



ETH Zürich – Replacing PSM with CO in S/4 HANA Enhancing & Simplifying Academic Information Systems

Markus Knaus, Adrian Fischer & Daniel Jung, ETH Zürich Switzerland – Version 1.0

Agenda HERUG

Replacing PSM with CO in S/4 HANA Enhancing & Simplifying Academic Information Systems

TU Berlin, Room H0110, 15. May 2019 1300 - 1340

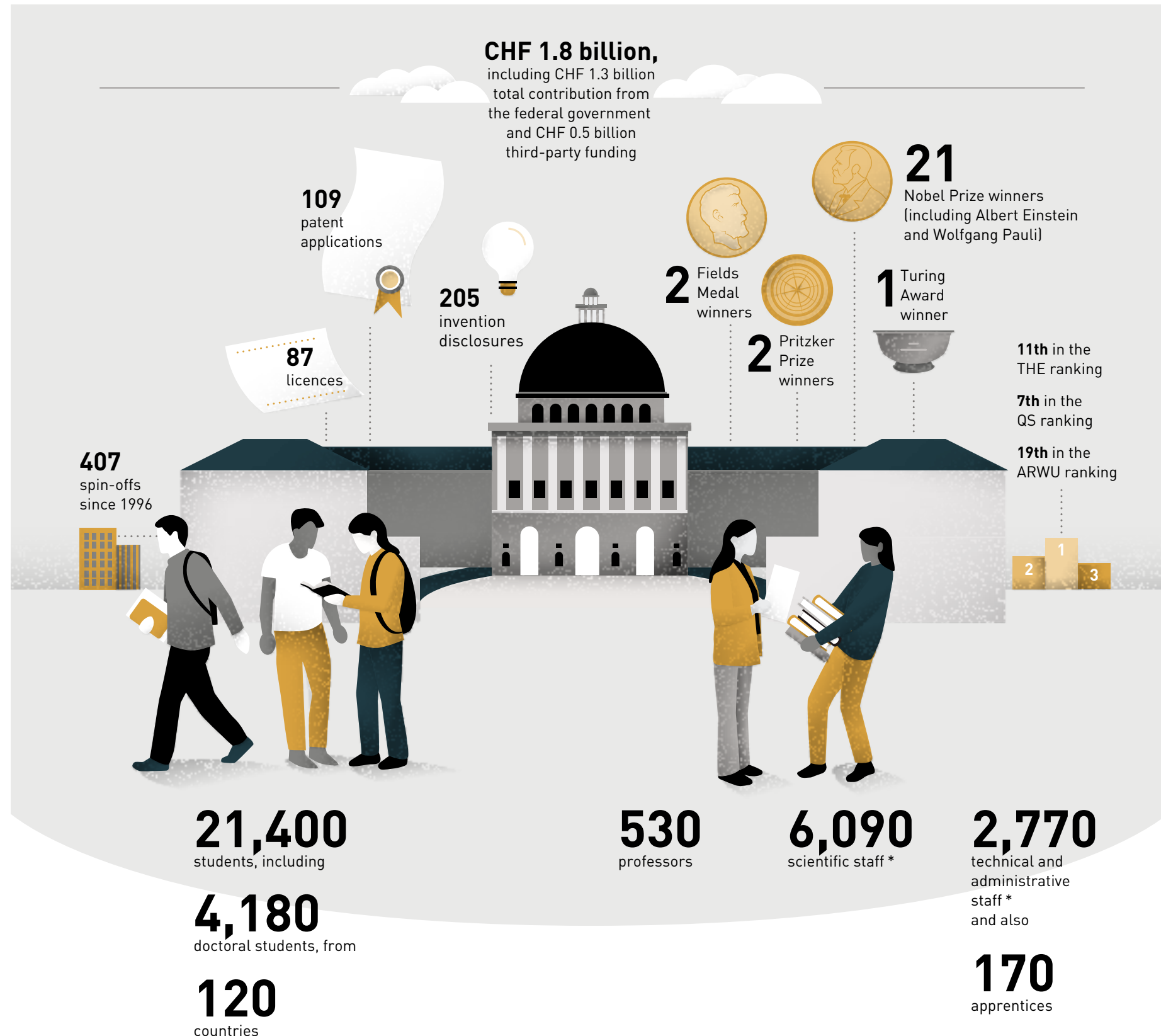


- ETH Zürich Markus Knaus
- Initial Situation / Project Goals
- Technical Setup Adrian Fischer
- Challenges Markus Knaus
 - Structures - Z tables for PSP Research Project Data
 - Reserves for Academic Units
- Annual Academic Achievements – AAA Daniel Jung
- Conclusion / Bottom Line Markus Knaus



Ready?

Further Information: Portrait ETH Zürich “Where the future begins”

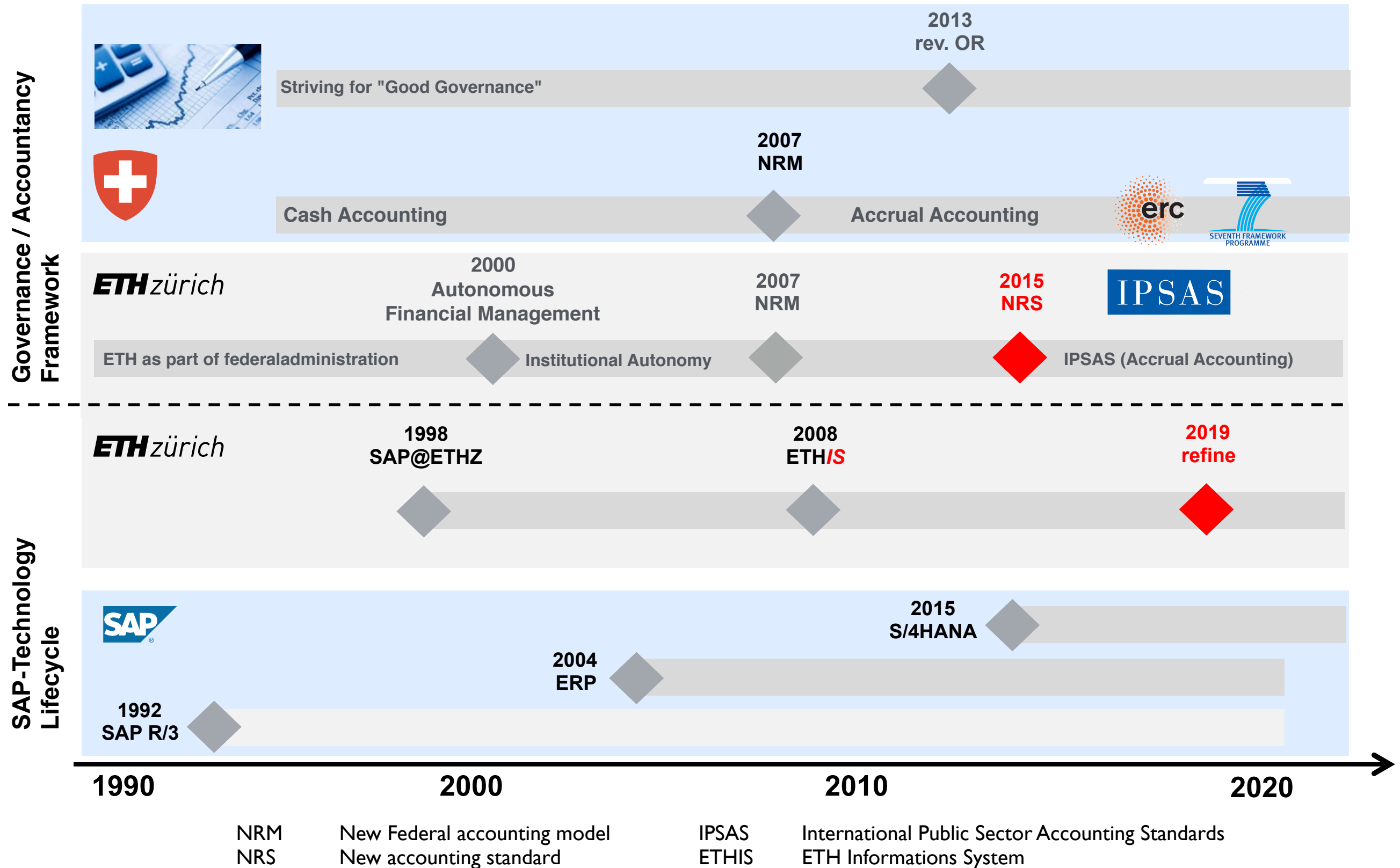




Initial Situation / Project Goals

Markus Knaus

Prospects for the new Resource and Financial platform of ETH Zürich





Principle

Refine wants to make the distribution of funds at ETH Zurich simpler and more transparent. To this end, the complexity of existing processes and systems is reduced. For the definition of new process and system standards, business values are just as important as ETH Zurich's proven cultural values..

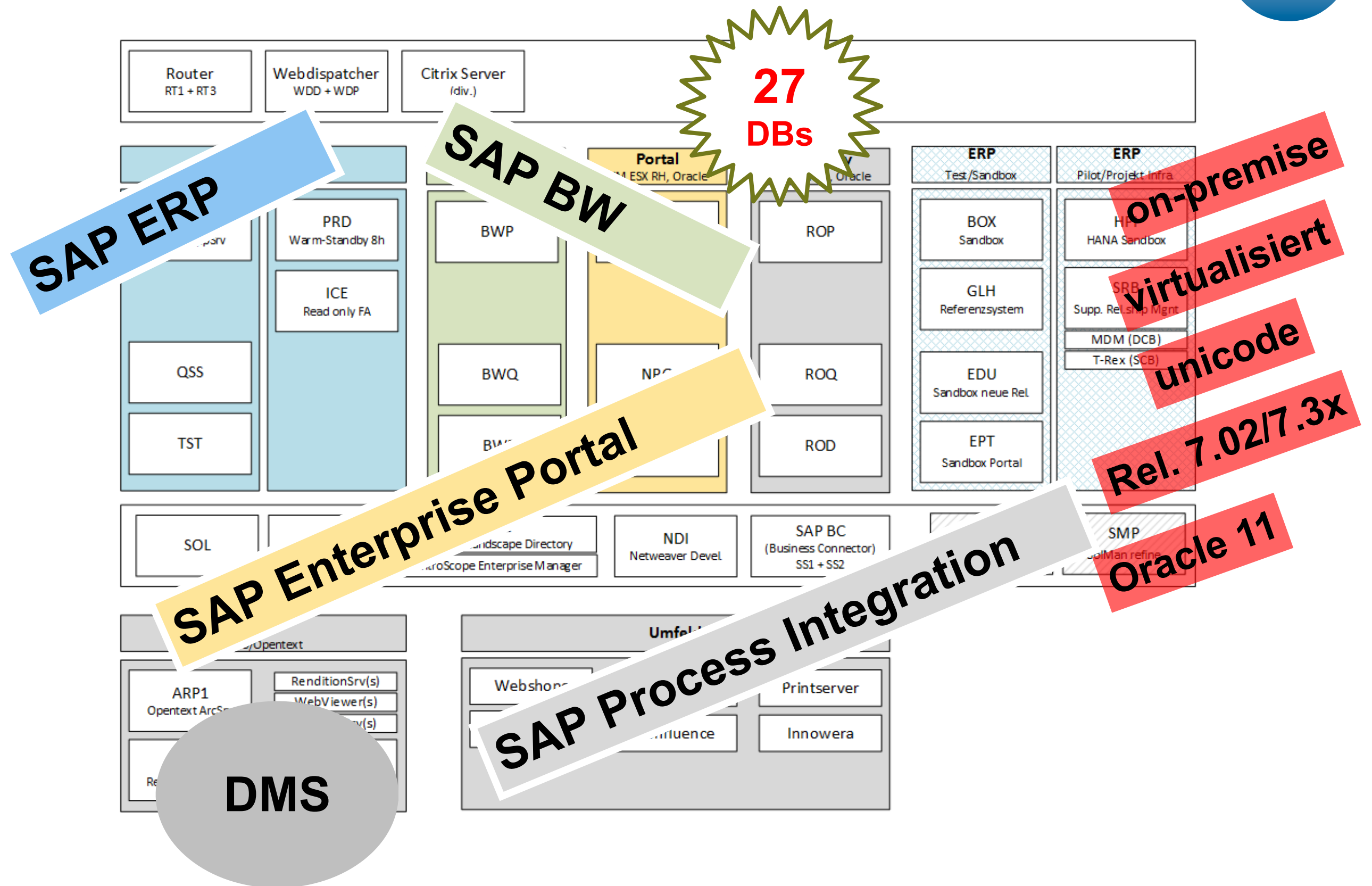
Project Objectives

1. New philosophy for the financial management of ETH Zurich in order to meet the future challenges of the university market
2. Modern conception of finance and accounting: cost and profit accounting instead of cash concept
3. Needs-based increase in transparency and flexibility
4. Simplification of processes and systems
5. New SAP ERP platform for mapping the new concept
6. Further development of the proven ETHIS platform
7. Compliance with relevant regulatory requirements



Technical Setup

Adrian Fischer

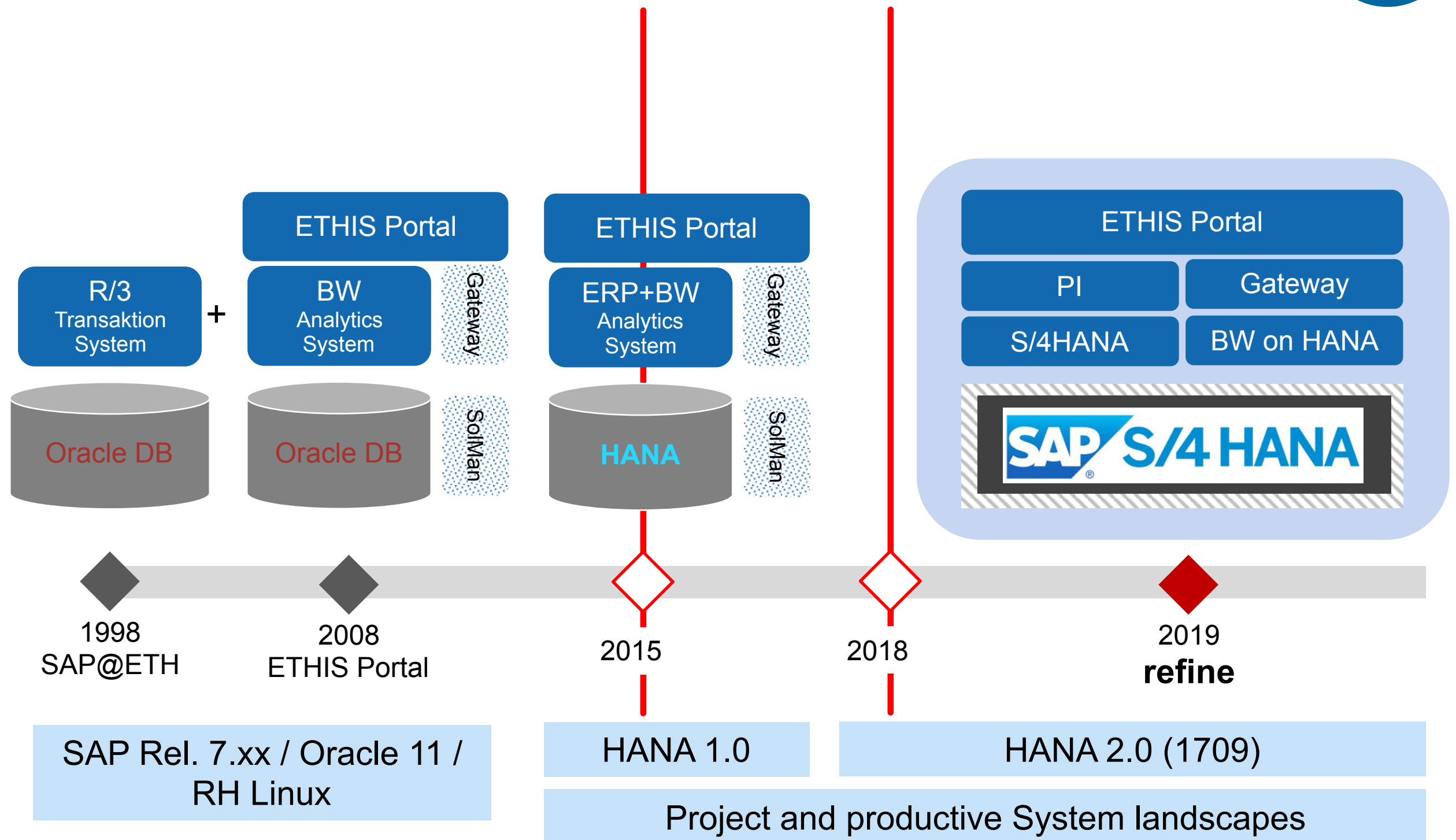


- **Strategie?** (Cloud or «on-premise»?)
- **Method?** (« All in» or Step-by-Step?)
- **Technology?** (HANA or S/4HANA? Or both?)
- **Skills?** (Check Availability of data center skills and experience to run high end HANA systems)
- **Risk?** (Using new software is not always fun – setup a accurate risk management in place)
- **Realistic?** (Finding a time slot in the project and operation for this unplanned activities)
- **Scope?** (Changing only project or productive systems – or both?)
- **Money?** (Do we have enough arguments to request additional money for the investment (Hardware and Software))

