristics of a DAM system.

¹⁸ Bynder is a vendor of DAM Systems (<https://www.getbynder.com/en/>).

Market Knowledge; Budget analysis; Needs; Vendor; Benchmark techniques; Legal context; Purchasing process management; Procurement policy; Strategy;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Top Digital Asset Management Software Products	http://www.capterra.com/digital-asset-management-software/	A list of software available with reviews and classifications

Assessment methods

The most appropriate methodology to assess the Purchasing training session is continuous evaluation. The learner along with the tutor should continually make some exercises and discuss along with other learners, through the learning platform, the best way to purchase a DAM system according with different scenarios defined by the tutor with the learners' collaboration. These scenarios should address specific issues like:

1. Legal context;
2. Museum needs;
3. Museum constraints;
4. Different museum budgets;
5. Museum strategy on documentation/procurement/ICT
6. Audience needs;
7. Vendors;
8. System specifications;
9. Standards;
10. Evaluation methods for DAM systems;
11. Return on investment evaluation;

The learner and the tutor should discuss the result of these exercises, regardless of its form, after their conclusion.

This training session is a specific part of the third step to prepare a DAM ecosystem - ENABLE. Please read also the specific chapter above.

8.5.7 Information and Knowledge Management

Managing a digital asset collection, as we see is a difficult and complex task. A digital curator needs to be aware and acknowledged of a wide range of tools, policies, legal issues, communication, etc. and, in many cases, an expert in the specific thematic field of the collection (art, history, sciences, etc.).

Despite this complexity, the digital curator must always turn the data available for the collections into information and then create the tools that will allow figuration of information into knowledge for the audiences and users.

To facilitate that chain of events the digital curator or digital asset manager, should start by using standards for every single aspect of the DAM ecosystem. Standards are a unique way to enable the use (and therefore reuse) of information.

A guidance tool available in the specific standard landscape for museums, libraries and archives is the (above cited) booklet entitled **“Digitisation: standards landscape for European museums, archives, libraries”** (available at: <http://www.athenaeurope.org/index.php?en/110/promotional-material/11/10-booklet-digitisation-standards-landscape-for-european-museums-archives-libraries>) where you can find the specifications and different types of standards applied to this sector. This document includes also the basic concepts (metadata, digitisation, interoperability, types of standards) that will help you to understand some technical issues, but the main objective of this resource is to list the different standards for use (see chapter 2).

These kind of standards are produced by many museums or projects, but before starting exploring the benefits of using them a digital curator should visit three international recognised organisations in the areas of museum, libraries and archives:

- ICOM – International Council of Museums – <http://www.icom.museum>.
 - See mainly the work carried out by CIDOC, the ICOM international committee for documentation, and the standards produced by or with this committee collaboration. A leading interoperability standard that you must know is CIDOC-CRM (or ISO 21127:2006).
- IFLA - The International Federation of Library Associations and Institutions - <http://www.ifla.org>.
 - An organization that deals with standards for libraries and have published, among other, the Functional Requirements for Bibliographic Records (FRBR).
- ICA – International Council on Archives - <http://www.ica.org>.

- A organization that works in the archives' field and has developed, among many others, the ISAD(G) standard for archival description that has been used by every professional in this field of expertise.

These specific standards will help you to organise, document, preserve, publish and provide access to your collections, but nowadays you will also need to acknowledge other types of standards and tools that are essential for managing information and knowledge about your collection. These include database knowledge, web communication standards, development tools and code languages, social networks applications, legal environment, communication tools and skills or hardware and network infrastructure knowledge.

At the end of the day your focus should be the successful relation between your museum and the public.

To get more information on this topic, please read the white paper about the future of Museum Standards by Nick Poole available at: <http://www.collectionstrust.org.uk/blog/past-posts/item/947-where-next-for-museum-standards> and the presentations that he published entitled "Where next for Museum Documentation?" (available at: <http://www.slideshare.net/nickpoole/where-next-for-museum-documentation>) and "Communicating through objects and collections" (available at: <http://www.slideshare.net/nickpoole/communicating-through-objects-and-collections-belgrade>).

Learning outcomes

At the end of the training session the learner:

- Knows two digital asset management processes;
- Knows two data mining methods;
- Knows four museum needs;
- Knows four audience needs/ requirements;
- Knows two information distribution policies;
- Can select the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use);
- Translate museum behavior into structured information;
- Can apply the appropriate ICT devices/ tools for management of the digital assets (organization, discovery, preservation, access and use);
- Correlates digital assets and knowledge;
- Can create the appropriate information structure;
- Correlates information and knowledge;
- Can analyze two digital asset management processes;
- Can apply two data mining methods;
- Applies two innovative solutions according to appropriate the information structure;
- Makes available the digital assets;
- Can set up the most appropriate digital asset structures;

- Can formalize the audience requirements;
- Makes information available;
- Can justify the most suitable digital asset management process;
- Can recommend the most appropriate digital asset structure for the museum;

Keywords

Documentation processes: Digital Asset Management processes; Needs; Market knowledge; Digital curation; Digital information context; New technology; Process implementation; Data structure; Data analysis;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
DAM and Metadata	http://www.databasics.com.au/solutions/dam/dam_meta.html	A brief article about DAM metadata standards
Why Interoperability Standards Are So Critical To The Future Of Digital Asset Management	http://digitalassetmanagementnews.org/features/why-interoperability-standards-are-so-critical-to-the-future-of-digital-asset-management/	An article by Andreas Mockenhaupt (Director of Professional Services at Canto – a vendor company) about the importance of interoperability in DAM
DAM Standards and Specification Organizations	http://www.dameducation.com/digital-asset-management-standards-specifications/	A reference list of some key standards and the organizations that produce them.
Getty Research Institute vocabularies	http://www.getty.edu/research/tools/vocabularies/	A specific group of reference vocabularies for the heritage sector.
Canadian Heritage Information Network	http://www.rcip-chin.gc.ca/index-eng.jsp	The Canadian Heritage Information Network (CHIN) enables museums and other heritage institutions to connect with each other and their audiences through digital technologies.
CIDOC-CRM	http://www.cidoc-crm.org	The CIDOC Conceptual Reference Model provides definitions and a

Resource	Available at:	Description
		formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation.

