



FINNISH EDUCATION
EVALUATION CENTRE

AUDIT OF AALTO UNIVERSITY 2016

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Abstract

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Audit of Aalto University 2016

Authors

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The Finnish Education Evaluation Centre has conducted an audit of Aalto University and has awarded the University a quality label that is valid for six years from 13 June 2016. The quality system of Aalto University fulfils the national criteria set for the quality management of higher education institutions, and corresponds to the European quality assurance principles and recommendations for higher education institutions.

The object of the audit was the quality system that the University has developed based on its own needs and goals. The freely selected audit target chosen by the University was the quality management of the tenure track system.

The following were regarded as key strengths of the quality system:

- The quality policy is comprehensive, based on an inclusive consultation process, and balances the need for a university-wide approach and local adaptations in the schools. The approach is designed to support the strategic goals of the University. It provides clear milestones and explanations on how to manage the quality of all activities and promotes the engagement of staff, students and stakeholders in quality management.
- There is a clear commitment to providing a high-quality experience for all students. The objectives for degree education are closely aligned to the University's strategy. The quality system supports this by producing both qualitative and quantitative data, including student feedback. Faculty are fully supported in the development of pedagogic practice. The tenure track process requires active engagement in teaching practice for all academic staff and the School's Teaching Competence Assessment Committee must endorse a candidate before a position or a promotion is offered.
- Aalto University has developed good relationships with its stakeholders, who show strong commitment to the University and its core activities. This includes a commitment to the quality management, such as participation in different projects and in University governance, membership in different steering groups at the different organisational levels, and providing formal and informal feedback as requested.

Among others, the following recommendations were given to Aalto University:

- There was some evidence of variability of practice concerning students receiving feedback on their work, whether it was in the implementation of HOPS (personal study plan) in the undergraduate cycle or in relation to doctoral students' progression. The University is encouraged to establish clear aims and core requirements for academic advising and doctoral supervision and scheduling opportunities for students to formally receive feedback and to discuss their plans and their performance. In addition, the feedback sought from doctoral students was limited to their coursework. It would be advisable to integrate a formal process in the Annual Clock cycle for doctoral students to provide feedback on their wider learning experience.
- Promoting multidisciplinary in research and teaching and enhancing societal impact are two strategic goals of the University. The University is encouraged to develop indicators to monitor these two areas.
- The University is encouraged to consider introducing a periodic review (e.g. every five years) of the overall efficiency of its entire quality system. This would complement the current processes that fine-tune the system incrementally.

Keywords

Audit, evaluation, higher education institutions, quality, quality management, quality system, university

Tiivistelmä

Julkaisija

Kansallinen koulutuksen arviointikeskus (Karvi)

Julkaisun nimi

Audit of Aalto University 2016 (Aalto-yliopiston auditointi 2016)

Tekijät

Andrée Sursock, Alexander Buchheister, Signe Jauhiainen, Ian Pirie, Leonhard Reindl, Seija Ristimäki, Kati Isoaho ja Mirella Nordblad

Kansallinen koulutuksen arviointikeskus on toteuttanut Aalto-yliopiston auditoinnin ja antanut yliopistolle laatuleiman, joka on voimassa kuusi vuotta 13.6.2016 alkaen. Aalto-yliopiston laatujärjestelmä täyttää korkeakoulujen laadunhallinnalle asetetut kansalliset kriteerit ja vastaa eurooppalaisia korkeakoulujen laadunhallinnan periaatteita ja suosituksia.

Auditoinnin kohteena oli Aalto-yliopiston laatujärjestelmä, jonka yliopisto on kehittänyt omista lähtökohdistaan ja tavoitteidensa mukaisesti. Korkeakoulun valitsema vapaavalintainen auditointikohde oli tenure track -urajärjestelmän laadunhallinta.

Laatujärjestelmän keskeisinä vahvuuksina pidetään seuraavia:

- Laatu politiikka on kattava ja perustuu osallistavaan prosessiin, jossa eri toimijoita on konsultoitu. Lisäksi laatu politiikka ottaa tasapainoisesti huomioon tarpeen sekä yliopistotasoisille että korkeakoulukohtaisille toimintatavoille. Järjestelmä on suunniteltu tukemaan yliopiston strategisia tavoitteita. Siinä on selkeitä virstanpylväitä ja se tekee ymmärrettäväksi, miten kaikkien toimintojen laatua hallitaan sekä edistää henkilökunnan, opiskelijoiden ja sidosryhmien osallistumista laadunhallintaan.
- Yliopisto on selkeästi sitoutunut tarjoamaan kaikille opiskelijoille korkealaatuisen opiskelukokemuksen. Tutkintoon johtavan koulutuksen tavoitteet ovat linjassa yliopiston strategian kanssa. Laatujärjestelmä tukee tätä tuottamalla sekä laadullista että määrällistä tietoa, joka sisältää opiskelijapalutteen. Akateemista henkilökuntaa tuetaan täysimääräisesti pedagogisessa kehittämisessä. Tenure track -prosessi vaatii koko akateemiselta henkilökunnalta aktiivista osallistumista käytännön opetukseen ja Opetustaitojen arviointiryhmän täytyy suositella ehdokasta ennen kuin tälle tarjotaan tehtävää tai ylennystä.
- Aalto-yliopisto on kehittänyt hyvät suhteet sidosryhmiinsä, jotka ovat vahvasti sitoutuneet yliopistoon ja sen ydintoimintoihin. Tämä pitää sisällään sitoutumisen laadunhallintaan, kuten osallistumisen erilaisiin projekteihin ja yliopiston hallintoon, jäsenyydet erilaisissa ohjausryhmissä organisaation eri tasoilla sekä virallisen ja epävirallisen palutteen antamisen.

Aalto-yliopistolle annettiin muun muassa seuraavia suosituksia:

- Opiskelijoille annetun palautteen suhteen havaittiin jonkin verran vaihtelua käytännöissä, liittyi se sitten HOPSin (henkilökohtaisen opiskelusuunnitelman) laatimiseen tutkintoon johtavassa koulutuksessa tai tohtoriopiskelijoiden edistymisen seurantaan. Yliopistoa kannustetaan määrittelemään selkeät tavoitteet ja vähimmäisvaatimukset opiskelijoiden akateemiselle ohjaukselle ja tohtoriopiskelijoiden väitöskirjatyön ohjaukselle sekä systemaattiselle palautteen antamiselle opintojen etenemisestä. Tohtoriopiskelijoilta kerättiin palautetta vain heidän kursseistaan. Olisi suositeltavaa liittää vuosikelloon virallinen prosessi, jonka avulla tohtoriopiskelijat voivat antaa palautetta laajemmin oppimiskokemuksestaan.
- Monialaisen tutkimuksen ja opetuksen edistäminen sekä yhteiskunnallisen vaikuttavuuden lisääminen ovat yliopiston strategisia tavoitteita. Yliopistoa rohkaistaan edelleen kehittämään mittareita näiden osa-alueiden seuraamiseksi.
- Yliopistoa rohkaistaan harkitsemaan säännöllistä koko laatujärjestelmän tehokkuuden arviointia (esim. viiden vuoden välein). Tämä täydentäisi olemassa olevia menettelyitä, joilla laatujärjestelmää kehitetään.

Avainsanat

Auditointi, arviointi, korkeakoulut, laatu, laadunhallinta, laatujärjestelmä, yliopisto

Sammandrag

Utgivare

Nationella centret för utbildningsutvärdering (NCU)

Publikation

Audit of Aalto University 2016 (Auditering av Aalto-universitetet 2016)

Författare

Andrée Sursock, Alexander Buchheister, Signe Jauhiainen, Ian Pirie, Leonhard Reindl, Seija Ristimäki, Kati Isoaho och Mirella Nordblad

Nationella centret för utbildningsutvärdering har genomfört en auditering av Aalto-universitet och har beviljat universitetet en kvalitetsstämpel som gäller i sex år från och med den 13 juni 2016. Aalto-universitets kvalitetssystem uppfyller de nationella kriterier för kvalitetshantering som fastställts för högskolor och motsvarar de europeiska principerna för och rekommendationerna om högskolors kvalitetshantering.

Föremål för auditeringen var Aalto-universitets kvalitetssystem som universitetet tagit fram utifrån sina egna utgångspunkter och mål. Auditeringsobjektet som universitetet kunde fritt välja var kvalitetshantering av tenure track-karriärsystemet.