- **All in -> switch all databases to HANA at the same time**
 - ERP, BW, PI, Gateway, SAP Enterprise Portal, Solution Manager, Sandbox Systems
- **Steps**
 1. Change all Oracle databases to HANA
 2. Learn and stabilize operation and optimize some applications
 3. Evaluate new opportunities
- **Don't change the user interface to Fiori**
- **Set up a clear expectation management in terms of new functions and features**

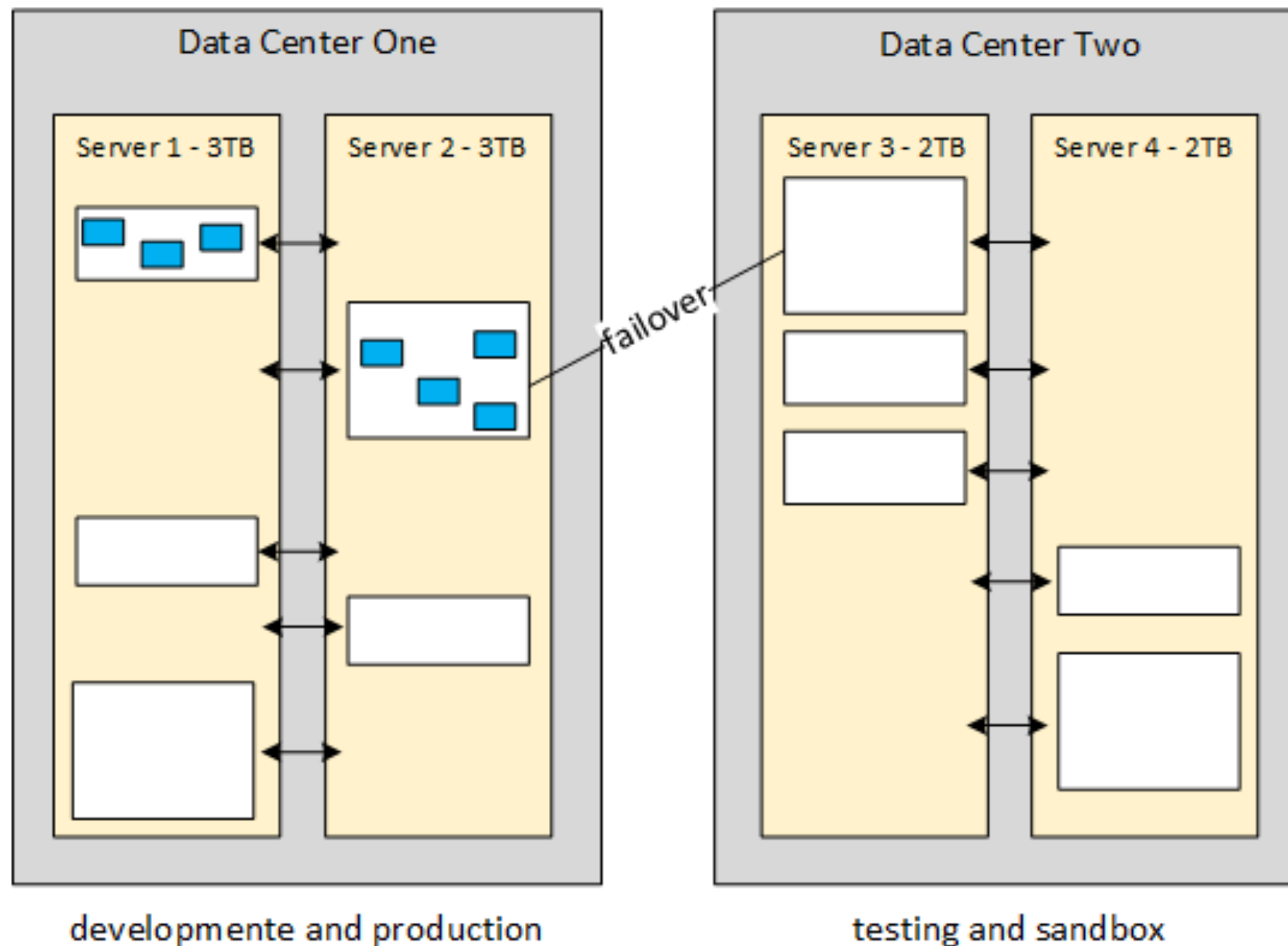


Milestones Architecture



Technical Implementation

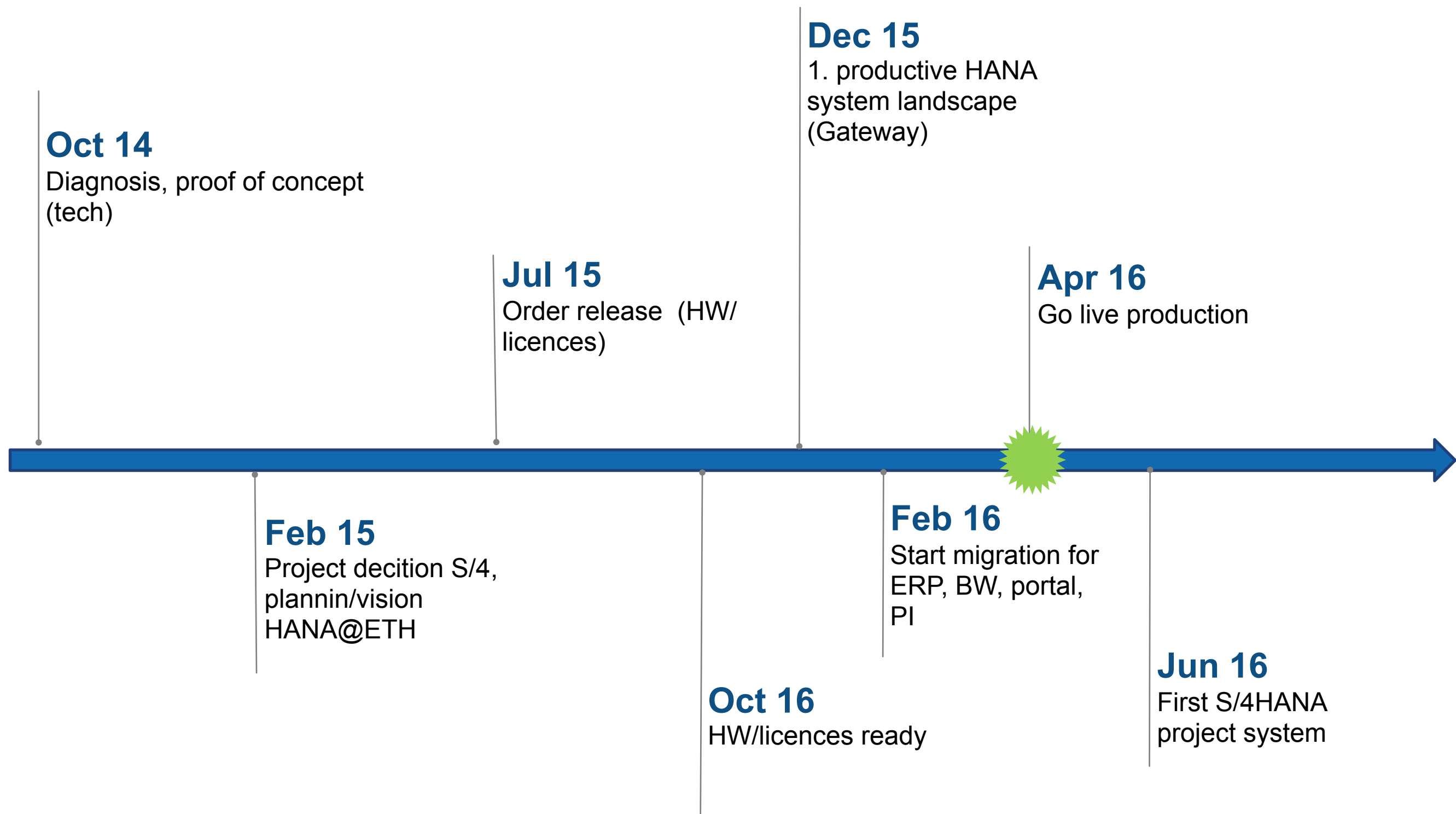
Virtualization, Multi Tenant



- 4 physical servers
- 11 virtual machines
- 38 tenants
- one virtual machine up to 6 hana tenants
- zero effort to move virtual machines for maintenance
- Fully integrated in the data center (Storage, Backup, Monitoring)



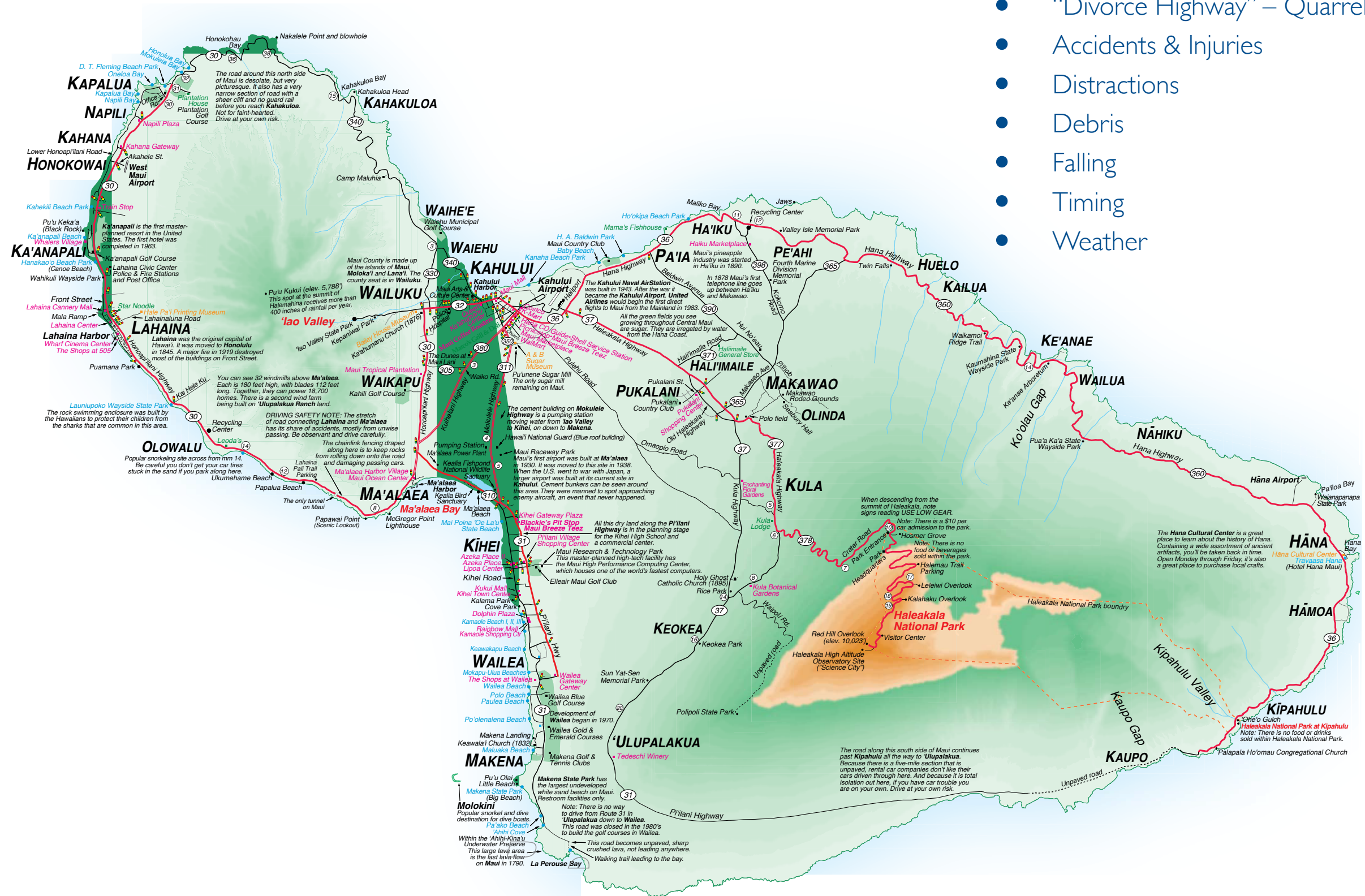
- Check detailed hardware requirements (expensive appliance vs. tailored data center integration)
- Migration to HANA is very good supported, all tools from SAP works without restrictions (ERP Core)
- Compression ratio for mature applications and central instances are rather low (1:2/1:3)
- Use code inspector to check custom code, all changes can be done in advance
- New application (SAPGUI transactions) available (z.B. FBLxH), check delta functionality



Road to Hāna

refine

- 52 Miles, 617 Curves, 3 Hours
- Queasy Stomachs
- “Divorce Highway” – Quarreling
- Accidents & Injuries
- Distractions
- Debris
- Falling
- Timing
- Weather



