

OSCA INITIATIVE

OPENSOURCE COMPUTING IN AFGHANISTAN

PROJECT OUTLINE - AFGHAN CENTER FOR OPENSOURCE SYSTEMS IN PUBLIC ORGANIZATIONS

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SUMMARY

In many parts of the world public and private organizations struggle to convert their IT/IS infrastructures to OpenSource systems. In some cases, large-scale government-sponsored projects are under way to utilize OpenSource software. Notably, Prime Minister Putin of Russia recently has ordered the complete [Russian federal sector](#) to convert its systems to Linux/OpenSource software by 2015.

At present, the (rudimentary) use of OpenSource IT infrastructures and information systems in Afghanistan's public institutions is mostly confined to a small number of leading public universities. The general knowledge how to utilize OpenSource application systems and IT infrastructures seems to be minimal and up to now a competence center for OpenSource systems which could provide professional training and technical/consulting support for the utilization of OpenSource infrastructures in the Afghan public sector is missing.

Things seem to go awfully wrong in Afghan public institutions during the present build-up phase of IT/IS infrastructures: Because of a general lack of knowledge and competencies, in most cases the investments in proprietary IT/IS infrastructure will lead to systems which will not be sustainable and will have to be rebuilt again from scratch in the years ahead (and with OpenSource software at their core). There are rumors that one of the leading software vendors already has approached the Afghan Government and asked for license fees for using its PC software in the government sector (Afghan colleagues insist that a nine digit USD amount of money was requested).

In most cases, Afghanistan's government organizations and public institutions will have no other chance but to rely on OpenSource systems and infrastructures in the future and it is urgently required to build-up the necessary expertise in Afghanistan and especially in Kabul.

The OSCA initiative – OpenSource Computing in Afghanistan – proposes a program which comprises a set of projects under the roof of a stable non-profit core organization: The ACOSS-PO Afghan Center for OpenSource Systems in Public Organizations. OSCA aims at the following goals:

1. Internal capacity building (educating, maintaining, and developing a group of professional IT specialists, trainers, and consultants)
2. External capacity building (training programs for the Afghan Government and public institutions)
3. Providing professional IT, IS, and consulting support for the Afghan Government and public institutions in Afghanistan.

The Afghan Center for OpenSource Systems should be self-sufficient after a build-up period of about five years. The fees charged for ACOSS services should not be competitive and at such a level that other Afghan IT/IS service providers encounter little competition when they offer equivalent services to public institutions.

Building-up ACOSS over a period of about five years until the organization is self-sufficient (excluding the budgets allocated for research activities and OpenSource promotion) will require a budget of about 3.5 to 6.5 million USD. It can be expected that ACOSS will have the potential to leverage significant cost savings in the Afghan public sector with regard to the deployment and management of IT infrastructures and information systems which will – by far – offset the initial investment to set up the institution.

It is suggested to conduct a feasibility study to further enhance the - at present - shaky planning basis and to allow for more informed decisions about the proposed project.

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Wolfgang F. Finke

1 INTRODUCTION

At present, the (rudimentary) use of OpenSource IT/IS systems and infrastructures in Afghanistan's public institutions is mostly confined to a small number of leading public universities. The general knowledge how to utilize OpenSource application systems and IT infrastructures seems to be minimal and up to now a competence center for OpenSource systems and infrastructures which could provide professional training, consulting, and technical support to the public sector is missing.

While in many parts of the world [governments](#), universities, [city administrations](#), and large [private organizations](#) have already converted their applications and IT infrastructures to OpenSource systems – notably Prime Minister Putin of Russia has ordered the complete [Russian federal sector](#) to convert its systems to Linux/OpenSource software by 2015 – most public sector managers and IT directors in Afghanistan seem not yet to be aware of the opportunities an OpenSource strategy holds for their organizations.

At the same time, many public organizations in Afghanistan are in need to develop and deploy new information system infrastructures from scratch and by default (or lack of knowledge) will turn to proprietary operating systems and application software. Proper license agreements for the software in use (or to be used) might not be in place, software maintenance might not be possible, and especially end-user systems are prone to viruses or running boot-legged software which is not fully functional: Based on these assumptions, the professional implementation and use of computer-supported information systems seems to be hardly possible while at the same time there is an urgent need to build up such information systems in many of the larger public organizations in Afghanistan.