Kvalitetssystemets viktigaste styrkor är:

- Aalto-universitetet har en omfattande kvalitetspolitik som är framtagen genom en delaktig process. Kvalitetspolitiken tar på ett balanserat sätt i beaktande behovet för både universitetsövergripande och högskolespecifika förfaranden. Systemet är utformat för att stödja universitetets strategiska mål. Det är uppbyggt i tydliga etapper och tydliggör alla aktiviteter kvalitetshantering samt främjar personalens, de studerandes och intressenternas medverkan i kvalitetshandlingen.
- Det finns ett tydligt engagemang vid universitetet för att erbjuda alla studerande en högklassig studieupplevelse. Målen för examensinriktad utbildning är i linje med universitetets strategi. Kvalitetssystemet stödjer detta genom att producera både kvalitativa och kvantitativa data, inklusive studeranderespons. Den akademiska personalen får fullt stöd för den pedagogiska utvecklingen. Tenure track-karriärsystemet kräver ett aktivt engagemang för undervisningen hos all akademisk personal och högskolans arbetsgrupp för bedömning av undervisningskompetens måste rekommendera en kandidat innan någon position eller befordran erbjuds.
- Aalto-universitetet har utvecklat goda relationer med sina intressenter, vilka visar ett starkt engagemang för universitetet och dess kärnverksamhet. Detta inkluderar ett engagemang för kvalitetshandlingen, såsom deltagande i olika projekt och i styrningen av universitetet, medlemskap i olika styrgrupper på olika organisationsnivåer samt formell och informell respons.

Bland annat följande rekommendationer framläggs för Aalto-universitetet:

- Det fanns en del variation ifråga om hur studerande får respons för sitt arbete, både i samband med genomförandet av den individuella studieplanen under grundutbildningen och i förhållande till doktorandernas progression. Universitetet uppmuntras att fastställa tydliga mål och minimikrav för akademisk handledning och handledning av doktorander samt för respons till de studerande gällande studiernas progression. Enbart kursrespons insamlas av doktoranderna. Auditeringsgruppen rekommenderar att universitetet inför en formell process som en del av årsklockan för att samla in respons av doktoranderna gällande deras lärande från ett vidare perspektiv.
- Två av universitetets strategiska mål är att främja tvärvetenskaplighet inom forskning och undervisning och att förbättra genomslagskraft i samhället. Universitetet uppmuntras att ta fram indikatorer för att följa upp dessa två områden.
- Universitetet kunde överväga att införa en periodisk utvärdering (exempelvis vart femte år) av kvalitetssystemets effektivitet. Detta skulle komplettera de nuvarande processerna på basis av vilka justeringar görs i systemet.

Nyckelord

Auditering, högskolor, kvalitet, kvalitetshantering, kvalitetssystem, universitet, utvärdering

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Description of the audit process and the Finnish higher education system

1.1 Audit targets

The target of the audit is the quality system that Aalto University has developed based on its own needs and goals. The focus of the audit was the procedures and processes that the institution uses to maintain, develop and enhance the quality of its operations. In accordance with the principle of enhancement-led evaluation, the audit did not evaluate the higher education institution's (HEI) objectives, the content of its activities or its results. The aim of the audit is to help the institution to identify strengths, good practices and areas in need of development in its own operations.

FINEEC audits evaluate whether an institution's quality system meets the national criteria (Appendix 1) and whether it corresponds to the Standards and Guidelines for Quality Assurance in the European Higher Education Area¹ (ESG). Furthermore, the audit evaluates how well the quality system meets strategic and operations management needs, as well as the quality management of the HEI's core duties and the extent to which it is comprehensive and effective. In addition, FINEEC audits focus on evaluating the institution's quality policy, the development of the quality system, as well as how effective and dynamic an entity the system forms.

Aalto University chose "*Quality management of the tenure track system*" as its optional audit target. As samples of degree education, Aalto University chose the combination of the Bachelor's Programme in Business and the Master's Programme in Strategy as well as the Doctoral Programme in Chemical Technology. As the third sample of degree education, the audit team chose the Bachelor's Programme in Engineering.

¹ Standards and Guidelines for Quality Assurance in the European Higher Education Area are available at <http://www.enqa.eu/index.php/home/esg/>

The audit targets of Aalto University comprise the following aspects:

1. The quality policy of the higher education institution
2. The quality system's link with strategic management
3. Development of the quality system
4. Quality management of the higher education institution's core duties:
 - a. Degree education (including first-, second- and third-cycle education)²
 - b. Research, development and innovation activities (RDI), as well as artistic activities
 - c. The societal impact and regional development work³
 - d. Optional audit target: Quality management of the tenure track system
5. Samples of degree education:
 - i. Bachelor's Programme in Business and Master's Programme in Strategy
 - ii. Doctoral Programme in Chemical Technology
 - iii. Bachelor's Programme in Engineering
6. The quality system as a whole.

A set of criteria that is based on a scale of four development stages of quality management (absent, emerging, developing and advanced), is employed in the audit. The development stages have been specified for each audit target and they are determined individually for each audit target. The optional audit target is not taken into account when evaluating whether the audit will pass.

1.2 Implementation of the audit

The audit is based on the basic material and self-evaluation report submitted by Aalto University as well as an audit visit to the institution on 26–28 January 2016. The audit team also had access to electronic materials, which are essential in terms of the institution's quality management. The key phases of the audit process and the timetable are included as Appendix 2 of this report.

As chosen by Aalto University, the audit was conducted in English by an international audit team. Prior to the appointment of the audit team, Aalto University was given the opportunity to comment on the team's composition, especially from the perspective of disqualification.

The audit team:

Andrée Sursock, Senior Adviser, European University Association, Belgium (Chair)

Alexander Buchheister, Master's Programme Student, RWTH Aachen University, Germany

Signe Jauhiainen, Research Director (acting), Pellervo Economic Research PTT, Finland

² First-cycle degrees include bachelor's degrees, and second-cycle degrees include master's degrees. Third-cycle degrees include postgraduate licentiate and doctoral degrees.

³ Including social responsibility, continuing education, open university education, as well as paid-services education

Ian Pirie, Professor of Design, University of Edinburgh, UK/Scotland (Vice-Chair)

Leonhard Reindl, Professor, University of Freiburg, Germany

Seija Ristimäki, Director, Metropolia University of Applied Sciences, Finland.

Kati Isoaho, Senior Advisor from FINEEC, acted as the responsible project manager and **Mirella Nordblad**, Senior Advisor from FINEEC, as the backup for the project manager.

The audit visit to Aalto University was conducted as a three-day visit. The purpose of the audit visit was to verify and supplement the observations made based on the audit material of Aalto University's quality system. The programme of the visit is included as Appendix 3 of this report. The audit team drafted a report based on the material accumulated during the evaluation and on the analysis of that material.⁴

The audit report was written collaboratively by the audit team members, drawing on the expertise of each team member. Aalto University was given the opportunity to check the factual information in the report before the report was published.

1.3 The Finnish higher education system

The Finnish higher education system is comprised of universities and universities of applied sciences (UASs). All universities engage in both education and scientific research and have the right to award doctorates. The UASs are multi-field, professionally oriented higher education institutions. They engage in applied research and development (R&D) that supports education and regional development. The UAS system was established in the early 1990s. Higher education institutions (HEIs) operate under the governance and steering of the Ministry of Education and Culture (MEC). Universities and UASs receive most of their funding from the MEC, and the activities of HEIs are steered in practice by four-year performance agreements with the Ministry. The only exceptions are the National Defence University under the Ministry of Defence and the Police University College under the Ministry of the Interior, as well as Åland University of Applied Sciences under the local government of Åland (Landskapsregering).

Finland has not yet adopted a national qualifications framework (NQF). However, the Government Decree on University Degrees (2004) and the Government Decree on Polytechnics (2014) define the objectives, extent and overall structure of degrees. HEIs select their own students in Finland. However, national regulations stipulate some general principles for student admission (e.g. the equal treatment of applicants).

The educational responsibilities of the universities are stipulated by government decree. Universities provide bachelors, masters and doctoral degrees. A pre-doctoral degree of licentiate may be taken before a doctoral degree.

⁴Alexander Buchheister participated to the team's work before and during the audit visit but was not able to contribute to the report writing.

Bachelor's degrees consist of at least 180 ECTS (3 years of full-time study). Studies leading to a bachelor's degree may include: basic and intermediate studies; language and communication studies; interdisciplinary programmes; other studies; and work practice for professional development. The degree includes a bachelor's thesis (6—10 ECTS).