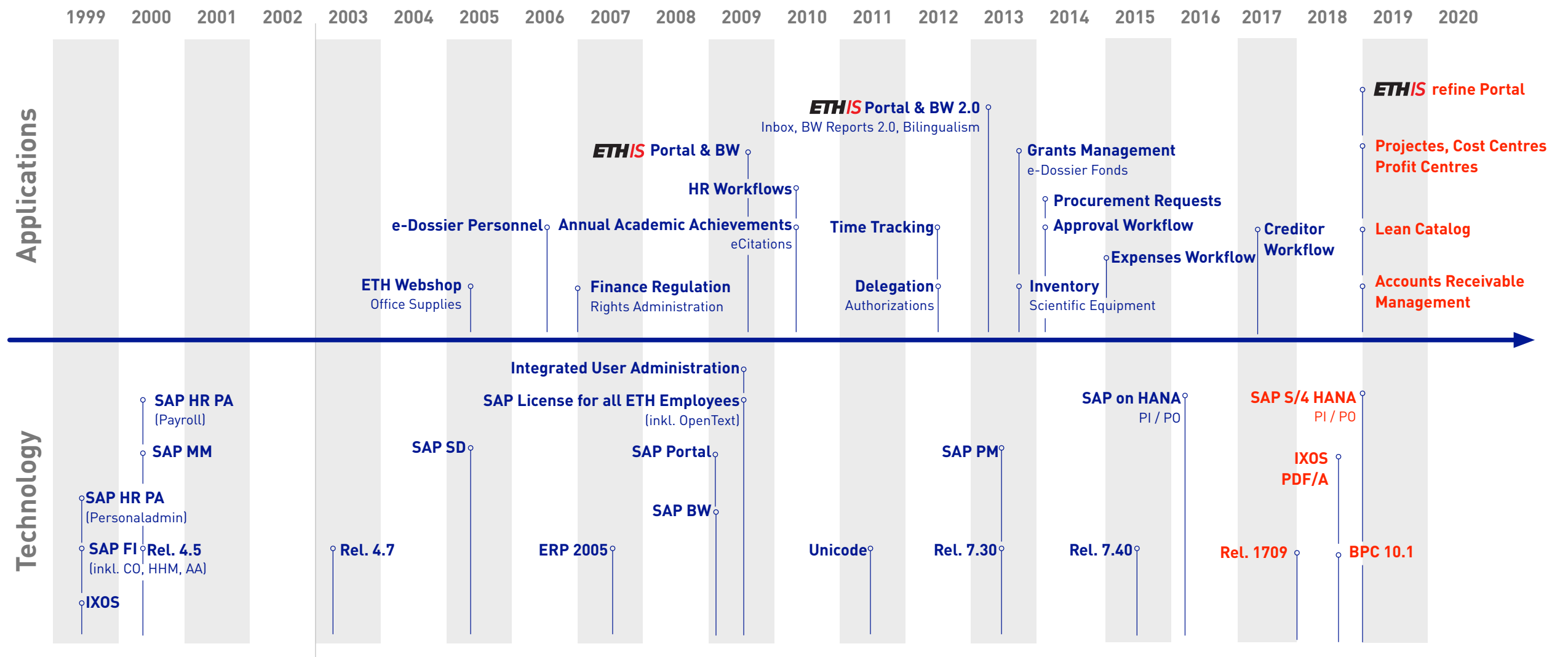




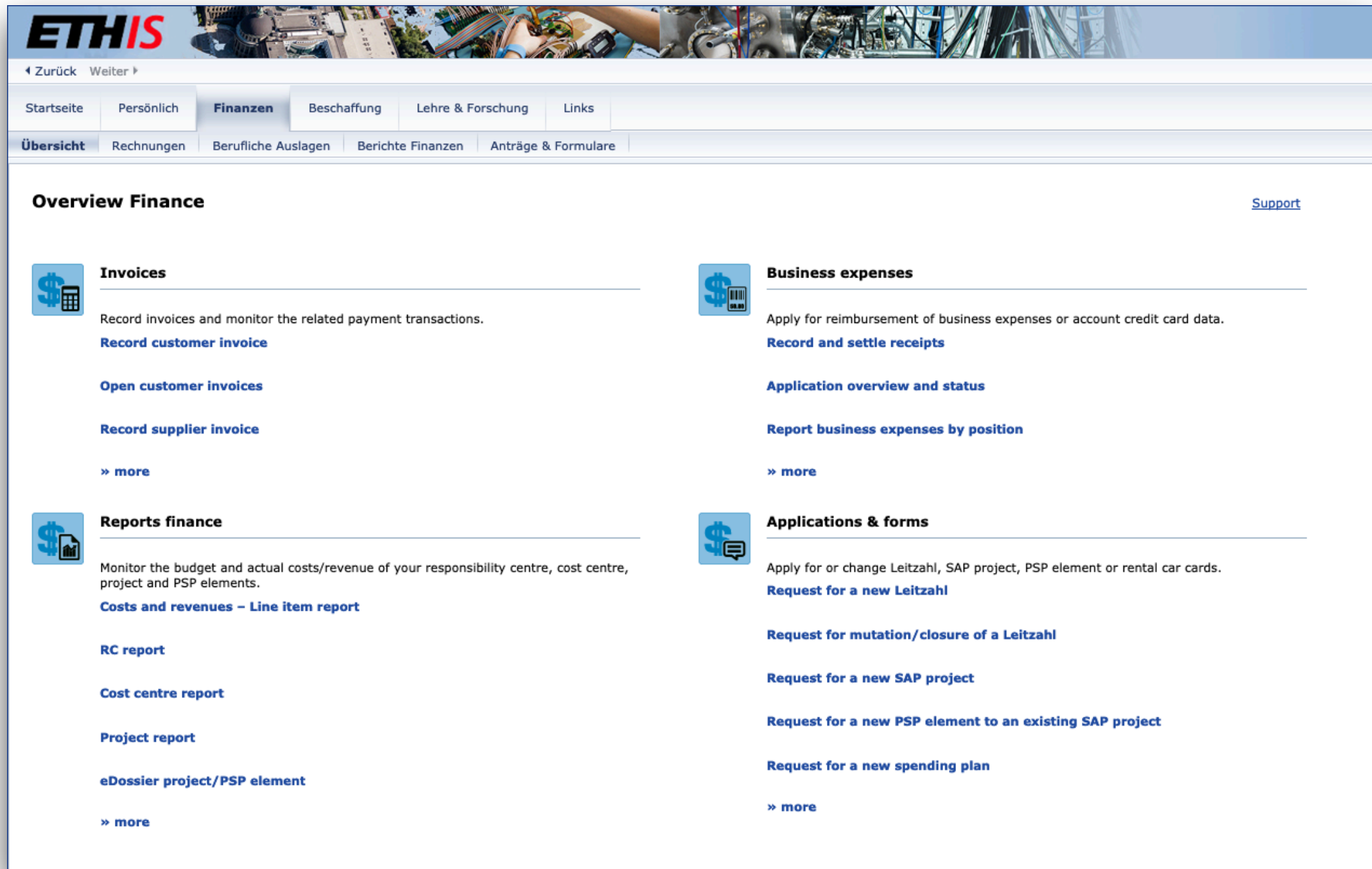
Challenges

Markus Knaus

SAP @ ETH Zürich – Milestones



- **SAP Finance (FI)**
incl. conversion to Business Partner,
integration of receivables management,
new chart of accounts
- **SAP Controlling (CO)**
cost elements,
cost centres,
CO value flows,
internal offsetting procedures
- Budgeting with **SAP BPC**
embedded and optimized
- **SAP Project System (PS)**
Mapping of projects
(e.g. third-party funds, procurement),
cost/revenue objects
- **SAP Profit Center Accounting (EC)**
Mapping of responsibility centres
- **SAP Human Resources (HCM)**
Personnel administration, payroll,
organisational management, workflows
- **SAP Logistics (MM/SD)**
incl. **SAP Lean Catalog**
and billing tool
- **SAP Maintenance (PM)**
incl. SAP Equipment
- Reporting with **SAP BI**
new architecture under S/4 HANA
- Numerous interfaces via
SAP PI (LISETH, Publica, Provis, etc.)
- **SAP Portal**



The screenshot shows the 'ETHIS' portal interface. At the top, there's a navigation bar with 'Zurück' and 'Weiter' buttons. Below it, a menu bar contains 'Startseite', 'Persönlich', 'Finanzen' (highlighted), 'Beschaffung', 'Lehre & Forschung', and 'Links'. A secondary menu bar includes 'Übersicht', 'Rechnungen', 'Berufliche Auslagen', 'Berichte Finanzen', and 'Anträge & Formulare'. The main content area is titled 'Overview Finance' and features a 'Support' link. It is divided into four sections: 'Invoices' (with a dollar sign and calculator icon), 'Business expenses' (with a dollar sign and receipt icon), 'Reports finance' (with a dollar sign and bar chart icon), and 'Applications & forms' (with a dollar sign and speech bubble icon). Each section contains a brief description, a list of links, and a '» more' link.

ETHIS

◀ Zurück Weiter ▶

Startseite Persönlich **Finanzen** Beschaffung Lehre & Forschung Links

Übersicht Rechnungen Berufliche Auslagen Berichte Finanzen Anträge & Formulare

Overview Finance [Support](#)

Invoices

Record invoices and monitor the related payment transactions.

[Record customer invoice](#)

[Open customer invoices](#)

[Record supplier invoice](#)

[» more](#)

Business expenses

Apply for reimbursement of business expenses or account credit card data.

[Record and settle receipts](#)

[Application overview and status](#)

[Report business expenses by position](#)

[» more](#)

Reports finance

Monitor the budget and actual costs/revenue of your responsibility centre, cost centre, project and PSP elements.

[Costs and revenues – Line item report](#)

[RC report](#)

[Cost centre report](#)

[Project report](#)

[eDossier project/PSP element](#)

[» more](#)

Applications & forms

Apply for or change Leitzahl, SAP project, PSP element or rental car cards.

[Request for a new Leitzahl](#)

[Request for mutation/closure of a Leitzahl](#)

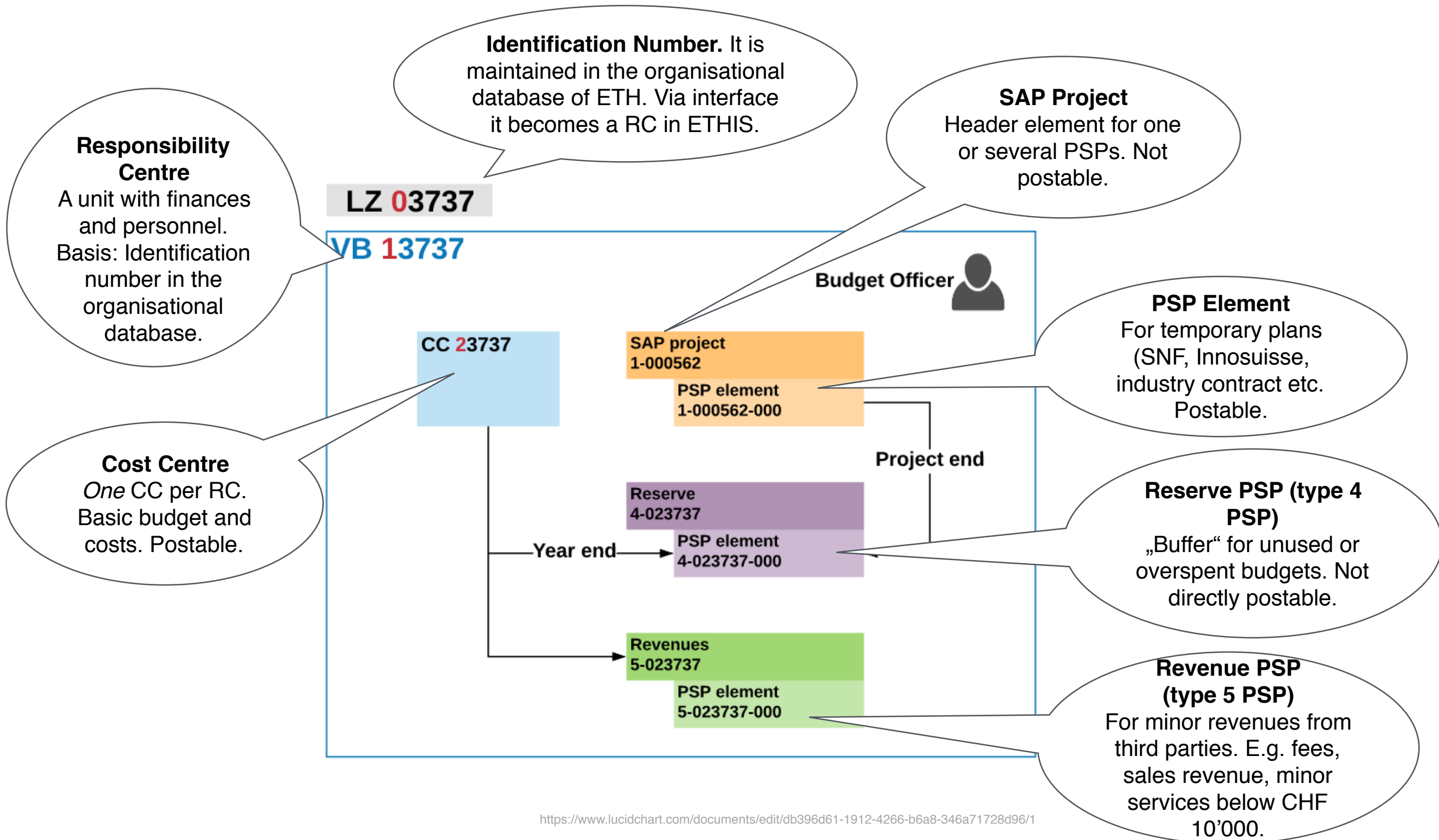
[Request for a new SAP project](#)

[Request for a new PSP element to an existing SAP project](#)

[Request for a new spending plan](#)

[» more](#)

- Don't change the user interface to Fiori



Academic Units:

In addition to the cost centre, each responsibility centre receives a reserve and a revenue SAP project.

Kontierungsobjekt und Zeitraum auswählen

Alle markieren Markierungen löschen

Kontierungsobjekt	Bezeichnung	Verantwortungsbereich	☆
23320	Sznitman, Alain-S.	13320	☆
4-023320	Forschungsreserve	13320	☆
5-023320	Erlöse	13320	☆

Zeitraum von: 01.01.2014 Reserve Aktualisieren

Anzeigen

ETHIS

Service Units:

In addition to a cost centre, each responsibility centre receives a revenue SAP project. Service units must not form reserves.

Kontierungsobjekt und Zeitraum auswählen

Alle markieren Markierung löschen

Kontierungsobjekt	Bezeichnung	Verantwortungsbereich	☆
20040	Bereich VPFC	10040	☆
1-001893	Projekt refine	10040	☆
5-020040	Erlöse	10040	☆

Zeitraum von: 01.12.2018 bis: 21.02.2019 Aktualisieren

Anzeigen

ETHIS

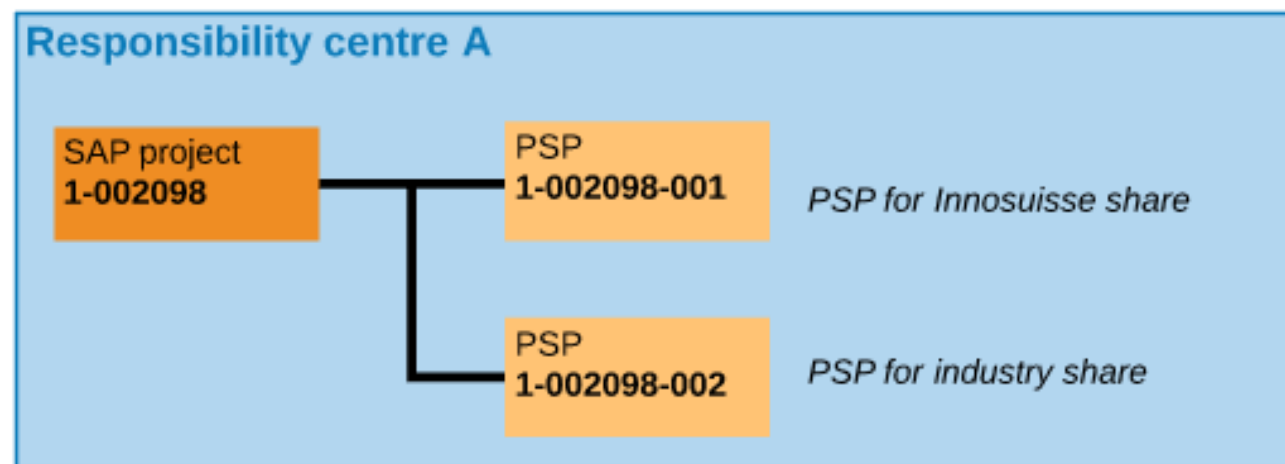
- **1 cost centre:** Annual basic budget or personnel and material costs for academic units, the planning granularity of the service-oriented units is significantly higher.
- **1 reserve SAP project:** To compensate for unused or overspent cost centre and project budgets (if permitted by donors) - only academic units.
- **1 revenue SAP project:** For the posting of small revenues from e.g. script sales or minor services.
- In addition, academic and service units/responsibility centres can have 0-n SAP projects. Projects are represented by non-speaking, 6-digit numbers; a prefix defines the project type (research project, investment, construction project, reserve or revenue), the 3-digit suffix identifies the PSP elements.

New: Improved mapping of partial funding and cooperation projects!

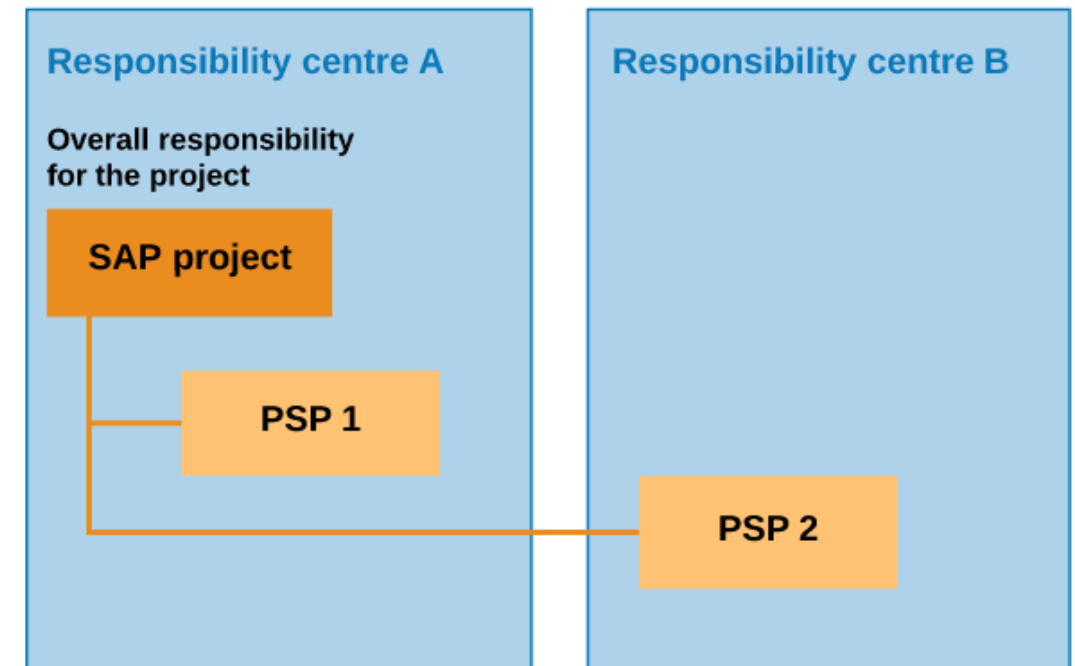
By bundling several PSP elements under one SAP project. Previously, this was NOT possible with funds (identification by using the same name only).