In addition, a strategy to use (costly) proprietary software systems to develop information system solutions will not be sustainable in Afghanistan and information system solutions built on proprietary software might have to be scrapped or redesigned using OpenSource software in the future.

Given the situation outlined above, it is urgently required to initiate a discussion with managers of Afghan public institutions about utilizing OpenSource systems, enhancing the competencies/capacities of IT units, and jointly develop strategies to introduce OpenSource systems in Afghan public organizations.

An OpenSource competence center in Kabul needs to be established urgently. This center – the proposed ACOSS-PO - Afghan Center for OpenSource Systems in Public Organizations – would be able to generate/transfer the required OpenSource knowledge and competencies and can provide professional education/certification, consulting, and IT services to public organizations which want to set-up Linux- and OpenSource-based IT infrastructures and information systems.

2. MISSION, GOALS, AND STAKEHOLDERS

2.1 ACOSS-PO mission statement

The Afghan Center for OpenSource Systems in Public Organizations is a non-profit professional and self-sufficient center of excellence which supports Afghan public institutions in developing, managing, and maintaining IT and IS infrastructures which utilize OpenSource software.

In addition, ACOSS-PO supports OpenSource awareness initiatives outside the public sector in Afghanistan and offers a communication channel between OpenSource initiatives and interest groups in Afghanistan and abroad.

2.2 Outlining OSCA/ACOSS-PO goals and objectives

OSCA/ACOSS aims at the following goals (see fig. 1):

1. Internal Capacity Building (Afghan Center for OpenSource Systems)

Educating Afghan IT specialists/trainers (men and women) with the support of international IT staff up to the level of internationally certified OpenSource qualifications.

Educating Afghan consultants with dual qualifications (business management and IT/IS qualifications) towards business information systems consulting qualifications.

Maintaining and extending staff qualifications (focused on utilizing OpenSource systems in public institutions).

2. External Capacity Building (Afghan Government and public institutions)

Providing professional certification and training programs for management and technical staff of Afghan Government and public institutions.

Providing international workshops for specific target audiences and selected topic areas.

Actively promoting the utilization of OpenSource infrastructures and applications by creating, hosting, and managing an Afghan OpenSource community of business information systems professionals (creating spill-over effects towards the Afghan business community).

3. Providing professional IT, IS, and consulting support for the Afghan Government and public institutions.

Creating/running an organizational unit for professional IT/IS consulting and training services.

Creating an organizational unit for applied research in utilizing OpenSource systems in public organizations (together with Kabul University and closely connected to the consulting and services unit).

