



## IT Experts FSIE™ Core Body of Competences – Public Version

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### Table of Contents

1	Introduction.....	2
2	Practices at Bloom Level 3 - Application.....	3
3	Practices at Bloom Level 2 - Comprehension.....	4
4	Practices at Bloom Level 1 - Knowledge.....	6
5	Personal Competences.....	8
6	Collaboration Model.....	9
7	Appendix.....	10
7.1	Highly specialized competences explicitly NOT part of the CBOC.....	10
7.2	Mapping to the e-CF (European ecompetences.eu framework).....	10
7.3	List of acknowledged IT basic education diploma.....	11

## 1 Introduction

The non-profit association FSIE ([www.fsie.ch](http://www.fsie.ch)) issues the title

### **Experts FSIE™ *specialization*<sup>1</sup>**

to IT professionals initially fulfilling the requirements of (1) possessing core competences in IT as well as personal competences, (2) possess expert competences in the chosen specialization that are demonstrated with specialized education and practice and (3) adhere to the FSIE code of conduct. After the initial certification, the title must be maintained by (4) fulfilling continuing education and practice requirements that are checked every 3 years.

This document defines the reference for requirement (1) and is named FSIE CBOC – Core Body of Competences. Each specialization's expert competences are defined in different documents named FSIE BOC *specialization* – Body of Competences for each of the specializations.

Behind the FSIE CBOC we adhered to 3 design principles:

### **Be as simple as possible**

Whenever and wherever we had and have the option, we aim at less text, less complexity, less detail to maintain ease of understanding and accessibility.

### **Be practical**

The CBOC consists of practices structured according to the areas of PLAN – BUILD – RUN, which we have refined into being of Project (one-time) or Operations (continuous) character, at one of the levels Strategy, Plan or Do, aiming at the domains Business or IT.

### **Encompass every specialization**

We stick to the original Bloom taxonomy for defining the required level of competences. The CBOC contains competences at one of the non-expert levels 1, 2 or 3 while in the BOCs, the expert levels (4, 5 and/or 6) are required. This ensures that each expert FSIE, independent of his or her specialization, knows about the other expert competences and can appropriately collaborate and delegate.

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<sup>1</sup> The FSIE expert communities have defined 8 specializations for the time being. The IDs of the CBOC practices start with the letter identifying the specialization. In the cases of expert competences required, an Expert FSIE of that specialization must be consulted:

**e** Engineering (with 3 sub-specializations **es** Software, **ed** Data, **et** Test)

**b** BRIDGE (BA&PM)

**ux** User Experience (Ergonomics&HCI&HCD)

**q** Quality

**s** Security

**o** Operations

**sa** Strategy&Architecture

**m** Management

**ca** Control&Audit. In the course of time, new specializations and or sub-specializations may be defined.

## 2 Practices at Bloom Level 3 - Application

Each Expert FSIE must be able to apply the following practices, i.e. be able to perform these tasks in real-world commercial assignments:

<b>ID</b>	<b>Description</b>	<b>B</b> <sub>(usiness)</sub> / <b>IT</b>	<b>Proj</b> <sub>(ect)</sub> / <b>Op</b> <sub>(erations)</sub>	<b>Strat</b> <sub>(egy)</sub> / <b>Plan</b> / <b>Do</b>
eCBOC 01	Technical feasibility analysis of the business requirements, deriving IT requirements/tasks	IT	Proj	Plan
esCBOC 06	Design, develop and self-test software applications	IT	Proj	Do
edCBOC 08	Data modelling, design, database implementation and test	IT	Proj	Do
edCBOC 09	Data migration analysis, development, test and execution	IT	Proj	Do

### 3 Practices at Bloom Level 2 - Comprehension

Each Expert FSIE must be able to comprehend the following practices, i.e. be able to discuss these topics and relate to his/her assignments and those of others:

<b>ID</b>	<b>Description</b>	<b>B</b> <b>(usiness) / IT</b>	<b>Proj</b> <b>(ect) / Op</b> <b>(erations)</b>	<b>Strat</b> <b>(egy) / Plan / Do</b>
bCBOC 01	Understand business, define objectives and model scope	B	Proj	Plan
bCBOC 02	Align intentions with enterprise governance	B	Proj	Plan
bCBOC 03	Lead business requirements elicitation, modelling and prioritization	B	Proj	Plan
bCBOC 04	Verify and validate business objectives, scope and requirements	B	Proj	Plan
bCBOC 08	Guidance of multiple providers: check progress, quality of contract fulfillment, documentation and manage changes	B	Proj	Do
bCBOC 09	Lead business acceptance, check costs and benefits, update experience records and conduct final closure	B	Proj	Do
eCBOC 02	Estimate cost and schedule of the engineering tasks, write an offer and commit to a contract	IT	Proj	Plan
eCBOC 03	Evaluate and define a software/hardware architecture	IT	Proj	Do
etCBOC 10	Specify and execute developer-independent test cases	IT	Proj	Do
etCBOC 11	Automate test data initialisations, test cases and their execution (incl. comparisons)	IT	Proj	Do
mCBOC 06	Identify, recommend and implement educational or work-based development opportunities	B	Op	Do
oCBOC 03	Consult and engineer towards minimal economic and ecological resources consumption ("green-it")	IT	Op	Do
oCBOC 04	Install, configure and test IT platforms used professionally/at organization level	IT	Proj	Do
oCBOC 05	Engineer IT configuration and change management processes and put them into practice	IT	Op	Do
qCBOC 02	Understand standard requirements on quality	IT	Op	Plan
qCBOC 03	Engineer IT system development processes and their management	IT	Op	Do

<b>ID</b>	<b>Description</b>	<b>B</b> <b>(usiness) / IT</b>	<b>Proj</b> <b>(ect) / Op</b> <b>(erations)</b>	<b>Strat</b> <b>(egy) / Plan / Do</b>
qCBOC 04	Engineer IT system reviewing and testing processes and their management	IT	Op	Do
qCBOC 05	Engineer IT system operation processes and their management	IT	Op	Do
qCBOC 07	Audit and review effectiveness of processes	IT	Op	Do
qCBOC 10	Establish and operate a continuous improvement process	IT	Op	Do
saCBOC 03	Development of IT strategy and policy, including security and quality	IT	Op	Strat
saCBOC 07	Understand the legal & regulatory landscape and identify impacts on strategy and architecture	B	Op	Strat
uxCBOC 01	Understand and apply HCD (human centred design) principles and techniques	IT	Proj	Do
uxCBOC 02	User experience design (chains of experience) and user interface, accessibility, usability and ergonomics requirements gathering and specifications	IT	Proj	Do
uxCBOC 04	Modelling, prototyping and implementation of user interface content and interaction structures	IT	Proj	Do

## 4 Practices at Bloom Level 1 - Knowledge

Each Expert FSIE must know the concepts and vocabulary of those practices, i.e. be able to understand and contribute to written and oral conversations that refer to them:

ID	Description	B (business) / IT	Proj (ect) / Op (erations)	Strat (egy) / Plan / Do
bCBOC 05	Propose and describe solution alternatives based on market offerings (COTS) and evaluations	B	Proj	Plan
bCBOC 06	Estimate costs of all project and operational tasks (business and IT) and the benefits using experience records to shape business cases	B	Proj	Plan
bCBOC 07	Write requests for proposals, evaluate offers and support contracting of multiple providers	B	Proj	Plan
eCBOC 04	Evaluate, define, install and configure software/hardware development environments	IT	Proj	Do
eCBOC 05	Evaluate, choose, install and configure frameworks and components aligned with the given architecture	IT	Proj	Do
eCBOC 07	Design, develop and test reusable frameworks and components, including DSLs	IT	Proj	Do
esCBOC 12	Design, develop and self-test IoT and real-time applications	IT	Proj	Do
mCBOC 01	Choose the best sales channel (e.g. online, web) according to the product or solution being delivered and monitor the channel performance	B	Op	Do
mCBOC 02	Define product and services pricing/discounts, negotiate contract terms and conditions	B	Proj	Do
mCBOC 08	Governance over IT, security and quality	B	Op	Do
oCBOC 01	Gather business and IT requirements regarding the platforms and describe solution proposals	IT	Proj	Plan
oCBOC 06	Monitor and assure platforms operations: availability, continuity, performance and capacity	IT	Op	Do
oCBOC 07	Define and coordinate service/operation level agreements with business respecting the organizational, industrial and methodical standards and put them into practice	B	Op	Do