A master's degree consists of at least 120 ECTS (2 years of full-time study). The studies leading to a master's degree may include: basic and intermediate studies and advanced studies; language and communication studies; interdisciplinary programmes; other studies; and internship-based expertise. A master's degree includes a master's thesis (20—40 ECTS). In the fields of medicine, veterinary medicine and dentistry the second-cycle degree is called a licentiate. In the fields of medicine and dentistry universities may arrange education leading to the second-cycle licentiate degree without including a first-cycle university degree in the education. In medicine a degree consists of 360 ECTS (six years of full-time study) and in dentistry the degree consists of 330 ECTS (5.5 years of full-time study).

Once a student has been admitted to a bachelor's programme, universities usually offer them direct access to a master's programme in the same field. However, this is dependent on the university's decision. Students can apply for doctoral studies after the completion of a relevant second-cycle degree. The doctoral degree consists of 4 years of full-time study after a second-cycle degree or 2 years following a pre-doctoral degree. A student who has been admitted to complete a doctoral degree must complete a given amount of studies, show independent and critical thinking in the field of research and write a doctoral dissertation and defend it in public.

Universities decide on the detailed contents and structure of the degrees they award. They also decide on their curricula and forms of instruction. In addition to this, some fields (e.g. teacher education and the education of physicians, dentists and veterinarians) have detailed regulations that apply to some extent to the structure and/or content of the degrees awarded.

The organisation of Aalto university

Aalto University was created in 2010 by the merger of the Helsinki School of Economics, the University of Art and Design Helsinki and the Helsinki University of Technology. Aalto University defines itself as a multidisciplinary science and art community in the fields of technology, business, as well as art and design. Aalto University is one of Finland's two foundation-based universities. The Aalto University Foundation and its subsidiaries comprise the Aalto University Group. Aalto University has three campuses: Otaniemi campus in the City of Espoo as well as Töölö campus and Arabia campus in the City of Helsinki. Aalto University's plan is to centralise its activities on the extended Otaniemi campus.

Aalto University consists of six (6) schools:

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

The schools are responsible for carrying out the degree programmes. Schools are divided into departments. Each school has its own doctoral programme to which all the doctoral students belong. Aalto University's organisation is described in Figure 1.

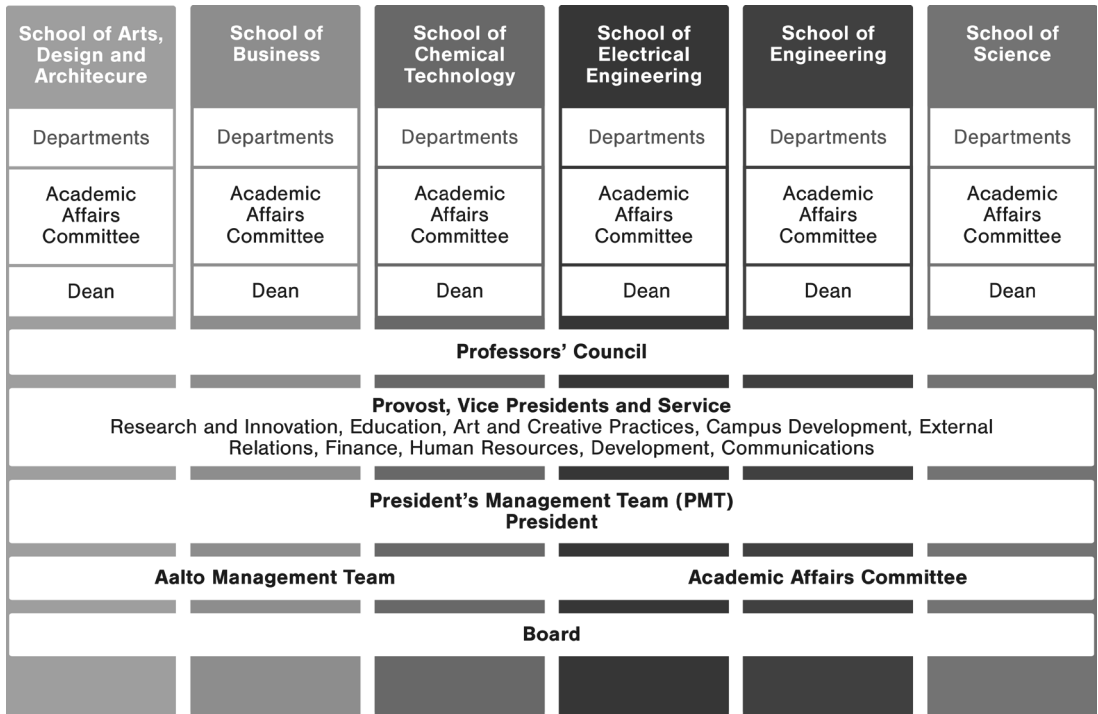


FIGURE 1: Aalto University's organisation chart.

The Board, appointed by the *Academic Affairs Committee* (AAC), decides on the strategy of the University, in addition to matters concerning University's core activities 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 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 the joint proposal of the President and the Provost. There are five vice presidents altogether. Each vice president is assigned a field of responsibility. The Board also appoints and relieves the deans of their duties at the request 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 executive management team that prepares proposals for the President and the Board. The PMT is responsible for the implementation of Board decisions, and it has two executive teams. The President's executive team ensures effective day-to-day operative management and communication of the University's core activities as well as support of its academic leaders. The Provost's executive team coordinates the 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. The University's *Academic Affairs Committee* (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; it further appoints the required bodies to organise 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 the University leadership, and as the voice of the science and art community on fundamental questions related to the University's strategy, its values and core activities.

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 AAC, chaired by the dean, handling school-specific academic matters delegated to it by the University's AAC.

Aalto University's administrative and support services are organised in service entities. Vice presidents and service directors lead the service entities. There are four directors of services for the following areas: Finances, Human Resources, Development and Communications. Service entity leaders report to the President or to the Provost, depending on the service entity. Since the merger, Aalto University has conducted two extensive reorganisations of administrative and support services. At the moment, they function as a matrix both centrally and locally in the schools.

Table 1 presents key facts and figures of Aalto University.

TABLE 1: Basic statistics of Aalto University. Sources: national Vipunen database* and Aalto University's statistics included in the audit material.**

Students (full-time equivalent*)	Number
Bachelor's degree	6588
Master's degree	4397
Licentiate degree	155
Doctoral degree	1167
Degrees awarded*	Number
Bachelor's degree	1661
Master's degree	1967
Licentiate degree	27
Doctoral degree	256
Staff**	Number
Professors	386
Other teaching and research personnel	1458
Service Staff	1503

The quality policy

After the merger, Aalto University took the opportunity to develop a new quality system specifically designed to support and deliver the new institution's strategic goals, which were updated at the time of the audit visit with a strategy taking the university forward to 2020. The quality policy has an explicit rationale, and clear goals, objectives and defined processes. An Annual Clock structures these quality management and enhancement activities. Performance targets are discussed and agreed annually and key responsibilities are clearly defined. The University has a well-developed Quality Handbook, which is supplemented, adapted and contextualised by each school. The quality policy and the general quality system are a result of a regular, university-wide and inclusive process of consultation and discussion. The quality policy is clearly communicated, well documented and available to internal stakeholders on the University's intranets and to external stakeholders on the University's website.

*The quality policy of the higher education institution is at an **advanced** stage.*

3.1 Objectives, rationale and division of responsibility

Aalto University's quality policy is based on the principle of continuous improvement and aims to be embedded into all processes and everyday activities. Aalto University's quality handbook – the *Aalto Handbook* – describes all the elements of the quality system and aims to achieve a set of objectives. These were recently redefined as a part of the University's self-evaluation process when preparing for this FINEEC audit, as follows:

- *support achievement of the university's strategic objectives and goals and ensure high-quality university activities and results*
- *reinforce a shared quality culture and the participation of students, faculty, staff and external stakeholders in planning, implementation, evaluation and development of Aalto activities*
- *clarify and harmonise procedures, and the roles and responsibilities of various key actors*

- disseminate uniform operating methods and best practises across the organisation
- ensure the reliability of information describing productivity and quality, and its utilisation in monitoring and development
- identify, document and develop key operating processes based on feedback
- maintain and strengthen openness and transparency.