Assessment methods

The most appropriate method to use in this training session is a questionnaire (Questions/answers) to determine the knowledge and skills absorbed by the learners. The questionnaire should focus on the learning outcomes defined to the session according with the level of expertise and specific needs of each learner. The tutor and learner should discuss the answers after the period determined to finish this task.

Some questions (examples) could be:

1. Please name the three essential organizations that produce standards for the MLA institutions?
2. Please list three mandatory standards for museum documentation?
3. Name the fields of an object information record using Object ID?
4. List the standards that a museum should use to make the collection available online?
5. What is the standard that help museums with collections management procedures?
6. What is the name of the standard developed by CIDOC that is being used in the Archive and Libraries sector as well?
7. Why standards are important to fulfil the audiences needs on collections information?
8. What kind of standards is available for digitisation in the MLA sector according with the Athena Project?

This training session is a specific part of the third step to prepare a DAM ecosystem - ENABLE. Please read also the specific chapter above.

8.5.8 Needs Identification

In the last section of this training session we'll go through the methods available to identify specific institution needs regarding a DAM system implementation and use.

In many aspects there are some basic needs for a DAM system that are covered in the above sections of this training session. In every single tool you don't need to identify the application's needs in formatting metadata, since it is a standard functionality.

Needs identification methods should address the singularities of your museum and the DAM ecosystem. For instance, if your organisation needs to publish information in social network

profiles, and you need a specific format, dimension or integration you are facing specific needs. If you have a specific CMS implemented, and you want to integrate it at your DAM system processes and procedures, you are facing specific needs as well.

To identify the specific needs of your institution the best way is to take into consideration to the museum's internal and external users that have specific needs regarding to the DAM ecosystem. They'll give you processes workflow, input functionalities, system outputs (reports, analytic data, etc.), terminology standards to use, information categories needs according to different audiences, etc. You can read a good example of needs identification in a final report (with methodology explained) from University of California Libraries at: http://libraries.universityofcalifornia.edu/groups/files/ngts/docs/pots/pot1_lt1a_finalreport_july2012.pdf.

As in other sessions a good way to organise your questionnaire is by using the SPECTRUM collections framework focusing the questions on matters of information, preservation, accessibility and development of your digital assets collection.

Please read the DAM case study about Museum Victoria, available at: <http://www.palgrave-journals.com/dam/journal/v5/n3/full/dam20094a.html> and visit the presentation of a case study about the Pitt Rivers Museum DAM implementation, also available online at: <http://www.palgrave-journals.com/dam/journal/v5/n3/full/dam20094a.html>. These two documents are good examples for the work needed here.

Learning outcomes

At the end of the training session the learner:

- Can look for and enumerate three ICT suitable for museums;
- Knows five stakeholder and user need analysis techniques;
- Knows five communication techniques;
- Can describe three ICT and their application in museums;
- Can identify museum needs and goals, organizational chart, information, communication and control processes;
- Can identify ten museum key stakeholders and users;
- Can identify ten museum advantages and improvements of adopting new technologies based on user experience;
- Can operate or apply three ICT in museums;
- Can demonstrate the application of three needs analysis techniques;
- Can record twenty requirements of museum key stakeholders and users;
- Can demonstrate the application of three communication techniques;
- Can present ICT solution cost / benefit;
- Can present digital asset management solution cost / benefit;
- Can analyze cost / benefit of three ICT in museums;
- Can analyze three digital asset management processes;

- Can analyze three online communication processes;
- Can analyze twenty requirements of museum key stakeholders and users;
- Can analyze online communication processes;
- Analyze the impact of functional/technical changes on key stakeholders and users;
- Can present ICT solution cost / benefit;
- Can present digital asset management solution cost / benefit;
- Can formalize three digital asset management processes;
- Can formalize three online communication processes;
- Can formalize online communication processes;
- Can assess emerging ICT and their possible application in museum context;
- Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis;
- Can select the appropriate needs analysis technique based on criteria;
- Can match user key stakeholder and user needs with existing ICT applications and products;
- Can select the appropriate communication technique based on criteria;
- Can evaluate digital asset, interactive and multimedia installations/tools/applications using cost / benefit analysis;
- Can evaluate the impact of functional/technical changes on key stakeholders and users;

Keywords

Needs (internal and external) knowledge; Analysis; Organization diagnosis; ROI analysis; Communication skills; Assessment; Standards; Process implementation; Process workflows analysis; Market knowledge;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Five tips to identify business goals for DAM	http://digitalassetmanagement.com/blog/five-tips-business-goals-dam/	An article with five specific points to take in consideration on identifying needs.
Methodology to identify Information needs	http://kslibassoc.org/pdf/klcideninfneed.pdf	A presentation by Francis J. Devadason with a method to identify needs in the information sector.
A Methodology for the Identification of Information	http://archive.ifla.org/IV/ifla62/62-devf.htm	An article by Francis J. Devadason and P. Pratap Lingam about methods to

Resource	Available at:	Description
Needs of Users		identify information needs.

Assessment methods

To assess this training session on Needs identification we can use two different methods: Case Studies and Multiple choices evaluation. The tutor and learners should determine the most appropriate one for each competence or skill defined for this role profile.

To assess acquisition of some skills in this session the tutor should give a context and ask for an essay about the most appropriate methods to determine the museum needs to implement a DAM ecosystem. An example of a case study context could be:

The X Museum has a collection of 10000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum staff is composed by one historian, two guards, one administrative official and one curator. The museum wants to be more relevant for its community and has in place a digital strategy with the main goal to be recognized as an important reference to the study of X city and a place of edutainment for younger audiences.

The museum wants to use the digital collection to promote the museum and engage more audiences (virtual and physical ones) to their premises. The museum is using a digital management system for almost one year and has only 500 objects/digital assets recorded. The only person using the system is the museum curator, but the museum board wants to make available at last 75% of the collection in 6 months.

Please discuss with your tutor and colleagues and determine the methodology that should be used to list the museum needs to deal with the museum goals in this situation based on the resources that you've read/listen/seen in this training session.