You can call up reports for a complete SAP project or for a PSP element.

Example: Partial financing

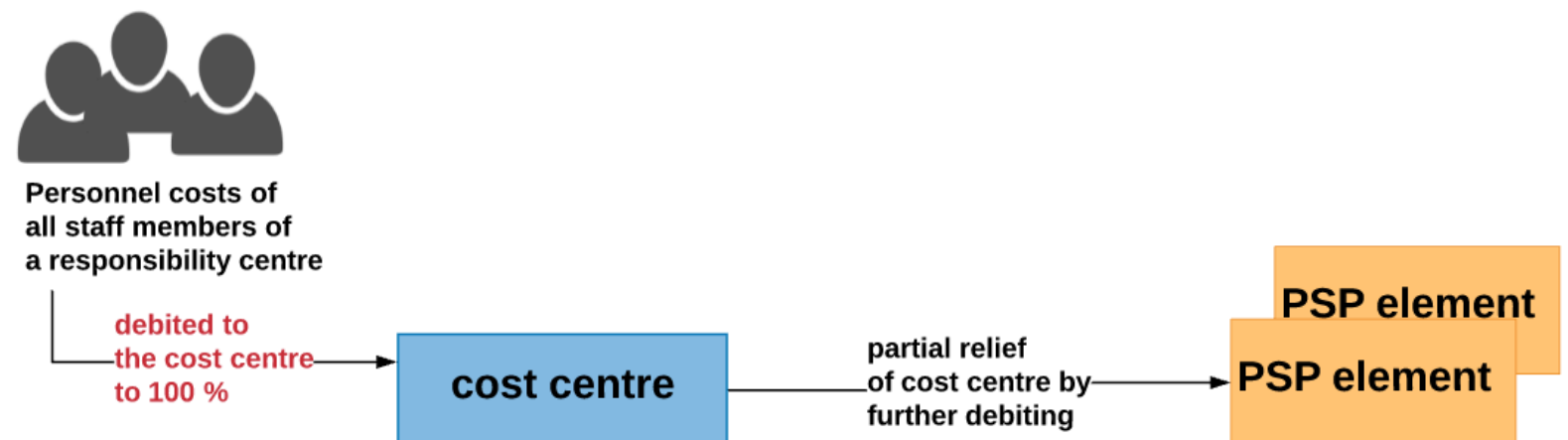


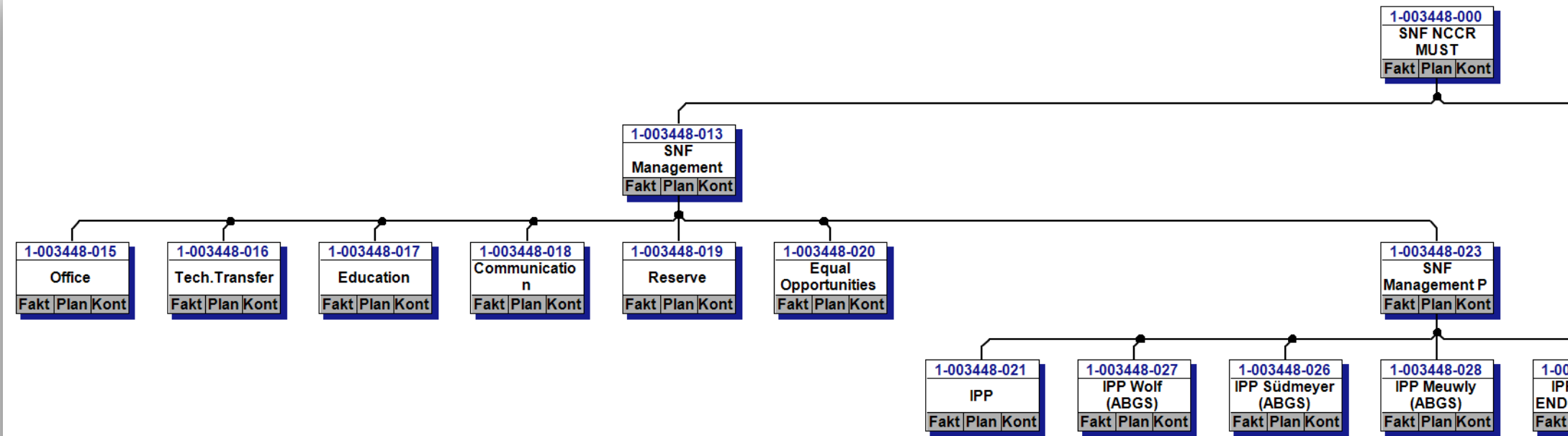
Example: Cooperation project



Employees are always employed on a cost centre.

The cost centre can be discharged by the usage-related allocation to project PSP:





Identifikation und Sichtenwahl

PSP-Element: 1-003448-021 IPP

Detail:

Übersicht(en):

Grunddaten ETH Zusatzdaten

ETH Zusatzdaten

Zuordnung im Altsystem

Fonds: 2-75124-14

Beschreibung:

Projektstruktur: Bezeichnung	Identifikation
NCCR MUST	1-003448
SNF NCCR MUST	1-003448-000
MIGRATION	MIGRATION
SNF Management	1-003448-013
Office	1-003448-015
Tech.Transfer	1-003448-016
Education	1-003448-017
Communication	1-003448-018
Reserve	1-003448-019
Equal Opportunities	1-003448-020
SNF Management Projekte	1-003448-023
IPP	1-003448-021
IPP Wolf (ABGS)	1-003448-027
IPP Südmeyer (ABGS)	1-003448-026
IPP Meuwly (ABGS)	1-003448-028
IPP Moser ENDOTERA (ABGS)	1-003448-029
Special Postdocs	1-003448-022
MUST Theory Fellows	1-003448-050
SNF Projekte PIs ETHZ	1-003448-024
Keller, ETHZ	1-003448-030
Wörner, ETHZ	1-003448-031
Johnson, ETHZ	1-003448-032
Richardson ETHZ	1-003448-033
NCCR MUST / Prof. Fiebig	1-003448-051

Z-Extension for PSP Elementes

refine

Identifikation und Sichtenwahl

PSP-Element 1-003448-021 IPP

Detail:

Übersicht(en):

Grunddaten ETH Zusatzdaten

Projektart 01 Forschg, Lehre, Dienststg, Sondervorh Kurzident. 1-003448-021

Status

Systemstatus FREI

Anwenderstatus INIT

Operative Kennzeichen

Planungselement ☒

Kontierungselement ☒

Fakturierungselement ☒

Organisation

KostRechKreis ETHZ

Buchungskreis 0330

Profitcenter 12280

Währung CHF

Bezugselm.

Project Builder: Projekt 1-003448

Anderungsbelege

PSP-Element 1-003448-021 IPP

Profitcenter 0000012280 NFS Molecular Ultrafast Sciences&Techn

Kostenrechnungskreis ETHZ

Buchungskreis 0330

Projektart 01 Forschg, Lehre, Dienststg, Sondervorh

Grunddaten Projektbewirtschaftung Reporting Legacy Fonds

Vertrag

Förderer 8000000001 SNF

Fördererprogramm P000000024 NCCR (NFS)

Projektnummer 0

Bewilligungsdatum 19.05.2014

Beginn 01.07.2014 Ende 30.06.2022

Vertragsstatus Laufend

Beitragsempfänger/in 22272 Jan Van Beilen

BP Förderer

Name, Ort Förderer

Land

Projekt Akronym

Vertragssumme ETH

Durchlaufend

Kurs Bewilligung 1.000000

Währung CHF

Förderergruppe SNF_01 SNF

Anlage Bund

Anlage Kreditnummer

Anlage Kredittribrik

Gebäude Projekt (3-90*)

Jahr Bauprogramm

Förderungsmanagement relevant

Förderungsmanagement MwSt

Kredit > 10 Mio. CHF

Projekt

Projektname 0

Keywords

Abstract

Datum Abstract

Kooperierende Hochschulen

Inst. Herkunftsinstitut



Project Builder: Projekt 1-003448

Änderungsbelege

PSP-Element 1-003448-021 IPP Profitcenter 0000012280 NFS Molecular Ultrafast Sciences&Techn Kostenrechnungskreis ETHZ Buchungskreis 0330

Projektart 01 Forschg, Lehre, Dienststg, Sondervorh

Grunddaten Projektbewirtschaftung Reporting Legacy Fonds

Laufzeit

Beginn 01.07.2014 Ende 30.06.2022

Abgaben/Overhead

Berechnungsart 900 Fonds nicht abgaberelevant

Overhead dezentraler Anteil

Bemerkung zur Berechnung

Prozentsatz 1 0.00000 %

Prozentsatz 2 0.00000 %

Verteilung dezentral 0.00000 %

Überwachung

Termin Sachbearbeiter/in

Text

Bericht erstellen? ☒ Ja ☐ Nein

Berichterstattung

Abrechnung per	Bericht Typ	Verantwortlich	Verantwortlich Name	erledigt am	erledigt durch	erledigt durch Name
30.06.2015	Z	69003	Sabine Anna Meens	03.07.2015	120413	Urata Bektashi
30.06.2018	Z	69003	Sabine Anna Meens	08.08.2018	108220	Igea Cesarano
30.06.2019	Z	63352	Raffael Walter			
30.06.2020	Z	63352	Raffael Walter			
30.06.2022	S	63352	Raffael Walter			

Project Builder: Projekt 1-003448

Änderungsbelege

PSP-Element 1-003448-021 IPP Profitcenter 0000012280 NFS Molecular Ultrafast Sciences&Techn Kostenrechnungskreis ETHZ Buchungskreis 0330

Projektart 01 Forschg, Lehre, Dienststg, Sondervorh

Grunddaten Projektbewirtschaftung Reporting Legacy Fonds

Reporting intern

Mittelart ZW Zweitmittel

Art Zusatzbudget ZF_KEINE Keine

Art des Budgets B_KEINE Keine

Ordentliches Budget ☐

Reservenzuweisung

Reporting extern

Ertragskategorie 20101 NCCR

IPSAS 23 Erträge ohne Gegenleistungen ... Ungleich Ableitungsregel IPSAS ☐

CoC JA Ja

BFS FQ1 4 Nationalfonds

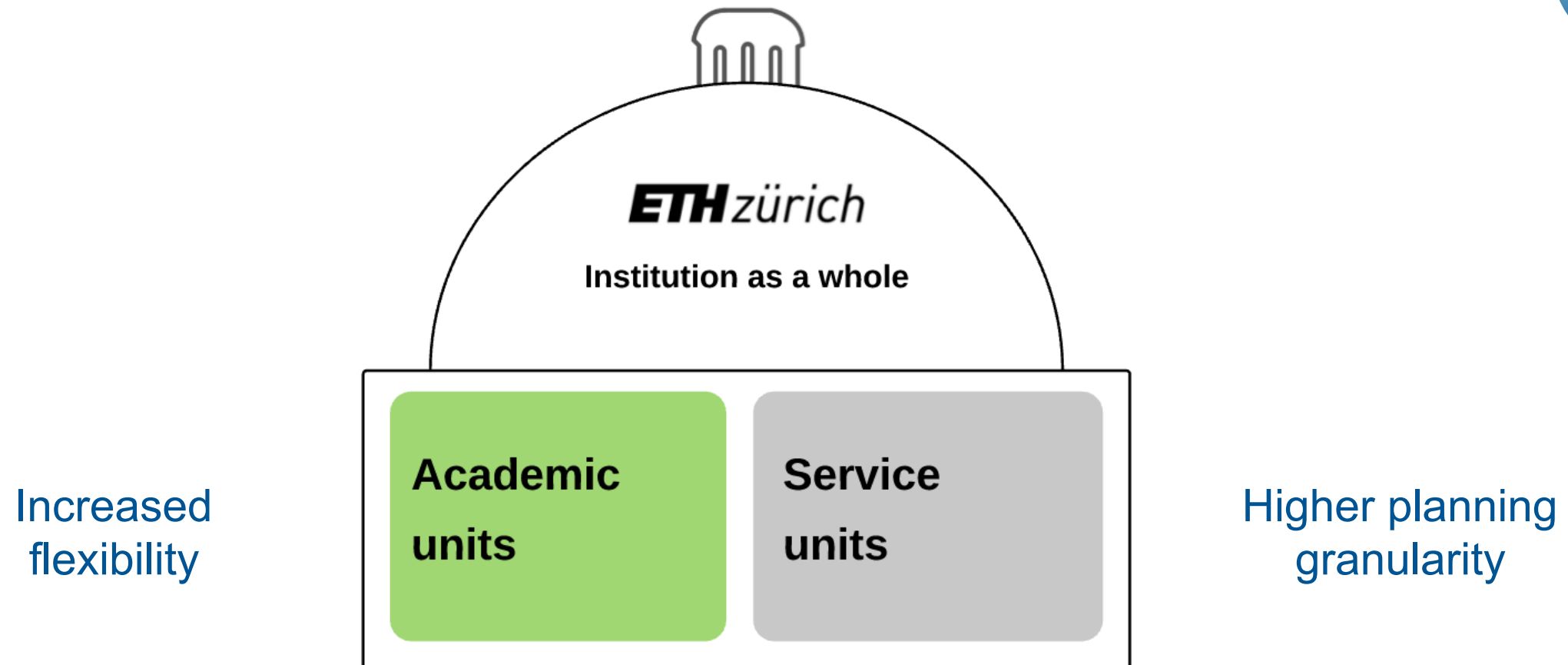
BFS FQ2 400 SNF - Projekte

ETHZ Foundation

Initiativen-PSP

Donator BP

Vertragsnummer

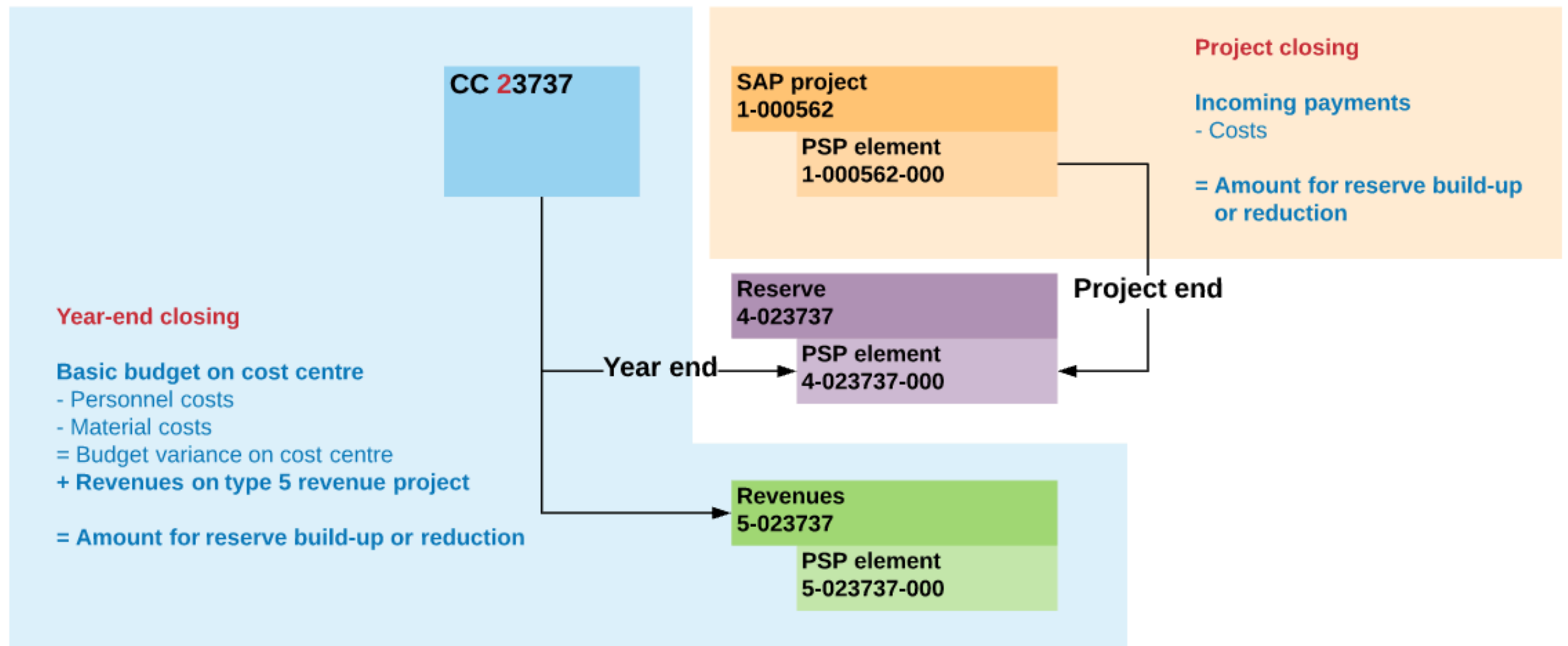


Financial governance distinguishes more strongly than before between **service** and **academic units**.