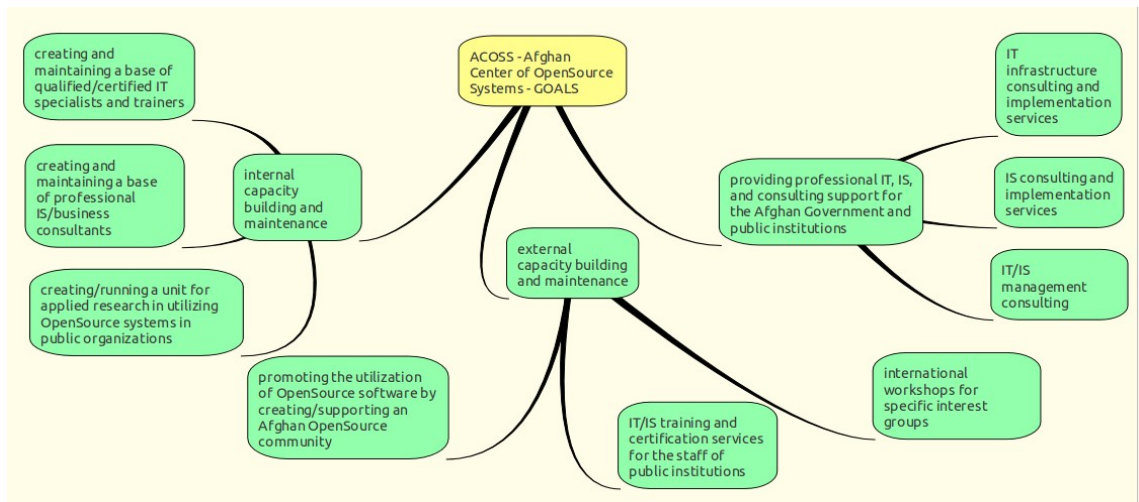


Fig. 1: ACOSS goals and objectives

2.3 Major stakeholders

Fig. 2 outlines the major stakeholders of OSCA/ACOSS projects and services. The initial focus will be on Afghan Government institutions because there should be an urgent need for professional intervention in this area. Therefore, the ministers and the heads of the IT/IS units in ministries are among the stakeholders. The Ministry of Education and the Ministry of Higher Education will be of special importance because their decisions strongly influence the basic PC education at high-schools (e.g. according to the ECDL European Computer Drivers License) and the use of OpenSource systems and training modules at universities. The Afghan Civil Services Commission is already promoting IT training and standards for public institutions and will be an additional partner.

Besides, government institutions the health care sector (e.g. large hospitals) and city governments (e.g. Kabul, Jalalabad, Herat, Mazar-e-Sharif) will be in need of OpenSource systems, the proper management of their IT/IS resources and of adequate training of their staff.

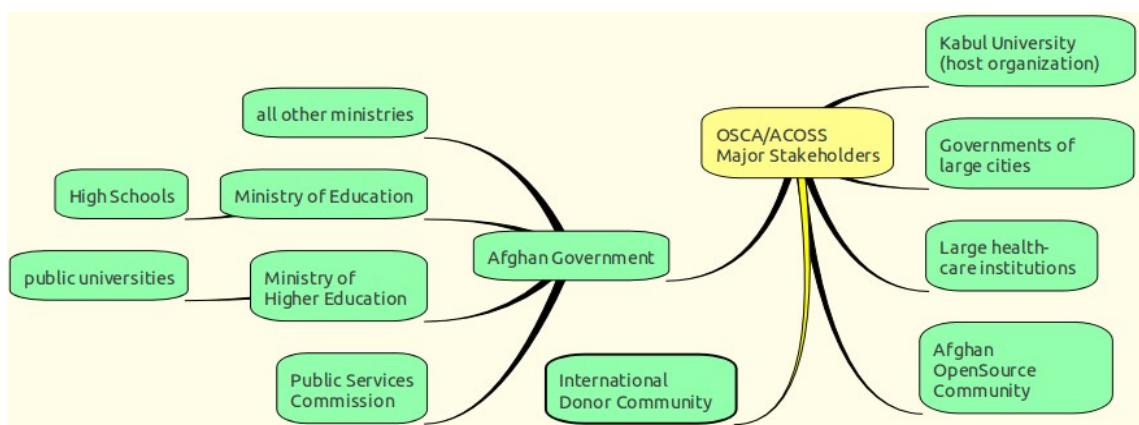


Fig. 2: Major stakeholders

The international donor community is already funding IT/IS projects in Afghanistan (e.g. USAID, Rotary Club La Jolla/CA, TU Berlin/Germany). It will be required to coordinate ACOSS activities with major donors of IT/IS projects to strengthen the use of OpenSource

systems in these projects.

Last-but-not-least, a cooperation with Kabul University would be beneficial and allow easy access and joint projects with IT specialists already educated at foreign universities (e.g. at the Technical University of Berlin/Germany). In addition, Kabul University could provide an excellent test bed for the use of OpenSource systems at large Afghan universities.

There is already a nascent OpenSource community in Afghanistan. ACROSS should partner with this community, try to further develop it, and support it by facilitating contacts to the international OpenSource community. Among others, beneficial spill-over effects of ACROSS's activities to the private sector will be the result.

3. SETTING-UP ACROSS

3.1 Preliminary project structure

Fig. 3 provides a screen shot of the work breakdown structure specified in CA OpenWorkbench.