For multiple-choice evaluation the tutor, along with the learner, can use the above-described context and then ask what kind of methodologies are more appropriate to establish the museum needs. In this specific context we could use the following choices:

1. To determine the museum needs you should gather information on the relevant sources on DAM systems available online like blogs, DAM system vendors websites, DAM specialists websites, DAM scientific journals, etc.;
2. To determine the museum needs you should use questionnaires and interviews to gather information with the relevant stakeholders of the museum (staff, board, trustees, audiences, etc.);
3. To determine the museum needs you should use other museum examples gathered in case studies published online about the DAM implementation in worlds biggest museums;

At the end of each exercise the tutor and learner should discuss the results and define the next steps on continuous evaluation (if this assessment methodology was the chosen one).

This training session is a specific part of the third step to prepare a DAM ecosystem - ENABLE. Please read also the specific chapter above.

8.5.9. Service Delivery

Once your museum has the DAM system up and running it'll start to deliver a service that couldn't or shouldn't be interrupted in any circumstances and it must be delivered in compliance with the quality goals defined in the DAM plan/strategy.

The digital asset manager needs to be proactive to ensure that the system is running and he must be able to put together a monitoring system that acts in the following points of stress:

- Infrastructure
 - Regardless of the choice between a cloud solution and an in premises installation, your infrastructure should be closely monitored. There are some monitoring tools available directly from your system software, but is recommended to find a vendor that ensures the infrastructure security (with a cloud solution) or, in case of in premises network and servers, find a monitoring tool that allows the digital asset manager in compliance with the IT department to plan upgrades to its capacity (bandwidth, storage space, processing speed, etc.). In this case the IT department should have a monitoring and reporting tools like the ones provided by Splunk (<http://www.splunk.com>);

- Workflows and procedures
 - Monitoring the procedures and workflows is an essential task after you start to manage a digital assets collection. To do this you must go randomly to a product of a workflow or procedure and compare it in correlation with the quality and objectives determined in the strategy plan. If they don't match, the digital asset manager needs to go through the workflow or procedure to determine and solve the wrong step or steps;

- Standards and information control
 - As we saw before, standards are the best way to enable the use of a cultural institution collection (digital or physical). They help you organizing the collection's metadata and data, they provide structured databases and terminology for collections documentation and they are responsible for the success of a good search engine. Nevertheless a digital asset manager or curator

must create a check routine to see if metadata, terminology, classifications, name attributions, file location, etc. are matching with the previously defined rules. Using the reporting and search features of the DAM system is the best way to do it;

- Integration

- DAM systems can help you organizing your digital asset collections, but they aren't the only systems used in museums or cultural institutions. They are commonly integrated with other tools and systems that use digital assets for managing, documentation, communication and other purposes. These integrations represent a stress point because there are many reasons for them to fail: a new system version, hardware upgrades, new web technology, etc. The digital asset manager must have a complete records on the specifications of every integration in the DAM ecosystem, so he can act appropriately when needed (you can find a good example of integration documentation on the presentation by Paul Bevan available at http://www.dpconline.org/component/docman/doc_download/178-);

- Operational staff

- Maybe the most sensible part of a DAM implementation and operation is the staff that works together. Don't get the wrong message. The staff that will work with the DAM system is a key part of the system and you should always check for their needs and cooperate with them, listen about the system problems and review with them the difficulties on implementing the procedures and workflows defined. The digital asset manager, as the responsible for the DAM ecosystem should collaborate with the staff manager to ensure the professional needs and the number of professionals needed for the DAM tasks;

- Help and operational documentation

- Another crucial task for maintaining the DAM ecosystem is the help and operation documentation. The digital asset manager should always have the procedure manual, help documentation and log problems, system failures, suggestions for new features and system analytics up-to-date. This task can only be done with the help of all stakeholders involved that will enable the continuous verification of the DAM ecosystem. It's very important the version control and the dissemination of the recent material available.

If carried out correctly, this tasks will help you in the next point of this learning session about how to manage DAM ecosystem problems.

Learning outcomes

At the end of the training session the learner:

- Knows how to interpret digital asset management application requirements;
- Knows how to complete documentation used in digital asset management applications delivery;
- Can identify at least three digital asset management applications delivery actions;
- Can identify failures in digital asset management applications delivery actions;
- Can interpret the organization's digital asset management strategy;
- Can report digital asset management applications delivery provision to superiors;
- Can examine digital asset management applications;
- Can examine digital asset management infrastructure management;
- Can analyze three practices and standards in digital asset management applications;
- Can analyze at least three web, cloud and mobile technologies;
- Can examine digital asset management applications delivery provision;
- Can identify at least three processes which comprise the organization's digital asset management strategy;
- Can determine manpower workload / requirements for efficient and cost effective service provision;

Keywords

DAM process analysis; DAM ecosystem assessment; Reporting; Documentation product delivery; Digital curation; Metadata; Standards; DAM Applications; Documentation workflows analysis; Resources assessment;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Overview of Digital Asset Management Systems	https://net.educause.edu/ir/library/pdf/DEC0203.pdf	An overview of DAM Systems in high degree studies that can be helpful in this training session.
DAM If You Do! BlueStream Digital Asset Management Infrastructure	http://www.nmc.org/pdf/2008-King.pdf	A article about DAM and supporting infrastructures presented at the NMC 2008 Summer Conference.
When You Think DAM, Think Integration	http://www.cmswire.com/cms/digital-asset-management/when-you-think-dam-think-integration-	A article by John Horodyski about the relevance of integration in DAM Systems.

	028304.php	
The Open Archival Information System Reference Model: Introductory Guide	http://www.dpconline.org/component/docman/doc_download/347-introduction-to-oais-introduction-to-oais?q=integration	A document about the OAIS reference model that can help with integration.
An interview with Katrina Sluis, Digital Curator at the Photographers' Gallery	http://www.furtherfield.org/features/interviews/interview-katrina-sluis-digital-curator-photographers-gallery	An inside view of one example of a digital curator work.
Thinking like a digital curator: Creating internships in the Cognitive Apprenticeship Model	https://www.academia.edu/2738683/Thinking like a digital curator or Creating internships in the Cognitive Apprenticeship Model	Conference proceedings about digital curation work.
Documentation Production Under Next Generation Technologies	http://eprints.cs.vt.edu/archive/0000163/	An article that describes the development of the Abstraction Refinement Model as a basis for linking the development and maintenance tasks in software systems.

