Aalto University

Aalto ELEC Handbook, version 1.2/4.1.2016

To the reader

Aalto University was created in 2010 through the merger of the Helsinki School of Economics, the University of Art and Design Helsinki, and Helsinki University of Technology, which each had their own operating principles and organisational structures. As is the case in any major organisational change, it has taken some time to formulate the Aalto University way of doing things. This version of the Aalto University quality manual, the *Aalto Handbook*, is a description of this shared way of organising the university's core activities – research, teaching, artistic activity and societal impact – in a uniform way that meets high standards of excellence.

The goal of the *Handbook* is to provide the reader with an overview of the operations of our university. With its numerous references and links to more detailed guidelines, rules and process descriptions found on our websites (*Inside*, Aalto.fi), the handbook is a good practical guide for everyday work, and as such, also serves as orientation material for new students and employees. Each School has its own edition of the *Aalto Handbook*, which provides more detailed descriptions of the procedures and organisation of the School.

I hope that the *Aalto Handbook* encourages all members of the Aalto University community to comment on the operating principles of the university and to give feedback and, thus, to contribute to the development of the university's operations.

Tuula Teeri

President

Version management

Nbr	Date	Changes
1.0	14.3.2014	First English version of Aalto Käsikirja
1.1	10.4.2014	Minor changes in chapters 2 and 4
1.2.	15.1.2015	Comments, Changes in all chapters
1.3.	24.4.2015	New structure, updates in chapters 1; 2.1; 3.1; 7 & 9.4
1.4.	5.5.2015	Changes in chapters 2.3., 4 and 5
1.5.	31.5.2015	Updates according to Audit Steering Group's (ASG) comments
2.0	29.6.2015	Updates in all chapters, ASG approval
2.1	05.08.2015	Updates in all chapters, version for Self-Evaluation workshops
2.2	6.9.2015	Changes in chapters 2, 3, 4 , 5 and 9
2.3	25.9.2015	Proofreading, language check
2.4	1.10.2015	Minor changes in all chapters, hyperlink corrections
2.5	6.10.2015	Final proofreading, figure harmonisation
3.0	15.10.2015	Approval of President and PMT

ELEC Handbook version management

Nbr	Date	Changes
0.1	13.10.2013	1.English version of ELEC Handbook (different form/template than the current)
Up to 0.42	22.6.2015	Last English version of the earlier version
1.0	9.10.2015	First English version of ELEC Handbook (current integrated form)
1.1	13.11.2015	Pictures & figures updated, minor details updated
1.2.	4.1.2016	ELEC organisational chart updated + figure numbers

CONTENTS

Abbreviation	Name
AAC	University Academic Affairs Committee
AaltoDW	Aalto Data Warehouse
AaltoES	Aalto Entrepreneurship Society
AASG	Aalto Artistic Activity Steering Group
AEE	Aalto Executive Education
AFYE	Aalto First Year Experience
AMT	Aalto Management Team
AVP	Aalto Ventures Program
AYY	Aalto University Student Union
CAS	Campus Services
COS	Communication Services
DTSG	Steering Group for Digital Transformation and Enterprise Architecture
EHEA	European Higher Education Area
EIT	European Innovation and Technology
ELEC	School of Electrical Engineering
EU	European Union
FIS	Financial Services
HOPS	Personal study plan
HR	Human resources
IP	Intellectual Property
IT	Information technology
ITS	IT Services
KIC	Knowledge and Innovation Communities
KPIs	Key performance indicators
LES	Learning Services
LSS	Leadership Support Services
MEC	Ministry of Education and Culture
MOOC	Massive Open Online Courses
OpLaa	ELEC Quality of Education Committee
PDCA	Plan, Do, Check, Act
PMT	President's Management Team
RAE	Research Assessment Exercise
RIS	Research and Innovation Services
RMP	Records Management Plan
S(A)AB	Scientific Advisory Board and Scientific and Artistic Advisory Board
SAHA	Electronic document and records management system
SES	Secretarial Services
SHOK	Strategic Centres for Science, Technology and Innovation
TEE	Teaching and Education Evaluation
TEK	Academic Engineers and Architects in Finland
TSS	Technical Support Services

INTRODUCTION

"The mission of the universities is to promote free research and academic and artistic education, to provide higher education based on research, and to educate students to serve their country and humanity. In carrying out their mission, the universities must promote lifelong learning, interact with the surrounding society and promote the impact of research findings and artistic activities on society.

The universities must arrange their activities so as to assure a high international standard in research, education and teaching in conformity with ethical principles and good scientific practices."

Universities Act (558/2009)

The *Universities Act* (Yliopistolaki 558/2009) sets the overall mission and quality framework for all university-level education in Finland. In addition to the *Universities Act*, the operations of Aalto University are governed by the *Implementation of the Universities Act* (Laki yliopistolain voimaanpanosta 559/2009), the *Government Decree on University Degrees* (Valtioneuvoston asetus yliopistojen tutkinnoista ja erikoistumiskoulutuksista 794/2004), the *Foundations Act* (Säätiölaki 109/1930) and respective Government Programme, Education and Research development plan, and four-year performance agreements between the Ministry of Education and Culture (MEC) and the universities, and the Aalto University Foundation Constitution[1] and the mission thereof. The *Bylaws*[2] approved by the Aalto University Foundation Board and General Regulations on Teaching and Studying[3] approved by the Aalto University Academic Affairs Committee (Aalto AAC) constitute the university's highest internal instructions at university, school and department levels.

Aalto University maintains and develops its quality system to continuously enhance and improve the quality and transparency of its operations and to support its strategic management and activities on all levels following the European Higher Education Area (EHEA) principles and the changes in the operating environment of higher education institutions.

Quality management is included in the everyday activity of the university with the underlying idea of continuous improvement, the Plan, Do, Check, Act (PDCA) cycle, also known as the Deming cycle (see Figure 1).

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[1] https://inside.aalto.fi/display/AboutAalto/Aalto+University+Foundation+Constitution
[2] https://inside.aalto.fi/display/AboutAalto/Aalto+University+Bylaws
[3] https://inside.aalto.fi/display/AboutAalto/General+Regulations+on+Teaching+and+Studying

Plan what to do; strategy, roadmaps, plans, process descriptions

PLAN

Actions to improve processes

ACT

Continual improvement

DO

Implementation of the processes, development projects

CHECK

Monitor, evaluate, measure processes

Figure 1. The principle of continuous improvement, the PDCA cycle.

This handbook describes the university's management procedure, quality policies and goals as well as the core activities and practices related to the assessment and development of activities. The *Aalto Handbook* provides internal and external stakeholders with an overview of the university's activities and their quality management. More detailed guidelines and process descriptions are given in the university and schools' intranet, *Inside*[4], and the student website, *Into*[5].

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[4] https://inside.aalto.fi/display/en/Home
[5] https://into.aalto.fi/display/en/Homepage

1. STRATEGY

According to Aalto University *Bylaws*, the university is a multidisciplinary science and art community in the fields of technology, business, and art and design. It is an international university that builds on Finnish strengths and makes active use of its multidisciplinary nature. The university's activities are based on research and artistic activities, which form a solid foundation for educational, developmental and innovation activities.

Vision	The best connect and succeed at Aalto University, an institution internationally recognized for the impact of its science, art and learning			
Goal	A world-class university by year 2020			
Universal mission	Contributions to a better world	National mission	Competitiveness and welfare of Finland	
Core strategies and KPIs	**Research excellence** Original, impactful, interdisciplinary	**Pioneering education** Students in focus, a new learning culture and approach	**Trendsetting art** Art, architecture and design as key drivers for improving living environments	**Societal impact** Adding value through entrepreneurship, business liaison and societal interactions
Strategic enablers	Leadership; Internationalisation; Services; Infrastructure			
Culture built on common values	Passion; Courage; Freedom; Responsibility; Integrity			

Figure 2. Aalto University strategy.

Following its strategy[6] (Edition January 2012, see Figure 2), Aalto University works towards a better world through research of high international standards, interdisciplinary collaboration and pioneering education, which surpasses traditional boundaries and enables renewal. The best connect and succeed at Aalto University, an institution internationally recognised for the impact of its science, art and learning. The university's operations and its strategic direction are based on its five values:

- passion for exploring boundaries,
- freedom to be creative and critical,
- courage to influence and excel,
- responsibility to accept, care and inspire, and
- integrity, openness and equality.

The University has started a strategy update process in which the strategic objectives, key development actions and key performance indicators (KPIs) of the current 10 year strategy are reviewed and possibly updated after the first five years. The updated strategy will be confirmed by the Aalto University Foundation Board (the Board) by the end of 2015. For the strategy process, see Section 2.1.1.

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[6] https://inside.aalto.fi/display/AboutAalto/Strategy

2. GOVERNANCE

2.1 Organisation and decision-making

Aalto University is comprised of six schools that are responsible for research and education in their fields in accordance with the university's joint policies, strategy, and annual strategic plan and budget:

- School of Arts, Design and Architecture
- School of Business
- School of Chemical Technology
- School of Electrical Engineering
- School of Engineering
- School of Science

School of Arts, Design and Architecure	School of Business	School of Chemical Technology	School of Electrical Engineering	School of Engineering	School of Science
Departments	Departments	Departments	Departments	Departments	Departments
Academic Affairs Committee	Academic Affairs Committee	Academic Affairs Committee	Academic Affairs Committee	Academic Affairs Committee	Academic Affairs Committee
Dean	Dean	Dean	Dean	Dean	Dean

Professors' Council

Provost, Vice Presidents and Service
Research and Innovation, Education, Art and Creative Practices, Campus Development, External Relations, Finance, Human Resources, Development, Communications

President's Management Team (PMT)
President

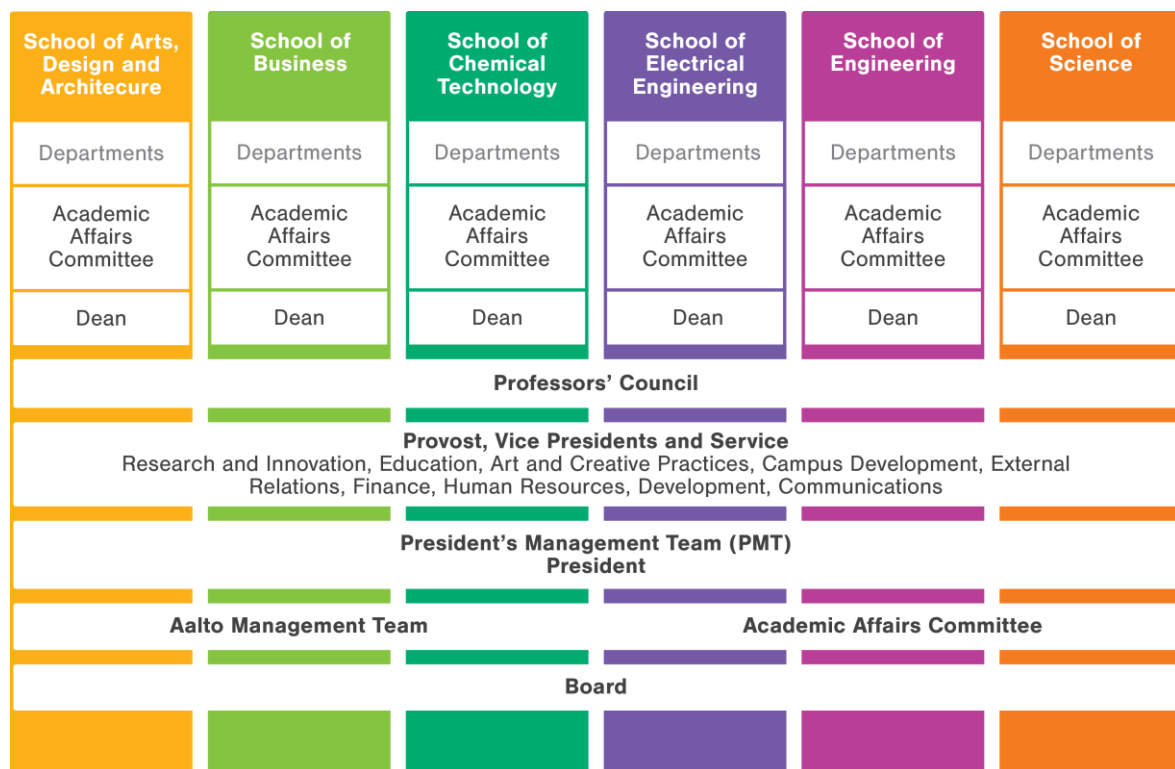**Aalto Management Team**   **Academic Affairs Committee**

Board

Figure 3. Aalto University organisation.

SCHOOL OF ELECTRICAL ENGINEERING

The School of Electrical Engineering (ELEC) is led by the Dean supported by ELEC management team (consisted of Heads of departments and service managers) and two vice deans (in teaching and research areas).

School of Electrical Engineering – organisation

Figure 4. ELEC organisation

Roles

The executive bodies of the university are the Board[7], the President[8], and the Aalto University Academic Affairs Committee (AAC)[9]. Their roles and responsibilities are described in the Aalto University *Bylaws*. The university also has a Provost and five Vice Presidents. The rules of procedure of the President and description of the responsibilities of the organisation supporting university leadership and decision-making are found in the university intranet[10], *Inside*.

The Board, appointed by the AAC, ensures that the operation of the university is appropriately arranged and its endowment is invested in a secure and profitable manner. The Board decides on the strategy of the university, matters concerning university operations and finances, and other far-reaching plans.

The Board appoints the President to lead the university and to represent the science and art community constituted by it. The President leads the long-term strategic development and strategic partnering of the university. The Board also appoints the Provost at the President's proposal. The Provost acts as Deputy President, supports the President in the strategic development of the university, and leads all the processes connected to teaching, research, artistic activities and societal impact. In addition to these roles, the Board appoints the Vice Presidents at unanimous proposal of the President and the

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[7] https://inside.aalto.fi/display/AboutAalto/Board
[8] https://inside.aalto.fi/display/AboutAalto/Management%2C+PMT%2C+AMT
[9] https://inside.aalto.fi/display/AboutAalto/University+Academic+Affairs+Committee
[10] https://inside.aalto.fi/display/AboutAalto/Rules+and+regulations

Provost. Each Vice President is assigned a field of responsibility. The Board also appoints and relieves the Deans of their duties at the proposal of the President. The President appoints Deputy Deans of the schools at the proposal of the Dean of the school.

The President's Management Team (PMT) is an operative management team that prepares proposals for the President and the Board. The PMT is responsible for the implementation of Board decisions, and it is made up of two operative teams. The President's Executive Team ensures effective day-to-day operative management and communication of the university's operations as well as support of its academic leaders. The Provost's Operative Team coordinates the operative management of the university's academic activities to ensure efficient communication with and engagement of personnel and students.

The Aalto Management Team (AMT) discusses all issues brought to the Board for decisions and ensures transparency, engagement, shared understanding and communication of major decisions concerning the development of the university.

The AAC is a joint, multi-member, university-level administrative body referred to in the *Universities Act*. It decides on curricula, degree requirements and criteria for student selection, other general rules involving teaching, research and artistic activity, as well as appoints the required bodies to arrange research and teaching. The AAC also appoints the members of the Aalto University Board at the proposal of the Board Nomination Committee.

The Professors' Council acts as an advisory council to university leadership, and as the voice of the science and art community on fundamental questions related to the university's strategy, its values and operations.

The Deans head the schools and report to the Provost. Each Dean appoints the Heads of the school's departments. Each school has its own academic affairs committee, chaired by the Dean, handling school-specific academic matters delegated to it by the Aalto university's AAC. The organisation and decision-making at the school level is described in more detail in each school's handbook.

The university management, preparation of decisions and new initiatives are supported by steering groups. The Provost appoints a Chair to each steering group and approves the composition of the groups. The steering groups include:

- Research and Innovation
- Learning
- Artistic Activities
- Campus Development
- Digital Transformation and Enterprise Architecture

In addition, there is a university-level Tenure Track Committee preparing tenure decisions for the President. Further, each school has its own Tenure Track Committee supporting the Dean in tenure track recruitment and promotion decisions.

University personnel and the student body are given opportunities to be heard in the preparation of important, long-term decision making by various means, for example, workshops and electronic discussion forums. Aalto's administrative and support services are organised in service entities described in Section 9.5. Vice Presidents and Service Directors lead the service entities. Service entity leaders report to the President or to the Provost, depending on the service function. See Section 9.5 for the acronyms and for more detailed information on services.

Further information: Actors[11].

Principles of operation and decision-making

Aalto's joint principles and regulations to guide operations ensure uniform operating methods and equal treatment of people at the university. The President approves the university's joint principles and regulations and the Board confirms them in the manner required by the Aalto University *Bylaws*.

Decision-making at the university is governed by the university's strategy, values, and the following key principles established in 2010:

- goal orientation and high quality
- openness and transparency
- impartiality, fairness and responsibility
- accessibility[12]
- sustainable development[13]
- equality[14]
- good management and service
- the central role of the Board, President and Deans
- management teams to assist the President and Deans
- academic and service directors involved in the management teams; ensuring cooperation with the university's personnel and students at all levels

The President is responsible for preparing and presenting matters to the Board and responsible for executing Board decisions. The decisions are documented in writing and disseminated to the Aalto community in appropriate ways. The main channel of information regarding university administration is the Aalto University intranet, *Inside*.

Further information: Decision making[15]

2.2 Management processes

Plan, Do, Check, Act synopsis

P = Strategic planning and target-setting (Strategy Dialogues)

D = Resource allocation for executing university activities and implementing improvement measures of strategic importance (Resource Dialogues)

C = Analysing the operating environment, reviewing feedback, monitoring KPI development, reporting results (Management Review)

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[11] https://inside.aalto.fi/display/AboutAalto/Actors
[12] https://inside.aalto.fi/display/enles/Accessibility%2C+barrier-free+campus+and+equality
[13] http://www.aalto.fi/en/about/strategy/sustainability/?$
[14] https://inside.aalto.fi/display/AboutAalto/Equality
[15] https://inside.aalto.fi/display/AboutAalto/Decision-making

A = Adjustments to strategy, and its implementation (President-Board)

2.2.1 Strategic Planning and Implementation – Plan and Do

Strategy process

The Board initiates the strategy process, follows the progress of the process, provides guidance on key questions, and finally, approves the outcome and guidelines relating to the implementation of the strategy.