- **Academic units** (departments, professorships, institutes, departmental institutions) are given an even greater degree of flexibility and autonomy. If a unit does not use up its basic budget by the end of the year, it can **transfer the unused portion to the following year via a reserve**. This eliminates the need to optimise for the end of the year.
- **Service units** (service departments, staff units and extra-departmental teaching and research units) will be managed even more strongly than before according to business management criteria, such as efficiency, specific task-based budgets, higher planning granularity and multi-year investment budgeting.

In academic units, the reserve serves as a **buffer for unused or overspent budgets**. It cannot be posted to directly.

Postings to or from the reserve are made by the Finance Desk as part of the year-end closing or project completion (no application required).





Annual Academic Achievements – AAA

Daniel Jung

- Embedded in SAP Portal
- Annual process
- In place since 2010
- More than 1100 users
- Total 711 reports: 16 department, 590 professor, 105 study direction
- Automatic data transfer from 5 DBs, and manual entries

AAA Users

- *Head of organisational unit*: can enter data and submit report
- *Administrativ Assistent with delegation*: can enter data
- *Head of a departement*: can view reports of associated organisational units

Startseite

Persönlich

Finanzen

Personal

Einkauf & Verkauf

Lehre & Forschung

Links

Übersicht

Studierende

Surveys

Annual Academic Achievements

Annual Academic Achievements (AAA)

Annual Academic Achievements (AAA) supports academic reporting by professorships, departments and study programmes. For more information, see <http://www.sap.ethz.ch/applications/aaa>

My Reports

My Archived Reports

Reports from my Organisational Area

Archived Reports from my Organisational Area

Analyses

Administration

My Reports

Leitzahl	Description	Catalogue for	Submission Deadline	Status				Report	Balance Confirmation
00040	Domain VP Finance & Controlling	Professorships	31.01.2019	In Process	Edit	Return	Submit	PDF	PDF
00048	Abt. Controlling	Professorships	31.01.2019	Submitted	Edit	Return	Withdraw	PDF	PDF
00060	ETH-Bibliothek	Professorships	31.01.2019	Open	Edit	Return	Submit	PDF	PDF
01052	BSc Architektur	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01054	MSc Architektur	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01055	MSc Integrated Building Systems	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01066	MAS Landschaftsarchitektur	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01067	MAS in Building Project Leadership	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01068	MAS in Urban Design	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01072	MAS ETH in Housing	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01076	MAS ETH Architecture and Digital Fab	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01077	MAS ETH Architecture, Real Estate, Const	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01080	CAS ETH ARC in Digitalisation	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01081	CAS ETH ARC in Company Management	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	
01115	MAS Raumplanung	Programmes	31.01.2019	Open	Edit	Return	Submit	PDF	

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My Archived Reports

Leitzahl	Description	Catalogue for	Year	
00048	Abt. Controlling	Professorships	2015	 PDF
01052	BSc Architektur	Programmes	2016	 PDF
01054	MSc Architektur	Programmes	2017	 PDF
01055	MSc Integrated Building Systems	Programmes	2017	 PDF
01065	MAS Architektur	Programmes	2012	 PDF
01066	MAS Landschaftsarchitektur	Programmes	2017	 PDF
01067	MAS in Building Project Leadership	Programmes	2017	 PDF
01068	MAS in Urban Design	Programmes	2016	 PDF
01072	MAS ETH in Housing	Programmes	2017	 PDF
01076	MAS ETH Architecture and Digital Fab	Programmes	2017	 PDF
01077	MAS ETH Architecture, Real Estate, Const	Programmes	2017	 PDF
01080	CAS ETH ARC in Digitalisation	Programmes	2017	 PDF
01081	CAS ETH ARC in Company Management	Programmes	2017	 PDF
01112	MAS in Natural Hazards Management	Programmes	2011	 PDF
01115	MAS Raumplanung	Programmes	2017	 PDF

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My Reports

My Archived Reports

Reports from my Organisational Area


Archived Reports from my Organisational Area

Analyses

Administration

Archived Reports from my Organisational Area

1 Leitzahl

<input type="text"/>	Search		
Leitzahl	Description	Year	
▼ T0000	T-Gesamthierarchie ETH Zürich u. ETH-nah	2017 ▼	 ZIP
▪ 00000	Gesamthierarchie ETH Zürich und ETH-nahe		
▼ T0002	Total ETH Zürich		
▪ 00002	ETH Zürich		
▶ T0003	Total Schulleitung und Dienste		
▼ T0012	Total Lehre und Forschung		
▪ 00012	Lehre und Forschung		
▼ T0007	Total Departemente		
▪ 00007	Departemente		
▪ 09900	Fonds- und Stiftungen		
▶ T2000	Total Departement Mathematik	2017 ▼	 ZIP
▶ T2010	Total Departement Physik	2017 ▼	 ZIP
▶ T2020	Total Departement Chemie und Angewandte	2017 ▼	 ZIP
▶ T2030	Total Departement Biologie	2017 ▼	 ZIP
▶ T2045	Total Departement Geistes-, Sozial- und	2017 ▼	 ZIP
▶ T2060	Total Departement Biosysteme	2017 ▼	 ZIP
▶ T2070	Total Departement Gesundheitswissenschaft	2017 ▼	 ZIP
▶ T2100	Total Departement Architektur	2017 ▼	 ZIP
▶ T2115	Total Departement Bau, Umwelt und Geomat	2017 ▼	 ZIP
▶ T2120	Total Departement Management, Technologi	2017 ▼	 ZIP



Annual Academic Achievements (AAA)

Year: 2018 Leitzahl: Administration mode

Education

Finance

Research

Publications

Knowledge and technology transfer

Honours and awards

Outside activities

Bodies and offices

Qualitative report

Courses

Performance assessments

Completed bachelor and master theses

Ongoing doctoral theses

Completed doctoral theses

What courses did members of your group give in the spring and autumn semester of 2018?

[Explanations to this question](#)

Dating from 13.09.2018 Sort by: (display only)

Number	Title	Semester	Type	Lecturer/s	Hours	Number of enrolments
327-0308-00		HS 2018	Lecture with exercise		28	34
327-0508-00		HS 2018	Exercise		28	46
327-0508-00		HS 2018	Lecture		28	46
327-1202-00		HS 2018	Lecture with exercise		56	35
327-1300-00		FS 2018	Seminar		14	0
327-2207-00		FS 2018	Lecture with exercise		56	21
402-0890-00		FS 2018	Seminar		28	0
402-0890-00		HS 2018	Seminar		28	0

Education Finance **Research** Publications Knowledge and technology transfer Honours and awards Outside activities Bodies and offices Qualitative report

Grants **Collaboration contacts** Research fields

What institutions did your group work together with in the calendar year of 2018?

[Explanations to this question](#)

Country *

Institution *

other ☐ Private sector

Type of contact *

☐ A : Research project

☐ B : Exchange of doctoral students

☐ C : Exchange of bachelor/master students

☐ D : Exchange of scientific staff

☐ E : Cooperation in education

☐ F : Other

Contact person at the institution

Contact person at ETH Zurich

Sort by: (display only) ID Ascending

ID	Country	Institution	Institution as free text	Private sector	Type of contact						Contact person at the institution	Contact person at ETH Zurich	Modify	Delete
					A	B	C	D	E	F				
7,097	USA	Argonne National Laboratory - Lemont, IL		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
8,295	Germany	Universität Duisburg-Essen		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
8,423	Switzerland	Paul Scherrer Institut (PSI) - Villigen		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
8,425	Germany	Universität Bayreuth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
8,426	China	Chinese National Laboratory for Materials Science	The Chinese National	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chen Lin Chen	Frank Lehtonen	<input type="button" value="Modify"/>	<input type="button" value="Delete"/>



[Education](#)
[Finance](#)
[Research](#)
[Publications](#)
[Knowledge and technology transfer](#)
[Honours and awards](#)
[Outside activities](#)
[Bodies and offices](#)
[Qualitative report](#)

What publications did members of your group release in the calendar year of 2018?

[Explanations to this question](#)

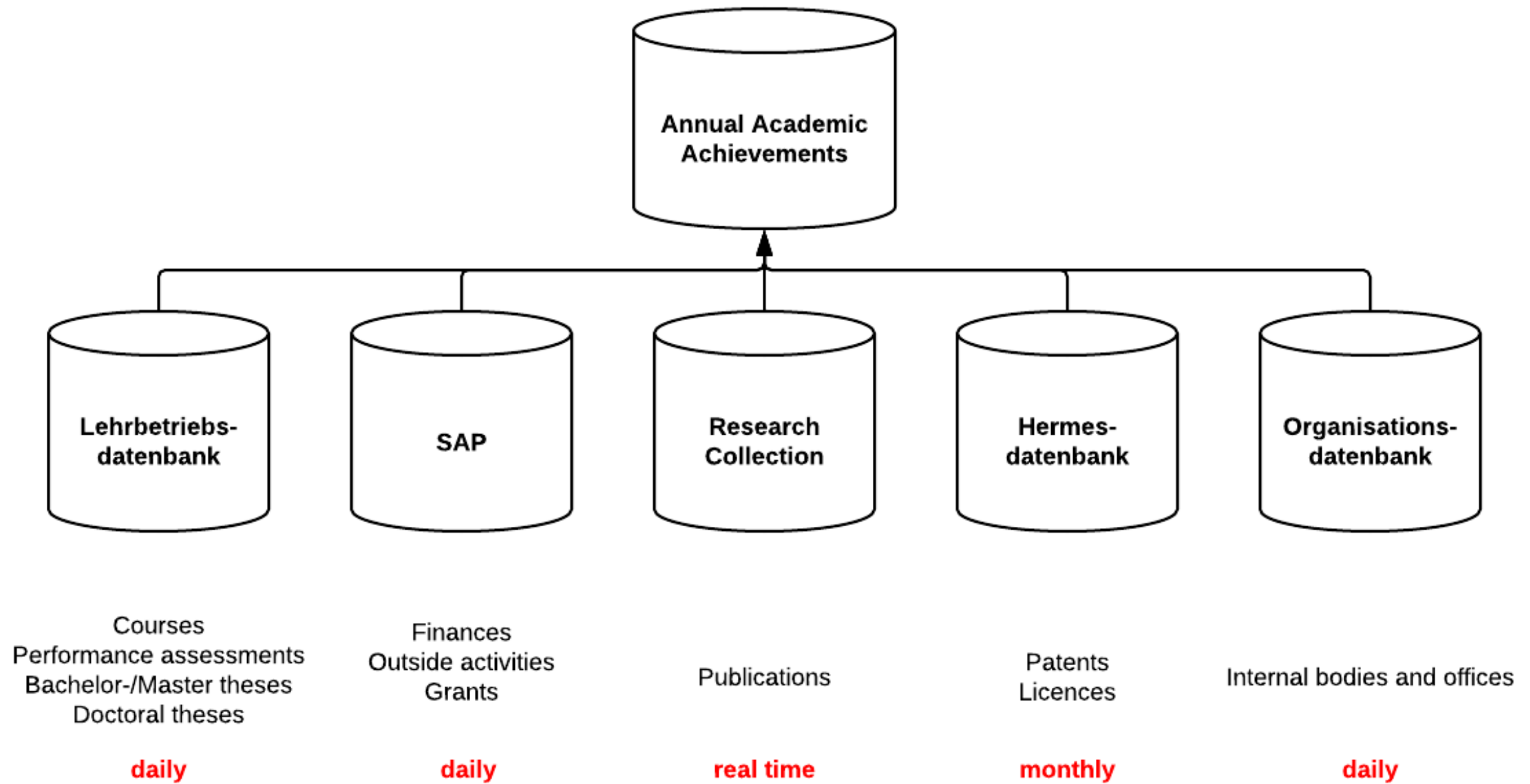
Refresh You can add other publications in Research Collection » [Go to Research Collection](#)
















Dating from 13.09.2018 Sort by: (display only)

ID	Author/s	Title	Published in	Publication type
20.500.11850/241643	[Redacted]	Metal-insulator transition in CaVO3 thin films: Interplay between epitaxial strain, dimensional confinement, and surface effects.	Physical Review B, Volume: 97, 075107.	Journal Article
20.500.11850/229364	[Redacted]	Influence of Cobalt Substitution on the Magnetic Properties of Fe5PB2.	Inorganic Chemistry, Volume: 57, 777-784.	Journal Article
20.500.11850/256694	[Redacted]	Strain and ferroelectric soft-mode induced superconductivity in strontium titanate.	Physical Review B, Volume: 97, 144506.	Journal Article
20.500.11850/272522	[Redacted]	Magnetophononics: Ultrafast spin control through the lattice.	Physical Review Materials, Volume: 2, 064401.	Journal Article
20.500.11850/240295	[Redacted]	Cr doping induced negative transverse magnetoresistance in Cd3As2 thin films.	Physical Review B, Volume: 97, 085303.	Journal Article
20.500.11850/227925	[Redacted]	The Impact of Hysteresis on the Electrocaloric Effect at First-Order Phase Transitions.	Physica Status Solidi B, Volume: 255, 1700308.	Journal Article
20.500.11850/234016	[Redacted]	Multiferroic Magnetic Spirals Induced by Random Magnetic Exchanges.	Physical Review X, Volume: 8, 011005.	Journal Article

The following publications have not been entered into the current AAA report, because they have already appeared in the AAA report of the previous year.

ID	Author/s	Title	Published in	Publication type
20.500.11850/199348	[Redacted]	First-principles study of PbTe: from exotic superconductivity to emergent ferroelectricity.		Doctoral Thesis



Questions		Data sources
Education	Courses	 Lehrbetriebs-Datenbank
	Performance assessments	
	Completed bachelor and master theses	
	Ongoing doctoral theses	
	Completed doctoral theses	
Finance	Finances	 SAP
	Fourth-party funds	 User entry
Research	Grants	 SAP
	Collaboration contacts	 User entry
	Research fields	 User entry
Publications		 Research Collection
Knowledge and technology transfer	Patents	 Hermes-Datenbank
	Licences	
Honours and awards		 User entry
Outside activities	Outside activities to be approved	 SAP
	Reportable outside activities	 User entry
Bodies and offices	Internal bodies and offices	 Organisationsdatenbank und  User entry
	External bodies and offices	 User entry
Qualitative report		 User entry