Assessment methods

The most appropriate method to assess the Service delivery training session is to build a questionnaire to evaluate the acquisition of skills and competences defined in the digital curator role profile. The questionnaire should focus on the learning outcomes defined to the session according with the level of expertise and specific needs of each learner. The tutor and learner should discuss the answers after the period determined to finish this task.

Some questions (examples) could be:

1. Please name the principal processes in digital asset management?
2. Please name three points of stress in a DAM ecosystem that should be monitored closely by the Digital Asset Manager?
3. Please name three technologies that can help to integrate DAM systems with other systems used in the museum?
4. How can standards help to evaluate the service delivery of your DAM ecosystem?

5. Define the staff needed in a small museum to deliver a continuous service in the DAM Ecosystem?
6. What measures should a Digital Asset Manager take to prevent a service delivery interruption?
7. What is the basic infrastructure needed to implement DAM in any museum?
8. How can a digital curator evaluate quality in service delivery?

This training session is a specific part of the fourth step to prepare a DAM ecosystem - RUN. Please read also the specific chapter above.

8.5.10 Problem Management

In a DAM ecosystem of a museum it's quite probable that some problems will appear. As we have seen before there are so many issues in the ecosystem for the same purpose and some of them can go wrong even if the digital asset manager or the stakeholders act in the proper way. Solving problems (not seek for a culprit), or better, implementing a strategy to manage problems is a key issue when the system is running in your institution.

The primary objective of problem management is to prevent incidents from happening, and to minimize the impact of incidents that cannot be prevented. When a digital asset manager implement a problem management strategy he acts on problem and error controls and he is proactive to resolve or prevent problems. The goal in the institution strategy is to minimize their impact in the DAM ecosystem, no matter the cause, and prevent the recurrence of significant problems that affect the system's normal use.

To implement a problem management strategy the digital curator will need information on every single incident or problem founded and reported by him or by the team. So the first task is the implementation of a knowledge system that is used by everyone on the DAM system. This tool should allow users to report problems and incidents and classify them according with a pre-determined list of problem types. It's helpful if the system allows users to classify the problem's priority. This tool informs the digital manager to act and resolve the problem to its causes.

Problem management isn't a unique attribution of the digital asset manager. In many problems he will only act as an interaction facilitator between all the parts involved in the problem or incident resolution. In matter of fact he should be more likely a problem management analyst and controller. A person that knows every single aspect of the system and can understand the root problems so to explain them to the vendor support team or allocate the necessary resources (internal and external) to minimise or resolve them.

To implement a problem management system that can minimise the incidents or prevent them please read and use the resource published by ITSM community at:

http://www.itsmcommunity.org/downloads/Sample_Process_Guide_-_Problem_Management.pdf and adapt it to your institution needs. This resource isn't focused on DAM, but can be adapted to DAM systems as well.

Learning outcomes

At the end of the training session the learner:

- Knows the museum's overall ICT infrastructure and key components;
- Knows the museum's reporting procedures;
- Knows the museum's critical situation escalation procedures;
- Knows at least three risk management techniques
- Can identify at least three evaluation, design and implementation methodologies;
- Can identify at least two applications and availability of diagnostic tools;
- Recognizes the importance of preciseness;
- Can identify the link between system infrastructure elements and impact of failure on related business processes;
- Can select digital asset management solution that fits the budget of the museum;
- Can demonstrate the application of three communication techniques;
- Can identify progress of issues throughout lifecycle;
- Can critically analyze at least three digital asset management solutions;
- Can identify the appropriate resources to deployed internally or externally to minimize outages;
- Can propose solutions to at least two critical component failure;
- Can manage risk management audits;
- Can propose appropriate resources to maintenance activities, balancing cost and risk;

Keywords

Organisation assessment; Needs; Risk management; Diagnostic tools; Act on failure; Planning; Resources management; Audits techniques knowledge; Services and products lifecycle;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
RPR Problem Diagnosis	https://www.academia.edu/15686081/RPR_Problem_Diagnosis	A book about methodologies used in problem management in the IT sector.
Reactive Proactive	https://www.academia.edu/15681876/Reactive_Proactive_Problem_Manage	A presentation about reactive and proactive

Problem Management	ment	problem management.
Pareto Analysis	https://en.wikipedia.org/wiki/Pareto_analysis	Pareto analysis is a creative way of looking at causes of problems because it helps stimulate thinking and organize thoughts.
RPR problem diagnosis	https://en.wikipedia.org/wiki/RPR_problem_diagnosis	RPR (rapid problem resolution) its a problem diagnosis method that can be used in this field as well.

Assessment methods

The most appropriate methodology to assess the Problem management training session is continuous evaluation. The learner along with the tutor should continually make some exercises and discuss along with other learners, through the learning platform, the best way to manage problems found in the DAM ecosystem according with different scenarios defined by the tutor with the learners' collaboration. These scenarios should address specific issues like:

1. Museum dimension;
2. Museum or collections constraints;
3. Different museum budgets;
4. Museum strategy on documentation and/or ICT;
5. Product delivery problems;
6. Different incidents and system failures;
7. System specifications;
8. Standards;
9. Information quality;
10. Evaluation methods for DAM systems;
11. Maintenance plan and activities;

The learner and the tutor should discuss the result of these exercises, regardless of its form, after their conclusion.

This training session is a specific part of the fourth step to prepare a DAM ecosystem - RUN. Please read also the specific chapter above.

8.5.11 Forecast Development

In this first topic of the manage learning session we are going to explore the ability and the tools available for a digital curator investigate the internal and external needs and the evaluation process needed in order to implement the DAM in the products and services provided by the museum. To help the digital asset manager fulfilling the tasks successfully it's better to act in two plans: internal and external.