Further, the President leads the preparation of the strategy and is responsible for ensuring the university community's commitment to and participation in the process. The strategy work is guided by active analysis of the changes in the operating environment and on-going dialogue with internal and external stakeholders to explore future prospects and trends, both nationally and internationally.

The strategy guides the university's planning and target setting, and forms the basis for the university's operating principles. To implement university strategy, the schools and departments draw up their own, more detailed, strategic and action plans for implementation.

Strategy implementation

The university's strategy acts as the basis for negotiations of the four-year *Performance Agreements* between the Ministry of Education and Culture (MEC) and Aalto University. The shared goals of the higher education system, university-specific measures and degree targets, as well as the funding granted to the university, will be agreed on in these negotiations. Based on the *Universities Act*, the MEC grants core funding to the universities for their statutory duties during the agreement period using a model that considers the extent, quality and effectiveness of operations and other education and science policy objectives. Additionally, the performance agreement will determine the manner in which the implementation of the targets will be reported. The MEC follows the implementation of the agreement, the execution of university strategy and provides written feedback on a regular basis. The MEC pays each university one steering-related higher education visit during the agreement period.

Strategy implementation is supported by an annual clock of the university (see Figure). The most central task in strategic planning is to ensure the implementation of the university's strategy. The strategy implementation consists of three annual key processes: the Annual/Management Review, Strategy Dialogues and Resource Dialogues.
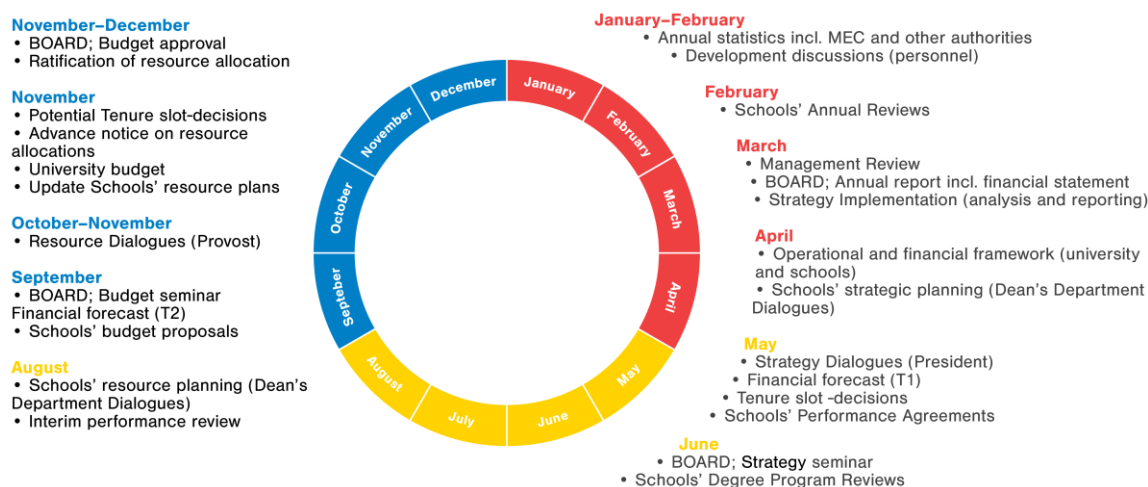
November–December
- BOARD; Budget approval
- Ratification of resource allocation

November
- Potential Tenure slot-decisions
- Advance notice on resource allocations
- University budget
- Update Schools' resource plans

October–November
- Resource Dialogues (Provost)

September
- BOARD; Budget seminar Financial forecast (T2)
- Schools' budget proposals

August
- Schools' resource planning (Dean's Department Dialogues)
- Interim performance review

January–February
- Annual statistics incl. MEC and other authorities
- Development discussions (personnel)

February
- Schools' Annual Reviews

March
- Management Review
- BOARD; Annual report incl. financial statement
- Strategy Implementation (analysis and reporting)

April
- Operational and financial framework (university and schools)
- Schools' strategic planning (Dean's Department Dialogues)

May
- Strategy Dialogues (President)
- Financial forecast (T1)
- Tenure slot –decisions
- Schools' Performance Agreements

June
- BOARD; Strategy seminar
- Schools' Degree Program Reviews

Figure 5. The annual clock of Aalto University's strategic management

The reviews, i.e. Annual reviews at the schools and Management review at university level, support the monitoring of the implementation of the university's strategy and quality management, and provide feedback and development ideas for the strategic planning of the university and schools. The review process culminates in the Strategy Dialogues led by the President and carried out between the schools and the university in April-May. The Strategy Dialogues focus on specifying the strategic development objectives. Both the short term targets for the upcoming year and the longer term targets for the following three-year period, including target values for KPIs, are discussed and agreed upon, and recorded in each school's Performance Agreement between the President and the Dean. In addition, new tenure track positions and the prioritisation of strategic initiatives and major investments in infrastructure are discussed in the Strategy Dialogue, and decisions on these are made after the dialogue. The Strategy Dialogues are based on annual up-dates of strategic plans prepared by the schools. The Performance Agreements[2] are available in *Inside*.

The Performance Agreement and other decisions based on the Strategy Dialogues provide the basis for the schools to prepare for the Resource Dialogues. The school's internal resource planning starts in the autumn and culminates in the Resource Dialogues, held in October-November under the leadership of the Provost. The university budget is approved by the Board in December and is based on the university's long-term financial planning and the annual resource planning of the schools and joint services. The President makes school-specific funding decisions on the basis of the university budget, the Resource Dialogues and the joint funding model. The Dean makes the school's internal funding decisions. Ratification of the resource allocation takes place in December after the university budget has been approved by the Board.

Funding model

Resource allocation is based on the Aalto University internal funding model[16], which creates a predictable and transparent basis for funding allocation to the schools and

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[2] https://inside.aalto.fi/display/AboutAalto/Agreements
[16] https://inside.aalto.fi/display/AboutAalto/Funding+model

provides incentives for activities that meet the university's strategic objectives and cost effectiveness. The funding model allocates all available funding to the schools, and they are correspondingly charged for the costs of joint services and space costs to enable better dimensioning and resourcing of services to respond to the needs of research and education activities. The schools allocate the received funding to the departments based on that school Dean's decision.

The majority of university funding is allocated as long-term block funding. Tenure slot funding, in which the university commits to fund the school for its tenure track slots for the entire life cycle of the slot, has the longest time span in the funding model. Block funding also includes funding for significant infrastructures and service teaching. Between 2013 and 2019, block funding also includes transition-period funding, which introduces the impact of the new funding model step-by-step.

In addition to block funding, results-based funding covers approximately 20% of the funding allocation. The focus of the results-based funding is in improvement on earlier results, and result targets for the schools are set by benchmarking their best institutional peers. In addition, the targets agreed between Aalto University and the MEC contribute to the targets for the schools. The results-based funding is medium-term funding, which is usually allocated based on the results from previous three years.

The strategy funding component of the model allows for fast re-allocation of resources to strategic core areas. The strategy funding is allocated to enable new strategic initiatives and improvement of current operations with the highest potential. Strategy funding is always fixed term, typically for three to four years, and always non-renewable. The main purpose of the strategy funding is to proactively initiate new operations and quality improvements.

Block funding 70%

Tenure Slot funding:
Filled tenure slots of the school* x school slot price (K1 direct resourcing of tenure slot + K2 research and teaching resourcing per tenure slot + K3 overheads per tenure slot)**

Funding for significant infras

Funding for service teaching

Funding for transition period 2014–2019

Results based funding 20%

Earlier decided results based funding
(CoE)

40% degrees
(3 yrs avg with weights: bachelor 0.5, master 1, doctor 5)

10% accumulated study credits
(number of students with ≥55 study credits per year per computational active students)

30% publication impact
(3 yrs avg of Aalto Crown Index x number of publications; ARTS: 60% based on peer reviewed artistic output)

10% societal impact
(3 yrs avg year income from non-academic partners)

10% school specific KPI
CHEM/ELEC/ENG/SCI: amount of competitive research funding; BIZ: number of FT-45 publications; ARTS: Students Artistic Output 50%, Monographs 50%

Strategy funding 10%

Strategy funding
Criteria:

- proposal of KPI's with which the impact of the project is measured

- Life cycle (yrs of funding need) of the project

- The full cost of the project, with co-funding from university, schools and external parties

- Multidisciplinary projects

- Significant size (0.5M€ p.a.) and life span

Text in YELLOW indicates change from 2015 to 2016

*) Estimate for the following year made as of end of June current year: filled slots + open slots + estimated retirements by end of next year
**) The components K2 and K3 may be adjusted if there are significant changes in 2020 target setting
***) To be recalculated should the tenure slot prices change

Figure 6. Aalto University funding model (2016).

Personnel's commitment to the university's strategy and its execution requires planning and target setting at the individual level. The goals based on school and unit objectives are agreed in the annual development discussions between an employee and his or her supervisor.

The strategic management of the schools led by the Deans is described in each school's handbook.

Further information: Strategic management and objective setting[17]

Operative management and reporting

The President is supported by the university's management teams to lead the university and has the overall responsibility for the operative management, reporting and foresight at the university level. Operative management practices are seamlessly integrated with financial and human resources (HR) management and reporting practices. Reviews of university and school activities, results and forecasts are compiled in conjunction with the annual Management Review process. The most important report of the university, the annual report, is published in Finnish and in English on Aalto.fi.

The President is responsible for university finances and related decision-making. To support management and decision making, a financial review for the relevant bodies is compiled at all organisational levels three times per year (the end of April, August and December) and reported to the Board.

The leadership supported by the HR Director and HR services is responsible for the design and implementation of strategic human resources plans and joint operating principles related to personnel structure, employee wellbeing, rewarding schemes, development and management for the university and the schools, as well as for monitoring and reporting on the agreed guidelines and measurements for the reviews.

The relevancy of the university's core activity, management and support processes for academic personnel and students, as well as providing data on the functioning of the university for internal and external stakeholders, is the responsibility of the process owners. A process owner plans, develops and evaluates the process, forecasts resource needs, monitors and reports on the realisation of annual targets to the management. The university leadership reviews the processes in the Management Review (see Section 2.2.2.)

The university quality system produces quantitative and qualitative information on the university's core activities and services for strategic and operative management. This information is collected and stored in information technology systems (IT systems). From operative systems, information is transferred to Aalto University's data warehouse (AaltoDW) to ensure it can be exploited efficiently in management and decision making.

Comprehensive, unit-specific information on students, study attainments, staff, finances, facilities, scientific publications, and other scientific and artistic activities, stored in AaltoDW is available internally and can be reported both in standard and tailored reports through the Aalto Sampo-reporting tool. Aalto Sampo supports decision making as well as monitoring different activities and outcomes by providing up-to-date numeric information on university activities.

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[17] https://inside.aalto.fi/display/AboutAalto/Strategic+management+and+objective-setting

The IT systems' hierarchy, scope and relevance are regularly reviewed by Steering Group for Digital Transformation and Enterprise Architecture (DTSG) to ensure they match the university's needs adequately.

The university has commissioned an electronic document and records management system (SAHA) to support its official decision making and management processes. All documentation related to important decision making and other aspects of the university's operation is kept in the system in electronic format. Aalto University has a Records Management Plan (RMP) to direct activities regarding the information stored in SAHA. RMP provides the guidelines for managing, storage and disposal of documentation stemming from all of the university's activities. Aalto University's archives and registry[18] are located on Otaniemi and Arabia campuses.

The dissemination of administrative regulations, guidance and general information regarding the university's activities is performed through various formal and informal channels, and the information is stored and available in *Inside*. The main instruments are the President's and Dean's decisions[19].

Finnish universities report on their activities and results to the MEC and to Statistics Finland. The information of these annual statistics is mostly public and available in the web pages of those organisations, Vipunen (in Finnish) and Statistics Finland.

Further information: Operative management and resourcing[20], Execution and reporting[21]

2.2.2 Evaluation and continuous improvement – Check and Act

According to section 87 of the *Universities Act*, universities must evaluate their education, research and artistic activities and the impact thereof. The universities shall also take part in external evaluation of their activities and quality assurance systems on a regular basis.

Aalto University performs both internal and external evaluations and surveys of its activities at all levels, according to a multi-year evaluation programme (see Figure). Leadership Support Services (LSS) is responsible for preparing the programme and coordinates implementation as commissioned by the PMT. The execution of the programme and updating needs are assessed in the annual Management Review. The evaluation reports[22] are available on *Inside*.

Internal evaluations are performed by an evaluation group assembled on a case-specific basis. The university's evaluation programme identifies a responsible body, which plans and coordinates the implementation of the evaluation. The university has general instructions for performing internal evaluations available for Aalto University units on *Inside*.

External evaluations of quality systems and accreditations are performed regularly by external evaluation groups appointed by the auditing or accreditation body. An evaluation of the entire university or a specified target entity is carried out as specified by the evaluating body. Based on the collected data, including self-assessments and possible site visits, the evaluation or audit group writes an evaluation report and development recommendations that are addressed in the annual Management Review, and the

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[18] https://inside.aalto.fi/display/ArchiveandRegistryServices/Home
[19] https://inside.aalto.fi/display/AboutAalto/Decisions
[20] https://inside.aalto.fi/display/AboutAalto/Operative+management+and+resourcing
[21] https://inside.aalto.fi/display/AboutAalto/Execution%2C+reporting+and+foresight
[22] https://inside.aalto.fi/display/aallosta/Arviointiraportit

President makes decisions on these improvement measures. The management of an evaluation target is responsible for implementing the measures as part of everyday activities and their development. Aalto University regularly executes international Research Assessment Exercises (RAEs) and Teaching Evaluation Exercises (TEEs).

International rankings provide feedback in an internationally commensurable manner and strengthen Aalto University's global visibility. However, as rankings remain methodologically problematic, Aalto University does not define its strategic goals or measure its success in terms of ranking positions. LSS monitors the development of major rankings and analyses the information. The university cooperates with major international rankings and seeks to promote better understanding of rankings and their methodologies.

Management Review[23] at the university level, and the preceding school-level Annual Reviews (held every February-March), are a key channel for reviewing the functioning of the university's quality system. In addition to operational results at the university and school levels, feedback from surveys, internal and external evaluations, audits and other channels are assessed against previously agreed target values and development measures. Under the direction of the President, the PMT is responsible for the Management Review at the university level, and the Quality Manager coordinates matters for presentation. The Management Review also assesses the relevancy of the university's service activities for academic personnel and students. A summary of the Management Review includes the development areas and actions. The status of development areas is reviewed in a subsequent Management Review.

Key data for both internal and external assessment and evaluation purposes is obtained from the university's IT systems and is systematically used throughout the strategic planning and management processes of the university and schools.

The feedback systems for core activities and regular self-assessment practices of the schools are described in the schools' handbooks.

2.3 Quality management

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[23] https://inside.aalto.fi/display/AboutAalto/Management+review

- Aalto Strategy
- Schools' Strategic Plans
- Regulations, instructions

- Adjustments to strategy
- Improvement actions and development projects
- Renewal of objects

procedures, responsibilities, information, resources

PLAN

ACT

DO

CHECK

- Research Activities
- Artistic Activities
- Education and Learning
- Societal Interaction
- Services and leadership

- Key Performance Indicators
- Internal and external evalutions
- Feedback

Figure 7. Aalto University's quality system

2.3.1 Quality work at Aalto University

Quality Policy

Aalto University quality policy and management are based on the principle of continuous development, or the PDCA cycle (see Figure). The PDCA is embedded in all the processes and everyday activities of the university.

The quality policy refers to the following principles governing the activities of Aalto University:

- pursuit of excellence in all activities
- every member of Aalto community contributes to the common mission
- continuous assessments and development of all activities and management
- systematic and shared ways to ensure high quality and effectiveness in the activities

Quality system

The quality system is a management tool for the realisation of the university's quality policy and defines the quality management organisation, division of responsibility, procedures and resources. The objectives set for the quality system are to do the following:

- support achievement of the university's strategic objectives and the goals set for activities, and to ensure the high quality of university activities and results
- reinforce a joint quality culture and the participation of students, personnel and external stakeholders in the planning, implementation, evaluation and development of university activities
- clarify and harmonise procedures as well as the roles and responsibilities of various actors
- disseminate uniform operating methods and best practices throughout the organisation

- ensure the reliability of quantitative and qualitative information used for planning, management, monitoring and development of activities
- identify, document and develop key operating processes based on systematic feedback
- maintain and strengthen openness and transparency

Organisation of quality management

The President is responsible for the quality management of the university and provides direction on the university's quality issues with the PMT.

The PMT functions as the steering group for the university's quality work. The Head of Planning and Management presents issues relating to quality and the quality system to the Management Team in its meetings. The President reports on the quality of the university operations and their development to the Board.

Continuous, practical, quality work at Aalto University is coordinated by Leadership Support Services and the university's Quality Manager with the support of the Q7 network. The Q7 network consists of quality/development managers from Aalto schools and a student representative. Persons representing different academic and administrative expertise attend to these meetings on request. The university's quality manager is responsible for the coordination of the overall quality work at the university with the support of the Q7 network. The quality manager reports to the Head of Planning and Management Support on the quality work. For more details about the actors and their responsibilities, see Table 1. Division of responsibilities for quality work at Aalto University.

Table 1. Division of responsibilities for quality work at Aalto University.

Actor	Role and responsibility	Reporting / communication
Board	Decides on strategy of the university, matters concerning university operations and finances and other far-reaching plans	Interest groups
President	Overall implementation of strategy including quality management and the quality system as a part of strategic management Overall quality of activities and results	Board
Provost	Supervising the quality management of research, teaching, artistic activities, academic careers and societal impact processes of the university	President
Vice Presidents	Quality management and quality system of their assigned areas of responsibility	Provost
Head of Planning and Management Support	Managing the quality system at the operative level	Provost

Quality Manager	Coordinating development of the quality system and the feedback system as a whole	Head of Planning and Management Support
University Academic Affairs Committee	Promoting high quality of research, teaching, and artistic activity Deciding on general rules and regulations concerning education	Aalto community
Aalto Management Team	Discussing all issues brought to the Board and decided by the Board Ensuring transparency, engagement, shared understanding and communication of major decisions concerning development of Aalto University	President
President's Management Team	Steering committee for quality work Ensuring information produced by the quality system is utilised systematically in all decision making Supporting the President in planning and developing university activities	President
Service Directors	Ensuring the implementation of the quality system in service entities and disseminating quality awareness in respective activities throughout the university	President
Dean	Overall implementation of the school's strategic plan, including quality management as a part of strategic management	Provost
Head of Department	Overall implementation of the department's action plan, including quality management and the quality system as a part of strategic management	Dean

Documentation

Aalto Handbook is an introduction to the university quality system and is compiled and maintained by Leadership Support Services and approved by the President. The school editions of the Aalto Handbook provide more detailed information and clarify the content of the university handbook in the school context. The dissemination of quality documents and records is done through *Inside*, in both in Finnish and English. Other key documents of the university quality system, such as bylaws, President's decisions, review and assessment reports, memos of the Q7 network and process descriptions are also available on intranet.