Confirmation

Outside Activities Subject to Approval

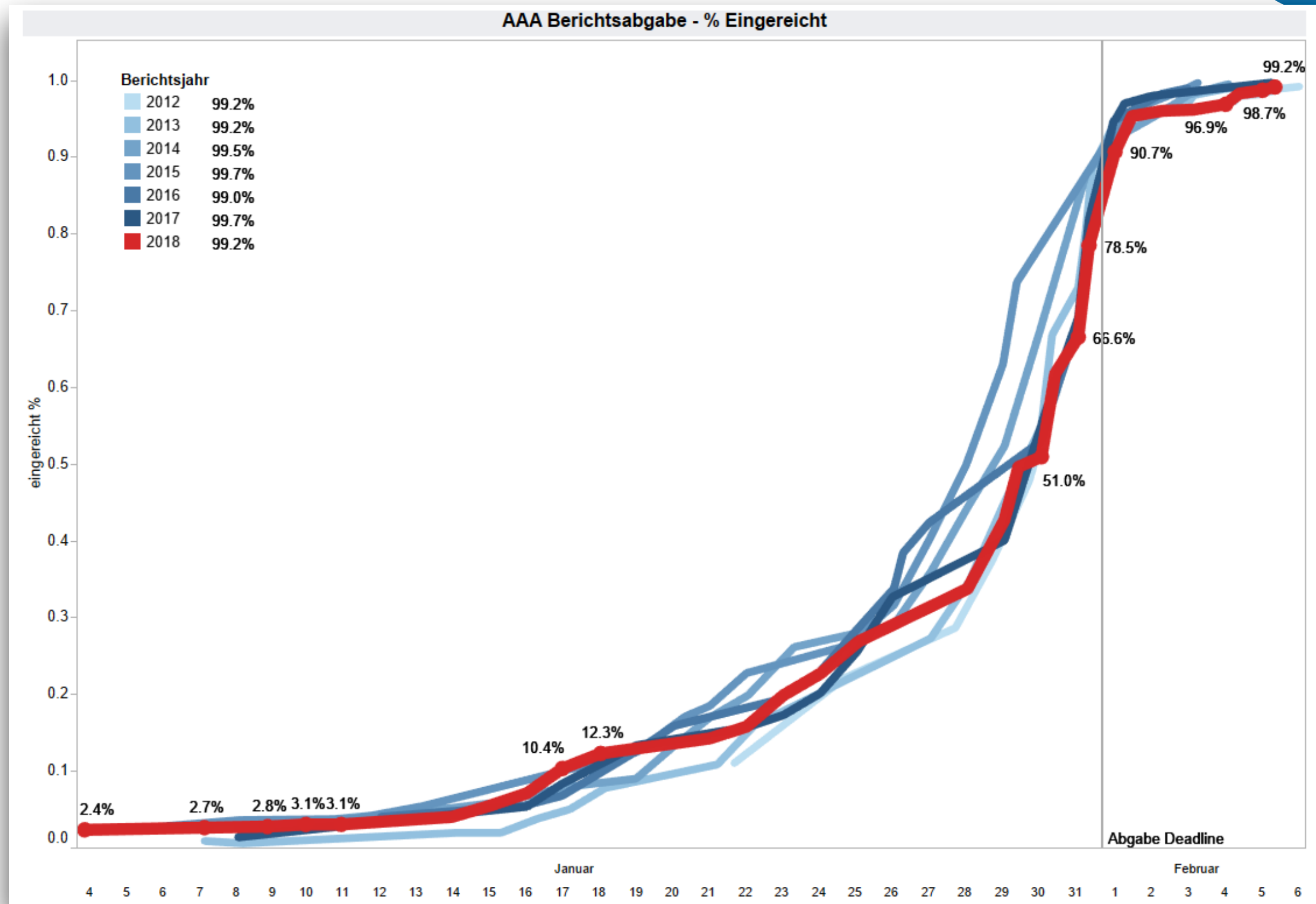
1) I confirm that all outside activities subject to approve and all outside activities to report are listed in the report and

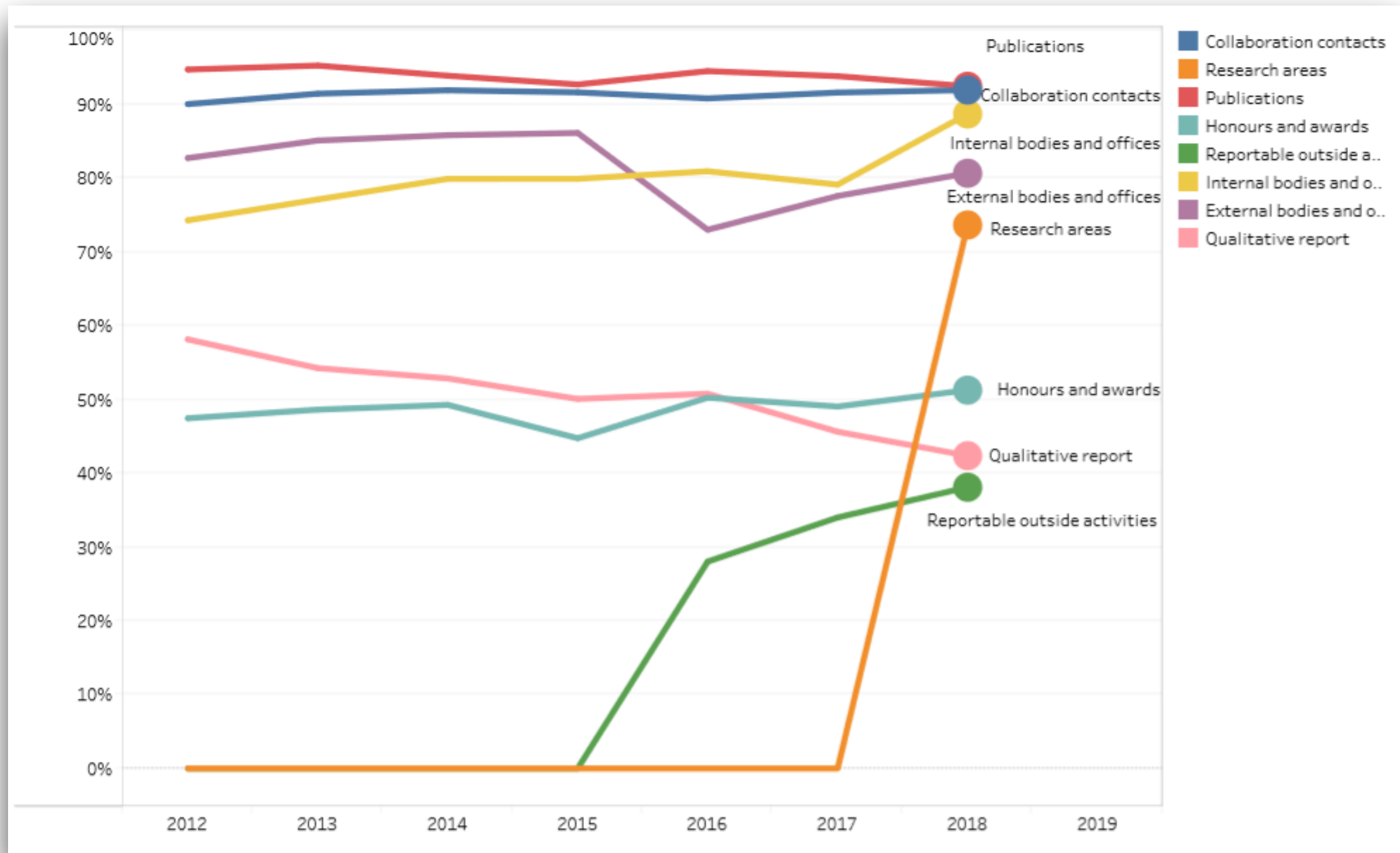
2) I confirm that the total time spent on such activities does not exceed one working day per week in case of full-time employment.

Please select...

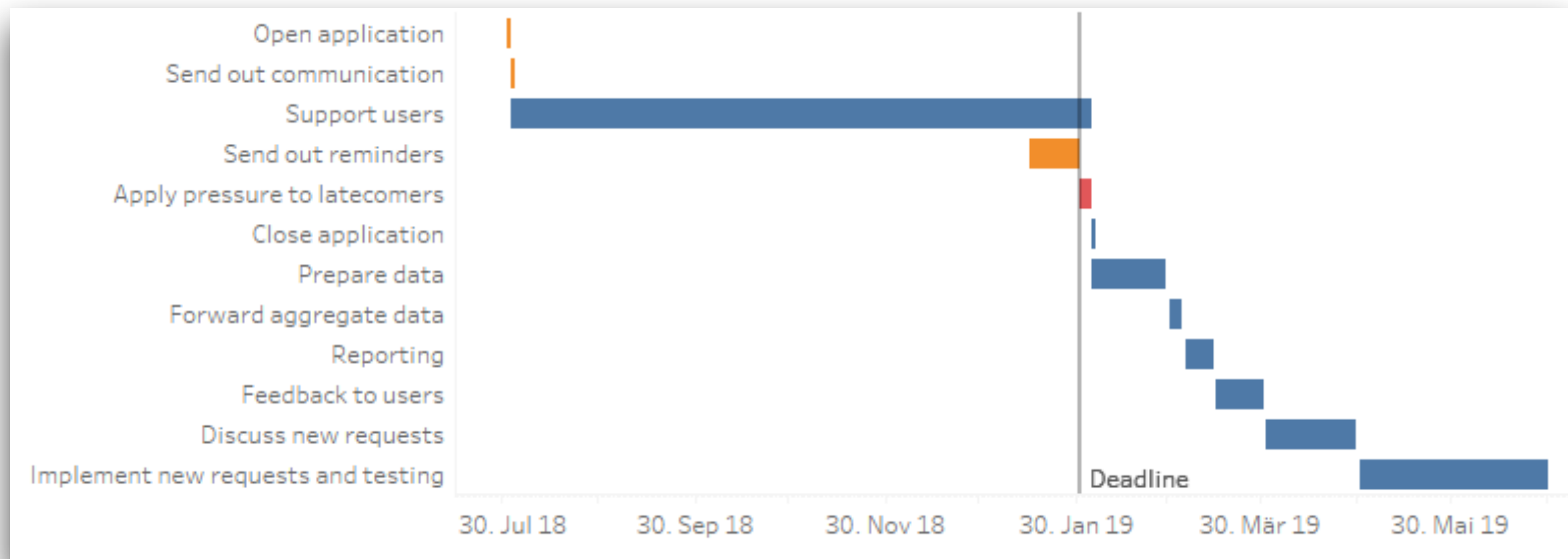
➔ Submit

✗ Cancel





AAA Webapplication – Timeline



Annual Academic Achievements	
Education	Courses
	Performance assessments
	Completed bachelor and master theses
	Ongoing doctoral theses
	Completed doctoral theses
Finance	Finances
	Fourth-party funds
Research	Grants
	Collaboration contacts
	Research fields
Publications	
Knowledge and technology transfer	Patents
	Licences
Honours and awards	
Outside activities	Outside activities to be approved
	Reportable outside activities
Bodies and offices	Internal bodies and offices
	External bodies and offices
Qualitative report	



- Departement evaluations
- Departement resource allocation
- Quality feedback loop to educational IT applications
- Management Reporting
- Funds balance confirmation
- Grantsmanagement
- International Knowledge Base
- Corporate Communications
- Industry Relations
- Webpages
- Rankings
- Bibliometric analyses
- Scientific reporting to Government bodies
- Annual Report
- Office for Faculty Affairs
- Legal Office
- Rector's staff
- Vice President for Research and Corporate Relations
- Vice President for Human Resources and Infrastructure
- Vice President for Finance and Controlling





Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Annual Academic Achievements

Leitzahl: 
Description: 
Reporting year: 2018
Questionnaire: Professorships
Print date: 24.01.2019

1 Education

1.1 Courses

What courses did members of your group give in the spring and autumn semester of 2018?

Dating from: 24.01.2019

Number	Title	Semester	Type	Lecturer/s	Hours	Number of enrolments
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Full Report



Student no.	Doctoral student	Supervisor	Referent type	Promotion date
9920802			Supervisor	
9921727			Supervisor	

1.5 Completed doctoral theses

What doctoral theses were completed in the calendar year of 2018 and supervised by members of your group?

Dating from: 24.01.2019

Student no.	Doctoral student	Supervisor	Referent type	Promotion date
10946259			Co-examiner	15.10.2018
11913126			Supervisor	19.03.2018
12910311			Co-examiner	11.06.2018
13901947			Co-examiner	08.01.2018
7906902			Supervisor	11.06.2018
7917941			Supervisor	19.03.2018
7923923			Supervisor	11.06.2018

2 Finance

2.1 Funds

What credits and debits were made to the fund of your group in the calendar year of 2018?

Dating from: 24.01.2019

Fund	Description	Source of financing	Balance per 01.01.2018	Debits	Credits	Balance per 31.12.2018
0-10340-97		Basic financing				
0-10341-97	Biomolecular Production UNIT	Basic financing				

Annual Academic Achievements AAA – Professorship Report – Extract

refine

ID	Beneficiary	Project name	Project status	Funding institution	Funding program/type of contract	Start date	End date	Contract amount	Currency
0-20326-17		Using chemically programmed proximal ligands to enhance the catalytic properties of heme proteins	Laufend	ETH Zürich	ETH Grants	01.08.2017	31.07.2020		CHF
0-20387-17		A new generation of industrial biocatalysts: Artificial enzymes for the stereoselective synthesis of tertiary alcohols	Laufend	ETH Zürich	ETH Pioneer Fellows	01.01.2018	30.06.2019		CHF
2-70337-16		Sponsorship LOC 2013 / Unterfonds zu 2-70617-13	Laufend	Unternehmen Inland	Sponsoring	05.12.2013	31.03.2020		CHF
2-71523-16		HFSP Fellowship für	Laufend	Öffentlicher Förderer Ausland	Forschungsvertrag	01.05.2016	30.04.2019		CHF
2-71982-15		Site-specific introduction of N6-methyladenosine using engineered snoRNP by directed evolution; fellowship for	Abgeschlossen	Öffentlicher Förderer Ausland	Forschungsvertrag	01.04.2015	31.03.2018		CHF
2-72382-11		CS Teaching Award	Laufend	Unternehmen Inland	Schenkung	01.12.2011	30.11.2021		CHF
2-73036-16		Implementation of Enzymatic Activity in a Naïve, de novo Designed Protein Scaffold by Rational Design and Laboratory Evolution	Abgeschlossen	EU Horizons 2020	Excellent Science: MSCA Individual Fellowship (IF)	01.03.2016	28.02.2018		EUR

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Full Report



ID	Beneficiary	Project name	Project status	Funding institution	Funding program/type of contract	Start date	End date	Contract amount	Currency
2-73179-18		directed EVOLution in DROPS	Laufend	EU Horizons 2020	Excellent Science: MSCA Innovative Training Network (ITN)	01.10.2018	30.09.2022		EUR
2-73943-17		Carrier for Cure: tailored combination drug delivery solutions for oncology	Laufend	EU Horizons 2020	Excellent Science: ERC Proof of Concept (PoC)	01.11.2017	30.04.2019		EUR
2-73959-12		Engineered protein capsids as artificial bacterial organelles	Abgelaufen	EU FP 7	Ideas: ERC Advanced Grant	01.03.2013	31.12.2018		EUR
2-77125-18		Design and Directed Evolution of Metal-Dependent Protein Catalysts for Non-Natural Chemical Transformations	Laufend	SNF	Ambizione	01.11.2018	31.10.2022		CHF
2-77218-17		Directed evolution of enzyme structure and function	Laufend	SNF	Exzellenzbeitrag	01.01.2018	31.12.2020		CHF

3.2 Collaboration contacts

What institutions did your group work together with in the calendar year of 2018?

ID	Country	Institution	P	A	B	C	D	E	F	Contact person at the institution	Contact person at ETH Zurich
3,333	US	University of Washington - Seattle, WA		X	X					Prof. [REDACTED]	Prof. [REDACTED]
3,340	CH	Eidgenössische Technische Hochschule Zürich (ETH Zurich)		X						Profs. [REDACTED], [REDACTED]	Prof. [REDACTED]
25,356	CH	Universität Basel		X						Prof. [REDACTED]	Prof. [REDACTED]
25,357	CH	Universität Zürich (UZH)		X						Prof. [REDACTED]	Prof. [REDACTED]
12,601	LT	Vilniaus universitetas (Vilnius University)		X	X					Dr. [REDACTED]	Prof. [REDACTED]
3,339	US	University of California, Los Angeles (UCLA)		X						Profs [REDACTED]	Prof. [REDACTED]



ID	Country	Institution	P	A	B	C	D	E	F	Contact person at the institution	Contact person at ETH Zurich
3,332	FR	ESPCI ParisTech (Ecole supérieure de Physique et de Chimie industrielles de la Ville de Paris)		X	X					Prof. [REDACTED]	Prof. [REDACTED]
25,365	NL	Universiteit Utrecht (Utrecht University)		X						Prof. [REDACTED],	Prof. [REDACTED]
24,798	US	Brandeis University - Waltham, MA		X						Prof. [REDACTED]	Prof. [REDACTED]
24,585	US	University of North Carolina at Chapel Hill		X						Prof. [REDACTED]	Prof. [REDACTED]

P = Private sector
 A = Research project
 B = Exchange of doctoral students
 C = Exchange of bachelor/master students
 D = Exchange of scientific staff
 E = Cooperation in education
 F = Other

3.3 Research fields

In which research fields did your group work in 2018

ID	Level 0	Level 1	Level 2
575	Life Sciences	Biochemistry, Genetics and Molecular Biology	General Biochemistry, Genetics and Molecular Biology
578	Physical Sciences	Chemistry	Organic Chemistry
579	Multidisciplinary	Multidisciplinary	Multidisciplinary

Research fields - Free text

The [REDACTED] group works at the chemistry-biology interface. Our current research interests are broadly focused on mechanistic investigations of enzymes and protein cages. Research highlights over the last year include: 1) the evolution of a highly active and enantiospecific metallo-enzyme from short peptides; 2) rational engineering of a designed protein cage for siRNA delivery; 3) utilization of an expanded genetic code to capture and characterize a reactive heme-carbenoid in an artificial metalloenzyme; and 4) development of a high-throughput evolutionary strategy to alter the substrate specificity of nonribosomal peptide synthetases.