The quality system consists of responsibilities, resources, procedures, and information. It is used as a management and enabling tool to help the University achieve its strategic aims and implementation of its quality policy. The audit material and the visit confirmed that it has been designed as an integral part of the University’s activities and is managed and implemented within an annual cycle as part of a continuous enhancement process. This follows a Plan, Do, Check, Act (PDCA) model. The PDCA cycle is embedded in an annual timeline of core activities, and includes evaluation, review, reflection and planning. Core activities are evaluated and tested against key performance indicators (KPIs) that are used to measure whether and to what extent Aalto University’s strategic goals have been met. In addition to the annual monitoring and review cycle Aalto University has also developed rigorous processes for periodic self-evaluation, external peer review and international benchmarking for both teaching and research: Teaching Evaluation Exercise (TEE) (cf. Chapter 6.0 / 6.1) and Research Assessment Exercise (RAE) (cf. Chapter 6.3). Figure 2 below illustrates the component parts of the quality system.

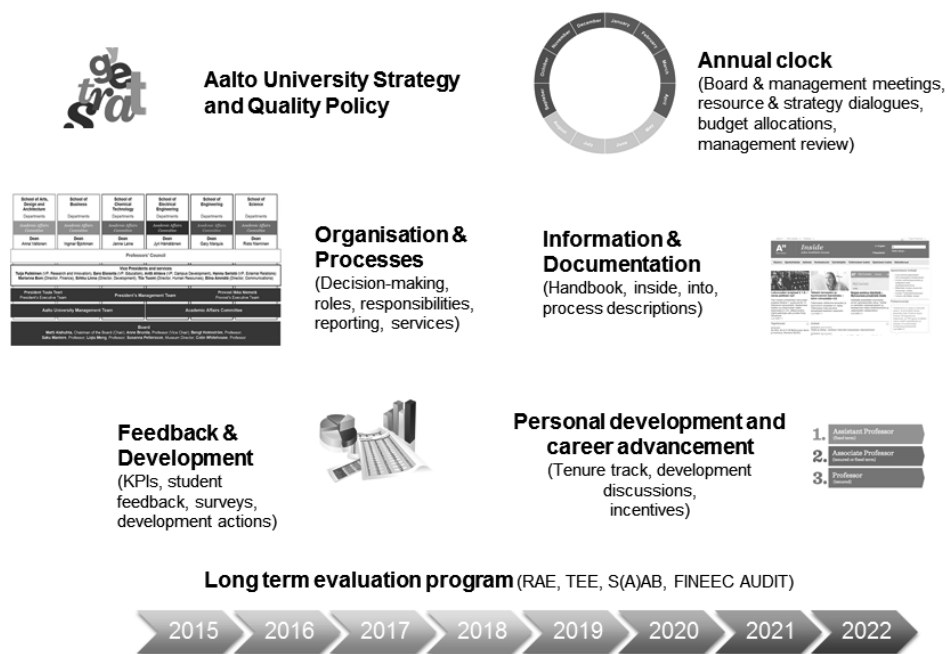


FIGURE 2: Aalto University's quality system

The roles and responsibilities related to the management of the quality system are clearly detailed in the *Aalto Handbook*. The President has overall responsibility for the management of the quality system and reports on the quality of University operations and new developments to the University Board. The President's Management Team (PMT) functions as the steering group for the quality policy and implementation of the system within the University. Members of the PMT comprise the President, Provost, vice presidents, deans and four directors of services, thus ensuring that all areas of the University are represented.

Two further committees have defined responsibilities for the management and oversight of the quality system. These are the Aalto Management Team (AMT) and the *Academic Affairs Committee* (AAC). The AMT is an expanded membership of the PMT, with the addition of students, academic and administrative staff. The University AAC is a statutory body required by the Universities Act. The AAC comprises members elected and drawn from across the University community, thus ensuring structural representation in each of the three broad disciplinary areas represented in Aalto University, namely business, technology, and art and design. The AAC decides upon and approves the University's curriculum, the degree requirements, the criteria for student selection, and other general rules involving teaching, research, and artistic activity; it appoints the required bodies to steer and manage the delivery of research and teaching. Each school has its own AAC, with duties assigned to it by the University AAC.

Ongoing operational activities related to managing the quality system are co-ordinated by the Leadership Support Services (LSS) and the University's Quality Manager, who is assisted by the Q7 network, comprising the quality or the development managers from each of the six schools, along with student representation.

As outlined and described, the quality system is designed and intended to be holistic, embedded and inclusive and there is a clear expectation that all members of the Aalto University community contribute to its effectiveness and to the ongoing development of an embedded quality culture.

3.2 Communication of the quality policy

Communication of the quality system and quality policy to the University community is primarily through the *Aalto Handbook* and its versions in each of the six schools, as well as *ad-hoc* workshops, and the University's intranets and website. Significant developments have taken place on the University intranets (*Into* for students and *Inside* for staff); these have become the main repository for regulations and processes and for communicating both school-specific and university-wide information. Communicating the processes, expectations and agreed KPIs is thorough and effective: all documentation supporting the quality system is available online and accessible to the whole University community.

The *Aalto Handbook* aims to involve all members of the University community in contributing to the organisation and implementation of the processes governing the University's core activities. The *Handbook* also aims to serve as a practical guide for everyday work and is used as an orientation manual for new staff and students in providing an overview of University activities and the processes and procedures that govern them.

The audit team commends Aalto University on the process of developing the *Aalto Handbook*. It has been instrumental in harmonising and embedding quality processes across the institution and in promoting a quality culture. The institution is encouraged to continue to be mindful of and sensitive to discipline needs, and to ensure that the harmonisation of quality management remains sufficiently flexible and enabling to specific disciplines (for instance, by allowing differences in pedagogical approaches). In the audit team's opinion, the schools' supplements to the *Aalto Handbook* currently fulfil this function in a successful and developmental manner, ensuring both consistency and diversity, where this is required or needed.

There is clear evidence of an inclusive and consultative approach but within a collective vision and there is a sense of strong leadership and decision-making from the top; this balanced approach is to be commended. Nevertheless, the merger necessitated good leadership and the PMT is aware that there is a need to ensure a wider sense of ownership of the quality management processes. This is why all schools are fully represented in the relatively large PMT; the recently established Vice President's Education Steering Group and Vice President's Research and Innovation Steering Group are seen as key consulting groups that also serve as platforms for sharing good practice across the schools. Developing a more formal process to capture and encourage 'bottom-up' ideas and contributions via these two steering groups is also encouraged as a potential development of the quality system. This would serve to enhance active engagement with and the wider ownership of the quality process and culture.

Communication with stakeholders is based on developing close working relationships and ensuring access to and regular meetings with Aalto University's top management and leadership. Based on the interviews the external stakeholders were very well informed about the strategy and the quality policy of Aalto University. Interviews with the University Board members and external stakeholders demonstrated that they had a high level of engagement with the University and a clear understanding of the role of the quality policy in supporting the University's strategic aims. They were very aware of the progress made by Aalto University in a relatively short period of time and of the particular approach that was chosen. This was referred to positively as the 'Aalto way'.

3.3 Link between the quality policy and the institution's overall strategy

Aalto University's strategy aims to ensure new innovations and to achieve a positive impact on society through its dedication to long-term, quality research of high scientific value, as well as by combining science and art, technology, economics and design to stimulate interdisciplinary collaboration. To achieve this aim, the quality policy emphasises the need for the whole University community to fully and effectively contribute and participate in achieving these strategic goals.

The *Aalto Handbook* states that the principles of the quality policy are:

- *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.*

The *Annual Clock* process includes Strategic Dialogues with the schools and departments when strategic aims and priorities are discussed regularly as a basis for setting target; this system is described in detail in Chapter 4. The aims of the quality policy and the strategy are very much at the core of the annual strategic management cycle and the system strongly supports the linkage between the quality policy and the institution's overall strategy.

The audit team wishes to commend Aalto University on the design, development and implementation of its quality policy and supporting system which is perceived and used in practice as a strategic and enabling management tool by the respective leadership teams across the University. In general, faculty and staff have a clear understanding of how the system is intended to function, what their responsibilities are and appreciate how the quality policy supports their daily activities. Students also have a clear understanding of the processes and intentions underlying the quality policy and are confident in contributing their ideas and suggestions for improving their experience overall. The audit team also wishes to commend the University for the clearly structured *Aalto Handbook* and the comprehensive and systematic nature of the quality management and enhancement processes that promote the engagement of staff, students and stakeholders in quality management.

Quality system's link with strategic management

In order to serve its strategic and operational management effectively, Aalto University has developed systematic tools and procedures to produce information on the quality of its activities. There are established procedures and processes built around the Annual Clock to ensure that the information produced by the quality system is put to use and communicated systematically within the University. The schools' Annual reviews, Management reviews and Programme Directors' Reports play an essential role in communicating and discussing the data and information produced for the management and steering purposes. There is evidence that the quality system functions at the different organisational levels although the need to further harmonise some of the procedures and processes at the level of the schools and departments was identified. Based on the audit visit most of the University community is clearly engaged in the quality work.