2.3.2 External and internal quality assessments

The functioning and impact of the university's quality system is evaluated every sixth year by an external audit body. The Finnish Education Evaluation Centre (FINEEC) is responsible for arranging the external quality audit of the entire quality management system.

Each Aalto University school has a Scientific Advisory Board (SAB) or Scientific and Artistic Advisory Board (SAAB)[24] to support assessment of research and artistic activities and any resulting actions taken. The research conducted at Aalto University is also subjected to an international research evaluation (RAE) to evaluate the scientific quality and societal impact of the research and to identify research with world-class potential. An equivalent external evaluation, a teaching evaluation exercise (TEE), is also carried out at regular intervals on the education offered at Aalto University.

The university has implemented an internal self-assessment procedure, which ensures that the quality management system is continuously updated and developed. Early in the calendar year, self-assessment of core activities take place, preceding the Annual Reviews at the schools and the university Management Review conducted each spring. In the Management Review, the PMT addresses feedback (obtained from surveys, internal and external evaluations, audits and through various feedback channels) and agreed-on development measures and responsibility for them. The degree programmes' self-assessments take place at the end of the academic year.

The strategic objectives, including KPI targets, are regularly followed, lessons learned and future actions planned and agreed upon within a framework of continuous dialogues at different levels (President and MEC, President and the schools, school and the departments, development discussions of the employees) as set by the annual clock (see Figure).
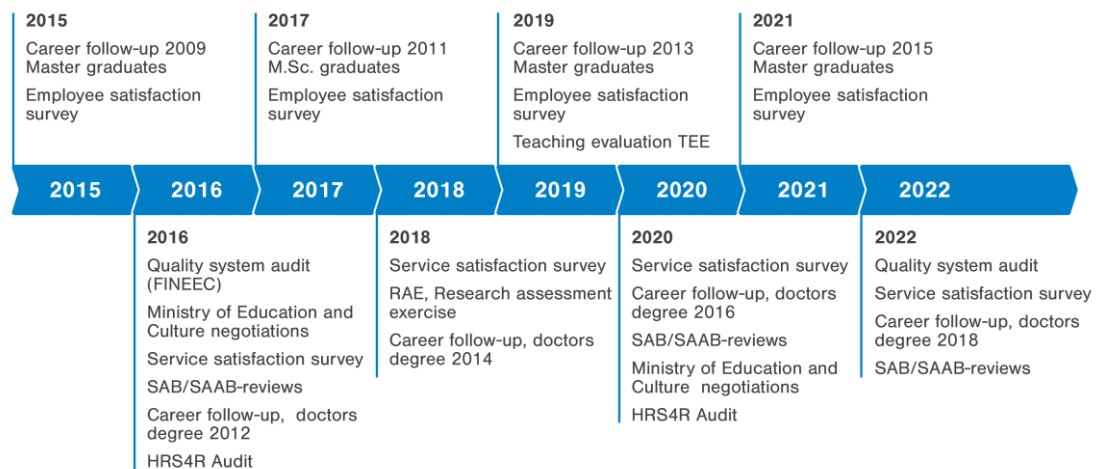

2015	2017	2019	2021
Career follow-up 2009 Master graduates	Career follow-up 2011 M.Sc. graduates	Career follow-up 2013 Master graduates	Career follow-up 2015 Master graduates
Employee satisfaction survey	Employee satisfaction survey	Employee satisfaction survey	Employee satisfaction survey
		Teaching evaluation TEE	

2015	2016	2017	2018	2019	2020	2021	2022

2016	2018	2020	2022
Quality system audit (FINEEC)	Service satisfaction survey	Service satisfaction survey	Quality system audit
Ministry of Education and Culture negotiations	RAE, Research assessment exercise	Career follow-up, doctors degree 2016	Service satisfaction survey
Service satisfaction survey	Career follow-up, doctors degree 2014	SAB/SAAB-reviews	Career follow-up, doctors degree 2018
SAB/SAAB-reviews		Ministry of Education and Culture negotiations	SAB/SAAB-reviews
Career follow-up, doctors degree 2012		HRS4R Audit	
HRS4R Audit			

Figure 8. Aalto University evaluation programme.

2.4 Risk management and Internal Control

2.4.1 Risk management at Aalto University

Risk management forms an essential part of university's monitoring system and supports the Board and the PMT in achieving its strategic and operational objectives. Risk management is a systematic and continuous activity embedded in university's everyday activities to identify and evaluate risks and to plan, implement and continuously monitor the methods used to manage them. With risk management, the management and the

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[24] https://inside.aalto.fi/pages/viewpage.action?pageId=19595969

Board can achieve reasonable assurance that the risks threatening the achievement of the university's objectives are better managed. The risk management principles and responsible actors are described in the *Risk Management and Internal Control Principal guidelines*[25] document issued by the Board.

Risk management at Aalto University:

- applies to all levels and units of the organisation,
- is a continuous process throughout the organisation,
- is included in operative planning and decision making, and monitoring of activities,
- identifies possible events that could have a detrimental effect on activities,
- allows management to react to external threats and manage financial and other risks

Organisation of risk management

The key actors and their main responsibilities in the daily risk management of the University are listed in Table 2:

Table 2. Actors, their roles and responsibilities in daily risk management at Aalto University.

Actor	Roles and responsibilities	Communication
Board	Responsible for the administration and proper organisation of university's operations Approves risk management, internal control and corporate governance policies	Interest groups
Audit Committee	Monitors the efficiency of university's risk management, internal control and internal audit Approves internal audit plan	Board
President	Ensures that university's risk taking is in line with the Board's policies and instructions Informs the Board about university's risk taking Responsible for the day-to-day management of the university in accordance with the instructions and orders given by the Board	Board

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[25] https://inside.aalto.fi/display/AboutAalto/Rules+and+regulations

President's Management Team (PMT)	Is responsible that pertinent laws, regulations and other orders and instructions are complied within each member's responsibility area	President
	Responsible for determination and communication of risk management and internal control instructions and actions of each member's responsibility area	
	Responsible for identification and assessment of strategic and operational risks	
	Delegates risk management actions and related responsibilities	
Internal audit	Evaluates functioning and adequacy of methods used and tests effectiveness of internal controls	Audit Committee
	Supports management in assessing the adequacy and effectiveness of risk management, internal control and corporate governance system	
Employees	Actively identify and evaluate risks within operations	Superiors
	Execute the risk management activities addressed to him/her	

2.4.2 Provision for risks

The Board regularly evaluates the university's risk environment and key areas of operations based on the Aalto University strategy, taking into account the physical safety and monetary impact as well as impact on university academic results. Based on the annually updated risk map, the Board yearly selects a number of specified targets for internal risk auditing, for example, university investment activities or personnel structure.

Different types of risk are managed at Aalto University on a daily basis, and methods for assessment and means of elimination or mitigation vary between risk types. Aalto University builds relevant organisations and issues regulations, instructions and guidelines for recognised areas, for example: financial risks, legal risks, preparedness and contingency planning, and workplace safety.

Financial risks

Financial risks include the failure to retain funding to manage the operations of the university. To counter financial risks, Aalto University has the following provisions:

- Aalto University Foundation Financial Regulations that define the financial governance framework of the university
- *Financial Guidelines for Contract Approvals and Signing Rights*[26] to ensure that all legal and financial aspects of income and cost commitments are covered during preparation and that proper authorisations and risk limits are followed when entering these commitments
- external statutory audits are performed regularly on financial accounts
- internal audits are performed on university operations based on its risk map update

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[26] https://inside.aalto.fi/display/ResearchSupport/Approval+and+signature+procedures

- annually updated Aalto University Foundation Endowment Authorizations and Risk Limits that define what type of risks can be made in university investment operations
- new, external co-operation partners are validated from the point of view of their credit status

Legal risks

Aalto University manages legal risks of its activities and ensures appropriate implementation using a systematic approach. This approach includes:

- minimising the contractual risks by negotiating contract contents
- awareness of consequences in decision making when signing and approving documents
- working systematically to avoid the realisation of recognised risks

Preparedness and contingency planning

Aalto University has a safety organisation coordinated by the Safety Director at Campus Services; the procedures in case of emergency[27] are defined.

Workplace safety

Work for promoting occupational safety and health is directed by the Occupational Safety Manager with the assistance of the Health and Safety Committee[28].

The occupational healthcare provider of Aalto University evaluates safety at the office and in teaching facilities with regular workplace surveys[29].

Safety at research facilities is controlled and checked by laboratory managers. To both ensure personal safety and prevent damage to research equipment, appropriate training is required before researchers and students are allowed to use the facilities.

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[27] https://inside.aalto.fi/display/FacilityServices/Procedures+in+case+of+emergency
[28] https://inside.aalto.fi/pages/viewpage.action?pageId=37789526#Työsuojelu-Työsuojelutoimikunta
[29] https://inside.aalto.fi/display/enhrs/Workplace+survey

3. RESEARCH AND INNOVATION

To provide a strong foundation for teaching, learning and innovation, Aalto University is committed to high-quality, scientifically and societally influential research and artistic activities by securing their long-term funding base and creating career systems optimised to sustain academic and professional excellence.

The university's strategic objective is to be an internationally acclaimed, multidisciplinary research university where research and education are promoted hand-in-hand. The university's research initiatives and projects are carefully selected based on a number of factors. These factors include: national importance, scientific level and relevance, the level of challenge, global competition, and cooperation with international and domestic research and industrial partners.
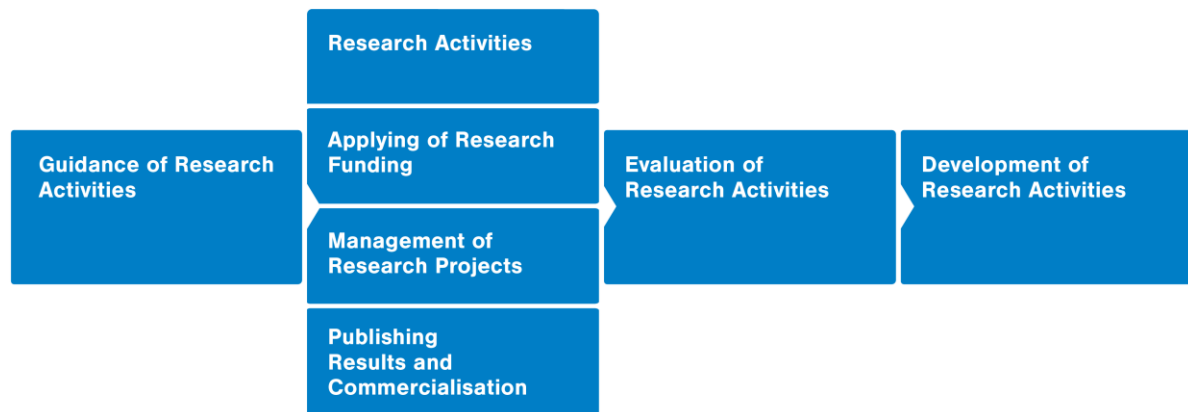
Figure 9. The research process at Aalto University.

3.1 Management of research and innovation activities

Plan, Do, Check, Act synopsis

P = University strategy and school strategic plans, annual Strategy Dialogues (school-departments, university management-school) and school performance agreements

D = Annual Resource Dialogues (school-departments, university management-school) followed by budget decisions according to the Aalto funding model including professor position allocations, new faculty recruitments, partnering and funding instrument identification as part of research activities

C = Management Review (university management, KPI development); biennial Scientific Advisory Board and Scientific and Artistic Advisory Board[30] (SA(A)B) visits (school), RAE evaluations and national field-specific evaluations (university) to assess research focus areas and performance

A = strategy and strategic plan refining; funding re-allocations; focusing

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[30] https://inside.aalto.fi/pages/viewpage.action?pageId=19595969

3.1.1 Research and innovation activities - Plan and Do

The principle of academic freedom within the boundaries of legislation and adherence to good scientific practice and guidelines issued by the National Advisory Body on Research Ethics in Finland[31] is the driving force of research at Aalto University. Research and artistic activities especially target excellence, multi-, inter- and cross-disciplinarity, and high societal impact. As part of the current strategy update process, discussions within the Aalto community have identified the following four core competence areas[32] with recognised excellence rising from the research excellence at schools and departments (Figure):

1. ICT and digitalisation

2. materials and sustainable use of natural resources

3. art and design knowledge building

4. global business dynamics

Three integrative multidisciplinary themes[33] addressing global challenges with high national significance complete the Aalto University research focus areas:

- advanced energy solutions

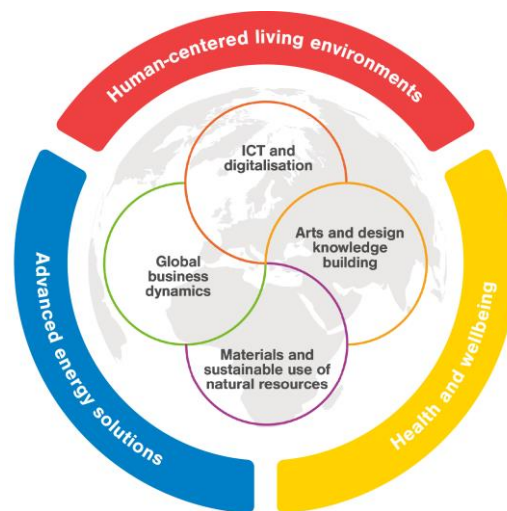- human-centred living environments

- health and wellbeing

Figure 10. Aalto University core research competence areas and integrative multidisciplinary themes.

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[31] http://www.tenk.fi/en/resposible-conduct-research-guidelines

[32] https://inside.aalto.fi/display/CurrentAffairs/Key+research+areas+clarified+during+application+for+Academy+funding

[33] https://inside.aalto.fi/display/CurrentAffairs/Key+research+areas+clarified+during+application+for+Academy+funding
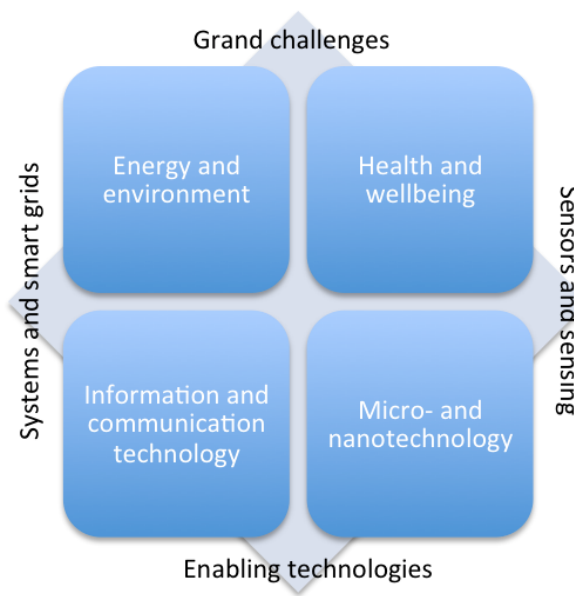
Figure 11. Aalto School of Electrical engineering – core research competence areas

Roles

Research at Aalto University is conducted by faculty and staff based in the departments and separate units of the schools. A significant amount of research is carried out in externally funded research projects; the process is guided by the Code of Practice for Project-Based Research in Aalto[34]. The role of university leadership and management is to ensure the long-term preconditions for conducting high-quality and high-impact research, as presented in Table 3.

Table 3. University and school level actors, their roles and responsibilities, and communication regarding research at Aalto.

University level Actor	Role and responsibility	Communication
President	Makes decisions on the professor position allocations	*Aalto Inside*[35]
Provost	Oversees the academic activities at the university and makes proposals to the President regarding major investments in faculty (new professor positions), strategic initiatives and infrastructure.	*Aalto Inside*

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[34] https://inside.aalto.fi/display/ResearchSupport/Code+of+Practice+for+Project-Based+Research+at+Aalto
[35] https://inside.aalto.fi/pages/viewpage.action?pageId=6652597

Vice President of Research and Innovation	Coordinates and facilitates multi- and inter-disciplinary research at Aalto University	*Aalto Inside*
	Monitors and ensures positive development of research quality	
	Ensures efficient transfer of research results into the society	
	Manages university-level research infrastructure coordination, funding and operations	
	Approves funding applications other than those approved by Heads of departments or school Deans, prioritises funding applications when requested by funding body	
	Coordinates doctoral education at Aalto University	
	Leads Research and Innovation Services to provide cost-efficient and high-quality services for the research faculty, external stakeholders and partners	
	Provides guidelines on research processes including open science, digitalisation and research ethics	
University Academic Affairs Committee (AAC)	Promotes high quality in research and decides on general regulations regarding research	*Aalto Inside*
	Appoints bodies required for organising research and teaching, and issues the regulations governing their activities,	
	The university academic affairs committee has transferred its jurisdiction partially to the schools' academic committees.	
Steering Group for Research and innovation (RISG)	Supports the management and preparation of research and innovation related matters	Reports to the Provost

School level Actor	**Role and responsibility**	**Communication**

Role	Responsibilities	Reporting
Dean	Leads the process of developing the school research strategy and focus areas in compliance with university strategy	*Aalto Inside*
	Makes budget proposal including new professor positions to the President	
	Leads recruitment of new faculty in the school	
	Allocates resources to the departments	
	Approves funding proposals that are in line with the school's strategy	
	Ensures high-quality research infrastructure for the school	
	Ensures functioning quality assurance processes at school	
Vice Dean (research)	Coordinates research-related matters as delegated by the Dean	Reports to the Dean
Head of Department	Leads recruitment of new faculty in the department	Reports to the Dean
	Makes budget proposals including new professor positions to the dean	
	Allocates resources according to principles and guidelines approved by the dean	
	Approves funding proposals that are in line with the department's and school's strategy	
	Leads the development of the department action plan in compliance with school's strategic plan and university strategy	
	Ensures functioning quality assurance processes at the department	
Professor	Leads research projects	Reports to the Head of Department
	Recruits research staff for his/her research group	
	Acquires external funding for research and acts as the responsible manager for the externally funded projects	
	Conducts research and publishes the research results	
	Instructs and supervises doctoral students	
Research faculty and staff	Conduct research ensuring conformity with the law, in line with the funder's contractual terms and conditions and in accordance with ethical practices and research policies and publish the research results	Reports to the Head of Department

Securing the preconditions for research

At Aalto University, the President allocates funding for the schools to maintain appropriate conditions and resources for research, and to ensure cost-efficient and effective support services. Research and Innovation Services[36] provide support for applications for external research funding, managing research projects, and commercial exploitation of the research results. Aalto University's Research Ethics Committee[37] provides ex-ante ethical evaluations requested by research groups.