<b>ID</b>	<b>Description</b>	<b>B</b> (usiness) / <b>IT</b>	<b>Proj</b> (ect) / <b>Op</b> (erations)	<b>Strat</b> (egy) / <b>Plan</b> / <b>Do</b>
oCBOC 09	Assure proper system/platforms documentation and adherence to standards	IT	Op	Do
qCBOC 11	Report process and IT systems quality to all management levels	B	Op	Do
qCBOC 06	Develop quality management systems based on current standards and aligned to company objectives	B	Op	Do
qCBOC 09	Define process and IT system quality indicators and setup their monitoring	IT	Op	Plan
saCBOC 04	Contribute to enterprise strategy and architecture	B	Op	Strat
saCBOC 05	Challenge and prioritize project proposals in the portfolio with respect to forecasted costs, benefits and strategic contribution	B	Proj	Strat
saCBOC 06	Review the costs and benefits of implemented projects within a portfolio	B	Proj	Strat
sCBOC 01	Understand business and IT strategies as well as enterprise risk policies to define security objectives	B	Op	Strat
sCBOC 03	Define security risk categories and understand current threats both global and specific to the enterprise	IT	Op	Do
sCBOC 04	Develop holistic information security management systems based on current standards	IT	Op	Plan
sCBOC 05	Understand national and international regulations and their impacts on the "security minded" development, engineering and operation of IT services	IT	Op	Do
sCBOC 06	Capability to develop and implement information security controls for processes, people and technology as well as conduct awareness programs to impacted persons	IT	Op	Do
sCBOC 09	Report information risk and security status to all management levels	IT	Op	Do
uxCBOC 05	User centred verification and validation methods	IT	Proj	Do
uxCBOC 06	Lead in the user acceptance tests (ergonomics part)	IT	Proj	Do

## 5 Personal Competences

The personal competences are those that are only seldom explicitly taught in education programs. They may be acquired and demonstrated through personal attitude, discipline, development and the interactions with colleagues, both professional and non-professional.

ID	Topic	Description
pCBOC 1	Analytical Thinking and Problem Solving	The expert analyses problems and opportunities effectively, identifies which proposals may deliver the most value, and works with stakeholders to understand the impact of those proposals. The expert is creative, can lead a decision-making process, learns effectively, can generalise and visualise concepts and systems and systematically solves problems.
pCBOC 2	Personal Behaviour	The expert gains trust and respect of stakeholders by consistently acting in an ethical manner, delivering quality results on time and demonstrating adaptability to changing needs and circumstances. The expert is organized, dependable, reliable, plannable and confident.
pCBOC 3	Business Competences	The expert knows the basic legal and regulatory context (e.g. Swiss OR, ZGB, etc. basic concepts and regulations) he/she is working in. Generic business topics like finance/accounting, logistics, sales, marketing, supply chain management, human resources are known. The expert masters various methodologies that determine the timing (big steps or small increments), the approach (waterfall or agile), the role of those involved, the accepted risk level, and other aspects of how IT work is approached and managed.
pCBOC 4	Communication Skills	The expert is competent to listen to and understand an audience, to understand how he/she is perceived by an audience, to understand the communication objectives, the message itself, and the most appropriate media and format to be used.
pCBOC 5	Leadership and Teamwork Skills	The expert facilitates the interaction in the team, with and among the stakeholders. Leadership, i.e. the motivation and channelling of the focus of individuals towards shared objectives is important. The expert works well in teams, mediates and resolves conflicts. The expert teaches others using appropriate techniques to facilitate the understanding of his work.
pCBOC 6	Tools and Technology	The expert uses and masters a variety of hardware devices and software applications to support communication and collaboration, create and maintain artefacts, model and visualise concepts, track issues, and increase the personal and overall productivity.