*The quality system's link to the strategic management is at a **developing** stage.*

4.1 Information produced by the quality system for strategic management

Aalto University's 2012 strategy is relatively extensive and includes strategic objectives and key development for all the core activities of the University. The University has recently updated its strategy taking it forward to 2020. The new strategy was published during the time of the audit visit; it shows that the University has revised and fine-tuned its key performance indicators (KPIs) to align them with the new strategic goals.

Based on the audit material and interviews with top management, the audit team considers the approach to developing the new strategy to have been inclusive of all relevant internal and external stakeholders. The methods used include international benchmarking, staff meetings in all schools, the University Board's feedback and guidance, a professors' summit in the summer

of 2015, the President’s Circle Event that gathered industry and society stakeholders, and an online discussion open to the whole University community. The new strategy is an iteration and streamlined version of the previous one and is now more concise and comprehensive.

Aalto University has developed an internal process for strategic steering and management, which is based on its approach to quality management. It includes a number of surveys, student feedback, annual reviews, evaluation and continual enhancement of its core activities, and follows the cycle captured in Figure 3 below. As mentioned earlier (cf. Chapter 3), the *Annual Clock* provides a timeline and milestones for strategic management and follows the PDCA cycle, which is the basis of Aalto University’s quality system.

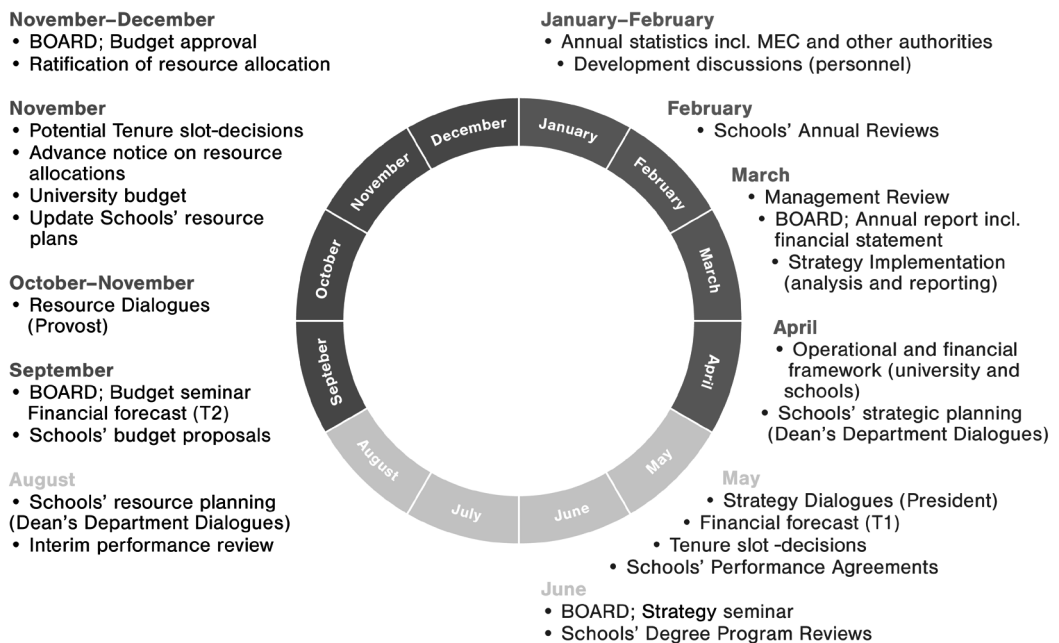


FIGURE 3: The Annual Clock of Aalto University's strategic management

The key elements of the *Annual Clock* process are the Annual review, the Management review, the Strategy Dialogues and the Resource Dialogues. These form the basis for the internal performance agreements and budget allocation. All schools and administrative and service units are required to conduct annual Strategic Dialogues to agree and set their key priorities. This process aims to ensure that each school is not only aligned with the University strategy but is meeting baseline quality performance targets and KPIs, and ideally exceeding them. The KPIs and strategic priorities are set and agreed annually and jointly between the President and dean of each school

for the forthcoming cycle. The structure and content of the Strategic Dialogue and performance agreements are the same for each school and in each case is prefaced by a common set of university-wide strategically-focused requirements. The outcomes of the process are internal performance agreements for the schools and the administrative and service units as well as a yearly budget and resource allocation across the institution.

As the self-evaluation report states, statistical data and other types of information are collected through various mechanisms, including:

- Teaching evaluation exercises (TEE)
- Research assessment exercises (RAE)
- Reviews by the Scientific Advisory Boards (SABs) and the Scientific and Artistic Advisory Board (SAAB)
- Electronic course feedback
- National bachelor’s level exit surveys
- Master’s level exit surveys
- Career follow-up, doctoral graduates
- Employee satisfaction survey
- Service satisfaction survey
- Information gathered from the external stakeholders via the President’s Circle, the Dean’s Circles and the President’s CEO tours.

Figure 4 shows the timeline for the collection of data and information from 2015 to 2022.

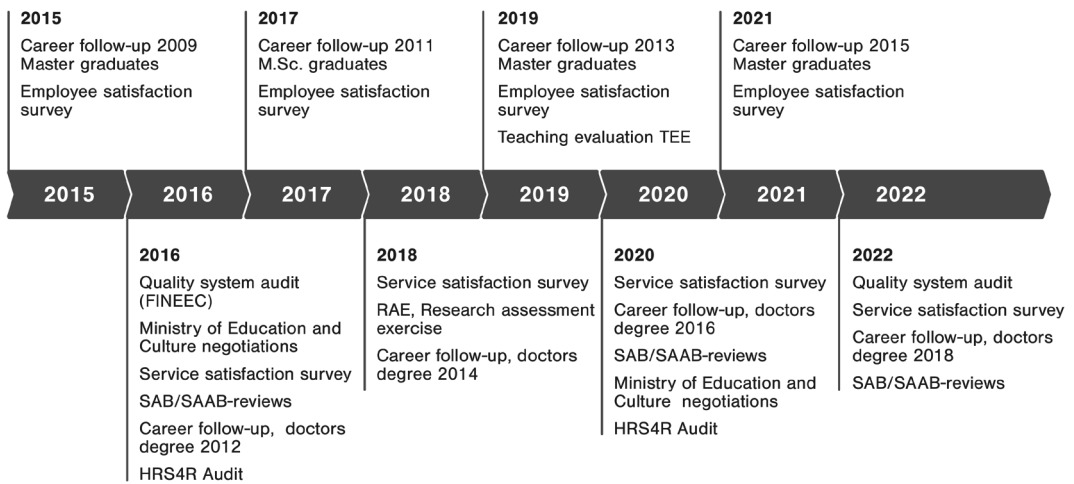


FIGURE 4: Aalto University evaluation programme

KPIs for each core activity are clearly described in the *Aalto Handbook*. However, some of the areas – such as societal interaction and artistic activities – have only a few KPIs at the moment. Developing indicators for these areas has been recognised as a challenge nationally and internationally (cf. Chapters 6.3 and 6.4). In addition, the University is required to take into account national KPIs, defined by the Ministry for Education and Culture (MEC). The audit team was told that some of these are in tension with some of the University’s aspirations (e.g. to strengthen its multidisciplinary approach).

Data and information produced are stored in the University’s data warehouse AaltoDW; the Aalto Sampo reporting tool is used for retrieving reports. Online systems are used extensively to manage, communicate and support the quality processes of the University and these are currently being developed to create an integrated architecture (as shown in Figure 5) for the oversight, consistency and management of the quality system.