ID	Name	Start	Finish
	[-] project milestones	10/1/2012	3/11/2016
	[-] project management	10/1/2012	8/23/2019
	[-] initialization phase	10/1/2012	6/7/2013
	[-] legal requirements	10/1/2012	6/7/2013
	[-] acquisition of staff resources and office space	10/1/2012	11/9/2012
	[-] acquisition of IT/IS resources	10/1/2012	10/1/2012
	[-] preparing for doing business	10/1/2012	10/1/2012
	[-] starting basic business operation	10/1/2012	10/1/2012
	[-] IT infrastructure consulting projects (limited complexity - 5 projects)	10/1/2012	10/1/2012
	[-] IS consulting/implementation projects (limited complexity - 5 projects)	10/1/2012	10/1/2012
	[-] IS management and workflow projects (limited complexity - 5 projects)	10/1/2012	10/1/2012
	[-] training courses (limited complexity - 3 different courses/2 repetitions)	10/1/2012	10/1/2012

Fig. 3: OpenWorkbench WBS

A more detailed – but still incomplete – work breakdown structure is included in Appendix I. A professional feasibility study will be required to provide a more sophisticated and complete WBS which will have to include resource assignments as well.

3.2 Required resources

3.2.1 STAFF RESOURCES

Fig. 4 provides an overview about the required staff resources. While there might be a chance to stretch the time for the acquisition of staff resources it has to be taken into consideration that a major part of the project consists of educating Afghan IT specialists. Delaying the acquisition of staff members could result in additional cost for educating them. In total, it is planned to acquire about 30 staff members.

number of
staff
members

1	senior project manager – temporary head of ACOSS
1	project management assistant
2	general office staff – training and workshop management
2	admin staff financial – controlling, financial management, book keeping, project documentation
3	admin staff IT
3	sales & marketing staff
3	trainers
5	IT infrastructure specialists
5	IS specialists
5	IS management and workflow consultants

Fig. 4: Staff resources

3.2.2 CENTRAL IT RESOURCES

Fig. 5 lists the required central IT resources. For security, scalability, and cost reasons two small blade chassis with four (2 x 2) blades and two external storage units are planned. The servers will be managed using VMware's virtualization software and provide for the easy and cost-efficient set-up of a number of virtual servers.

units

2	Blade chassis
4	Blades
2	Storage units
2	19 inch racks (build-in AC)
1	Central printer
6	UPSs
1	Generator
1	Switches, cabling etc.
1	System management software (Vmware virtualization tools etc.)

Fig. 5: Staff resources

3.2.3 ROOM AND LAB RESOURCES

Fig. 6 lists the required office and lab seats. Besides the 35 office seats, a lab for training courses is planned. The technical staff requires a separate test lab and for general use there is also a small conference room with 12 seats.

seats

35	office seats (incl. PC infrastructure and all office furniture)
15	training lab seats
5	test lab seats
12	conference room seats

Fig. 6: Room and lab resources

3.2.4 EXTERNAL SUPPORT

External experts will be required to provide additional support (mainly staff training). Fig. 7 lists the types of experts which are required (e.g. IT infrastructure specialist for training the ACOSS IT staff, or an external legal advisor). There are 80 consulting/service days

planned for each type of specialist during a five year period. The external IT and training specialists will be required early in the build-up phase of ACOSS. Services of a legal advisor and a tax and accounting advisor will be required throughout the complete project period.

days	
80	Ex IT infrastructure specialist 01
80	Ex training specialist 01
80	Ex IS specialist 01
80	Ex IS man. / wf specialist 01
60	Ex legal advisor
60	Ex tax and accounting advisor

Fig. 7: External support

3.3 Preliminary cost estimates

At present and without a professional feasibility study it is difficult – especially with regard to setting-up a new institution in Afghanistan – to provide detailed and realistic cost estimates.

Running cost over a 5 year period	\$4.300.000
Staff resources (running cost – 5 year period)	\$3.575.000
Room and lab resources (running cost for 5 year period)	\$450.000
Additional cost (running cost for 5 year period)	\$275.000
One time investment cost	\$718.500
Central IT resources (servers, switches, system management software etc.)	\$146.500
Room and lab resources (initial investment incl. AC, stabilizers etc.)	\$104.000
External support (5 year period)	\$468.000
30% Buffer	\$1.505.550
Total	\$6.524.050

Fig. 8: Preliminary cost estimates

In addition, it is envisaged that ACOSS is a non-profit organization and affiliated with Kabul University. A cooperation with Kabul University would probably lower the cost for setting up ACOSS.