The digital curator needs to collect and analyse information separately, internally and externally and then connect the essential dots if needed.

Internally the task is simpler. First of all the digital asset manager should control and have access to all the report and managing tools that allow him to see the current status of the DAM ecosystem. With this tools and the proper administrator profile he can verify:

1. Workload and staff number needs;
2. Progression of the digitisation process;
3. System failures;
4. Hardware problems and needs;
5. Integration issues;
6. Workflow or procedures problems and needs;
7. DAM system capacity.

Secondly, it's easier to get feedback (or implement a feedback process) internally. The digital asset manager has (or should have) facilitated access to every internal stakeholder and gives them the tools to report any malwares or malfunctions of the system (incidents, problems, needs, old hardware, integration issues, etc.). A good way to gather information from internal sources is to conduct interviews with staff members from different departments about the DAM ecosystem. They'll give qualitative information about DAM questions in your institution environment.

Gathering information from external sources is more difficult and often less precise. Nevertheless the digital asset manager has some specific tools available to analyse external user's information on the DAM products and services. These tools are website's or repository analytics, that give us data about terms used, items viewed and downloaded, products purchased, services used, categories of information asked for, social network sharing, etc. In some museums requests by users for material such as publications, publicity, research or other specific purposes are also a good information source when you are preparing the viability of the system. In order to analyse external information is often useful to listen to your audiences or external stakeholders. They can do this, as well, through the use of surveys or specific in-house interviews about the use of digital assets.

Finally the digital asset manager should also pay attention to all forms of information (internal and external) indirectly connected to the use of the DAM products and services. These information sources come from journals, magazines, scientific research, vendors, new laws and legal contexts, new institution policies, procedures or rules, new hardware and so on, that can, in any way, be an improvement to the current status of the DAM system used.

These specific tasks should be carried out regularly and the digital asset manager should prepare a systematic approach using information for upgrades, new tools, services or products. Implementing these tasks in the DAM policy of your institution might seem rare for the board, but a digital curator should be able to see this described, as it is his job responsibility.

Learning outcomes

At the end of the training session the learner:

- Knows the market size and relevant fluctuations;
- Knows accessibility of the market according to current conditions (e.g. government policies, emerging technologies, social and cultural trends, etc.);
- Can interpret the extended supply chain operation;
- Knows museum's budget dedicated to ICT development;
- Knows museum and audience needs;
- Knows at least three museum and audience need analysis techniques;
- Can identify at least two methods to generate sales forecasts in relation to current market share;
- Can interpret external research data and analyze information;
- Can apply at least three large scale data analysis techniques (data mining);
- Can apply new emerging technologies (e.g. distributed systems, virtualization, mobility, data sets);
- Can apply at least three methods to analyze information and business processes;
- Can apply at least three what-if techniques to produce realistic outlooks;
- Can connect museum and audience needs with products in the market;
- Can identify organizational processes and the way they are integrated and their dependency upon ICT applications;
- Can compare sales and production forecasts of forthcoming/newly launched ICT tools and solutions and analyze potential mismatches;
- Can connect museum and audience needs with products in the market;
- Can analyze in at least three different ways information and online communication processes;
- Can identify organizational processes and the way they are integrated and their dependency upon ICT applications;
- Can identify four business advantages and improvements of adopting emerging technologies for the museum;
- Can analyze three future developments in business process and technology application;
- Can analyze feasibility in terms of costs and benefits;

- Can combine museum and audience needs with interactive and multimedia installations/tools/applications developed;

Keywords

Market knowledge; Data analysis; Audiences needs analysis; Business processes; Communication; ROI Analysis; Market knowledge; Services and products development; Product placement;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
How to Choose the Right Forecasting Technique	https://hbr.org/1971/07/how-to-choose-the-right-forecasting-technique	A description about the forecast techniques and methods available.
CMS Wire	http://www.cmswire.com	CMSWire is a web magazine that covers a range of useful topics to DAM.
Top 10 social media analytics tools: The VentureBeat index	http://venturebeat.com/2013/12/20/top-10-social-media-analytics-tools-the-venturebeat-index/	10 Social Media analytics tools described by VentureBeat that can be used to analyse social networks about DAM.
Technology forecasting	https://en.wikipedia.org/wiki/Technology_forecasting	An Wikipedia article about technology forecasting.

Assessment methods

The best way to assess the acquisition of skills and competences needed in this training session is to build a case study that helps learners on how to act in a specific situation regarding the issues developed in this session. An example of context for a case study about forecast development could be:

The X Museum has a collection of 10.000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum staff is composed by one historian, two guards, one administrative official and one curator. The museum wants to be more relevant for its community and has in place a digital strategy with the main goal to be recognized as an important reference to the study of X city and a place of edutainment for younger audiences.

The museum wants to use the digital collection (digital assets representing the physical collection) to promote the museum and engage more audiences (virtual and physical ones) to their premises. The museum is using a digital management system for almost one year and has almost 9.000 objects/digital assets recorded. The only person using the system is the museum curator (the digital curator as well), but the museum board wants to use collections information to build new and innovative products according with audiences needs.

Please discuss with your tutor and colleagues and write an essay about the ways and techniques available to match audience and museum needs and develop specific answers to respond to this situation based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the fifth step to prepare a DAM ecosystem - MANAGE. Please read also the specific chapter above.

8.5.12 Risk Management

Risk management is often forgotten in many institutions. In the cultural sector and despite of the long tradition in this area, because of the high risks concerning physical collections (Cf. the Risk management program area at Collections Trust - <http://www.collectionstrust.org.uk/collections-link/risk-management>), we can still find many museums and cultural institutions with no risk management strategies implemented in their digital collections.

Studies in this area are focused in some specific issues about digital collections like, for instance, file formats (Cf. "Risk Management of Digital Information: A File Format Investigation" available at: <http://www.clir.org/pubs/reports/pub93/pub93.pdf> or "Risk Management of Digital Information: Case Study for Image File Format" available at: <https://www.library.cornell.edu/preservation/IMLS/CLIRImageStudy.pdf>). But it is easy to see that studying file format issues, website availability and transformations or some domain-specific requirements don't really help museums to build a risk assessment methodology to define, classify, analyse and, finally manage the risks of their digital collections.