The President, based on the schools' strategic plans and annual Strategy Dialogues with the schools, allocates professor positions based on proposals by the Deans and within budget constraints.

Aalto University maintains multidisciplinary research platforms[38], factories[39], programmes[40] and other means to support multidisciplinary activities and research within the university as well as with external partners. Existing platforms are evaluated at regular intervals, and new ones are developed as part of the Strategy and Resource Dialogue process.

The university supports maintenance and development of expensive research infrastructures. Six significant research infrastructures have been selected as long-term projects that have clearly identified objectives and development plans, user interfaces, user statistics and other performance indicators. Agreements between the university, schools, and departments commit each party to a shared funding scheme. New infrastructures for the scheme are considered annually as part of the Strategy Dialogues.

According to the university funding model, the schools receive 70% of their basic funding based on the number of tenure-track professors, significant infrastructures, and service teaching; 20% of basic funding is based on performance using Aalto University KPIs; and 10% is based on new strategic initiatives presented at the Strategy Dialogues. Research groups actively seek external funding from academic and non-academic sources to demonstrate excellence and foster internationalisation, strengthen the funding base, and create new collaborations with academia, industry and other stakeholders.

3.1.2. Research and innovation activities - Check and Act

Peer review

The quality and excellence of the research activities are assessed through peer review using criteria relevant to the particular field in question.

At the university level, peer review is carried out through RAEs, during which an international panel assesses the research quality at school, department, and individual levels. At the school level, development is monitored by Scientific Advisory Boards and Scientific and Artistic Advisory Boards (S(A)ABs), comprised of international experts in fields relevant to the schools. In biennial meetings, the S(A)ABs evaluate results and development during the previous two years and provide recommendations for further development directions.

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[36] https://inside.aalto.fi/display/en/Services
[37] https://inside.aalto.fi/display/enris/Multidisciplinary+platforms
[38] http://www.aalto.fi/en/about/factories/
[39] https://inside.aalto.fi/display/AboutAalto/Platforms+and+other+units
[40] https://inside.aalto.fi/display/AboutAalto/Aalto%27s+internal+funding+calls

At the individual level, professors on non-tenured positions receive annual feedback on their development from the Head of Department and/or Dean. Non-tenured professors undergo a comprehensive external peer review before being granted tenure. Individuals and teams also receive peer feedback on their funding applications, and articles and conference papers submitted for publication. Research personnel have annual development discussions to ensure the progress of research.

Performance agreements and indicators

The university Performance Agreement with the MEC defines key indicators and their target values for a four-year period. The quality of scientific publication is assessed through the classification of the Publication Forum[41]and FT-45 publication ranking[42].

Aalto University uses a set of KPIs for target setting as well as annual monitoring of performance development in the area of research. These include:

- Aalto Crown Indicator (followed at university and school levels over a long period with international benchmarks)
- proportion of top 10% publications
- number of publications (MEC)
- number of doctoral degrees (MEC)
- number of excellence grants to faculty
- highly competitive research funding (M€)

The quality of research at Aalto University is also monitored by means of international databases (in particular ISI and Scopus) and the educational administration's statistics portal (Vipunen[43]). Excellence grants to faculty include the European Research Council (ERC) Advanced, Consolidator and Starting Grants, the Academy of Finland awarded Professors and Research Fellows, and Finland Distinguished Professor Programme (FiDiPro) Professors and Fellows.

The annual Management Review at the university level collects material from the schools' Annual Reviews and assesses their achievements against set target values. Performance and evaluation recommendations for different fields of science and research at Aalto University are considered when deciding on university profiling, as part of the national profiling of universities in general, and universities of technology in particular. Profiling actions also influence future professor position allocations.

3.2 Doctoral education

Plan, Do, Check, Act synopsis

P = University-wide coordination by the Doctoral Education Working Group; school-level planning by the Doctoral Programme Committees

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[41] http://www.tsv.fi/julkaisufoorumi/english.php?lang=en
[42] http://www.ft.com/intl/cms/s/2/3405a512-5cbb-11e1-8f1f-00144feabdc0.html#axzz28PA51lW0
[43] http://vipunen.fi/fi-fi

D = Academic operations led by the Doctoral Programme Committee and Head of the Doctoral Programme; student services provided by Learning Services (LES)[44]; research conducted by doctoral candidates and supervised and instructed by professors and other academic staff

C = Annual reports and statistics collected by the Doctoral Programme Committee with oversight by the Doctoral Education Working Group; follow up of study process at the schools; examination of dissertations; school annual review (KPIs), SA(A)B visits, research assessments

A = Revision of practices of classroom activities and other elements of doctoral education, doctoral candidate guidance and mentoring, and research practices

3.2.1 Management and implementation of doctoral education – Plan and Do

Doctoral education at Aalto University is organised into six school-specific programmes[45]. Doctoral studies can be completed on full- or part-time bases. To facilitate full-time doctoral studies, each of the schools provides funding and employment to a number of the doctoral candidates for up to four years.

Roles

The Vice President of Research and Innovation is responsible for strategic management of the university's doctoral education, see Table 4.

Table 4. University and school level actors, their roles and responsibilities, and communication regarding doctoral education at Aalto.

University level Actor	Roles and responsibility	Communication
University Academic Affairs Committee (AAC)[46]	Promotes high quality research and teaching Decides on the university's curricula, degree requirements, admission criteria for students and other general regulations concerning education and research Submits proposals about honorary doctorates	*Aalto Inside*
Vice President for Research and Innovation	Ensures that university's doctoral education system achieves the strategic objectives set by the university Acts as chair of the doctoral education working group	*Aalto Inside*

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44 https://inside.aalto.fi/display/AboutAalto/Doctoral+Programmes
45 https://inside.aalto.fi/display/AboutAalto/Doctoral+Programmes
46 https://inside.aalto.fi/display/AboutAalto/University+Academic+Affairs+Committee

Doctoral Education Working Group[47]	Develops doctoral education at Aalto University[48] Drafts common guidelines for doctoral education	Reports to Research and Innovation Working Group[49]
Schools' doctoral education Planning Officers team	Discusses common issues and practicalities concerning doctoral education process and shares good practices between schools	Reports to Doctoral Education Working Group

School level Actor	Roles and responsibility	Communication
Dean	Appoints the Head of the Doctoral Programme Accepts doctoral candidates to the doctoral programme Grants degrees	*Aalto Inside*
Vice Dean	Handles the Dean's education-related matters as delegated by the Dean	Reports to the Dean
Schools' Academic Affairs Committees[50]	Approves the curricula and degree requirements (delegated from AAC) Submits proposals on the school-specific degree requirements and admission criteria Decides on arrangements for the conferment ceremony of doctoral degrees and about conferment of Honorary Doctorate degrees Performs other tasks assigned by the Dean and the AAC.	*Aalto Inside*

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[47] https://inside.aalto.fi/display/AboutAalto/Development+of+Doctoral+Education

[48] https://inside.aalto.fi/display/AboutAalto/Development+of+Doctoral+Education
[49] https://inside.aalto.fi/pages/viewpage.action?pageId=37789639

[50] https://inside.aalto.fi/display/AboutAalto/Doctoral+Programmes

Doctoral Programme Committees (BIZ Dissertation Committee, more limited duties)	Prepares proposals for research fields in doctoral education for the school's AAC and the selection of doctoral students for the Dean's decision	Proposals to the school AAC and Dean
	Approves curricula and the language and topics for dissertations, appoints preliminary examiners, decides on granting permits for publication/public defence of dissertation, approves/decides the grades for the theses, as well as prepares and discusses matters related to doctoral education and doctoral study at the school	
	Makes decisions concerning licentiate theses	
	Chairperson of the committee decides on date and language for public examination of the dissertation and nominates the *custos* and the opponent, except in the School of Business and School of Arts, Design and Architecture, where the committee makes these decisions	
Head of Doctoral Programme	Plans, implements, evaluates and develops the programme	Reports to the Dean
Supervising professor	Holds preliminary discussions with prospective students	
	Approves the application, the research, study and supervision plans[51] of the doctoral student	
	Provides introduction to the research field, ethical research and academic practices	
	Supervises and guides doctoral student throughout studies	
	Accepts theoretical studies, dissertation manuscript for preliminary examination, and suggests pre-examiners and opponent(s)	
Thesis advisor	Provides supervision and guidance of the doctoral student together with supervising professor	

Implementation of doctoral education

The *Universities Act* (Yliopistolaki 558/2009) states that a person eligible for a doctoral degree must have completed an applicable higher university degree, higher polytechnic degree, or education completed abroad (the awarding country provides eligibility for corresponding higher education).

Aalto University uses the following as selection criteria for doctoral studies: the applicant's motivation for postgraduate studies and grades, the quality and feasibility of the research plan, and the prospect of the applicant completing the studies within the agreed schedule. Each school also has more specific evaluation criteria. The Aalto schools organise

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[51] https://into.aalto.fi/display/endoctoralsci/Supervision+of+doctoral+candidate

admissions to the doctoral programme of the school at least once a year. The university AAC confirms the admission policy yearly. Admission criteria and schedules are published in the student website, *Into*. Aalto University awards the following doctoral degrees: Doctor of Arts (Art and Design), Doctor of Science (Economics and Business Administration) and Doctor of Science (Technology/Architecture). In addition, pre-doctoral Licentiate Degrees are awarded.

The quality of doctoral education is based on sufficient guidance and supervision throughout the doctoral studies and a thorough preliminary examination process of the dissertation, including external peer review. The guidelines, *Supervision of Doctoral Candidates at Aalto University*[52] and *Preliminary Examination of Doctoral Dissertations at Aalto University*[53], and other policies regarding doctoral education at Aalto University are available in the Aalto University intranet, *Inside*.
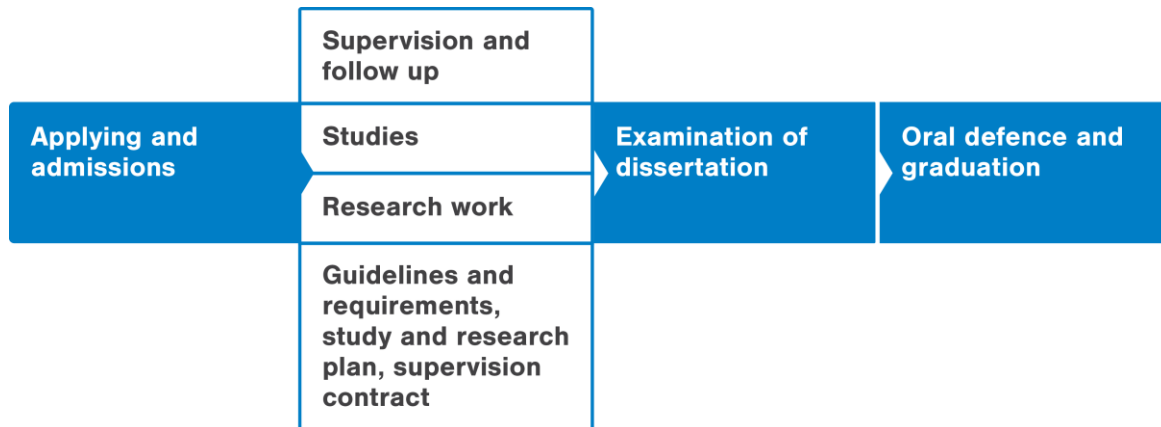

Figure 12. The doctoral education process at Aalto University.

Doctoral studies

Upon acceptance for full-time doctoral studies, the student and supervisor agree on a personal four-year study plan. The plan contains at least a listing of the theoretical studies, a short research plan, and an implementation plan for the dissertation research and studies, including schedules. Part-time doctoral candidates can make the study plan for a longer period. Doctoral candidates employed by Aalto University are considered full-time if at least 80% of the working time can be spent on activities relevant to their doctoral studies.

The theoretical studies included in a doctoral degree deepen the student's field-specific knowledge and prepare them for high-quality scientific and artistic work by introducing methods for application and communication of research information. The main focus of the doctoral studies is on research; in the field of art and design, this can also include an artistic section. The doctoral dissertation must include new scientific knowledge, and the work must demonstrate the student's independent and critical thinking.

Examination of the dissertation and graduation

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[52] https://inside.aalto.fi/download/attachments/33639560/AAK_jatko-opiskelijanohjaus_p%C3%A4%C3%A4t%C3%B6s_eng.pdf?version=1&modificationDate=1413459203809&api=v2
[53] https://inside.aalto.fi/display/AboutAalto/Doctoral+education

At least two external reviewers appointed by the doctoral programme committee carry out the preliminary examination of the dissertation manuscript. After the preliminary examination of the dissertation manuscript, the doctoral candidate publishes the dissertation following the Aalto University guidelines and defends the dissertation at a public examination. The approval of the dissertation, grading and granting of the degree is done at school level. The university grants the right to use the insignia of a doctor at the Ceremonial Conferment of Doctoral Degrees, which is held at regular intervals.

3.2.2 Supervision and monitoring of doctoral studies - Check and Act

The supervising professor and the doctoral candidate review the student's performance against the personal study plan at least annually. A written supervision agreement between the supervising professor, thesis advisor(s) and the doctoral candidate documents the supervision practices as well as responsibilities, rights and obligations of each party during the doctoral education process of the doctoral candidate.

Monitoring of the doctoral education process

The doctoral programme committee collects statistics on doctoral degrees awarded by the school and average study times. The Doctoral Education Working Group reviews dissertation requirements, study requirements and other practices in the schools to ensure sufficient homogeneity of processes and requirements across the schools and to share best practices. The Annual Review, SA(A)B visits and research assessments include a review of doctoral education as part of the school's research activities.

Developing the doctoral education process

The content of doctoral education is revised based on issues identified, for example, concerning study times or new needs in the research field or in society generally. The research practices are developed based on peer review of the research results throughout the doctoral studies, obtained through publication of the results in journals, conferences or other media. Guidance and mentoring are developed by sharing best practices through the Doctoral Education Working Group.

4. LEARNING AND TEACHING

Plan, Do, Check, Act synopsis

P = University strategy and school strategic plan, annual Strategy Dialogues (school-programme/departments, university management-school), strategic planning of the degree programmes and curriculum design, student admission (criteria)

D = Annual Resource Dialogues (school-departments, university management-school), curriculum implementation, student admission (process), teaching, study progress support, well-being of students and teachers, pedagogical competence development

C = Management Review (university management, KPI development), programme reviews, student / graduate feedback surveys, personnel surveys, development discussions, biennial S(A)AB visits and TEE evaluations, KPI development monitoring (Annual Review)

A = Strategy and strategic plan refining (university-schools), joint actions in the area of learning

Aalto University educates responsible, broad-minded professionals to act as society's experts, visionaries and change agents. Aalto offers education, based on the research conducted at the university, leading to Bachelor's, Master's and doctoral degrees. Since the university is a merger of three long-standing universities of science and engineering, business, art and design, the processes expose field-specific variations, which are described in the schools' handbooks.

Teaching at Aalto University aims for a high international level, and follows ethical principles and good scientific and pedagogical practice. Teachers are encouraged to continuously develop their teaching competence and expand their teaching methods. Aalto University interacts with the rest of society when implementing teaching.

In its strategy, Aalto University has set several aims in relation to degree-oriented education:

| At Aalto University, teaching is based on high-quality research. Aalto University is an internationally acclaimed, multidisciplinary university where research and education are promoted hand-in-hand. | The education offered is diverse and challenging, promoting a culture of creativity and entrepreneurship and preparing the students for entering professional life. Aalto University is an inspiring international learning environment based on cooperation. The university encourages lifelong learning. | Aalto University develops multidisciplinary artistic and scientific collaboration across the boundaries of science and art. | Aalto University is in systematic and inspiring dialogue with its stakeholders - businesses and the public sector. It understands and anticipates the needs of society and influences development efforts. |

Figure 13. Aims of degree-oriented education at Aalto University.

4.1. Management of learning and teaching - Plan and Do

4.1.1 Management of teaching

Continuous development of the quality of teaching and learning is one of the university's key strategic objectives. Aalto University promotes a positive learning culture and atmosphere. Special attention is paid to supporting the progress of studies and monitoring of the study process to ensure learning outcomes.

The purpose of the university's *Teaching and Study Code*[54] is to safeguard uniform and equal treatment and legal protection for all members of the academic community as well as to support implementation of university strategy in studies, teaching and the arrangement of education. The Aalto University *General Rules on Teaching and Studying*[55] are supplemented by the degree regulations of the schools[56] and further instructions by the Provost or Vice President of Education.
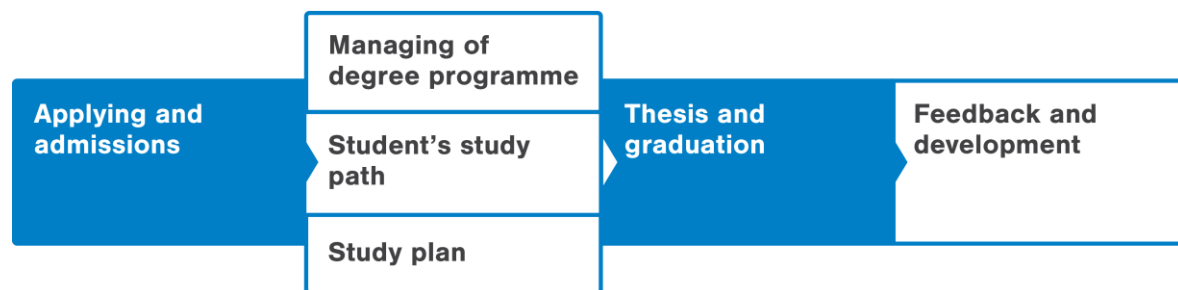

Figure 14. Basic elements of degree education at Aalto University.