Given the intransparent situation in Afghanistan, a surcharge of 30% seems to be justified. Esp. the import of IT equipment or unexpected government fees can cause significant additional cost. The cost for obtaining qualified staff in Kabul will depend on the labor market situation which will be strongly influenced by the planned reduction of foreign military personnel and the future staffing needs of NGOs working in Kabul.

3.4 Assessing revenue potentials

Based on the present assumptions, the running cost of about USD 1.5 mio. annually could be covered by ACOSS revenues starting after about three years in 2016 (see fig. 10 a/b). If this outlook should materialize, the cost of implementing the project could be reduced by USD 2-3 mio.. The estimate of the staff utilization for 2016 was a conservative 60% for these calculations.

Starting in 2015 ACOSS should have gathered the professional strength to start expanding by hiring additional consulting staff if the market situation is suitable. Fig. 9 shows the increase in annual revenues to USD 2.6 mio. if two additional trainers and six additional consultants would be hired (and could be utilized). The utilization of the internal "admin IT staff" was increased to 20% as well.

While these forecasts or estimates should be discussed with great restraint, there could be a potential to generate "profit" for funding application-centric IT/IS research projects in the best case. According to the strategic goals of the MoHE Ministry of Higher Education Strategic Plan 2010-2014 a close cooperation with Kabul University in setting up ACOSS-PO would be possible.

Last-but-not-least, a professional investigation and feasibility study is required to obtain a better picture and more solid estimates.

Scenario 5a – 2017					
	number of staff members	daily rate	annual working days	expected annual earnings →	\$2.583.900
senior project manager – temporary head of ACOSS	1	\$1.500	220	15%	\$49.500
project management assistant	1	\$1.000	220	30%	\$66.000
general office staff – training and workshop management	2	\$0	220	0%	\$0
admin staff financial – controlling, financial management, book keeping, project documentation	2	\$0	220	0%	\$0
admin staff IT	3	\$500	220	20%	\$66.000
sales & marketing staff	3	\$0	220	0%	\$0
trainers	5	\$600	220	70%	\$462.000
IT infrastructure specialists	7	\$600	220	70%	\$646.800
IS specialists	7	\$600	220	70%	\$646.800
IS management and workflow consultants	7	\$600	220	70%	\$646.800

Fig. 9: Scenario 5a - 2017

Ann.: The author has significant experience in setting-up IT/IS consulting businesses and has served – among others – a number of years as an IBM/Lotus client services director with additional high-level management functions in Central Europe. He also holds a PhD and a Habilitation (full professor's qualification) in Business Information Systems.

number of staff members		2012				expected annual earnings →	\$0	2013				expected annual earnings →	\$146.300	2014				expected annual earnings →	\$530.200
		earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days
1	senior project manager – temporary head of ACOSS	\$1.500	\$1.500	220	0%	\$0	\$1.500	220	5%	\$16.500	\$1.500	220	10%	\$33.000					
1	project management assistant	\$1.000	\$1.000	220	0%	\$0	\$1.000	220	5%	\$11.000	\$1.000	220	10%	\$22.000					
2	general office staff – training and workshop management	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
2	admin staff financial – controlling, financial management, book keeping, project documentation	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
3	admin staff IT	\$500	\$500	220	0%	\$0	\$500	220	0%	\$0	\$500	220	0%	\$0					
3	sales & marketing staff	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
3	trainers	\$600	\$600	220	0%	\$0	\$600	220	5%	\$19.800	\$600	220	20%	\$79.200					
5	IT infrastructure specialists	\$600	\$600	220	0%	\$0	\$600	220	5%	\$33.000	\$600	220	20%	\$132.000					
5	IS specialists	\$600	\$600	220	0%	\$0	\$600	220	5%	\$33.000	\$600	220	20%	\$132.000					
5	IS management and workflow consultants	\$600	\$600	220	0%	\$0	\$600	220	5%	\$33.000	\$600	220	20%	\$132.000					