## 6 Collaboration Model

The collaboration model is described in the form of the presentation:

[http://www.fsie.ch/documents/D303\\_S1\\_EN\\_FSIE\\_Collaboration\\_Model\\_Overview.pdf](http://www.fsie.ch/documents/D303_S1_EN_FSIE_Collaboration_Model_Overview.pdf)

Each specialisation should correspond to a role in this model which guarantees some longevity.

The role model may be refined in the future.

Each specialisation defines specific context and collaboration situations in the above framework that the certified experts must master and have experience with.

## 7 Appendix

### 7.1 Highly specialized competences explicitly NOT part of the CBOC

#### Management competences

mCBOC 03 React proactively to customer business changes and communicate them internally.

mCBOC 04 Establish and maintain sustainable customer relationships.

mCBOC 05 Identify competence and skill gaps in the team.

mCBOC 07 Align team size to future demand.

#### IT operations competences

oCBOC 02 Evaluate platforms alternatives regarding: hardware, operation systems, standard software/COTS, communications/network systems.

oCBOC 08 Plan and do availability/capacity reviews and trend analysis.

#### IT quality and/or security competences

qCBOC 01 Understand business strategy, IT strategy and enterprise quality policy to define quality governance objectives and procedures.

qCBOC 12 Report quality management system effectiveness to top management.

qsCBOC 08 Cooperation and collaboration of the quality and security team or security expert for the holistic view and design of a “quality and security minded” ICT-Framework.

sCBOC 02 Understand business architecture and processes to define security architectures.

sCBOC 07 Perform assessments and reviews of effectiveness, efficiency and maturity of information security controls.

#### Strategy competences

saCBOC 01 Analyse future developments in business and technology, identify impacts and potential benefits.

saCBOC 02 Identify and analyse long term user / customer needs and relate them to IT architectural requirements.

#### UX competences

uxCBOC 03 Competitor analysis and evaluation of possible user interface solutions.

### 7.2 Mapping to the e-CF (European ecompetences.eu framework)

TBD.

### 7.3 List of acknowledged IT basic education diploma

ID	Education Provider	Name	Titel	Link
ZHAW.BSc	ZHAW - FH/ZHAW	Bachelor Informatik	Bachelor of Science ZFH in Informatik	<a href="#">X</a>
ZHAW.MSc	ZHAW - FH/ZHAW	Master ICT	Master of Science in Engineering ZFH ICT	<a href="#">X</a>
UNIZH.BSc	UNIZH - University of Zurich	Bachelor Informatik	Bachelor of Science UZH in IT	<a href="#">X</a>
UNIZH.MSc	UNIZH - University of Zurich	Master Informatik	Master of Science UZH in IT	<a href="#">X</a>
UNIZH.PhD	UNIZH - University of Zurich	Doktorat Informatik	PH.D. UZH IT	<a href="#">X</a>
EPFL.BSc	EPFL - Ecole Polytechnique Federale Lausanne	Bachelor CS	Bachelor in Computer Science EPFL	<a href="#">X</a>
EPFL.MSc	EPFL - Ecole Polytechnique Federale Lausanne	Master CS	Master in Computer Science EPFL	<a href="#">X</a>
EPFL.PhD	EPFL - Ecole Polytechnique Federale Lausanne	Ph.D. CS	PH.D. CS EPFL	<a href="#">X</a>
IBZ.ITApp	IBZ - IBZ Schulen für Technik Informatik Wirtschaft Höhere Fachschule	TECHNIKER/-INNEN HF INFORMATIK / Applikationsentwicklung	TECHNIKER/-INNEN HF INFORMATIK / Applikationsentwicklung	<a href="#">X</a>
HF-ICT.IT	HF-ICT - HF-ICT BL	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
TEKO.IT	TEKO - TEKO - Schweizerische Fachschule	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
TEKO.WI	TEKO - TEKO - Schweizerische Fachschule	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>