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[54]
https://into.aalto.fi/display/enregulations/Aalto+University+General+Regulations+on+Teaching+and+Studying
[55] https://inside.aalto.fi/display/AboutAalto/General+Regulations+on+Teaching+and+Studying
[56] https://into.aalto.fi/display/enregulations/Homepage

ELEC Education Annual Clock

December
- Budget approval

November
- Guidelines for the curriculum planning
- Curriculum planning: pedagogical + education mgment support for programmes + feedback implementation
- Recruiting teaching assistants for spring

October
- FuksiProffaBuffet event (new students)

September
- New students' orientation
- School's resource planning
- Feedback processed in ELEC education mgment team
- School's Action plan for education (based on ADP review)

August
- School's marketing process begins
- School's Annual Degree Programme (ADP) review and strategic curriculum planning

July
- Selection of B.Sc. students

January
- Curriculum planning: adding, removing and changing courses
- Curriculum planning: programmes' evaluation and feedback review
- Feedback processed in ELEC education mgment team
- Scheduling and booking lecture halls for the next academic year

February
- Development discussions
- Department's strategic planning

March
- School's Annual review
- Department's strategic planning
- Selection of M.Sc.students
- Curriculum planning: course descriptions + summer courses
- School's strategic planning: Dean's visits to departments

April
- Discussions on resources needed with the programme director and head of department
- School's strategic planning

May
- B.Sc. feedback seminar
- Recruiting teacher tutors for next year
- Recruiting teaching assistants for autumn
- TEK Graduate survey results' event
- Stakeholder event for programmes (*biannual*)
- Strategy Dialogues between School and President
- School's Performance Agreements

June
- Teachers' work plans
- Programmes' Annual Degree programme reviews and strategic curriculum planning

University actions
Personal actions

period I, period II, period III, period IV, period V, summer period

Jan-Dec
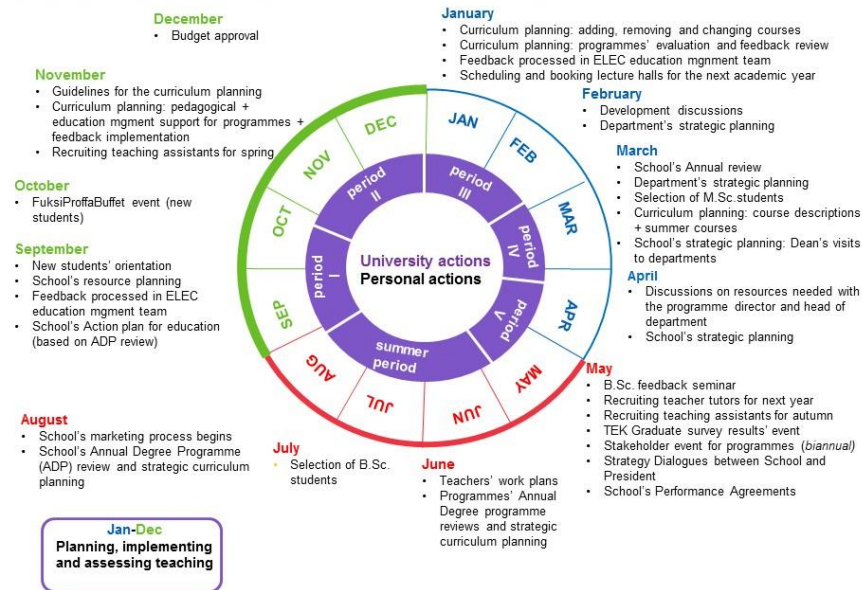**Planning, implementing and assessing teaching**

Figure 15.. Aalto ELEC Education Annual Clock

Roles

The management, development and monitoring of learning and teaching and related Learning Services (LES) are based on the university strategy and its execution plans in accordance with legislation concerning education, MEC instructions, and other guidelines in the field of educational administration available on *Inside,* and student website *Into*[57].

Decision-making and other actors in the area of learning and teaching at university and school levels are summarised in Table 5.

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[57] https://into.aalto.fi/display/enmasterelec/Academic+rules+and+regulations

Table 5. University and school level actors, their roles and responsibilities, and communication regarding learning and teaching at Aalto.

University level Actor	Role and responsibility	Communication
University Academic Affairs Committee	Makes decisions about the university's curricula, degree requirements, admission criteria for students and other general regulations pertaining to education	Minutes on *Aalto Inside*
	Sets up the official bodies for education, appoints their chairmen, members and deputy members, decides on the rules and regulations governing those bodies	
	May delegate the above tasks to the schools' academic committees (Aalto University Bylaws section 13)	
President	Decides on the introduction and closure of a degree programme and its areas of specialisation, and on the annual number of student intake	President´s decisions on *Aalto Inside*
	Decides about any written reprimand requested by the Dean to be given to a student	
	Approves the regulations concerning the Student Financial Aid Committee	
Provost	Oversees all processes related to the university's education.	Provost´s decisions on *Aalto Inside*
Vice President of Education	Manages the bachelor's and master's level education at the university and the university's development of teaching and LES	Vice President´s decisions on *Aalto Inside*
	Monitoring and evaluation of the effectiveness and multidisciplinary nature of teaching	
	Decides on university-level matters relating to the practical arrangement of studies, such as the schedules for periods of the academic year	
Academic Appeals Board	Processes petitions for correction of study attainments	
	Processes appeals directed against the decisions taken on the basis of the correction petitions made under the provisions of section 82 of the *Universities Act*	
Student Financial Aid Committee	The tasks of the Student Financial Aid Committee have been defined in the Student Financial Aid Degree[58]	

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[58]

https://inside.aalto.fi/download/attachments/6654559/21122009ohjesaanto%20Aalto%20otl.pdf?version=1&modificationDate=1271759787000&api=v2

School level Actor	Role and responsibility	Communication
Dean	Manages the education activities of the school Appoints the directors for the degree programmes. Admits the students to the school, handles rectification matters related to student selection and right to study, makes the decisions related to extension to the maximum time of right to study and to restoration of right to study Grants degrees Acts as the chairman of the school's Academic Committee	Dean's decisions on *Aalto Inside*
Vice Dean (education)	Handles the Dean's education-related matters as delegated by the Dean	Reports to the Dean
Schools' Academic Affairs Committees (SAK at ELEC)	Approve the curricula and degree requirements (delegated from the university AAC) Submit proposals on the school-specific degree requirements and admission criteria and on other matters related to academic activities Perform other tasks assigned by the Dean and the AAC	Committee minutes on *Aalto Inside*
Degree Programme Director	Plans, implements, evaluates and develops of the programme: curriculum process coordination and development, monitoring of students' progress, graduation time, course and programme feedback, negotiating financial and other resources for the programme with the Heads of departments and collaboration in education within school and with other schools as well as with important interest groups concerning education	Vice Dean
Head of Department	Provides the resources for teaching activities as well as the planning of teaching and monitoring and developing the effectiveness and quality of teaching at the department	Reports to the Dean
Degree programme committees	Decides strategic and operative planning of the curriculum Prepares and puts forward the programme curriculum and degree requirements for SAK decision Conducts quality assurance of the programme Decides on the supervisors of the BSc thesis seminars Evaluates and accepts MSc theses	Vice Dean
ELEC Education management team	Evaluative and developmental task to plan and align views in School's education Supports Dean, Vice Dean, SAK, Degree Programme committees in educational issues Develops School's educational strategy Shares common practices between programmes	Vice Dean

ELEC Quality on Education Committee (OpLaa)	Evaluates teaching skills in academic recruitments and advancements regarding tenure track, lecturer track and docent positions	Vice Dean
	Evaluative and developmental task to plan and prepare educational issues and events at ELEC	
	Students' representatives (annually 4) appointed by AYY	

At the schools, the Deans are responsible for education but may transfer decision-making power in teaching matters to the Vice Dean responsible for education. Each school is responsible for the appropriate allocation and prioritisation of resources needed for teaching, and the achievement of the annually agreed performance targets related to teaching.

Aalto LES[59] provides services that enable the fluent progress of studies. Co-operation groups for coordination and development between the university and the school levels (table below) ensure the efficient preparation and management of operative and long-term matters related to teaching. See table 6 for more information.

Table 6. Learning Steering Group (LESG) bodies, their roles and responsibilities, and communication at Aalto University.

Actor	Role and responsibility	Communication
Learning Steering Group (LESG)	Prepares and co-ordinates implementation of the university strategy and joint education related affairs:	*Aalto Inside*
	Prepares all education related affairs to the university Academic Affairs Committee and President's Management Team	
	Conducts the strategic management of learning related affairs	
	Co-ordinates all joint education related development efforts	
	Provides a platform for good practice sharing across schools	
	Enhances the harmonisation of learning related processes and actions	
	Co-ordinates quality management in learning area	
	Conducts performance management of learning and LES (including KPI development)	
	Conducts management of permanent and temporary task forces related to learning and teaching	
Learning Services Advisory Board	Conducts the operative management of LES at the university	

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[59] https://inside.aalto.fi/display/enles/Learning+Services

Schools' Teaching Competence Assessment Committees	Conduct teaching competence evaluations of tenure track and lecturer track applicants and those advancing in these career systems

4.1.2 Curriculum planning

Following the Bologna principles, Aalto University offers programmes leading to Bachelor's, Master's, the intermediate Licentiate, and doctoral degrees. The structure and the contents of the degree programmes are described in the Aalto University student website, *Into*[60].

Basic degree education at Aalto is organised into seven school-specific Bachelor's programmes, qualifying the students into several Master's programmes. Similarly, doctoral education has been organised into six school-specific doctoral programmes and is described in section 3.2. In addition to teaching aimed at completing a degree, Aalto University offers adult education that comprises continuing education and Open University teaching.

At the school level, Bachelor's education is organised as broad technology, business, or arts and design programmes, preparing students for several Master's programmes.

The curriculum of each degree programme is a comprehensive description of its objectives and activities:

- learning objectives
- scientific, artistic and professional objectives
- degree requirements
- language of the degree
- majors and minors in the programme
- courses of the programme with their descriptions and responsible unit(s)

The Vice Dean (education) is responsible for the planning of teaching. Specific learning outcomes for degree programmes are decided in the schools' Academic Committees. The schools' curricula are prepared in accordance with university guidelines.

The schools annually decide on detailed guidelines for planning of teaching and give instructions within the school. The AAC also annually confirms curricula, after which they are published in study guides, which are available in the Aalto Student website *Into*, in accordance with university guidelines.

4.1.3 Student recruitment and admission

When recruiting students at the Bachelor's level, the target students are those graduating from high schools in Finland. The main recruiting channels are the Aalto University website, national *Opintopolku* (*Studyinfo*) web portal, newsletters and social media. Direct recruitment activities include various exhibitions, student recruitment events,

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[60] http://www.aalto.fi/en/studies/

student ambassador activities, contacts with guidance counsellors and teachers at Finnish high schools, and visits to upper secondary schools.

In addition to websites, portals and newsletters, active and systematic recruiting of international Master's students and doctoral candidates involves the utilisation of international contacts and communications at partner universities and cooperation networks. Further, Aalto University's students and alumni serve as important messengers to potential applicants.

The *Universities Act* allows the universities to approve their own admission criteria. The university AAC decides on the general criteria for student admission. The President determines the annual number of students admitted to the degree programmes, compatible with the contractual agreement with the MEC and Strategy Dialogues with the schools. The schools' AACs decide on school-specific academic assessment criteria for admission. Admissions Services at the university-level LES process student recruitment and make practical arrangements of student admission for Bachelor's and Master's degrees in close cooperation with Communication Services (COS). The Deans approve the new students admitted to the schools. Information related to student admissions is available on the Aalto University website under Admission[61].

Students admitted to the university's Bachelor's degree programmes also have the right to study for a Master's degree. Information regarding studies is presented in *Opintopolku*[62] (*Studyinfo*[63]).

At the Master's level, external applicants can apply for the Master's degree programmes at Aalto University if they have completed a Bachelor's degree in an applicable field at a university or a polytechnic, or at least a Bachelor's-level degree abroad. The schools assess the quantity and quality of applicants and admitted students annually.

Aalto University Admission Services is responsible for processing the administrative check for applications at the Master's level. The academic evaluation of the eligible applications is performed by the academic faculty and staff and coordinated at the school level to ensure uniform comparison of applicants with different educational backgrounds.

4.1.4 Study progress support

From the beginning of studies to the completion of a degree, each student's progress is guided and followed by means of a personal study plan (HOPS) confirmed by the school.

The purpose of the Aalto First Year Experience (AFYE) activities adopted by the university is to help each new student feel part of the university community, its academic life, one's own school and degree programme. The first study year begins with orientation periods organised by the schools and continues through the year with various lectures, events and networking opportunities relating to study skills and studentship. Orientation periods are held in Finnish, Swedish and English and are organised for both Bachelor and Master level students.

Aalto University LES provides comprehensive administrative, counselling and support services for students throughout their studies. The details and contact information of the services are found in the university's student website, *Into*. Aalto University is committed to organising its student services in a professional, efficient, flexible and accessible way.

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[61] http://www.aalto.fi/en/studies/admissions/

[62] https://opintopolku.fi/wp/fi/

[63] https://studyinfo.fi/wp2/en/

The university also pays special attention to the overall wellbeing of the students by providing access to extracurricular activities, for example, through Unisport sports facilities.

Study guidance has a defined form; teachers have an important role in study guidance. The LES team (planning officers, study coordinators, study affairs secretaries and student tutors) supports teachers with practical affairs related to studies and routinely contacts students to monitor and guide them in different phases of their studies.

The aim of academic guidance is to support individual students in planning their studies, thereby helping them complete their degree in a normative time frame. Participating in guidance sessions is a part of the Orientation to University Studies course and mandatory to all new students. Peer support and contact with university teaching and student services personnel are important and assist the student in adapting to the student environment.

Aalto University encourages all students to have an international component (exchange period) in their degrees. Schools have joint and school-specific student exchange agreements throughout the world.

The schools aim at offering their students the opportunity to equip themselves with readiness and understanding required to operate in international environments, including work and study environments. Students may improve these skills by completing a part of their studies in a foreign university as an exchange student or by studying as a degree student in an international joint programme. It is also possible for the Aalto University students to participate in short-term courses and internships abroad as well as to complete a Master's thesis at a foreign university or company.

4.1.5 Other education

Executive and continuing education at Aalto University is organised through Aalto Executive Education[64] (AEE). AEE offers opportunities for lifelong professional development and systematic updating of knowledge and skills needed in working life. AEE also offers two part-time Master's of Business Administration programmes (MBA and EMBA) and management training tailored for companies.

The Aalto University Open University[65] provides everyone, regardless of educational background, with the opportunity to participate in university teaching.

4.2. Learning and teaching - Check and Act

4.2.1 Assessing student learning

Assessment of teaching and feedback on learning progress are essential parts of a learning-centred culture. Assessment practices are described on a course-specific basis in the curricula. The practices for approving and assessing teaching performance and the

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[64] http://www.aaltoee.com/
[65] http://avoin.aalto.fi/en/

appeals procedures are documented in the *Aalto University* General Regulations on Teaching and Studying[66].

Teachers at the schools are encouraged to utilise different forms of teaching as well as alternative methods of evaluating learning. The procedures are described in study guides and in the schools' intranet found on *Inside*.

4.2.2 Evaluation and feedback in learning and teaching

The university and its schools receive feedback on the quality of teaching in the degree programmes from students, alumni and stakeholders by means of surveys, accreditations, questionnaires and studies. In addition, the university takes part in and carries out evaluations concerning learning and teaching.

On the national level, the evaluation of Aalto University education is conducted by by the Finnish Education Evaluation Council (FINEEC). Aalto University also participates in other national and international evaluations and audits, and is involved in peer assessments (benchmarking) with Finnish and foreign universities and other higher education institutions.

The university regularly carries out comprehensive self-evaluations on planning and implementation of learning and teaching. These evaluations serve the university, schools and degree programmes as an opportunity to discover the strengths and the areas for development. During the academic year 2010-2011, a broad international Teaching and Education Evaluation (TEE), including self-evaluations, was carried out to identify the strengths and key development areas during the start-up phase of Aalto University.

KPIs in the area of learning and teaching followed by the MEC at the university level and affecting the funding of the university include:

- volume related: Bachelor's, Master's and doctoral degrees
- study progress related: share of students with at least 55 credit points per year
- quality related: The Finnish Bachelor's Graduate Survey (MEC)

Aalto University also monitors other performance indicators on an as-needed basis.

The schools regularly monitor their students' study achievements, graduation and employment as well as employers' and graduates' opinions on the quality of education and competences. The schools are responsible for processing course feedback and utilising it in curriculum work for programmes and the management and quality work of teaching, in accordance with process descriptions. Evaluation of teaching utilises the university strategy KPIs[67], course feedback from students, and results from the Finnish Bachelor's Graduate Survey.

4.2.3 Feedback processes

Assessment of learning outcomes is essential to develop the university's educational competence and facilities. In addition, the purpose of course and degree-specific

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[66]
https://into.aalto.fi/display/enregulations/Aalto+University+General+Regulations+on+Teaching+and
+
Studying
[67] https://inside.aalto.fi/display/AboutAalto/4+core+strategies

feedback collected from students is to produce systematic, comparable and appropriate information to ensure and improve the quality of teaching. The results of student feedback survey processes, survey results and the consequent development actions at the schools are part of reviews performed by the university and the schools.

Degree-level feedback

Feedback on the Bachelor's degree is collected with the Finnish Bachelor's Graduate Survey for universities. It is used as one of the key drivers to develop teaching and study support services.

Course feedback

Course feedback is collected by means of the university's joint online questionnaire in all university courses[68].