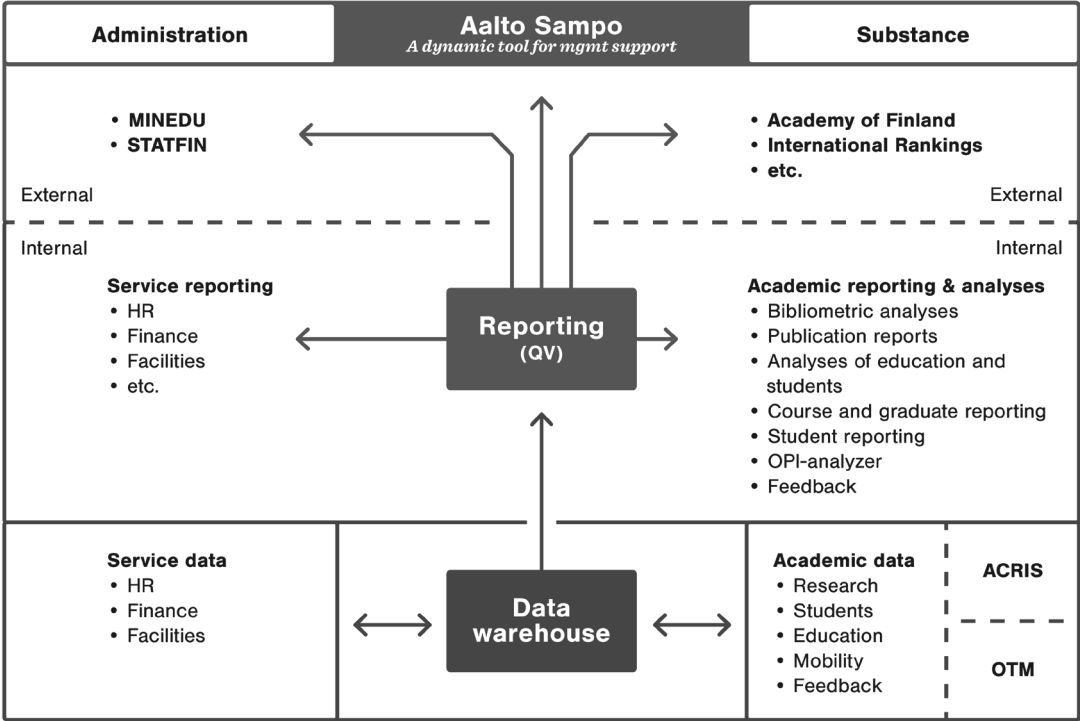


FIGURE 5: Aalto Sampo – a reporting tool

Students and staff confirmed that information, although available, is still sometimes difficult to find given the number of systems currently in operation. Post-merger, the integration and modernisation of the IT and data systems have been a key priority and the University is now in the position of being able to pro-actively use the extensive amount of data gathered – e.g. to develop the use of learning analytics and provision of student progress data in ‘real-time’. The audit

team recognises and commends what has already been achieved and encourages the University to continue with its strategy for rationalising and streamlining the IT systems as a priority to ensure that students and staff have easy access to accurate and timely information from a single portal access point.

The resource allocation criteria have been clearly defined and are based partly on KPIs designed to support the strategic goals of the University. The tenure track system's strategic importance is visible in the resource allocation model: schools receive 70 per cent of their funding based on the number of tenure-track professors, institutionally defined significant research infrastructures, and service teaching; 20 per cent of funding comes from the performance measured by the KPIs; while 10 per cent of allocations funds new strategic initiatives. Data and information produced by the quality system are used for resource allocation purposes. This serves as an incentive for implementing the strategy and using quality management processes to demonstrate that goals are being met.

The audit team considers that the University has a well-designed set of measures and other sources of information which support the strategic management and achievement of the strategic goals. The quality system produces extensive quantitative and qualitative data and information on the University's core activities and services. The *Annual Clock* strategic management process effectively gathers together and puts into use the data and information collected.

On the academic side, two aspects are worth noting with respect to the use of data and information collected through the quality system. Firstly, the concrete use of data and information varies across the disciplines as shown by the diversity of approaches in the Programme Directors' Reports, even if these follow a common template structure. The self-evaluation report and the interviews show that Aalto University has recognised the need to further develop its system to meet the requirement for more tailored information at the level of the schools, the departments and the study programmes. Secondly, the system of producing and utilising the information and data is constantly reviewed and improved. This is an indication of both the young age of Aalto University and the ongoing development of its quality system, in line with the PDCA philosophy.

Aalto University is commended for the use of their intranets as the main communication tools for capturing and sharing the outcomes of the *Annual Clock* strategic management process and is encouraged to develop this as a means of formally structuring and sharing best practice more widely across the institution. The University is also commended for making the minutes (or extracts) of all formal committees routinely and systematically available on the *Inside* intranet to support transparency of decision making and sharing of good practice. This extends to meetings of the Board, university and school committees and where appropriate, task forces and working groups.

4.2 Functioning of the quality system at different organisational levels and units

The *Annual Clock* binds together all the levels of the University: the central administrative level, the academic schools, the professional service departments and each individual staff member via their annual personnel development discussions.

The *Annual Clock* also strives to embed the quality system into the management system. The audit team commends this holistic and structured approach to the strategic management and considers it to be an effective way of implementing the institution's strategy. All staff who were interviewed by the audit team were well aware of the common quality system that is embedded in the management and steering of the institution. The audit team considers that the *Annual Clock* strategic management process, although still relatively new, is already well established and notes that staff welcomed the clearly defined structure, framework and timeline of activities that occurred throughout the academic cycle. The audit team did not hear anyone express negative opinions about the quality management. The leadership did note, however, that they will continue efforts to ensure that everyone engages in the quality management processes.

While the quality management approach provides a common framework, it also allows a degree of flexibility and adaptation in the different schools. This is certainly a positive feature given that the merger brought together three institutions with very different organisational cultures and at different stages of development in their approaches to quality management. Such flexibility must have contributed to the success of the merger. At the same time, there are efforts to harmonise and provide a common quality framework across the University. According to the audit material and the interviews, a variety of governing bodies, committees and working groups, with wide representation, facilitate communication and share good practices across the university; this is true for academic and support units. The work of these committees contributes to harmonising practices.

It is also clear, however, that despite these efforts the depth of engagement with quality management processes is variable. Firstly, it depends on the area: it is stronger in research and education and weaker in societal impact and artistic activities (two areas that are much harder to monitor). It also varies according to the hierarchical level. Clearly the merger required top-down steering, even if consultation and the establishment of a variety of university-wide groups to work on various aspects promoted shared understanding of the university profile, strategy and quality approach. The University acknowledges and recognises the need to ensure that staff members below the level of department heads engage more fully in the quality processes.

The self-evaluation report and audit visit confirmed that Aalto University's quality system and PDCA-based *Annual Clock* function relatively well at the different organisational levels and in the different areas. As reported in other chapters of this report, however, there is room for further fine-tuning and harmonising in the planning, implementation and evaluation of the University's core activities particularly in key functions, such as teaching: notably, collecting and using student feedback needs to become more systematic.

4.3 Quality culture

The PMT promotes a clear vision of management and quality management as being one and the same thing and a philosophy of doing things well from the outset. Although this approach to establishing a 'quality culture' was explicitly expressed, it was clear from staff interviews that the quality policy facilitated by the *Annual clock* process is embedded, embraced and understood across the institution in an excellent way. In other words, the processes and procedures related to the *Annual clock* have resulted in a growing quality culture that stresses ongoing improvement. Aside from the formal quality mechanisms, there are also informal ways that are promoted to encourage everyone to contribute to the quality management processes.

The development of Aalto University and its quality system appears to have been a community-building project. The University has been successful in its attempts to create a common quality culture for the institution. Among other ways, this has been achieved through the wide representation of the University community, including staff, students and stakeholders, in governing bodies and working groups as well as the extensive use of workshops and internal consultative procedures. Interviews with the University Board representatives and external stakeholders showed their strong commitment and especially deep knowledge of Aalto University's goals and activities.

The audit visit confirmed that the division of responsibility in quality matters is acknowledged among the different groups of staff members and appears to work effectively. The division of responsibility at the higher managerial levels (e.g. on the process of carrying out the Strategic Dialogues and Resource Dialogues) is especially embedded and well recognised.

Furthermore, the recent reorganisation of administrative and support services has clarified their role and connection to the school and department levels. Interviews with the services' directors and service staff confirmed that the aim has been to bring services closer to the teaching staff and students. In addition to the structural reorganisation, the services' leadership promoted a shift towards a customer-oriented service culture (cf. Chapter 6.1 for further details). As a result, according to the University, quality improved while costs were reduced by 10 per cent. The audit team considers this to be a remarkable example of a practical approach to developing a quality culture.

Development of the quality system

Aalto University has systematic and well-functioning procedures to evaluate and develop the quality system. The development of the quality system is embedded in the strategic management processes. Regular evaluations and quality committees form a structural base to support the development of the quality system. The development since the previous audits has been systematic and major improvements can be identified. Quality manuals – the Aalto Handbook and the schools’ versions of the handbook – have been created. Aalto University has evidently succeeded in creating a comprehensive, well-functioning quality system since the merger of the three founding universities. The University also shows capacity to identify the quality system’s strengths and areas in need of further development.