ID	Education Provider	Name	Titel	Link
WISS.WI	WISS - WISS	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
IFA.WI	IFA - IFA	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
IFA.IT	IFA - IFA	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
gibb.IT	gibb - gibb	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
ibW.IT	ibW - ibW - Südostschweiz	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
ibW.WI	ibW - ibW - Südostschweiz	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
ESIG.WI	ESIG - ESIG-Jura	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
DIVTEC.IT	DIVTEC - DIVTEC	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
IBAW.IT	IBAW - IBAW	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
IBAW.WI	IBAW - IBAW	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
ESNE.IT	ESNE - ESNE	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
ESNE.WI	ESNE - ESNE	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
HFTM.IT	HFTM - HFTM	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK (Softwareentwicklung und Wirtschaftsinformatik)	<a href="#">X</a>
ZbW.IT	ZbW - ZbW	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK (berufsbegleitend und interaktive Medien)	<a href="#">X</a>

ID	Education Provider	Name	Titel	Link
SSSE.WI	SSSE - SSSE	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
ETML.WI	ETML - ETML	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
CPNV.IT	CPNV - CPNV	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
SFB.IT	SFB - SFB	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
SFB.TWI	SFB - SFB	TECHNIKER/-INNEN HF WirtschaftsinFORMATIK	TECHNIKER/-INNEN HF WirtschaftsinFORMATIK	<a href="#">X</a>
HBU.IT	HBU - HBU	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
Juventus.IT	Juventus - Technikerschule Juventus	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
AKAD.IT	AKAD - AKAD	TECHNIKER/-INNEN HF INFORMATIK	TECHNIKER/-INNEN HF INFORMATIK	<a href="#">X</a>
AKAD.WI	AKAD - AKAD	Dipl. Wirtschaftsinformatiker HF	Dipl. Wirtschaftsinformatiker HF	<a href="#">X</a>
FHNW.BWI	FHNW - Fachhochschule Nordwestschweiz	BSc in Business Information Technology	B.Sc.	<a href="#">X</a>
FHNW.BIT	FHNW - Fachhochschule Nordwestschweiz	BSc Informatik	B.Sc.	<a href="#">X</a>
FHNW.BIC	FHNW - Fachhochschule Nordwestschweiz	BSc Informatik - Profilierung iCompetence	B.Sc.	<a href="#">X</a>
FHNW.MIT	FHNW - Fachhochschule Nordwestschweiz	Master of Science in Engineering MSE	M.Sc	<a href="#">X</a>
FHNW.MWI	FHNW - Fachhochschule Nordwestschweiz	Master of Science in Engineering MSE	M.Sc	<a href="#">X</a>
BFH.BIT	BFH - Berner Fachhochschule	BSc Informatik	B.Sc.	<a href="#">X</a>

**Important Note: The list above only encompasses Swiss basic IT education offerings known to the FSIE Education Commission (EC). If a candidate is a graduate of a non-listed basic IT education that presumably covers all or >90% of the CBOC practices, he/she shall submit it and the FSIE Education Commission will assess the validity and eventually accept and list it. Also, if you are a provider of basic IT education that is not listed, please send it in for assessment and listing to [ec@fsie.ch](mailto:ec@fsie.ch).**

The graduation must not be older than 10 years.

*Temporary regulation:*

*The graduation can be older than 10 years. Also, it can stem from no longer existing education providers and/or be titles/programs that do no longer exist but were appropriately covering the CBOC practices as listed in chapters 2-5.*