Teachers use the course feedback for the development of their courses. The university AAC provides instructions on feedback practices and processes to support strategic decision-making and management by the schools and the university.

Feedback from graduates and employers

The feedback survey for students completing a Master's degree is carried out in cooperation with the Academic Architects and Engineers in Finland (TEK) and the Finnish Business School Graduates. The Finnish Association of Designers (Ornamo) regularly conducts working life surveys for its members. The Aarresaari network of academic career services carries out placement and career monitoring surveys for Master's and doctoral graduates five years after graduation.

Other feedback

The university also receives feedback on education through Aalto University Student Union (AYY) and school-specific student organisations (e.g., guilds). The Provost, Vice President of Education, Head of LES, and AYY Board members meet on a regular basis to, among other matters, process student feedback on education and study support services.

Feedback is also collected from exchange students and teachers as well as foreign students attending the university. In addition, feedback is gathered at various events for students and teachers. The feedback received is used as the basis for developing services and focusing activities.

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[68] https://wiki.aalto.fi/pages/viewpage.action?pageId=84741505

5. ARTISTIC ACTIVITIES

Plan, Do, Check, Act synopsis

P = Annual Strategy and Resource Dialogues, strategic planning and target-setting (Provost-university management)

D = Resource allocation for maintaining artistic activities and implementation of improvement measures of strategic importance, multidisciplinary projects, art-based basic courses (President-university management-schools)

C = Monitoring KPI development, reporting results, Management Review, Annual Review (President-university management), biennial SAAB visits

A = Annual strategic feedback discussions (President-university management), joint actions in the area of artistic activities

Artistic activity is one of the four core activities of the university (together with research excellence, pioneering education and societal impact). Aalto University provides an internationally unique combination of opportunities, where science and art meet technology and business.

Human relations, innovations, and achievements in today's world are affected by artistic activities in a variety of global contexts. Art is a key change driver in society, and artistic activities drive creative research, enhance innovative economies, convey political information, offer individual wellbeing, and initiate, reinforce or challenge global values and beliefs.

5.1. Management of artistic activities - Plan and Do

Aalto University develops and promotes artistic activities across the boundaries of diverse disciplines, knowledge frameworks and communities. Artistic activities happen in many forums at Aalto University. These activities are critical and integrative practices, which create meanings, definitions, new adaptations, creativity and innovations. The university is an internationally acclaimed leader in high-quality artistic activities combining research, art and learning.

The mission of artistic activities at Aalto University[69] is to:

- utilise artistic activities as a means for renewal: sharing the culture of artistic activities within Aalto University, supporting multidisciplinary activities, enabling the entire Aalto community to access art in different forms

- position Aalto University as a global leader in the fields of artistic activities, internationally building the university as a forerunner in arts and multidisciplinarity

Roles

The Dean of the School of Arts, Design and Architecture (ARTS) is the head of artistic activity at Aalto University and leads the Aalto Artistic Activity Steering Group[70] (AASG),

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[69] https://inside.aalto.fi/display/AboutAalto/4+core+strategies
[70] https://inside.aalto.fi/pages/viewpage.action?pageId=37789648

which is responsible for the development of artistic activity and design thinking at Aalto University. The roles of university-level actors are described in Table 7.

Table 7. Actors, their roles and responsibilities, and communication of artistic activity and design thinking at Aalto University.

Actor	Role and responsibility	Communication
Provost	Oversees the academic activities at the university and makes proposals to the President regarding major investments in faculty (new professor positions) or infrastructure.	*Aalto Inside*
Vice president for Art and Creative Practices	Leads the Aalto Artistic Activity Steering Group (AASG)	
	Coordinates and facilitates artistic activities at Aalto University	
	Monitors and ensures positive development of artistic activity quality	
	Ensures efficient utilisation of artistic activity results in society	
	Manages university-level artistic activity infrastructure, coordination, funding and activities	
Aalto Artistic Activity Steering Group (AASG)	Positions Aalto University as global leader in the fields of artistic activities	
	Utilises artistic activities as means for renewal	
	Develops, produces, and realises multidisciplinary artworks and events, to be exhibited to audiences across Aalto University and beyond	
	Creates and develops new ideas of connecting art with education and research at the university	
	Develops the international competitiveness of artistic activities at the university	
	Seeks new ways of reporting quality and quantity of artistic activity in cooperation with the national and international partners	
University Academic Affairs Committee (AAC)	Monitors the quality of artistic activity	
	Gives general guidelines for conducting artistic activity	
	Has transferred its jurisdiction partially to the schools' Academic Committees	

Artistic activity is part of Aalto University's annual planning, education and research processes. The objectives for artistic activity are set in the annual Strategy and Resource Dialogues with the Provost. The follow up of previous objectives and the results are communicated in strategy discussions and Annual Reviews.

Under the AASG, there are four working groups with the following themes.

1. **Multidisciplinary projects, exhibitions and events** group works on development, production and the realisation of transdisciplinary artworks and events, to be exhibited and shared to audiences across Aalto University and beyond.

2. **Branding and visibility** group supports raising global awareness of Aalto University and develops its visibility in the world in all three fields.

3. **International competitiveness** group benchmarks the best universities, follows the development of rankings in different fields, and develops how Aalto University should perform in rankings and international collaborations.

4. **Art in academia** is Aalto University AAC's working body in artistic affairs, in such issues as reporting quality and quantity of artistic activity in cooperation with national and international partners.

*) Only indicative, do not discribe actual projects, many more exist
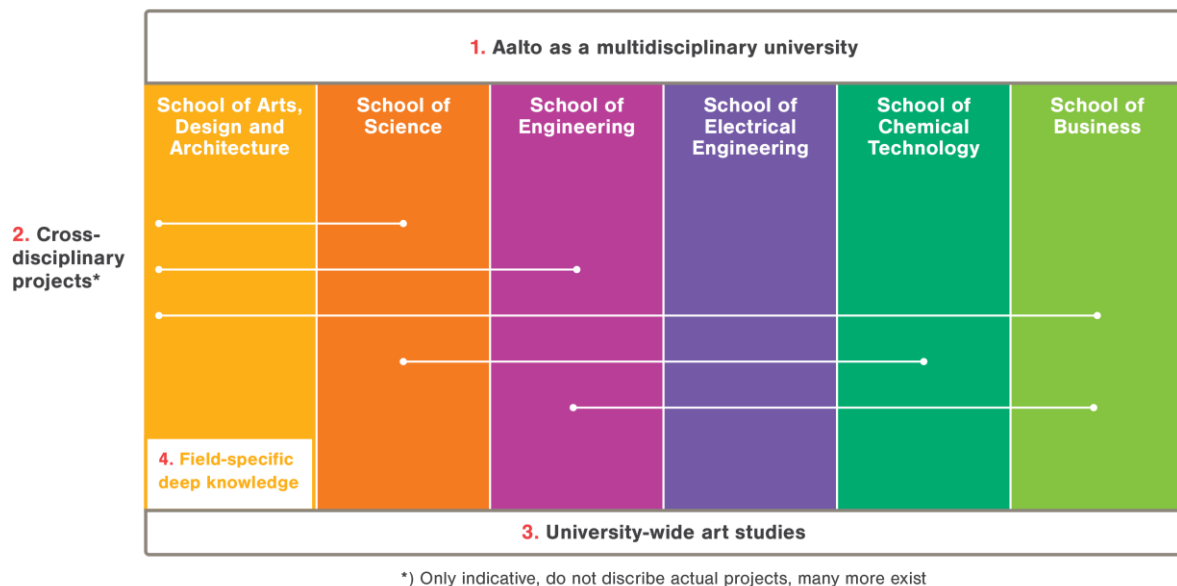
Figure 16. Artistic activities in Aalto University

In addition to university-wide activities, an increasing number of faculty have formed cross-disciplinary projects, which extend across traditional school borders and include creative practices. These activities are tied to the schools' research and education, and their development is part of each schools' resourcing. Spearhead initiatives include CHEMARTS, Living+, ADDLab, Game design professorship, Aalto Factories[71], and the Future Media Centre.

Arranging art-based courses available to every student at Aalto University is an activity currently piloted and still under development (see Figure). The ambition is to create a larger portfolio of basic courses in such areas as colour, graphic design, creative process and design basics.

Field-specific, deep knowledge in art, design and architecture has a long tradition in ARTS, and in contrast to other artistic activities, it is currently done only at one school. At

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[71] https://inside.aalto.fi/display/AboutAalto/Platforms+and+other+units

the school, this knowledge in the field of arts and its development is equalled to scientific research, and it is expected to reach equal standards of high quality.

The results of the field-specific artistic activity at ARTS are recognised as artistic outputs, significant both nationally and internationally. Aalto University plans and develops these artistic activities according to the school's SAAB recommendations.

5.2 Artistic activities assessment practices - Check and Act

Development of assessment practices

KPIs in artistic activities are currently used only for measuring the success of ARTS and its field-specific, deep knowledge that is equated with research.

Performance in artistic activities is measured through peer-reviewed artistic outputs. The number of peer-reviewed artistic outputs on international, national and local levels is calculated by considering:

- the output reviewed by a competition jury, curated exhibition or festival
- an invited call by a professional or thematic organisation
- awards, prizes, exhibitions, curations, festivals, films and productions

The number of peer reviewed artistic outputs is counted in databases (Reseda[72], Tenttu[73]) and the ARTS Annual Review.

Part of the peer-reviewed artistic outputs (expected outcome is about 10%) must be considered significant. The definition of significance is based on each field's lists of the most significant forums in that field. It is the forum that acts as the measure (similar to the impact factor ranking of a journal), not the quality of the artistic output itself. This definition, and the list of most significant forums, is further developed and maintained through input from the Annual Review.

Significant artistic outputs are measured through the most significant forums in their fields, specifically, the number of artistic outputs in significant international forums: international or national high-level awards and prizes, exhibitions, curations, festivals, films and productions.

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[72] https://reseda.taik.fi/Taik/jsp/taik/Index.jsp?lang_global=en&
[73] http://www.otalib.fi/tkk/

6. SOCIETAL IMPACT

Plan, Do, Check, Act synopsis

P = University strategy and school strategic plan, annual Strategy Dialogues (school-departments, university management-school) and school performance agreements

D = Annual Resource Dialogues (school-departments, university management-school) including topics of societal impact, involvement of stakeholders, and development of the innovation ecosystem followed by budget decisions according to the Aalto funding model

C = Management Review (university management-school, KPI development); biennial S(A)AB visits (school), RAE evaluations, and national field-specific evaluations (university) to assess research impact; stakeholder assessment

A = Strategy and strategic plan refining; funding re-allocations; focusing; reshaping education

The tasks of universities as defined in the *Universities Act* are to conduct free research, offer the highest quality education based on research, and use the results for the benefit of society. According to the Aalto University strategy, research activities focus not only on strong basic research in the fields represented by the university, but also on collaboration with top companies in their respective fields, as well as development of a vibrant innovation ecosystem around the university's research, artistic and educational activities.

Professors and researchers are key experts of society, and the research results are made widely available and accessible to the scientific community as well as to the society at large. The impact of Aalto University's education is based on high-quality teaching and the resulting competence accumulated by students from degree education to Open University and professional development education. Works of art, productions, exhibitions and performances form the backbone of the impact of Aalto University's artistic activities, but these impacts spread wider through the network-based society.

Aalto University actively and selectively searches for international partners in research, education and artistic activity by networking globally and increasing its cooperation with high-level universities.

6.1. Managing of societal impact activities - Plan and Do

Aalto University strategy defines the targets and development actions for societal impact. Annually, objectives are set in the Strategy Dialogues and school performance agreements.

Societal impact is, to a large extent, realised through the everyday academic work and interaction of the professors and the academic personnel of the schools. The roles and responsibilities concerning societal impact are described in table 8.

Table 8. Societal impact actors, their main forms of collaboration and impact at Aalto University.

Actor	Main forms of collaboration and impact
Board	Defines and decides on the university strategy and follows its implementation
President	Maintains and develops relations to strategic domestic and foreign partners, and has overall responsibility of the long-term development of the university Fundraising activities
Vice President of External affairs	Assists the President in strategic external relations and fundraising activities
Vice President of Research and Innovation	Operates Research and Innovation Services Maintains and develops domestic and foreign partnerships Develops the innovation ecosystem Collaborates with Technology Academy Finland and LUMA Center Finland on dissemination
Head of Project Services	Operates Innovation Services, focusing on transfer of research results to society
Head of Partnership Services	Supports partnership, alumni and other stakeholder services activities Maintains alumni and partnership databases Offers employer services
Director of Communications	Supports effective dissemination of research results to society
Dean, Head of Department	Develops and maintains societal impact activities carried out by or with a school's academic faculty Makes school-level partnership, framework and project agreements with external stakeholders
Professors, university academic community	Develops and maintains partnership relations and school-level stakeholder relations in their respective fields Conducts research and education that have an impact on society, and foresees and acts on research outcomes that could have an impact

Research activities include a component for strong societal impact. Aalto University maintains platforms[74], factories[75], programmes[76] and other means to support multi-disciplinary activities with its external partners. These instruments implement the strategy of co-creation by providing a forum for carrying out activities of mutual interest and for exchanging ideas and receiving feedback on present actions and future directions.

[74] https://inside.aalto.fi/display/enris/Multidisciplinary+platforms

[75] http://www.aalto.fi/en/about/factories/
[76] https://inside.aalto.fi/display/AboutAalto/Aalto%27s+internal+funding+calls

Aalto's career system includes senior academic positions, such as Professor of Practice, Adjunct Professor, Artist in Residence and Executive in Residence, to strengthen the link between the university and society. Such experts bring industrial or artistic expertise and practical knowledge of topical societal issues to academic work.

The university's research activities reform and transform the society through efficient transfer of research results to innovations and commercial use[77] supported by partnership services for Intellectual Property (IP) creation (e.g., invention disclosure process, IP protection), licensing and IP transfer, and support spin-off company creation. Further, Aalto University offers its research infrastructures to external partners at little or no profit.

Research focus areas are selected to have high relevance to economic life, and they target grand societal challenges nationally and internationally. The majority of the research resources are allocated to focus areas. Stakeholders are involved (e.g., through interviews) in updating Aalto's strategy.

Further, Aalto's policy on research results and publications supports wide dissemination of research results, including actively engaging with the general public through efficient web communication, media and stakeholder events.

Educational activities and reforms are carried out to consider societal needs and in close contact with the university stakeholders. The university renews society through its graduates: Aalto graduates both at Master's and doctoral levels are game changers and highly capable experts with skills in teamwork, leadership and entrepreneurship and are employed in top positions in academia, public and third sectors, and private industry.

Education is reformed to develop generic competences needed in working life. Real-life topics introduced by stakeholders, such as companies or public-sector actors, are tackled in the classroom, through theses (Master's, doctoral) and other projects, and in internships carried out in collaboration with stakeholders.

Degree programmes at all levels are developed based on feedback from stakeholders and employers. This feedback is obtained through informal discussions and stakeholder participation in steering groups.

Aalto University artistic activities contribute to a better quality of life through artistic productions and an improved living environment at all scales. The works of art, productions, exhibitions and performances made possible by Aalto influence society through a variety of forms and channels.

Stakeholders are actively kept in touch with the development and planning of university activities. The Board is comprised of experts external to Aalto from academia and economic realms. The President and Deans organise regular high-level stakeholder events (President's Circle, Dean's Circle). Alumni services keep in touch with the alumni through monthly alumni news bulletins and events.

Entrepreneurship and development of entrepreneurial culture is supported in research and educational activities in the following ways.

Research.

Aalto University actively seeks collaboration with national industries through Strategic Centres for Science, Technology and Innovation (SHOK) and international industrial collaborations, for example, through membership in three European Innovation and

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[77] https://inside.aalto.fi/display/ResearchSupport/Exploitation+of+research+results

Technology (EIT) Knowledge and Innovation Communities (KIC). As part of school Project Services, innovation advisors provide assistance in licensing and patenting IP rights and creating start-up companies [78].

Education.

Entrepreneurial education is provided to students at all Aalto University schools through the Aalto Ventures Program[79] (AVP). Aalto supports student-led entrepreneurial activities through the Aalto Entrepreneurship Society[80] (AaltoES).

The local innovation ecosystem is developed with university students and staff and with external stakeholders. Support for startups is provided through Aalto Startup Center[81], serving university faculty. Education for small- and medium-sized enterprises and entrepreneurs is provided through Aalto Small Business Centre[82] and AEE. Also, the local innovation ecosystem is actively developed in the Aalto University campus in Otaniemi through joint meeting space and working environments by faculty, students and external stakeholders.

Research results are disseminated to the general public and a variety of stakeholder groups. Aalto University COS is responsible for public dissemination of research results, which are actively communicated to the general public through media and stakeholder events. In addition, faculty make themselves available as experts and are commissioned for their expertise.

Courses enabling continuing education and lifelong learning for the general public are offered through Open University[83], AEE[84] and Massive Open Online Courses (MOOC). Also, engaging secondary school students in topics covered by Aalto University are carried out through the LUMA Centre Aalto[85] (as part of LUMA Centre Finland, focusing on mathematics, natural sciences and technology) and through collaboration with Technology Academy Finland. Also, collaboration with Technology Academy Finland in distributing the Millennium Technology Prize advances public awareness of societally important innovations.

Sustainability is an essential part of several of Aalto's research focus areas. Thus, sustainability and responsibility are integrated in all research and education activities. Aalto University is part of the International Sustainable Campus Network. In addition, the university campus roadmap makes sustainability a key issue in its planning (see 9.2 Campus).

6.2 Assessing societal impact - Check and act

Societal impact is a core process that cuts through all activities of the university. Objective-setting for societal impact and its promotion are evaluated in conjunction with

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[78] https://inside.aalto.fi/display/ResearchSupport/Exploitation+of+research+results
[79] http://avp.aalto.fi/
[80] http://aaltoes.com/
[81] http://www.start-upcenter.fi/fi/
[82] http://pienyrityskeskus.aalto.fi/en/
[83] http://avoin.aalto.fi/en/
[84] http://www.aaltoee.com/
[85] http://luma.aalto.fi/en/

the university's annual Strategy Dialogues. Aalto University monitors its societal impact in multiple ways.

Peer evaluation.

The RAE and S(A)ABs assess the societal impact of the schools' activities. At the individual level, evaluation criteria for professors on the tenure track include societal impact as an additional merit.