Nevertheless efforts are made in many museums and research centres to take into account risk management when developing digital assets policies and strategies. That can help to prevent

information loss or damage and to minimise the effects of these kinds of events. One of this studies, published by Barbara Borghese (available at: https://www.academia.edu/1022982/Digital_Preservation_and_Life_Cycle_Management_of_Digital_Collections), help museums and cultural institutions to define a risk assessment methodology or a risk management policy based on these functional areas:

- Insurance
 - Ad-hoc insurance covers for digital objects not widely available and possibly higher in cost;
- Access/Display
 - Possible damage to the object (software/hardware failure, physical support is obsolete, etc.);
- Storage
 - Corruption/loss of digital object due to incorrect storage- Possible unsustainable cost due to lack of appropriate storage programme;
- Preservation
 - Corruption/loss of the digital object due to lack of appropriate preservation strategy- Higher than expected or planned-for cost of preservation due to inappropriate choice of preservation strategy or standard;
- Conservation
 - Corruption/loss of the digital object due to lack of appropriate conservation strategy;
 - Loss of value due to alteration of the original format/content of the digital object;
- Disposal
 - Risk of disposing a digital object that is not supposed to be disposed (loss of value).

So in order to define a risk assessment method that your institution can use as the basis for a risk management system you can analyse the current status of the DAM ecosystem by the institution functional needs. A very important step in the risk management policy is the participation of all museum departments in the risk assessment. So the first task for a digital curator is to publicize it, by all means possible, to be used by the internal and external stakeholders. Knowing the risk management policy is a first and very important step to reduce to a minimum the resources needed when something goes wrong.

Please read also, as guidance for this subject, the **“Framework Of Guidance For Building Good Digital Collections”** a National Information Standards Organization (NISO), a recommended

practice that is available at: <http://www.niso.org/publications/rp/framework3.pdf> or <http://www.niso.org/publications/rp/> and, for example, please read the British Library Digital Preservation Strategy¹⁹ available at: http://www.bl.uk/aboutus/stratpolprog/collectioncare/digitalpreservation/strategy/BL_Digital_PreservationStrategy_2013-16-external.pdf.

Learning outcomes

At the end of the training session the learner:

- Knows at least three evaluation, design and implementation methodologies;
- Can identify at least four corporate values and interests;
- Knows at least three good practices (methodologies) and standards in risk analysis;
- Can solve at least three conflicts;
- Can interpret museum's risk analysis outcomes and risk management processes;
- Can interpret museum's risk analysis outcomes and risk management processes applicable to interactive and multimedia installations/tools/applications;
- Can interpret museum's risk analysis outcomes and risk management processes to digital asset management;
- Can apply at least three risk and opportunity assessment techniques;
- Can apply risk analysis taking into account corporate values and interests;
- Can calculate the return on investment compared to risk avoidance;
- Can develop risk management plan to identify required preventative actions;
- Can design and document the processes for risk analysis and management;
- Can design and document the processes for risk analysis and management applicable to interactive and multimedia installations/tools/applications;

Keywords

Evaluation; Assessment; Risk analysis; Risk Management; DAM processes analysis and assessment; Strategy; Planning; Documentation; Reporting;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Risk management	https://en.wikipedia.org/wiki/Risk_management	An Wikipedia article about risk management.
ISO Risk Management	http://www.iso.org/iso/home/standards/iso31000.htm	Using ISO 31000 can help organizations increase the

¹⁹ The chapter about risks is a must-read for this subject.

standards		likelihood of achieving objectives, improve the identification of opportunities and threats and effectively allocate and use resources for risk treatment.
Risk Management plan	https://en.wikipedia.org/wiki/Risk_management_plan	An Wikipedia article about risk management plan.
Create Risk Management Plan – Template	http://www.pmhut.com/project-management-process-phase-2-planning-create-risk-management-plan	A template to create a risk management plan.

Assessment methods

The most appropriate method to assess the Risk management training session is to build a questionnaire to evaluate the acquisition of skills and competences defined in the digital cultural asset manager role profile. The questionnaire should focus on the learning outcomes defined to the session according with the level of expertise and specific needs of each learner. The tutor and learner should discuss the answers after the period determined to finish this task.

Some questions (examples) could be:

1. Museums should address specific issues, like file formats, or they should address major issues like strategy? Why?;
2. Please name the functional areas that should be addressed in a Risk Management policy for museum digital collections?;
3. Name at least one methodology to analyse risks on a museum digital collection?
4. Data loss is a major issue on museum documentation in what functional area(s) this specific issue should be addressed? Why?
5. Documentation standards are a key factor to minimize risks. Is this true? Why?
6. The Risk Management Policy should be a public document? Why?

This training session is a specific part of the fifth step to prepare a DAM ecosystem - MANAGE. Please read also the specific chapter above.

8.5.13 Relationship Management

This competence should be generally applied to all job profiles in a museum and a good professional should hold so to fulfil successfully his or her job tasks.

To be able to accomplish the relationship management, a digital curator needs to know the institution environment and every internal or external stakeholder that's related with the DAM ecosystem (such as the board, the IT department, physical collections departments, audiences, museum visitors, etc.) and able to manage a stable and continuous connection with them when asking for or delivering some product or service. He needs to know the institution's processes, procedures, objectives and management structure and bear in mind the institution's mission and policies.

Some good communication skills are greatly appreciated in this competence, but the digital curator must perform pro-actively so to create empathy with the institution staff and the decision-making structure. Creating networks, joint programs with other departments, internal and external DAM workshops, using social network tools (like wikis, for instance), etc. are some specific operations that a digital asset manager could carry out in order to establish a useful relationship network.

A good example of the use of a tool for this is the example, above cited, of the Smithsonian Web And New Media Strategy Wiki (<http://smithsonian-webstrategy.wikispaces.com/Strategy+---+Themes>), but there are other ways to do this, like the Hack Days where museums and other cultural institutions ask their audiences to participate in the development of new services and products using the digital assets collection (you can see many examples of this initiatives at: <http://openglam.org/category/hack-days/>).