Fig. 10a: Revenue estimates 2012-2014

number of staff members		\$530.200				expected annual earnings →	\$1.043.900	2016				expected annual earnings →	\$1.541.100	2017				expected annual earnings →	\$1.778.700
		earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days	utilization	earnings	earnings	daily rate	annual working days
1	senior project manager – temporary head of ACOSS	\$33.000	\$1.500	220	15%	\$49.500	\$1.500	220	15%	\$49.500	\$1.500	220	15%	\$49.500					
1	project management assistant	\$22.000	\$1.000	220	20%	\$44.000	\$1.000	220	30%	\$66.000	\$1.000	220	30%	\$66.000					
2	general office staff – training and workshop management	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
2	admin staff financial – controlling, financial management, book keeping, project documentation	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
3	admin staff IT	\$0	\$500	220	0%	\$0	\$500	220	0%	\$0	\$500	220	0%	\$0					
3	sales & marketing staff	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0	\$0	220	0%	\$0					
3	trainers	\$79.200	\$600	220	40%	\$158.400	\$600	220	60%	\$237.600	\$600	220	70%	\$277.200					
5	IT infrastructure specialists	\$132.000	\$600	220	40%	\$264.000	\$600	220	60%	\$396.000	\$600	220	70%	\$462.000					
5	IS specialists	\$132.000	\$600	220	40%	\$264.000	\$600	220	60%	\$396.000	\$600	220	70%	\$462.000					
5	IS management and workflow consultants	\$132.000	\$600	220	40%	\$264.000	\$600	220	60%	\$396.000	\$600	220	70%	\$462.000					

Fig. 10b: Revenue estimates 2015-2017

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APPENDIX I – WORK BREAKDOWN STRUCTURE

Phases, sub-phases, and tasks

project milestones

START PROJECT
END PROJECT
BASIC OPERATIONAL CAPABILITIES REACHED
INTERMEDIATE OPERATIONAL CAPABILITIES REACHED
FULL OPERATIONAL CAPABILITIES REACHED

project management

project management
project administration & support

initialization phase

- legal requirements

obtain business license
setting up work contract templates

- acquisition of staff resources and office space

acquisition and furnishing of office space
setting up security for the office environment
select & contract PM assistant
acquisition of general office staff (2 - training and workshop management)
acquisition of administrative staff (2 - controlling, financial, book keeping, project documentation)
acquisition of IT admin staff (3)
acquisition of sales & marketing staff (3)

- acquisition of IT/IS resources

acquisition of IT resources (servers and staff PCs)
obtaining permanent and fast web access
basic OpenSource education for IT admin staff
educating the IT admin staff to set-up and maintain the office IT infrastructure
setting up the office IT infrastructure
setting up the ACROSS website and e Collaboration infrastructure
educating all staff about the use of e Collaboration and web infrastructure

preparing for doing business

acquisition of IT/IS trainers (3)
acquisition of IT infrastructure specialists (5)
acquisition of IS specialist (5)
acquisition of IS management and workflow consultants (5)
OpenSource education (certificates) for IT/IS trainers
OpenSource education (certificates) for IT infrastructure specialists
OpenSource education (certificates) for IS specialists
OpenSource education (certificates) for IS management and workflow consultants
project management and administration education for project managers

basic project management and administration education for all staff involved in projects
setting up experimental lab facilities for IT/IS specialists
setting up facilities for conducting training courses
developing training courses, course materials, and certification procedures

starting basic business operation

- IT infrastructure consulting projects (limited complexity - 5 projects)

systematic (sales funnel) acquisition of IT infrastructure consulting projects
conducting 5 IT infrastructure projects
evaluating 5 completed infrastructure projects - lessons learned

- IS consulting/implementation projects (limited complexity - 5 projects)

systematic (sales funnel) acquisition of IS consulting/implementation projects
conducting 5 IS consulting/implementation projects
evaluating 5 completed IS consulting/implementation projects - lessons learned

- IS management and workflow projects (limited complexity - 5 projects)

systematic (sales funnel) acquisition of IS management and workflow projects
conducting 5 IS management and workflow projects
evaluating 5 completed IS management and workflow projects - lessons learned

- training courses (limited complexity - 3 different courses/2 repetitions)

systematic (sales funnel) acquisition of training courses
conducting 6 training courses
evaluating 6 completed training courses - lessons learned

complete evaluation of ACOSS business operations

starting intermediate level business operations

starting full business operations