*The development of the quality system is at an **advanced** stage.*

5.1 Procedures for developing the quality system

The development of Aalto University’s current quality system began before the merger of the three founding universities when eight teams of faculty members met regularly to plan the merger. This included designing the quality system. After the universities merged, the existing quality officers were asked by the top management and deans to design a quality system as part of the overall development of the management and administration. The approach chosen was not to adapt any particular system of the previous institutions as such but to design a new system that would be appropriate to the new university and linked to its strategic aspirations. The development of the quality system took the form of a project with a steering committee, and had clear goals and means of evaluation. This was one of ten projects that Aalto University launched when it was created. It was confirmed during the audit visit that the University community was consulted on various occasions during the process.

The audit team found that Aalto University has succeeded well in moving from the project stage into a functioning quality system. The audit material and interviews also confirmed that further development of quality management takes place together with the development

of strategies and the managerial procedures and is carried out through Strategic Dialogues, Annual Management reviews, monitoring, Resource Dialogues and feedback procedures as described in Chapter 4.

The procedures and structures for the development of the quality system are used systematically and include the following elements:

- Annual Management Reviews focus on monitoring the operation and development of the quality system. The President's management team (PMT) is responsible for this review, which is coordinated by the University's quality manager.
- The Q7 network: this group includes the University Quality Manager and the schools' quality and development managers. It meets usually once a month and functions as a platform to discuss current issues and share good practices. The meeting agendas are built around the *Annual Clock* strategic management cycle. The Q7 network plays an important role in the development and implementation of the quality system.
- The schools' quality committees: each school has a quality committee nominated by the dean, and chaired by either the dean or the quality manager. The purpose of the schools' quality committees is to support the deans in developing and enhancing the staff commitment to the quality system. These committees also publish school-wide quality pages on *Inside*.
- Workshops have focused on the quality management and ways to improve various mechanisms. The results of these workshops are posted on the intranet.

These committees and processes have been instrumental in improving the quality system. Some concrete examples include the revision of the *Aalto Handbook*, the enhancement of the data collection and their use, the identification of performance goals for the various university units, and the fine-tuning of the key performance indicators (KPI).

During the audit visit the audit team gathered evidence about school or programme self-assessment procedures which have been implemented or are being planned. According to the self-evaluation report, the bachelor's and master's programmes have started to carry out self-assessments at the end of each academic year. The self-assessments were included in the schools' and the University's Management Reviews and performance agreements. The audit team considers that these evaluations give important feedback on the functionality of the quality system and encourage Aalto University to make this a central tool for developing the quality system.

Aalto University's procedures for developing its quality system appear to be well established and functioning. The audit team notes that a great number of working groups and committees have played an important role in ensuring the successful merger of the three institutions and the development of a quality culture. Their high number was certainly justified during the initial phase of development; now that the university is stabilised, it is time to review their number and assess their efficiency, notably in relation to staff workloads. In addition, at some point in the future, it would be useful to include a periodic analysis of the efficiency of the entire quality system in the annual Management Review.

5.2 Development work after the previous audit

The three founding universities underwent three separate audits in 2008 and 2009, just before the founding of Aalto University. Each of the former institutions had a 100-year history; they comprised different disciplines and had different organisational cultures and quality management approaches. According to the audit material, their different cultures represented a challenge for creating a new governance structure, establishing coherent processes and shared administrative and quality management procedures.

The previous audit reports of the three separate universities offered some common recommendations for improvement: to harmonise the quality system and structures across the different units, extend the quality system procedures to societal and regional impact activities, define quality assurance responsibilities more clearly, produce unit-specific handbooks and improve information systems and documentation in order to distribute the necessary data in a more efficient way. In the view of the audit team, Aalto University has considered these recommendations and addressed them effectively.

The leadership seized the opportunity of the merger to build a new university and develop a new quality culture and organisational culture. The high level of aspirations set by and for the University helped to build a momentum. The audit team considers that Aalto University has succeeded well in combining three different subject areas – Art, Architecture and Design; Business and Economics; and Science and Technology – to form a new multidisciplinary university with comprehensive and functional quality management processes. The key areas for systematic development since the previous audits and the merger of the founding universities have been the *Annual Clock* strategic management process, the identification and use of KPIs, various feedback and evaluation processes as well as information producing procedures that support the quality management. The quality targets have been defined along with the strategy development. As noted, roles and division of responsibilities between actors and bodies in the University have been clearly identified. These are now documented in the *Aalto Handbook* and also on the quality pages of *Inside*.

The first edition of the *Aalto Handbook* was published in 2012 and an English version in 2014. The *Handbook* was updated in 2015 and supplemented with school-specific handbooks. The structure of the *Inside* intranet system was also updated to correspond to changes in the management and steering model. The audit team's evaluation is that the principles of the quality system in Aalto University are sound and the quality management procedures are clearly described. The handbooks, however, could benefit from being posted on the intranet in a dynamic, editable web format.

The staff expressed awareness of and strong commitment to the development of the quality system. School-level staff, whom the audit team met, consistently confirmed the positive experience of the changes and developments in the area of quality management. The consensus that emerged from the interviews was that the system is clear, saves time and supports their daily work in providing guidance on when and how to carry out specific tasks. Quality management was seen as being equivalent to operational management; this is because quality management is integral and embedded into the strategic management system, resulting into two nested systems rather than two separate ones.

Overall, there is evidence of major improvements after the previous audits. Aalto University has also shown its capacity to identify the quality system's strengths and areas in need of further development. The self-evaluation report judiciously identifies the following areas for further development:

- *harmonisation of interpretation of rules and regulations*
- *more effective implementation of the PDCA cycle*
- *distribution and utilisation of information and documentation*
- *further development and refining of elements of the quality system*
- *communication about quality work.*

In addition to these areas, and based on the interviews, the audit team identified also a need for further development in providing targeted information (e.g. statistical data on student progression) to better support different user groups and student advising functions (cf. Chapters 4.1 and 6.1).

Quality management of institution's core duties

6.1 Degree education

The objectives for degree education are closely aligned to the University's strategy and the quality system has been designed and structured to support this. The quality system produces both qualitative and quantitative data to inform the ongoing development of degree education and performance is measured against key performance indicators annually. Student feedback is also integral to the Annual Clock strategic management process and is used to enhance programme development and the student experience overall. Faculties are fully supported in the development of pedagogic practice via Learning Services (both locally and centrally) and specifically through the tenure track process which systematically supports and requires active engagement in developing teaching practice for all academic staff. There is a clear commitment to providing a high-quality experience for all students and a diversity of teaching and assessment methods are in use to support this. A rigorous approach has been adopted for periodic self-evaluation, international benchmarking and external peer review of degree education.

Quality management of degree education is at an **advanced** stage.

Functioning of the quality management procedures

In Aalto University's 2012 strategy, the strategic objectives set for education and learning are as follows:

"In addition to the ambitious academic curriculum, promoting a culture of creativity and entrepreneurship and preparing students for entering professional life are key goals of our teaching. As an inspiring professional community, the University encourages life-long learning."

The design of Aalto University's degree education also provides opportunities for all students to engage in 'artistic activities' and the strategic plan articulates the rationale and potential benefits to the global economy of successfully developing multi-disciplinary learning and research through cross-boundary collaborations in science and art. The University is focused on developing a learning-centred culture where students are part of an international community of experts, where research, artistic activities and education are developed in concert and where all teachers and scientists are involved in research and teaching.

Aalto University currently offers programmes leading to bachelor's, master's and doctoral degrees that subscribe to a learning outcomes model aligned to the Bologna principles. The University's mid to long-term aim is to increase the emphasis on master's level education. The University has relatively recently conducted a major curriculum review and is at an early stage in the introduction and development of multi-disciplinary, cross-University courses which are a key part of their vision for degree education. This development of the degree education was very much supported and appreciated by students.

The Vice President for Education is responsible for the academic portfolio and the Head of Learning Services reports to him. Learning Services provides academic support to students and staff for developing the degree provision and enhancing the learning experience.