Another good tool to promote relationship management in your institution is to ask your human resources department to build a Welcome Manual for Staff that can provide newcomers (or everyone) with all the useful information about the institution.

Learning outcomes

At the end of the training session the learner:

- Knows at least four museum processes including, decision making, budgets and management structure;
- Can present good and bad news to avoid surprises;
- Can identify at least four objectives of the museum;
- Can identify museums, staff and technology providers needs;
- Can identify at least three challenges and risks of the museum;
- Can identify at least three objectives of stakeholders;
- Can identify at least three potential win-win opportunities for user/audience and museum;
- Can express him/herself also at least in one foreign language;
- Can demonstrate empathy towards museum staff needs;
- Can demonstrate good interpersonal skills;
- Can determine museum's challenges and risks as long as they are relevant to digital asset management;
- Can examine ongoing commitments to ensure fulfillment;

- Can determine stakeholders' objectives as long as they are relevant to digital asset management;
- Can establish realistic expectations to support development of mutual trust;
- Can propose at least three solutions to meet museums, staff and technology providers needs;
- Can examine and arrange resources to meet stakeholder requirements;
- Can propose at least three techniques to respond to audience needs and their motivation;
- Can explain (defend, argue, justify);

Keywords

Assessment; Strategy; Organisation management structure; Communication; Languages; Staff needs assessment; Interpersonal skills; Resources management; Teamwork; Planning; DAM ecosystem; Strategy;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read / hear / see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Explicating Relationship Management as a General Theory of Public Relations	https://www.researchgate.net/publication/232982036_Explicating_Relationship_Management_as_a_General_Theory_of_Public_Relations	A paper by John A. Ledingham about the theory of relationship management in the Public relations sector.
Business Relationship Management Institute	http://brminstitute.org	An website about BRM with some resources that can help to understand the concepts of this field of expertise. Use as reference only.
Customer Relationship Management (CRM): Theory and Practice	http://pt.slideshare.net/stetsonhatter/customer-relationship-management-crm-theory-and-practice	A presentation by J. Todd Bennet about the theory and practice of CRM.

Assessment methods

The most appropriate method to assess the Risk management training session is to build a questionnaire to evaluate the acquisition of skills and competences defined in the digital

cultural asset manager role profile. The questionnaire should focus on the learning outcomes defined to the session according with the level of expertise and specific needs of each learner. The tutor and learner should discuss the answers after the period determined to finish this task.

Some questions (examples) could be:

1. Please list four museum objectives in a DAM system implementation;
2. According with the DAM definition please name the museum functional needs in a DAM system?
3. Do you think participation and collaborative tools like Wikis can be used to benefit a DAM ecosystem? Why?
4. How can we determine and evaluate the specific needs of each stakeholder in a DAM ecosystem?
5. How can we act to match the stakeholders needs with the DAM ecosystem and products?
6. Please name three objectives of the physical collections curators in a DAM system implementation process?
7. Please explain why DAM is the right answer for the stakeholders needs?

This training session is a specific part of the fifth step to prepare a DAM ecosystem - MANAGE. Please read also the specific chapter above.

8.5.14 Digital Asset Management Quality Management

Quality is the main issue when delivering a product or service from a DAM system in museums. Nevertheless it's quite common when we go through museum online collections systems or repositories to find digital assets with low resolution and bad quality media. These quality problems are, in great measure, caused by financial and copyright reasons.

Preserving and running up a digital asset management system is expensive for many museums. The needs of DAM are relevant and demand an investment that isn't reachable by many small and medium size institutions because they need to have the human and technological resources to establish a DAM ecosystem. At the same time there are a lot of questions about rights management and there can be noticed inappropriate use of digital assets collections by unauthorised user, other than the museum, so museums, create digital asset collections with low quality. More information about this subject in the **"Managing Intellectual Property for Museums"** by Rina Elster Pantalony available at: http://www.wipo.int/edocs/pubdocs/en/copyright/1001/wipo_pub_1001.pdf.

To cope with these issues, efforts can be done two major fields: politics and technology. The first one is promoting, in the cultural sector, the strategies for use of open data e.g. the European Commission funded projects like OpenGLAM (<http://openglam.org>), an initiative that

promotes free and open access to digital cultural heritage held by Galleries, Libraries, Archives and Museums and defends that concept (Cf. The Open Definition at <http://opendefinition.org>). The second one is the investment in new technology development, new tools, services or products that can help museums and cultural institutions to deal with these issues. A good example is the Google Art Project (Cf. <https://www.google.com/culturalinstitute/project/art-project>), from Google Cultural Institute, that helps museums to create and publish a digital assets collection (mostly) with Google resources.

A disruptive project in this area was the Rijksmuseum project making it's collections available online with the highest quality possible and without restrictions in use (Cf. Joris Pekel from Europeana Foundation article **“Democratising the Rijksmuseum”** at http://pro.europeana.eu/files/Europeana_Professional/Publications/Democratising%20the%20Rijksmuseum.pdf). Before the Rijksmuseum's initiative, not a single museum was even thinking to do so, but after that the museums started to see the benefits of such endeavour and made it the actual trend.

Nevertheless, this trend, the strategy followed by Rijksmuseum, and other international reference museums, can't be applied by every single museum. So, in order to take quality management to your DAM ecosystem you must first define quality indicators (mainly related with the products and services delivered) that allow you to assess the production and distribution chain of the current digital asset management strategy.

A great way to measure quality in museum digital asset collections and management is by using standards as a reference. As we mentioned before, standards are the best way to enable the use of museum collections and they are used to promote quality in Museum Accreditation Schemes like the one found in the UK: (Cf. Accreditation Scheme at <http://www.artscouncil.org.uk/what-we-do/supporting-museums/accreditation-scheme/>) or in other countries (Cf. Clara Camacho thesis about this subject available at: <http://dspace.uevora.pt/rdpc/handle/10174/11718> (only in Portuguese)).