4 Publications

5.1 Patents

What patents did your group apply for in the calendar year of 2018?

Dating from: 21.01.2019

ID	Range of Validity	Number of application	Title	Date of application	Applicant
2017-094	European Patent	EP18156413.9	Preparation of tertiary alcohols, resolution of tertiary alcohols and stereoselective deuteration or tritiation by retroaldolases.	13.02.2018	ETH Zürich
2018-034	European Patent	EP18187862.0	POLYPEPTIDES SELF-ASSEMBLING INTO NANOPARTICLES	07.08.2018	ETH Zürich

5.2 Licences

What patent, software and other licences did your group issue to third parties in the calendar year of 2018?

Dating from: 21.01.2019

No data available

6 Honours and awards

What honours and awards did members of your group receive in the calendar year of 2018?

No data available

7 Bodies and offices

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Fazit

Markus Knaus



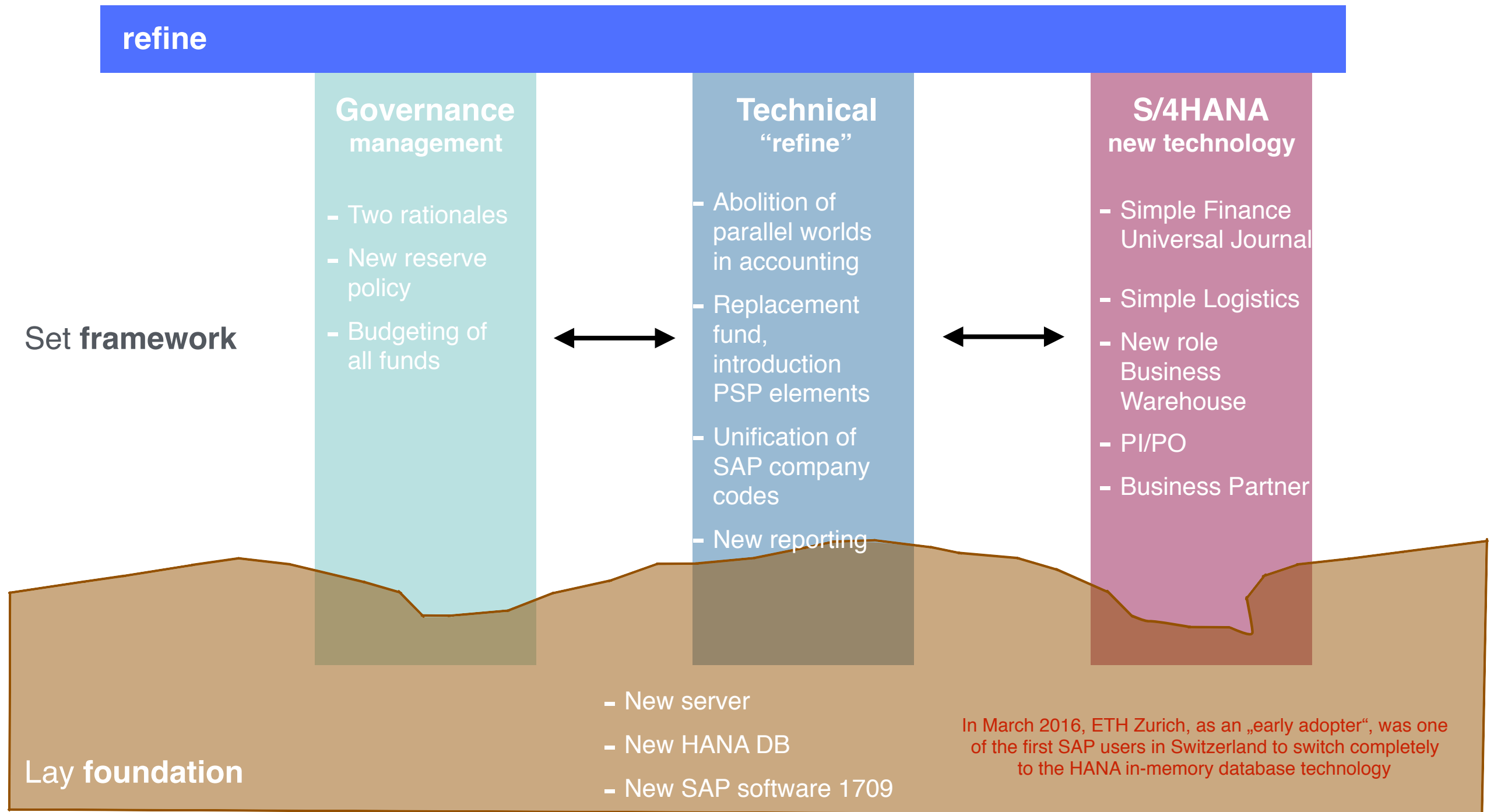
Conclusion / Bottom Line

Markus Knaus

Project dimensions: Governance – Technical – Engineering



Find **solutions**



Project dimensions: Governance – Technical – Engineering

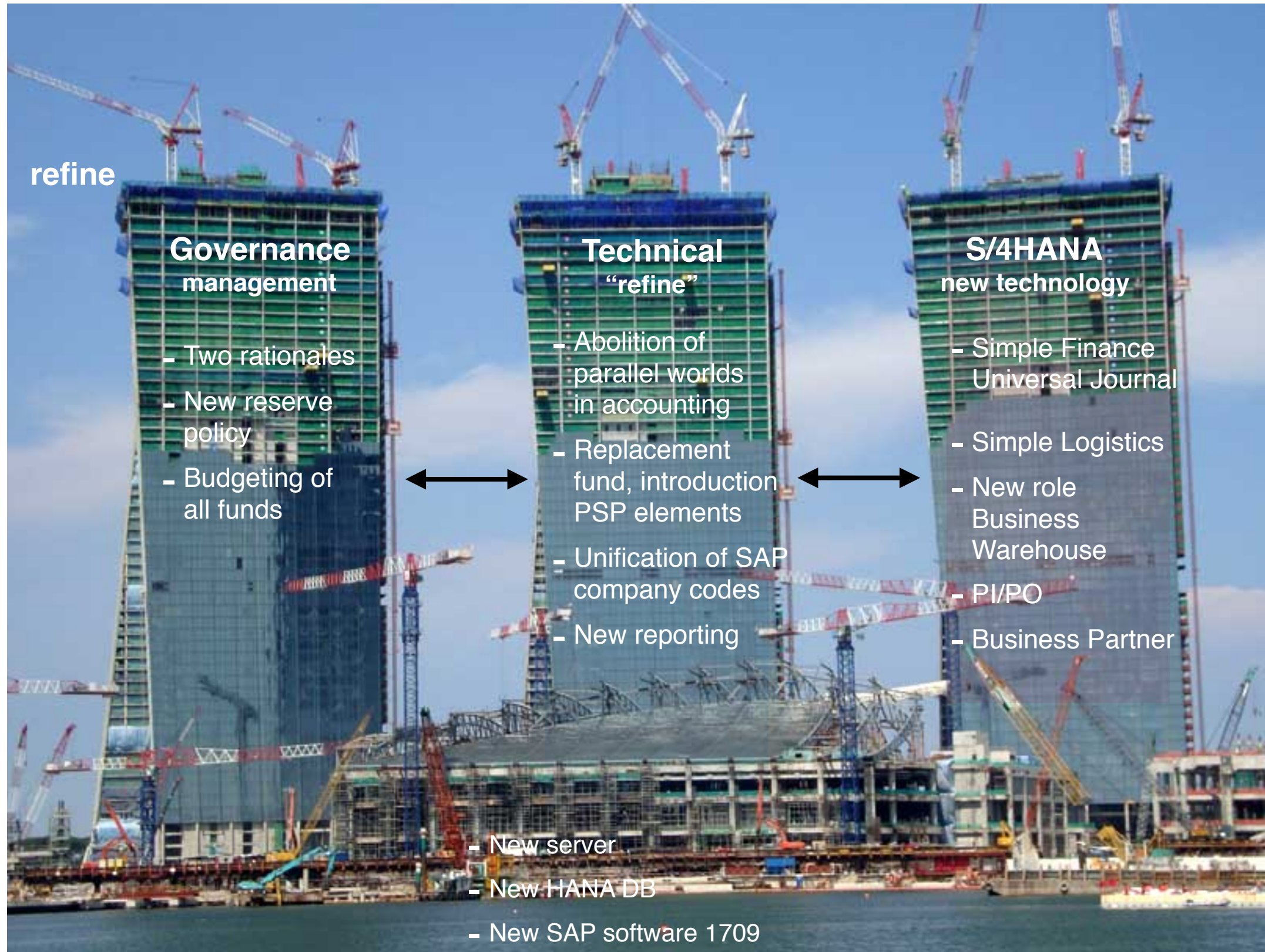
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Find
solutions

refine

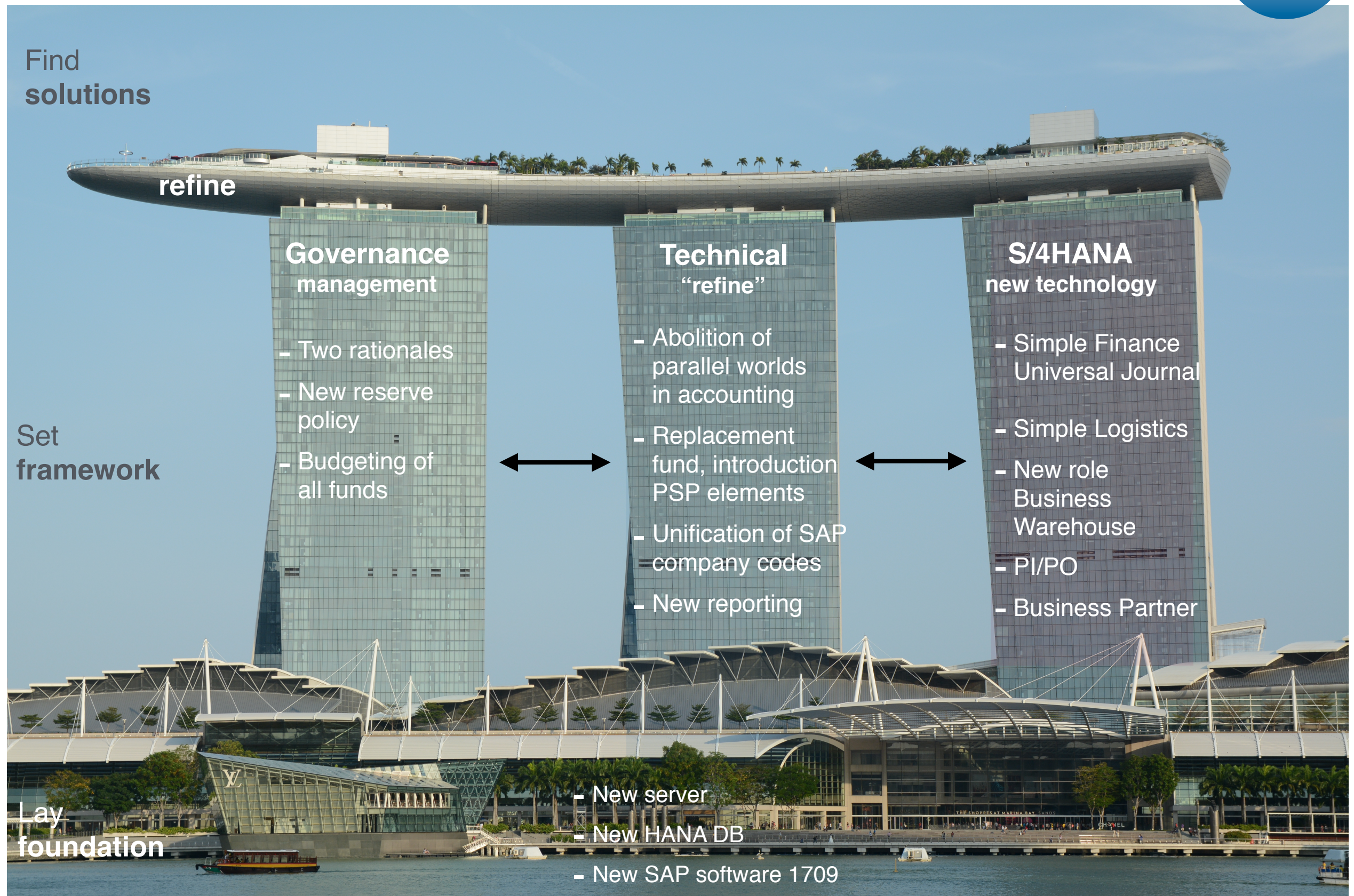
Set
framework

Lay
foundation



Project dimensions: Governance – Technical – Engineering

refine



Replacing PSM with CO in S/4 HANA



Enhancing & Simplifying Academic Information Systems





Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Annual Academic Achievements

Leitzahl: 
Description: 
Reporting year: 2018
Questionnaire: Professorships
Print date: 24.01.2019

1 Education

1.1 Courses

What courses did members of your group give in the spring and autumn semester of 2018?

Dating from: 24.01.2019

Number	Title	Semester	Type	Lecturer/s	Hours	Number of enrolments
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Annual Academic Achievements AAA – Professorship Report



Number	Title	Semester	Type	Lecturer/s	Hours	Number of enrolments
529-0290-00	Organic Chemistry	FS 2018	Seminar	[Redacted]	28	8
529-0290-00	Organic Chemistry	HS 2018	Seminar	[Redacted]	28	7
529-0299-00	Organic Chemistry	FS 2018	Colloquium	[Redacted]	21	8
529-0299-00	Organic Chemistry	HS 2018	Colloquium	[Redacted]	21	7
529-0731-00	Nucleic Acids and Carbohydrates	HS 2018	Lecture with exercise	[Redacted]	42	50
529-0732-00	Proteins and Lipids	FS 2018	Lecture with exercise	[Redacted]	42	69
529-0733-01	Enzymes	HS 2018	Lecture with exercise	[Redacted]	42	72
529-0739-10	Biological Chemistry A: Technologies for Directed Evolution of Enzymes	HS 2018	Practical / laboratory course	[Redacted]	224	1

1.2 Performance assessments

What performance assessments were members of your group involved in as examiners in the calendar year of 2018?

Dating from: 24.01.2019

Number	Title	Semester	Session	Form	Examiner/s	Number of PA
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Annual Academic Achievements AAA – Professorship Report



Number	Title	Semester	Session	Form	Examiner/s	Number of PA
529-0020-00S	Research Project	HS 2017	W18	ungraded semester performance	[REDACTED]	1
529-0200-00S	Research Project I	FS 2018	S18	ungraded semester performance	[REDACTED]	2
529-0201-00S	Research Project II	HS 2017	W18	ungraded semester performance	[REDACTED]	1
529-0450-00S	Semesterarbeit	HS 2017	W18	ungraded semester performance	[REDACTED]	2
529-0731-00S	Nucleic Acids and Carbohydrates	FS 2018	S18	session examination	[REDACTED]	11
529-0731-00S	Nucleic Acids and Carbohydrates	HS 2017	W18	session examination	[REDACTED]	25
529-0732-00S	Proteins and Lipids	FS 2018	S18	session examination	[REDACTED]	34
529-0732-00S	Proteins and Lipids	HS 2017	W18	session examination	[REDACTED]	2
529-0733-00S	Enzymes	FS 2018	S18	session examination	[REDACTED]	6
529-0733-00S	Enzymes	HS 2017	W18	session examination	[REDACTED]	32
551-1800-01S	Master's Examination	HS 2017	W18	graded semester performance	[REDACTED]	1
551-1801-00S	Research Project I	FS 2018	S18	ungraded semester performance	[REDACTED]	1
551-1801-01S	Research Project II	HS 2017	W18	ungraded semester performance	[REDACTED]	1

1.3 Completed bachelor and master theses

What bachelor and master theses were supervised and completed by members of your group in the calendar year of 2018?

Dating from: 24.01.2019

Student no.	Student	Lecturer	Date of decree	Programme level
12917563	[REDACTED]	[REDACTED]	15.01.2018	MS



Student no.	Student	Lecturer	Date of decree	Programme level
12938874			29.10.2018	MS
13914387			03.09.2018	MS
13915723			04.07.2018	MS
14915292			25.07.2018	BS

BS = Bachelor's programme
 MS = Master's programme
 MAS = Master of Advanced Studies / Master of Business Administration

1.4 Ongoing doctoral theses

What ongoing doctoral theses did members of your group supervise in the calendar year of 2018?