Stakeholder assessment.

Stakeholder opinion on Aalto University societal impact is assessed through CEO tours with the most significant partners, President's and Dean's Circles, and other networking events. Employment of graduates is followed on a qualitative level based on data produced by the professional labour market organisation Academic Engineers and Architects in Finland (TEK), The Finnish Business School Graduates, and the Aarresaari network.

Performance agreements and indicators.

The MEC funding model does not include direct indicators for societal impact, but societal impact is assessed as part of the university's strategy implementation. Aalto's KPIs for impact include the total income from non-academic partners.

Management Review.

The Management Review collects material from feedback and the schools' Annual Reviews.

To follow-up, Aalto University acts on the feedback in the following ways:

Update of strategy.

The university strategy receives input from external stakeholders. Research focus areas are regularly assessed and defined based on the scientific expertise of the university, the current local industrial base and potential for new industry development, and grand challenges in society.

Reshaping education.

External stakeholders are involved in developing the study programmes through participation in the programme steering groups and informal feedback. Private enterprises are heavily involved through Master's students employed or funded by their companies.

Incentive systems and evaluations.

KPI data and other performance evaluations are used to reward personnel for good performance as well as to evaluate tenure track professors.

Funding models.

Schools receive 70% of their funding based on the number of tenure-track professors, significant infrastructures and service teaching. They get 20% of their funding based on performance using Aalto University KPIs; and 10% of schools' funding is based on new strategic initiatives. New tenure track allocations take societal impact (both in terms of allocation of positions to specific fields and in evaluation of candidates) into consideration.

7. FACULTY AND STAFF

Competent and highly motivated personnel who are committed to the organization's objectives form the foundation of a university's success. The aim of Aalto University is to have well-functioning HR processes, which support academic leadership, research, teaching and artistic activities. As an employer, the university focuses particularly on the professional development and wellbeing of its employees. Productivity, support for working life, and regular employee performance reviews are central to HR management. The university offers an inspiring working environment, challenging tasks, good working conditions and attractive career systems.

The focus areas of Aalto Personnel Strategy are[86]:

- development of leadership culture and practices that values community and diversity,

- renewal of organisation and career systems,

- development of professional competences, and

- smooth HR processes.

2010	2011–2013	2014	2015	Target state 2020
Merger in practice Definition of the ways of working in Aalto Establishing tenure track system Renewal of the service organisation	Reorganisation of the schools Implementation of the career systems Renewal of the personnel structure Implementation of the HR and management processes Development of academic leadership	Improvement of customer point of view and process efficiency in services Evaluation of the management system Development of engaging leadership culture and practices Enhancing culture that supports wellbeing	Ensuring the effectiveness of the services Strengthening everyday leadership Support to new ways of working Offering targeted support to enhance personnel wellbeing Finalisation of the personnel structure	Aalto University is an inspiring working environment which offers its personnel interesting work and incentivised career systems. Personnel processes serve excellent leadership and high-quality research and teaching. As an employer the university aims at being one of the best, offering support for development, renewal and internationalisation.

Figure 17. Actions based on personnel strategy 2010-2014, and targets for 2015-2020 at Aalto University.

7.1 HR management and processes

The policies and practices concerning employment at Aalto University are governed by Finnish employment legislation[87] and the General Collective Agreement for Universities[88]. To facilitate human interaction within the increasingly multicultural Aalto University community, the university has also published the *Code of Conduct in the University*

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86 https://inside.aalto.fi/display/enhrs/Personnel+Strategy
87 https://inside.aalto.fi/display/enhrs/Provisions+governing+the+employment+relationship
88 https://inside.aalto.fi/display/enhrs/Collective+agreement

Environment[89] to positively guide the community and provide support in problematic situations.

Roles

The President leads the development of personnel supported by the Director of Human Resources and the HR Services organisation at the university, school and department levels. The Provost is responsible monitoring and developing the tenure track and other academic career systems. The HR units and their responsibilities at the university level are summarised in Table 9.

Table 9. Human Resources units, their roles and responsibilities, and communication at Aalto University.

Units	Role and responsibility	Communication
Leadership and Competence Development	Supports organisation development, leadership development, competence development, employee survey	
Faculty HR Services	Service support for recruitment and career system implementation (including tenure track)	
Work Community Services	Occupational healthcare, employee wellbeing, restaurant and sports services, international mobility including insurance, support for international personnel	*Aalto Inside*[90]
Operative HR Services	Employment relationship (from recruitment to retirement) related services, including payroll	

7.1.1 Tenure track and other career systems

To ensure expanding expertise and motivation of its employees, Aalto University has implemented career systems for professors, lecturers, other academic personnel, and for people working within the university's service entities to support their long-term and goal-oriented development at work. The university's rewarding and incentive system[91] is closely tied to its career systems.

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[89]
https://inside.aalto.fi/download/attachments/37794784/Code_of_conduct_decision_.pdf?version=1 &modificationDate=1432195241646&api=v2

[90] https://inside.aalto.fi/display/enhrs/Home

[91] https://inside.aalto.fi/display/enhrs/Total+rewarding

Tenure track career system

The tenure track[92] career system for professors is Aalto University's core academic career path and lays the foundation for the objective to reach world-class status in research, education, artistic activity, academic leadership and societal impact. The university's tenure track career system offers talented individuals a clear and well-supported career path towards permanent professorship (see Figure). The principle of the system is to have both the university and the individual commit to an academic career. Clear expectations and incentives are combined with support for personal, professional and academic growth – essential elements in the system.
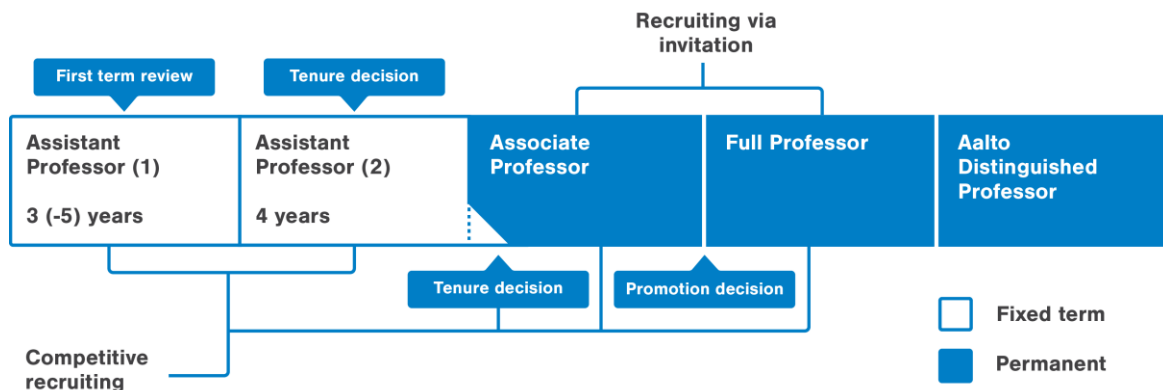

Figure 18. Aalto University's tenure track career path.

Lecturer career system

The lecturer career system supports the recruitment of academic teachers by offering a career path leading to a permanent position. The aim of the career system is to promote and support the personal development of teaching personnel. The main responsibility of the individuals in the Aalto Lecturer career[93] is teaching, which is complemented by an agreed combination of research and/or comparable artistic duties and service tasks in the scientific community and pedagogical leadership.

Other academic positions

Other academic positions include those positions outside the tenure track career system or career system for lecturers. By defining other academic positions, the departments, schools or university can recruit personnel for specific purposes and on various grounds. Other academic positions[94] are built around the Staff Scientist and Senior Scientist positions for technical support, Professor of Practice and Adjunct Professor titles, Postdoctoral Researcher title, separate Researcher titles, Professionals in Residence titles and titles for long-term visitors. Student titles apply to Bachelor's and Master's degree students and doctoral students who are employed by the university. The principles for awarding the title of Docent[95] have also been defined.

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[92] https://inside.aalto.fi/display/enhrs/Tenure+track

[93] https://inside.aalto.fi/display/enhrs/Lecturer+career+system

[94] https://inside.aalto.fi/display/enhrs/Other+Academic+Positions

[95] https://inside.aalto.fi/pages/viewpage.action?pageId=27040118

7.1.2 Recruitment and induction

Systematic recruitment[96] and personnel competence development ensure that the number and competence of Aalto's personnel is correctly proportioned to the academic work as well as service and administrative positions. Choosing the right person for each vacant position is a decision that affects the activities of the entire work community, and thus sufficient time and resources should be reserved for each recruitment process. Recruiting is based on the strategy and HR plan of the recruiting unit, and the unit director with budget responsibility always approves the recruitment before an employment contract is signed. Open positions are generally announced openly and publicly in the Aalto University website, intranet and other relevant channels. The field of the open position, qualifications and other requirements for the position are specified in the announcement in a job-oriented manner and in as much detail as possible.

A new employee's induction is an important part of becoming a member of the Aalto University community. The purpose of induction is to give the new employee an overall picture of the university, its objectives and activities, its different units, and the employee's role in this entity. During induction, the new employee learns about their job and the operating principles of the organisation. Successful induction at the beginning of employment also promotes job satisfaction, wellbeing and community spirit of the new employee and the work community.

Aalto University highlights the position of supervisors as community leaders and role models. Day-to-day supervisory work should ensure or enable:

- implementation of the Aalto University strategy, principles, processes, practices and targets
- everyone has a working environment that supports the achievement of their targets
- the work in the team is aligned and allocated in a meaningful way
- everyone does his or her part of the shared responsibilities
- success by sharing information, giving feedback and supporting wellbeing
- individuals in planning their careers and personal development
- making decisions when there are a variety of opinions and it is not possible to achieve a shared decision

The university's instructions for the person performing the induction and the new employee are available on *Inside* for new employees[97].

Aalto University has an established mentoring programme for its personnel. Mentoring supports a new employee during the induction phase, when a person moves to a new position, or when they advance in their career.

Aalto's personnel is increasingly international, and support for foreign faculty and staff is embedded in its everyday HR practices. Special instruments[98] for integration to the Aalto community and Finnish society include Introduction to Finland information packages, language courses, cultural introduction, the Family Friend programme, et cetera.

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[96] https://inside.aalto.fi/display/enhrs/Recruitment

[97] https://inside.aalto.fi/display/enhrs/For+new+employee

[98] http://www.aalto.fi/en/about/careers/international_staff/

7.1.3 Competence development

Aalto University supports the development of its employees' competence through career systems for each sub-area, fostering career progression, flexible redistribution of tasks or moving onto a parallel career track. Professional networks are created for personnel, and they are offered inspiring learning and training opportunities.

Aalto University's competence development[99] is based on 70/20/10 thinking.

- 70% is learning on the job, in other words, learning through personal experience and reflection. On-the-job learning can be carried out by means of more extensive responsibilities, projects, job rotation or problem-solving situations, for example.

- 20% is other learning. The development solutions used include feedback, mentoring, coaching, and team and pair work.

- 10% is learning in formal learning environments, such as courses, seminars, or using self-study tools.

Aalto University emphasises the importance of teaching skills of faculty and provides everyone who teaches at the university with the opportunity to participate in pedagogical training. HR Services arranges and supervises professional continuing education. Units also offer their personnel possibilities for independent training to maintain and develop their professional skills.

7.1.4 Employment

Employment at Aalto University is based on an employment contract that defines the principal terms of employment. The detailed terms of the employment relationship are provided in legislation and the general collective agreement for universities. Fair treatment of personnel and ensuring the rights of employees and the employer are important principles in decision making regarding employment matters. More detailed information concerning matters related to the employment relationship[100], such as holidays, absences, insurance, pension issues and labour legislation, are available in the Aalto University intranet, *Inside*.

Equality

Aalto University offers everyone an equal operating environment, regardless of the employee's or student's gender, position and background. The objective is to have a good working and studying atmosphere prevail at the university. Equality work promotes sustainable social and cultural developments of the university.

The successful implementation of equality and diversity necessitates mainstreaming, making the values of Aalto University in all practices of the university visible. The responsibility to promote equality and diversity applies to all members of the university

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[99]

https://inside.aalto.fi/display/enhrs/Career+and+Competence+Development

[100]

https://inside.aalto.fi/display/enhrs/Employment+information

community. Focal actors in the promotion work include university and school management, along with the leaders of departments and other units. All supervisors, teaching personnel and the members of official nomination and selection committees also hold key roles in this regard.

The work to promote equality at Aalto University is supported by active planning and consistent organisation, which is guided by the Aalto University *Equality Plan*[101], based on the university's strategy and values. The *Equality Plan* presents the general principles for equality and diversity, the university's will, and sets targets for the planning period.

The work to promote equality is coordinated by the Equality Committee[102] established at the university.

Wellbeing at work and work safety

Aalto University emphasises the comprehensive nature of wellbeing at work[103] and strives to support all Aalto employees and their supervisors in promoting it. Although particular attention is paid to preventing problems, for example, by means of supervisor training, a range of services and tools are available to assist in dealing with problem situations associated with an individual or work community. The university also provides its personnel with a wide selection of sports and exercise options.

The objective of work safety is to reduce and eliminate risks and hazards at work and in the working environment, and to promote the health, safety and satisfaction of personnel. The university's occupational safety activities[104] are coordinated by the Occupational Safety Committee and led by the Occupational Safety Manager. The Occupational Safety Committee is a cooperative body between the employer and employees, which addresses issues in health and safety matters that apply to the entire university.

Further information: Security[105]

7.2 Personnel competence and wellbeing

To ensure the work-related physical, psychological and social wellbeing of Aalto employees, annual development discussions between an employee and his or her supervisor reviewing the past 12 months are held in the early spring. The discussions are two-way feedback on work related issues, for example, results, objectives, resources and wellbeing at work, and planning for the coming year. The mid-year review in the autumn focuses on more in-depth competence development and career planning.

The wellbeing of the university personnel is also followed by general occupational healthcare statistics on absences due to illness. Various pre-emptive and remedial services are available to employees.

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[101] https://inside.aalto.fi/display/enhrs/Equality+at+Aalto
[102] https://inside.aalto.fi/display/AboutAalto/Aalto+Equality+Committee
[103]
https://inside.aalto.fi/display/enhrs/Support+tools+and+services+for+work+ability+and+wellbeingbeing%2C+occupational+health+care+and+safety+at+work
[104] https://inside.aalto.fi/display/enhrs/Occupational+safety
[105] https://inside.aalto.fi/display/FacilityServices/Procedures+in+case+of+emergency

Every two years, the university conducts an employee survey[106] and the results are used for targeting measures to promote the personnel's preconditions for work and wellbeing at work.

Teaching competence assessment

Together with research, teaching competence and its assessment are key criteria for career advancement for the tenure track and lecturer career systems. Teaching experience, including thesis guidance, pedagogical training, developing personal teaching and student feedback on own teaching, includes key targets when assessing teaching competence. Aalto encourages its teaching personnel to continuously develop their teaching methods. LES offers pedagogical training for teaching personnel, and schools and departments also arrange targeted training on school-specific current issues as described in the schools' handbooks. Teachers are also encouraged to participate in national and international pedagogical events and conferences to benchmark teaching and learning at other higher education institutions.

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[106] https://inside.aalto.fi/display/enhrs/Personnel+survey

8. STUDENTS

The participation of students in the quality assurance of the university is realised mainly through the involvement of various student organisations. The AYY and student guilds and associations in the schools are involved in the planning, development and implementation of activities that have relevance to students.

AYY[107] is an organisation of the students from all schools at Aalto and is an important partner for the university. AYY operates in the areas of education policy, social policy and international issues, thus enhancing the position of students by being active inside the university community and elsewhere in society. Student union activities give its participants opportunities to influence university-related issues and decisions. The *Universities Act*, Aalto University *Bylaws* and the school bylaws specify student representation in administrative bodies of the university and the schools. AYY independently chooses student representatives to these administrative bodies and gives them an introduction to university activities.

As part of the university community, students are involved in developing teaching, research and artistic activities. The student guilds, study associations and AYY collaborate with the educational leadership and are key elements in welcoming and integrating new students to the university through tutoring. Tutoring for new students is organised according to responsibilities specified by the schools.

Students participate in educational development by means of various student feedback channels. Whenever the target of auditing is related to education and its support services have students as one of the user groups, the aim is for students to serve as auditors. Students also take part in developing their own degree programmes, for example, via student organisation activities and by serving as student representatives in administration[108] (*hallopedi*). One of the most important awards granted by AYY is the Learning Promotion Deed of the Year award. In addition to the student union, students are active in more than 200 recreational, political, cultural and sports associations, which are in part supported by AYY.

In addition to student advocacy, AYY supervises the interests of its members by providing, for example, healthcare and recreational services for its members. The university offers its students support in completing their studies through comprehensive study guidance, a study psychologist and modern learning facilities. A student's legal protection is guaranteed in different situations, such as admission and study attainment, in which the student is given access to decisions and grading. Issues of fraud and discipline are handled according to good administrative practice without unnecessary delay, and the student is provided with the opportunity to be heard before a decision is made concerning any consequences. Instructions and support for studying and student wellbeing are provided in the Aalto University Student website, *Into*[109].

At Aalto ELEC, communication and collaboration with the students takes place in several ways. Students participate in school's activities both formally and informally. Strong cooperation with the guilds is established. Since 2011, a cooperation agreement is annually checked and updated with the guilds and Aalto ELEC.

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[107] http://ayy.fi/en/
[108] https://www.halloped.fi/en/aalto/organs
[109] https://into.aalto.fi/display/en/Homepage

Guilds together with school's Learning Services (LES ELEC) plan and organise the welcoming programme for the first year and new Master programme students. In addition, in collaboration with school's LES ELEC, guilds produce the first year students' guide for studies (Phuksiopas).

In addition, guilds in cooperation with the school's LES ELEC unit organise an annual feedback panel for Bachelor level studies directed to ELEC students and teaching staff. Likewise, guilds collect general feedback data from the studies and the received feedback (summaries) and used in order to develop the degree programmes' curricula and the learning environment. In OpLaa (The Quality of Education Committee), students have a possibility to forward potential 'bottelneck' problems or suggestions with teaching and studies (e.g. courses not functioning well). Dean, vice dean for education, and head of Academic Affairs meet guilds' representatives several times during semesters. In addition, vice dean for education meets monthly guilds' Master of Learning (opintomestari in Finnish). For developing more alumni and stakeholder functions, guilds collaborate with ELEC's alumni and corporate relations manager.