Another way is to apply general standards like the ISO 9000 International Standards for quality management systems (QMS), commonly used in manufacturing or services industries, to quality management in museum or digital asset information systems. A very good work about this subject is the thesis by Fred H. Karr, available at: <http://digital.library.unt.edu/ark:/67531/metadc5571/> and entitled **“Quality Management in Museum Information Systems: A Case Study of ISO 9001-2000 as an Evaluative Technique”**.

Quality management is an intrinsic matter for every museum, so the digital curator should have in mind that museums already use quality management methods in which digital asset quality management should be embedded. There are many studies and publications about this subject, but a good starting point can be the book **“Quality in Museums”**, available at: <http://culturalinformatics.org.uk/sites/culturalinformatics.org.uk/files/quality.pdf>, and edited by Massimo Negri, especially the articles by Kenneth Hudson and Margherita Sani.

In quality management, as in the other topic of this course, a digital curator must consider the ICOM Code of Ethics (available at: <http://icom.museum/the-vision/code-of-ethics//L/0/>) since it is first tool to work with museum (even digital) collections.

Learning outcomes

At the end of the training session the learner:

- Knows which methods, tools and procedure are applied within the museum and where they should be applied;
- Knows three ICT quality standards;
- Understands regulations and standards in energy efficiency and e-waste;
- Understands the museum’s enterprise architecture and internal standards;
- Can recognize the potential and opportunities of relevant standards and best practices;
- Understands the importance of being ethical;
- Understands the museum’s enterprise architecture and internal standards;
- Can apply the IS internal quality audit approach;
- Can operate three ICT quality standards;
- Can apply digital asset management quality standards;
- Can apply all the required technologies (web/ cloud/mobile) and environmental requirements;
- Can illustrate how methods, tools and procedures can be applied to implement the museum’s quality policy;
- Can select at least three measures to evaluate effectiveness and efficiency of the overall process;
- Can determine technologies and standards to be used during the deployment;
- Can analyze (monitor, understand and act upon) quality indicators;
- Can determine at least three technologies and standards to be used during the deployment;
- Can analyze process steps to identify at least three strengths and weaknesses;
- Can manage quality audits;

Keywords

Quality management; Legal environment; Standards; Sector regulations and laws; ICOM Code of Ethics; Implement quality assessment; Quality indicators analysis; Audits;

Resources

The following resources are mandatory for this session along with the ones cited in the training session introduction session. Please read/ hear/ see them and discuss it with your tutor and colleagues. For general guidance please see the chapter General References and Resources.

Resource	Available at:	Description
Knowledge	http://www.emeraldinsight .	An article about the ways to produce

Management: Introduction Perspective	An and	com/doi/abs/10.1108/13673279710800682	quality information that can be transformed into knowledge by users.
ISO 9000 - Quality management Implementation guidance	–	http://www.iso.org/iso/iso9001implementation_guidance.pdf	A guide to implement a ISO 9000 standard in your organisation DAM ecosystem.

Assessment methods

The best way to assess the acquisition of skills and competences in this training session is to build a case study that helps learners on how to act about quality management processes.

An example of context for a case study about this session theme could be:

The X Museum has a collection of 10.000 objects covering the history of the City X since the 19th Century. This museum is situated at the city centre and was founded 10 years ago by the city municipality. The museum wants to be more relevant for its community and has in place a digital strategy with the main goal to be recognized as an important reference to the study of X city and a place of edutainment for younger audiences.

The museum wants to use the digital collection (digital assets representing the physical collection) to promote the museum and engage more audiences (virtual and physical ones) to their premises. The museum is using a digital management system for almost one year and has almost 9.000 objects/digital assets recorded. The only person using the system is the museum curator (the digital curator as well), but the museum board wants to use collections information to build new and innovative products according with audiences needs. The museum board is focused on delivering high quality information and products using the digital collection.

Please discuss with your tutor and colleagues and write an essay about the ways and techniques available to provide and insure quality in the DAM ecosystem outputs based on the resources that you've read/listen/seen in this training session.

This training session is a specific part of the fifth step to prepare a DAM ecosystem - MANAGE. Please read also the specific chapter above.

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General Online Resources

COPE – Create Once, Publish Everywhere (NPR concept) - <http://www.programmableweb.com/news/cope-create-once-publish-everywhere/2009/10/13>

DAM Learning Center - <http://www.damlearningcenter.com>.

DAM Education - <http://www.dameducation.com>

DAM Scientific Journals - <http://www.henrystewartpublications.com/jdmm>

DAM Terminology - <http://damglossary.org>.

DAM Systems Vendor Resources - <https://www.canto.com/dam-resources/>

Digital Curation Center - <http://www.dcc.ac.uk>

MET Collection Management Policy - <http://www.metmuseum.org/about-the-museum/collections-management-policy>

Research articles

Digital Curation: The Emergence of a New Discipline - <http://ijdc.net/index.php/ijdc/article/viewFile/184/251>

Skilling Up to Do Data: Whose Role, Whose Responsibility, Whose Career? - <http://www.ijdc.net/index.php/ijdc/article/viewFile/126/133>

How To Avoid Wasting Your DAM Budget: An ROI Oriented Approach To Digital Asset Management Implementation - <http://digitalassetmanagementnews.org/features/how-to-avoid-wasting-your-dam-budget-an-roi-oriented-approach-to-digital-asset-management-implementation/>

10 Core Characteristics Listing Of Qualified Dam Vendors -
<http://damfoundation.org/2015/01/12/10-core-characteristics-listing-of-qualified-dam-vendors/>

A Business-Planning Template: Considerations for Cultural Heritage Organizations and Their Digital Asset Programs - <http://www.clir.org/pubs/reports/pub124/template.html>

The TOWS matrix - A tool for situational analysis:
<http://www.sciencedirect.com/science/article/pii/0024630182901200>

University courses:

Master in Digital Curation (Robert Gordon University, Aberdeen) -
<http://www.rgu.ac.uk/information-communication-and-media/study-options/distance-and-flexible-learning/digital-curation>

Master in Digital Curation (Johns Hopkins University, Washington) -
<http://advanced.jhu.edu/academics/certificate-programs/digital-curation-certificate/>

Digital Curation Center information about courses -
<http://www.dcc.ac.uk/training/data-management-courses-and-training>