Dating from: 24.01.2019

Student no.	Doctoral student	Supervisor	Referent type	Promotion date
11915501			Supervisor	
11946803			Supervisor	
12912622			Supervisor	
12947081			Co-examiner	
13902887			Co-examiner	
14901714			Supervisor	
14909626			Supervisor	
14911671			Supervisor	
14946255			Supervisor	
15744188			Supervisor	
16900425			Co-examiner	
16902058			Co-examiner	
17901679			Supervisor	
17901968			Supervisor	
18903310			Supervisor	
8923609			Co-examiner	07.01.2019



Student no.	Doctoral student	Supervisor	Referent type	Promotion date
9920802	██████	██████	Supervisor	
9921727	██████	██████	Supervisor	

1.5 Completed doctoral theses

What doctoral theses were completed in the calendar year of 2018 and supervised by members of your group?

Dating from: 24.01.2019

Student no.	Doctoral student	Supervisor	Referent type	Promotion date
10946259	██████	██████	Co-examiner	15.10.2018
11913126	██████	██████	Supervisor	19.03.2018
12910311	██████	██████	Co-examiner	11.06.2018
13901947	██████████	██████	Co-examiner	08.01.2018
7906902	██████	██████	Supervisor	11.06.2018
7917941	██████	██████	Supervisor	19.03.2018
7923923	██████	██████	Supervisor	11.06.2018

2 Finance

2.1 Funds

What credits and debits were made to the fund of your group in the calendar year of 2018?

Dating from: 24.01.2019

Fund	Description	Source of financing	Balance per 01.01.2018	Debits	Credits	Balance per 31.12.2018
0-10340-97	██████	Basic financing	██████	██████	██████	██████
0-10341-97	Biomolecular Production UNIT ██████	Basic financing	██████	██████	██████	██████



Fund	Description	Source of financing	Balance per 01.01.2018	Debits	Credits	Balance per 31.12.2018
0-20326-17	ETH- [REDACTED]	Supplemental financing	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
0-20387-17	[REDACTED]	Supplemental financing	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-70337-16	Novartis [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-70399-11	Forschungskonto [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-71523-16	HFSP Fellowship [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-71982-15	HFSP-Fellowship [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-72382-11	CS Teaching Award [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-73036-16	MC [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-73179-18	MC [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-73943-17	ERC [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-73959-12	ERC [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-77125-18	SNF - Ambizione [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-77218-17	[REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2-78237-05	Forschungsreserven [REDACTED]	Third-party resources	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

2.2 Fourth-party funds

What fourth-party funds did your group receive in the calendar year of 2018?

No data available

3 Research

3.1 Grants

Which grants were active in your group in the calendar year of 2018?

Dating from: 24.01.2019

Annual Academic Achievements AAA – Professorship Report



ID	Beneficiary	Project name	Project status	Funding institution	Funding program/type of contract	Start date	End date	Contract amount	Currency
0-20326-17		Using chemically programmed proximal ligands to enhance the catalytic properties of heme proteins	Laufend	ETH Zürich	ETH Grants	01.08.2017	31.07.2020		CHF
0-20387-17		A new generation of industrial biocatalysts: Artificial enzymes for the stereoselective synthesis of tertiary alcohols	Laufend	ETH Zürich	ETH Pioneer Fellows	01.01.2018	30.06.2019		CHF
2-70337-16		Sponsorship LOC 2013 / Unterfonds zu 2-70617-13	Laufend	Unternehmen Inland	Sponsoring	05.12.2013	31.03.2020		CHF
2-71523-16		HFSP Fellowship für	Laufend	Öffentlicher Förderer Ausland	Forschungsvertrag	01.05.2016	30.04.2019		CHF
2-71982-15		Site-specific introduction of N6-methyladenosine using engineered snoRNP by directed evolution; fellowship for	Abgeschlossen	Öffentlicher Förderer Ausland	Forschungsvertrag	01.04.2015	31.03.2018		CHF
2-72382-11		CS Teaching Award	Laufend	Unternehmen Inland	Schenkung	01.12.2011	30.11.2021		CHF
2-73036-16		Implementation of Enzymatic Activity in a Naïve, de novo Designed Protein Scaffold by Rational Design and Laboratory Evolution	Abgeschlossen	EU Horizons 2020	Excellent Science: MSCA Individual Fellowship (IF)	01.03.2016	28.02.2018		EUR

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ID	Beneficiary	Project name	Project status	Funding institution	Funding program/type of contract	Start date	End date	Contract amount	Currency
2-73179-18		directed EVOLution in DROPS	Laufend	EU Horizons 2020	Excellent Science: MSCA Innovative Training Network (ITN)	01.10.2018	30.09.2022		EUR
2-73943-17		Carrier for Cure: tailored combination drug delivery solutions for oncology	Laufend	EU Horizons 2020	Excellent Science: ERC Proof of Concept (PoC)	01.11.2017	30.04.2019		EUR
2-73959-12		Engineered protein capsids as artificial bacterial organelles	Abgelaufen	EU FP 7	Ideas: ERC Advanced Grant	01.03.2013	31.12.2018		EUR
2-77125-18		Design and Directed Evolution of Metal-Dependent Protein Catalysts for Non-Natural Chemical Transformations	Laufend	SNF	Ambizione	01.11.2018	31.10.2022		CHF
2-77218-17		Directed evolution of enzyme structure and function	Laufend	SNF	Exzellenzbeitrag	01.01.2018	31.12.2020		CHF

3.2 Collaboration contacts

What institutions did your group work together with in the calendar year of 2018?

ID	Country	Institution	P	A	B	C	D	E	F	Contact person at the institution	Contact person at ETH Zurich
3,333	US	University of Washington - Seattle, WA		X	X					Prof. [REDACTED]	Prof. [REDACTED]
3,340	CH	Eidgenössische Technische Hochschule Zürich (ETH Zurich)		X						Profs. [REDACTED], [REDACTED]	Prof. [REDACTED]
25,356	CH	Universität Basel		X						Prof. [REDACTED]	Prof. [REDACTED]
25,357	CH	Universität Zürich (UZH)		X						Prof. [REDACTED]	Prof. [REDACTED]
12,601	LT	Vilniaus universitetas (Vilnius University)		X	X					Dr. [REDACTED]	Prof. [REDACTED]
3,339	US	University of California, Los Angeles (UCLA)		X						Profs [REDACTED]	Prof. [REDACTED]

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ID	Country	Institution	P	A	B	C	D	E	F	Contact person at the institution	Contact person at ETH Zurich
3,332	FR	ESPCI ParisTech (Ecole supérieure de Physique et de Chimie industrielles de la Ville de Paris)		X	X					Prof. [REDACTED]	Prof. [REDACTED]
25,365	NL	Universiteit Utrecht (Utrecht University)		X						Prof. [REDACTED],	Prof. [REDACTED]
24,798	US	Brandeis University - Waltham, MA		X						Prof. [REDACTED]	Prof. [REDACTED]
24,585	US	University of North Carolina at Chapel Hill		X						Prof. [REDACTED]	Prof. [REDACTED]

P = Private sector
 A = Research project
 B = Exchange of doctoral students
 C = Exchange of bachelor/master students
 D = Exchange of scientific staff
 E = Cooperation in education
 F = Other

3.3 Research fields

In which research fields did your group work in 2018

ID	Level 0	Level 1	Level 2
575	Life Sciences	Biochemistry, Genetics and Molecular Biology	General Biochemistry, Genetics and Molecular Biology
578	Physical Sciences	Chemistry	Organic Chemistry
579	Multidisciplinary	Multidisciplinary	Multidisciplinary

Research fields - Free text

The [REDACTED] group works at the chemistry-biology interface. Our current research interests are broadly focused on mechanistic investigations of enzymes and protein cages. Research highlights over the last year include: 1) the evolution of a highly active and enantiospecific metallo-enzyme from short peptides; 2) rational engineering of a designed protein cage for siRNA delivery; 3) utilization of an expanded genetic code to capture and characterize a reactive heme-carbenoid in an artificial metalloenzyme; and 4) development of a high-throughput evolutionary strategy to alter the substrate specificity of nonribosomal peptide synthetases.

4 Publications

Annual Academic Achievements AAA – Professorship Report



What publications did members of your group release in the calendar year of 2018?

Dating from: 24.01.2019

ID	Author/s	Title	Published in	Publication type
20.500.11850/ 240907	[REDACTED]	Speeding up enzyme discovery and engineering with ultrahigh-throughput methods.	Current Opinion in Structural Biology, Volume: 48, 149-156.	Review Article
20.500.11850/ 224849	[REDACTED]	Expanding the structural analysis capabilities on an Orbitrap-based mass spectrometer for large macromolecular complexes.	Analyst, Volume: 143, 100-105.	Journal Article
20.500.11850/ 244510	[REDACTED]	Nonribosomal biosynthesis of backbone-modified peptides.	Nature Chemistry, Volume: 10, 282-287.	Journal Article
20.500.11850/ 235588	[REDACTED]	Diversification of Protein Cage Structure Using Circularly Permuted Subunits.	Journal of the American Chemical Society, Volume: 140, 558-561.	Journal Article
20.500.11850/ 239872	[REDACTED]	Substrate Sorting by a Supercharged Nanoreactor.	Journal of the American Chemical Society, Volume: 140, 860-863.	Journal Article
20.500.11850/ 242960	[REDACTED]	A Noncanonical Proximal Heme Ligand Affords an Efficient Peroxidase in a Globin Fold.	Journal of the American Chemical Society, Volume: 140, 1535-1543.	Journal Article
20.500.11850/ 235587	[REDACTED]	Modular Protein Cages for Size-Selective RNA Packaging in Vivo.	Journal of the American Chemical Society, Volume: 140, 566-569.	Journal Article
20.500.11850/ 263934	[REDACTED]	Stereodivergent Evolution of Artificial Enzymes for the Michael Reaction.	Angewandte Chemie. International Edition, Volume: 57, 5288-5291.	Journal Article
20.500.11850/ 267605	[REDACTED]	Tailoring lumazine synthase assemblies for bionanotechnology.	Chemical Society Reviews, Volume: 47, 3543-3557.	Review Article

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ID	Author/s	Title	Published in	Publication type
20.500.11850/ 268447	[REDACTED]	Laboratory evolution of virus-like nucleocapsids from nonviral protein cages.	Proceedings of the National Academy of Sciences of the United States of America, Volume: 115, 5432-5437.	Journal Article
20.500.11850/ 273021	[REDACTED]	Directed Evolution of Protein Catalysts.	Annual review of biochemistry, Volume: 87, 131-157.	Review Article
20.500.11850/ 284324	[REDACTED]	Engineered Metalloenzymes with Non-Canonical Coordination Environments.	Chemistry - A European Journal, Volume: 24, 11821-11830.	Journal Article
20.500.11850/ 278715	[REDACTED]	Capture and characterization of a reactive haem-carbenoid complex in an artificial metalloenzyme.	Nature Catalysis, Volume: 1, 578-584.	Journal Article
20.500.11850/ 285531	[REDACTED]	Rational Engineering of a Designed Protein Cage for siRNA Delivery.	Journal of the American Chemical Society, Volume: 140, 10439-10442.	Journal Article
20.500.11850/ 302270	[REDACTED]	Cell Penetration, Herbicidal Activity, and in vivo Toxicity of Oligo Arginine Derivatives and of Novel Guanidinium Rich Compounds Derived from the Biopolymer Cyanophycin.	Helvetica chimica acta, Volume: 101, e1800112.	Journal Article
20.500.11850/ 302132	[REDACTED]	Influence of the Membrane Dye R18 and of DMSO on Cell Penetration of Guanidinium-Rich Peptides.	Chemistry & Biodiversity, Volume: 15, e1800302.	Journal Article
20.500.11850/ 313190	[REDACTED]	Evolution of a highly active and enantiospecific metalloenzyme from short peptides.	Science, Volume: 362, 1285-1288.	Journal Article
20.500.11850/ 313743	[REDACTED]	Enzyme encapsulation in an engineered lumazine synthase protein cage.	Protein Scaffolds	Book Chapter

5 Knowledge and technology transfer



5.1 Patents

What patents did your group apply for in the calendar year of 2018?

Dating from: 21.01.2019

ID	Range of Validity	Number of application	Title	Date of application	Applicant
2017-094	European Patent	EP18156413.9	Preparation of tertiary alcohols, resolution of tertiary alcohols and stereoselective deuteration or tritiation by retroaldolases.	13.02.2018	ETH Zürich
2018-034	European Patent	EP18187862.0	POLYPEPTIDES SELF-ASSEMBLING INTO NANOPARTICLES	07.08.2018	ETH Zürich

5.2 Licences

What patent, software and other licences did your group issue to third parties in the calendar year of 2018?

Dating from: 21.01.2019

No data available

6 Honours and awards

What honours and awards did members of your group receive in the calendar year of 2018?

No data available

7 Bodies and offices



7.1 Internal bodies and offices

What internal bodies and offices did members of your group work in in the calendar year of 2018?

ID	Name of body	Type of body	Name of member	A	B	C
4,359	Professur für Informatik (Medizininformatik)	Selection committee	Herr Prof. [REDACTED]	X		
732	Unterrichtskommission (D-CHAB)	Study commission	Herr Prof. [REDACTED]	X	X	
4,362	Assistant Professor of Cellular Dynamics	Selection committee	Herr Prof. [REDACTED]	X	X	
4,363	Professor of Computer Science (Medical Informatics)	Selection committee	Herr Prof. [REDACTED]		X	

A = Chair/Manager
B = Member
C = Furnishing of opinions

7.2 External bodies and offices

What external bodies and offices did members of your group work in in the calendar year of 2018?

ID	Name of body	Type of body	Domicile of body	Name of member	A	B	C
4	Bioorganic & Medicinal Chemistry and Bioorganic & Medicinal Chemistry Letters	Involvement in the publication of scientific or other professional journals	NL	Herr Prof. [REDACTED]		X	
5	Bioorganic Chemistry	Involvement in the publication of scientific or other professional journals	US	Herr Prof. [REDACTED]		X	
8	Journal of Peptide Science	Involvement in the publication of scientific or other professional journals	GB	Herr Prof. [REDACTED]		X	
9	Molecular Informatics	Involvement in the publication of scientific or other professional journals	DE	Herr Prof. [REDACTED]		X	
2	Biochemistry, American Chemical Society	Involvement in the publication of scientific or other professional journals	US	Herr Prof. [REDACTED]		X	



ID	Name of body	Type of body	Domicile of body	Name of member	A	B	C
3	Chemistry & Biology, Current Biology Ltd.	Involvement in the publication of scientific or other professional journals	US	Herr Prof. [REDACTED]		X	
6	Editor ChemBioChem	Involvement in the publication of scientific or other professional journals	DE	Herr Prof. [REDACTED]		X	
15	Accounts of Chemical Research, American Chemical Society	Involvement in the publication of scientific or other professional journals	US	Herr Prof. [REDACTED]		X	
1	Member of the Executive Committee of GRC Board of Directors	Attendance at and organisation of scientific conferences	HK	Herr Prof. [REDACTED]		X	
11	Executive Council The Protein Society	Attendance at and organisation of scientific conferences	US	Herr Prof. [REDACTED]		X	
13	Dean's Advisory Council, Tianjin University	Membership of expert or working groups and committees appointed by cantonal and federal authorities	CN	Herr Prof. [REDACTED]			X
12	Board of Trustees of the Gordon Research Conferences	Attendance at and organisation of scientific conferences	US	Herr Prof. [REDACTED]		X	

A = Chair/Manager
 B = Member
 C = Furnishing of opinions

7.3 Outside activities to be approved

What outside activities subject to approval were you engaged in in the calendar year of 2018?

Dating from: 24.01.2019

No outside activities available

7.4 Reportable outside activities

Which reportable outside activities were you engaged in the calendar year of 2018?



	Type of activity	Description of the activity	Name of the company, university, foundation	Domicile of the company, university, foundation	Kanton
1	Paid and unpaid consultancy activities	Scientific Advisory Board	zhaw	CH	ZH

8 Qualitative report

Would you like to give any additional information that may support your report? Would you like to give feedback or offer suggestions?

Please use this space for additional information, e.g. selected lectures, organisation of conferences and congresses (optional) :

Eingeladene Vorträge vor wissenschaftlichem Publikum im In- und Ausland: 23

Please use this space for feedback or suggestions, e.g. concerning teaching, research, room situation, structure of departments/instituts:

Over the past year the Hilvert lab has made significant progress using laboratory evolution to optimize the activity of computationally designed enzymes and to create novel protein nanocompartments for selective encapsulation of toxic materials.