9. ENABLERS

9.1 Infrastructure

Aalto University's infrastructure comprises the facilities, equipment and devices that support the implementation of research, teaching and artistic activities.

To secure high-quality research infrastructures in Aalto University's core research areas, an infrastructure programme has been created that includes six large research facilities: Aalto Ice Tank, Bioeconomy Infrastructure, OtaNano, Metsähovi Radio Observatory, Science-IT, and Aalto NeuroImaging. Infrastructures accepted in the programme are requested to develop easy and open access to the facilities with similar user fees for all, transparent budgeting, as well as KPIs used to measure the efficiency and success of the facility. Funding for facility upgrades and operations comes from the university, schools and individual users through user fees. The infrastructures are monitored annually as part of the Management Review, while long-term commitments are made based on external reviews organised at regular intervals.

The major research infrastructure projects are evaluated annually in the Management Review using the following criteria:

- scientific productivity,

- management practices, operational and financial planning,

- number of users and utilisation rate,

- transparency of pricing and accessibility for all Aalto University users, and

- user satisfaction.

External reviews are carried out at regular intervals to decide future commitment to continue funding of the research infrastructure.

Further information: Major Research and Teaching Infrastructure resources[110]

9.2 Campus

Aalto University operates on three campuses in Espoo and Helsinki. The largest campus is in the Otaniemi district of Espoo, where the four schools of technology are located. The School of Business has facilities in Töölö in Helsinki and in Mikkeli in Eastern Finland. Starting in the autumn of 2015, Bachelor's education in the School of Business has also arrived in Otaniemi. The School of Arts, Design and Architecture is currently located in the Arabia district of Helsinki and in Otaniemi, but it is scheduled to relocate entirely to Otaniemi as soon as new building construction is completed (expected completion date 2017). The Otaniemi campus will be the main campus for Aalto University.

According to the 2011 campus vision, the main aim of campus development in Otaniemi is to offer the university's personnel, students and stakeholders a highly interactive, engaging learning and working environment that supports renewal and active cooperation with the surrounding society. The campus will be built focusing on solutions that are economically and environmentally sustainable. In terms of facility development, the focus

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[110] http://www.aalto.fi/en/research/infrastructure/

is on solutions that promote sustainable development[111] and accessibility. The aim is to have facilities that support the university's core activities and effective facility utilisation.

The Aalto University Properties Limited[112] enterprise, owned by Aalto University, administers, maintains and develops the university's facilities, properties and related support services. The university's Campus Services unit coordinates the use of its facilities internally, maintains the facilities in cooperation with property owners, and handles property security matters for the university and centralised procurement of facility-related services (including furniture, mailing services, cleaning and audio-visual technology). Campus Services is also responsible for ensuring:

- the facilities support the university's operative objectives in the most cost-effective manner in terms of quality, quantity and comfort

- all areas of safety and security under the responsibility of the unit are at a level that provides employees and students with a safe and undisturbed work environment and meets the requirements needed for research

- the facility administration systems maintained by Facilities Services contain a description of all buildings and spaces

9.3 Finance

Aalto University's funding is mainly comprised of government funding, as established in the *Universities Act,* and funding from research grants and contracts. Additionally, endowment and fundraising contribute significantly to the university's funding.

According to the *Universities Act*, the MEC grants funding to universities using a formula that considers the impact, quality, internationalisation, extent of activities and other education and science policy objectives.

According to the government programme, the funding of higher education will be reformed to better support the objectives of education. The objectives include higher completion rates of studies, quicker transfer to work, rationalised administration, improved quality of education and research, internationalisation, and the profiling of higher education institutions in their own areas of strength.

National and international competitive research grants form a significant share of the funding from research grants and contracts. Competitive research grants are particularly important in terms of strengthening the quality and impact of research. The main sources of competitive research grants for Aalto University are the Academy of Finland, Tekes (the Finnish funding agency for innovation), and the European Union (EU).

Funding from research contracts mainly comes from business and commercial activities (such as commissioned research) and jointly-funded activities (e.g., EU and Tekes). The goal is to promote interaction and information exchange between the university and the surrounding environment. Research contract funding is used to create useful connections, facilitate the employment of graduating students, and increase the university's standing in society.

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[111] https://inside.aalto.fi/display/AboutAalto/Sustainable+development%2C+social+responsibility
[112] http://www.aaltonet.fi/en/

Aalto University has internal instructions for research contracts[113] as well as instructions for the implementation of projects[114]. The instructions cover all phases of a project, from preliminary preparation to implementing funding applications, and project completion.

The university's internal funding allocation principles are described in section 2.2.1 Strategic Planning and Implementation – Plan and Do.

The university's Financial Regulation[115] contains more detailed instructions concerning financial monitoring.

9.4 Internationalisation

At Aalto University, internationalisation[116] is understood as a strategic enabler, something that has impact on all of the university's core strategies.

Internationalisation mechanisms are targeted to develop the global competence of Aalto University's personnel and students to enrich the diversity of its science community. Internationalisation plays a significant role in enabling the university to rise towards world-class status, and it broadens the opportunity to contribute towards the betterment of the world and the development of Finland's competitiveness.
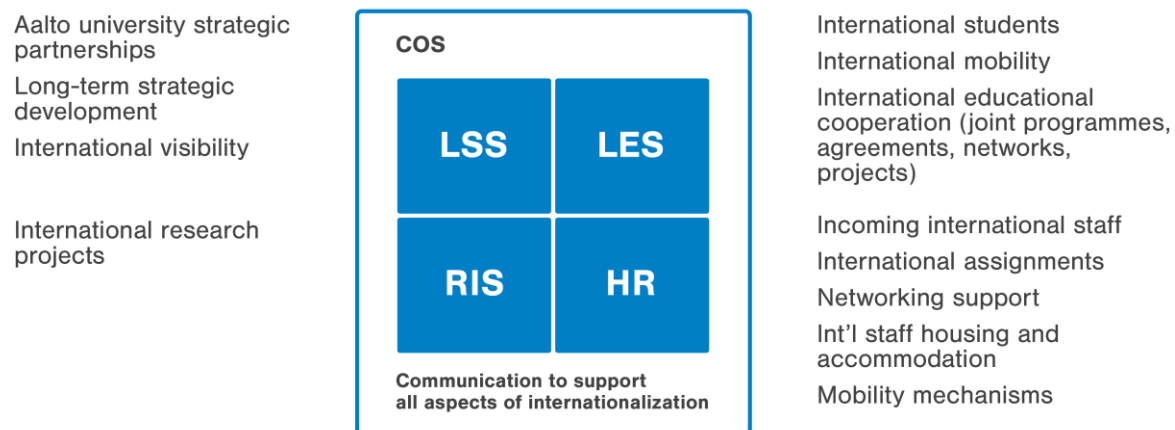
Aalto university strategic partnerships
Long-term strategic development
International visibility

International research projects

COS

LSS	**LES**
RIS	**HR**

Communication to support all aspects of internationalization

International students
International mobility
International educational cooperation (joint programmes, agreements, networks, projects)

Incoming international staff
International assignments
Networking support
Int'l staff housing and accommodation
Mobility mechanisms

Figure 19. Support for internationalisation at Aalto University.

Internationalisation is embedded in all activities of the university; for example, LES[117] supports internationalisation of studying and teaching, Research and Innovation Services[118] the internationalisation of research, and HR[119] the internationalisation and integration of personnel. Additionally, Leadership Support Services[120] supports university

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[113] https://inside.aalto.fi/display/ResearchSupport/Contract+research+agreement+and+offer
[114] https://inside.aalto.fi/display/ResearchSupport/Code+of+Practice+for+Project-Based+Research+at+Aalto
[115]
https://inside.aalto.fi/download/attachments/19595881/AUF_financial_regulations_10062013.pdf?version=1&modificationDate=1371554300000
[116] https://inside.aalto.fi/display/AboutAalto/Internationalisation
[117] https://inside.aalto.fi/display/AboutAalto/Internationalisation+of+Education
[118] https://inside.aalto.fi/display/ResearchSupport/Applying+for+funding
[119] https://inside.aalto.fi/display/AboutAalto/International+HR+services
[120] https://inside.aalto.fi/display/AboutAalto/International+partnerships

leadership in developing and coordinating strategic international partnerships, ensuring the university's visibility in relevant international contexts as well as in providing business analysis on the global operating environment.

The planning and doing of activities related to internationalisation follow the regular PDCA cycle of LES, Research and Innovation Services, and HR services. Based on an annual review of international activities and business analysis of the global operational environment, Leadership Support Services supports the President and the Vice President of External Relations in determining the strategic direction of the university's core international partnership activities and the budget to support it. Leadership Support Services maintains an annual calendar for relevant partnership activities for the leadership's consideration and for the participation of the necessary internal stakeholders.

Roles

The university-level actors in internationalisation activities at Aalto are described in Table 10.

Table 10. The roles, responsibilities and communication of University-level actors in internationalisation at Aalto University.

Actor	Role and responsibility	Communication
President	Signs core agreements and is responsible for strategic international partnerships and alliances Represents Aalto University	
Vice President of External Relations	Cultivates new strategic international partnerships Represents Aalto University in relevant international contexts	
Vice Presidents (all other)	Embeds internationalisation in their areas of responsibility	According to normal PDCA cycle
Head of International Relations (LSS)	Negotiates and makes agreements for university-level international partnerships Represents Aalto University in relevant international contexts Coordinates the university's internationalisation efforts between service entities and schools	Information sharing and consulting with relevant actors *Aalto Inside*
Dean	Represents the school in relevant international contexts	

In sum, internationalisation cuts through all activities of the university. Specific goal setting is evaluated in the university's annual Strategy Dialogues. Quantitative measurements, such as the number of international faculty, staff and students, are used for the direction of internationalisation. Qualitative indicators, that is, the more thorough results stemming from diversified science community as well as acquired global competencies, are cumulative and often only visible later.

Continuous feedback from internal and external stakeholders is key to monitoring and assessing internationalisation activities and related processes.

9.5 Services

According to the Aalto University *Bylaws*, the President approves the structure and organisation of administration and support services. The structure and responsibilities of the services are available in the Aalto University intranet, *Inside*.
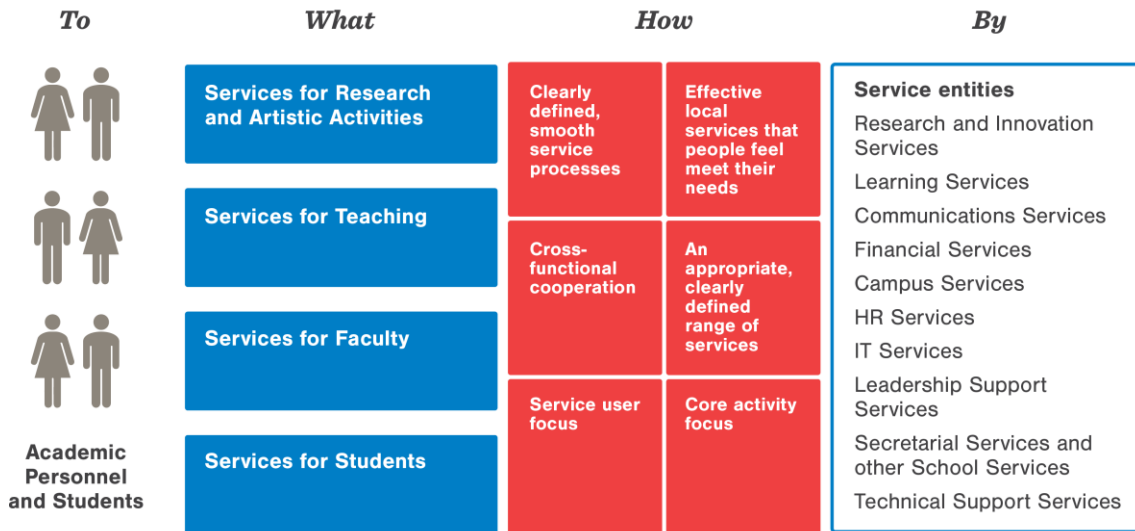

Figure 20. Aalto University service entities supporting academic core activities.

The President leads the university and is assisted in the management of service activities by the leaders of the Aalto University service entities. The joint operative services are centralised at the university level, but the service production mainly takes place in academic units: schools, departments and research groups. The service organisation is implemented primarily as a matrix in which service personnel report to the academic unit management at the department as well as to the manager of the service entity at the school level. The service entity managers of the schools report to the Dean of the school and the leader of the service entity at the university level.

Aalto University introduced a new organisation and matrix in 2010-2011 and has conducted a Service Development Programme during the years 2013-2015 to improve user perspectives, quality of services, and achieve greater cost-effectiveness in service production. An appropriate, accessible, clearly defined range of services based on clear, smooth and customer-oriented service processes and cooperation serve as enablers for the university's research, teaching and artistic activities as well as societal impact.

9.5.1 Service entities

The service entities provide support services to the research, teaching and artistic activities as well as services for the faculty and students.

Research and Innovation Services (RIS)

Research and Innovation Services[121] (RIS) offer services related to research and artistic activities as well as their development to innovations and commercialisation of the results. RIS is responsible for coordinating multidisciplinary research and artistic work within the university and participation in international academic networks. They also provide services for acquiring externally funded research and artistic projects and support for management of the projects throughout the lifecycle of funding. RIS manages the university's interactions with stakeholders, maintains corporate and alumni relationships, and develops services and contacts that foster the growth of the innovation ecosystem and entrepreneurship activities.

Learning Services (LES)

LES[122] combines services associated with teaching, development of teaching, and students. LES supports Aalto University's students by providing them the services needed during their entire study track. LES also supports teachers and programme directors in the planning, execution and development of their administrative duties related to teaching and programme development as well as teaching competence development. Further, LES provides services for external customers, such as potential students and graduates. The Language Centre and Library and Information Services entities are part of LES.

Communication services (COS)

Communications Services[123] are responsible for coordinating and developing the Aalto University brand as well as internal, external and marketing communications of the university. Strategically important events at the university are also organised by COS.

Financial Services (FIS)

Financial Services[124] provides the university services related to securing Aalto's economic sustainability by diversifying and maximising the funding base, by driving the efficient use of resources, and by providing professional financial services at the university.

Campus Services (CAS)

Campus Services[125] are responsible for the construction, maintenance and security of Aalto facilities as well as services related to their use.

Human Resource Services (HRS)

Human Resource Services[126] supports the achievement Aalto University's objectives by offering the university's faculty and staff services to ensure an inspiring working environment, challenging tasks, good working conditions and attractive career systems. The university HR processes support management, research and teaching work as well as artistic activities. The university as an employer particularly invests in personnel

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[121] https://inside.aalto.fi/display/enris/Home
[122] https://inside.aalto.fi/display/enles/Learning+Services
[123] https://inside.aalto.fi/display/encos/Home
[124] https://inside.aalto.fi/display/FinancialServices/Home
[125] https://inside.aalto.fi/display/FacilityServices/Home
[126] https://inside.aalto.fi/display/HumanResources/Home

wellbeing, competence development and creating a well-functioning, multicultural community.

IT Services (ITS)

IT Services[127] answers for the university's information technology services as a whole and maintains and develops the university's IT infrastructure. ITS is responsible for data system projects and the development of the university's technical data security as well as data security[128] in general. ITS participates in the planning of IT equipment and software acquisitions, and provides users with IT support services as well as support services for research and teaching.

Leadership Support Services (LSS)

Leadership Support Services[129] (LSS) supports the implementation of Aalto University strategy and the development of practices through the analysis of the operational environment, proactive measures and advocacy. LSS is responsible for the internal governance processes of Aalto University and their development and also for the university's document and registry services. The archives incorporate documents of the university and its predecessors that are in permanent storage. Further, they collaborate with the schools' development and quality managers in matrix.

Technical Support Services (TSS)

Experimental research, participatory teaching and artistic activities involving multiple technology applications play a key role in the activities of the university. Technical support personnel are responsible for the maintenance of infrastructures, equipment and premises for the university's research and artistic activities, and for other tasks requiring technical knowledge and skill, such as support for teaching at student laboratories and workshops.

Secretarial Services (SES)

Secretarial services are coordinated at the level of the individual schools and units.

Roles

The leaders of the service entities are responsible for directing and development of the entities and efficiency and performance of the services provided.
Administrative and support services have been organised as listed in table 11.

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[127] https://inside.aalto.fi/display/ITServices/Home
[128] https://inside.aalto.fi/display/ITServices/IT+Policies+and+Guidelines
[129] https://inside.aalto.fi/display/enlss/Home

Table 11. Service entities, their responsibilities and communication at Aalto University.

Service Entity	Responsibility	Reporting
Research and Innovation Services (RIS)	Vice President, Research and Innovation	Provost
Learning Services (LES)	Vice President, Education	Board
Communication services (COS)	Communication Director	President
Financial services (FIS)	Chief Officer Finance	President
Campus services (CAS)	Chief Officer Finance	President
HR Services	Human Resources Director	President
IT Services	Director of IT Services	Provost
Leadership Support Services	Provost	President

9.5.2 Evaluation of service quality

The Service Development Programme emphasises the importance of different foci: service user, core activity and cross-functional cooperation in service production. The involvement of service users in development work is an essential part of Aalto's service development.

The service entities have a Resource Dialogue process in which the school Deans evaluate the service performance and advise the President in the allocation of funding for the service functions.

Aalto University conducts an annual survey on the quality of internal services, targeted at both academic personnel and the staff of service units. The services survey is designed to measure personnel satisfaction asking general- and service-specific questions. The results of the survey are summarised for university management, while service entities process the feedback in their own organisations. Service entities also carry out their own surveys for narrower target groups and/or external stakeholders.

Guided by the service development principles and survey results, the competence profile of personnel is maintained and developed systematically with particular emphasis placed on supporting academic management and the work of supervisors as well as organising relevant training. In addition to centralised competence development, the university's units offer personnel different possibilities for relevant training. Career systems support personnel competence by creating opportunities that support career advancement, flexible job rotation or moving on to a parallel career.

At the individual level, development discussions between the service employee and supervisor take place twice a year. The discussions review the results from the previous year and plan the key objectives and competence development for the upcoming year.