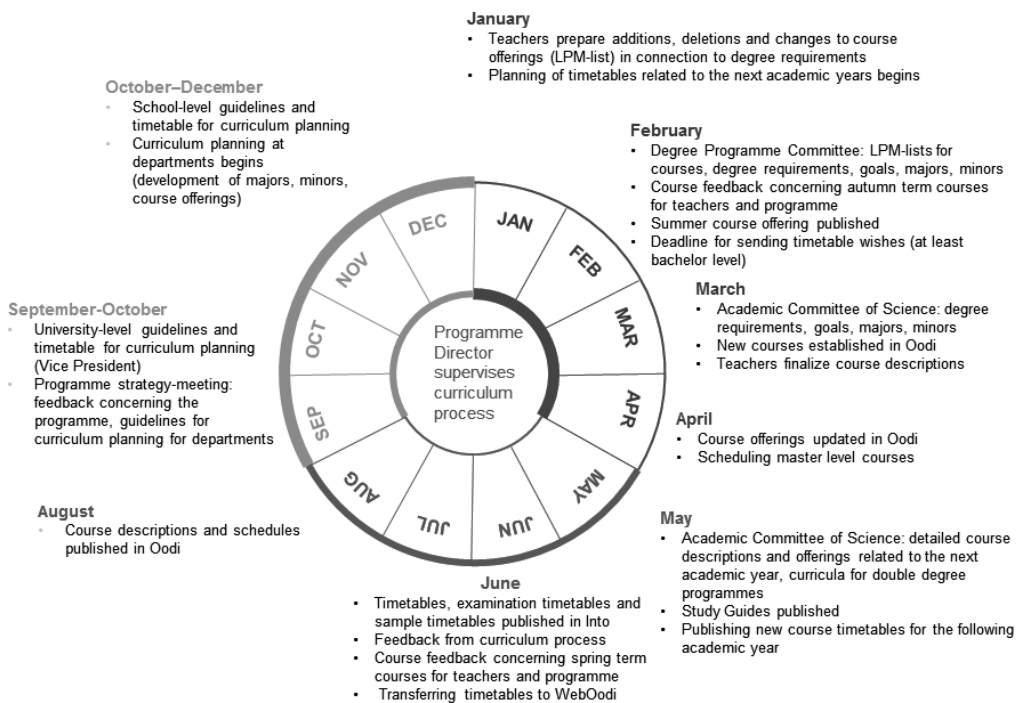


FIGURE 6: The curriculum monitoring, review and planning cycle, adaptation of the School of Science

The objectives, targets and key performance indicators (KPIs) for degree education are derived from and align with the University's strategy. There is clear evidence of systematic evaluation, planning and enhancement within the PDCA cycle as shown in Figure 6. Annually each school engages in review, Strategic Dialogues and the production of an agreed annual performance statement. Some schools have also produced roadmaps for future development to 2020. The KPI for students to gain 55 credits annually to improve completion rates within the desired timeframes is recognised by faculty as challenging, given in part that this requires a change in the national culture. Other than in the process built around *Annual Clock*, it was not fully clear what actions are taken, or which process is followed, if a school continually fails to meet annual baseline expectations, targets or KPIs. The University is encouraged to further develop explicit processes in support of this.

Curriculum management and development

As outlined above, Aalto University operates an annual timetable for curriculum planning and development which occurs throughout the year preceding the academic year of delivery. The process is intended to involve the whole University community: curriculum planning is conducted at department level involving different planning teams and occurs across school boundaries. The curriculum planning process is informed by curriculum planning guidelines and by the University strategy; it is overseen by the Aalto AAC. Schools are required to engage and align with the approved guidelines and principles. School-specific guidance and details of the curriculum planning process are available to all staff on the *Inside* intranet system.

The following key areas are used to inform and underpin development:

1. The strategic planning of educational programmes
2. The feedback received from the courses and the programmes
3. The development of the programme portfolio
4. The needs of the students and authorities to provide education in the summer months.

To facilitate the planning, development and implementation process, the Student Services steering group has appointed the Learning Services Specialist Team (OOPAS) to develop the implementation of the curriculum and the practical arrangements of the teaching. The duties of the team are to develop and harmonise the implementation of the curricula and coordinate and develop the practical teaching arrangements.

Members of the team comprise planning officers from each school and specialist staff from Learning Services. All six schools use identical course description fields and are required to organise their teaching in accordance with the agreed curriculum. All changes, unless minor, are decided and confirmed by each school's *Academic Affairs Committees* (AAC), and the OOPAS working group guides and supports the writing of course descriptions.

It was clear through interviews with staff that there is a high-level of engagement in the development of the curriculum and their programmes and the systematic, planned and structured approach taken was very much welcomed. Staff felt well supported by Learning Services in developing their pedagogical approaches. Similarly, students confirmed that there were a number of opportunities for them to contribute to the development of their programmes and that their views were welcomed and taken on board when issues were raised.

Of note is the University's approach to periodic review and external benchmarking. The Teaching Evaluation Exercise (TEE) required each school to engage in a structured process of critical self-evaluation, the output of which was the subject of an external peer review by international panels of subject specialists. This international benchmarking of the programmes and curriculum is further informed by external student survey data – (e.g. bachelor's graduate surveys) and the active use of regular input by advisory boards and stakeholder groups. This international and outward-facing approach is clearly central to the overall quality management of the degree education and is commended by the audit team.

In the case of IT services a major part of the development of support for degree education has been integrating, harmonising and modernising the IT systems to provide the level of support, information and data analysis required by the schools and departments. Significant progress has been made in the development of the *Sampo* reporting system to provide effective management support (see Chapter 4, Figure 5, for further details). This has already proven invaluable and programme directors in particular were keen to see this further developed to enable them to make use of current data and information on their students during the academic year – for example, about students' performance in their individual courses.

Online documentation, resources, support and training

The portfolio of education provision is primarily managed and communicated to students and staff online and Aalto University is in the process of rationalising legacy learning environments and delivery platforms. OPIT-wiki is currently used as the gateway to resources and for sharing information about learning and student information systems.

From 2016 the primary learning platform will be accessed via *My Courses* replacing Noppa, Optima and Moodle, and OpasOodi will become the main database repository for course descriptions. During this transitional phase full course descriptions are not yet complete in Oodi. There was also variability in the approach taken to providing outline course descriptions. Students confirmed that course descriptions used to be quite scant but that now (at least in the School of Business) they receive a detailed outline syllabus along with how the course will be taught and assessed. This was seen as extremely valuable and helped them with making their course choices. The OOPAS working group is commended for the work currently being undertaken to establish clear guidelines for course descriptions and the University is encouraged both to establish a standard approach to outline course descriptions, and to ensure that core requirements and standards are met by all schools. The University should also consider including clear descriptions of the outline syllabus,

teaching approach/learning experience, numbered and explicit learning outcome statements (i.e. not a narrative), along with their associated strategies for assessment and feedback to students for each course.

Teaching methods and assessment of learning

Aalto University aims for a high-level of teaching practice that follows sound ethical, scientific and pedagogic practice and which is benchmarked in an international context. Teachers are expected and supported to develop their teaching competence and expand their teaching methods. Although traditional, large lecture-based courses are still in evidence it is clear that the University is striving to move away from this being the standard or dominant approach. In 2013 the University produced its own guide to support and promote excellence in teaching practice. *'Get inspired! A guide to successful teaching'* embodies the aspiration of embedding 'deep-learning' approaches and supporting independent, student-centred, and critically-reflective learning. There was clear evidence of engagement and positive practice in the active development of pedagogic approaches, particularly in the context of re-thinking and redesigning modes of assessment, and the University is commended for this.

Similarly, students are supported, encouraged and expected to become autonomous independent learners who take responsibility for their own learning and progress. All students are required to build their own personal study plan to help define their studies as a whole. Students are responsible for deciding which minor studies, projects and options such as internships or exchange periods are incorporated in their studies and for ensuring a realistic progression timetable. This information is contained in the mandatory HOPS document (HOPS is the Finnish acronym for the personal study plan) and is approved for each student. Clarity in the aims and functioning of the HOPS system was perceived by the audit team to be variable in practice across schools and programmes. Aalto University is encouraged to review the aims and purpose of the students' personal study plans to establish explicit core requirements and expectations for how this should function for each student. Schools can then expand upon this in the context of their disciplines and programmes.

There was also some evidence of variability of practice for students to easily gain feedback on their work and individual progress. This in part relates to the culture and pedagogic approaches of the respective disciplines and the University is encouraged to establish clear aims and core requirements for academic advising and scheduling opportunities for students to formally receive feedback and to discuss their performance.

Student feedback mechanisms and their functionality

The course feedback system was reformed in 2013 to address issues of inconsistent practice, low return rates and to enhance the effectiveness of the process. The aim of the reform was to develop and harmonise the system for collecting and processing course feedback and to introduce University-level 'Aalto questions' for all courses in addition to school and teacher questions. The reform also included the introduction of an online system for collecting student feedback and

questions are now presented in Finnish, English and Swedish. The University is commended on the clear progress made in harmonising a systematic approach to securing course feedback. Student feedback on their courses and experience is integral to the *Annual Clock* strategic management process but it is recognised that challenges remain in improving the volume of student participation in feedback surveys. The University is encouraged to continue to monitor this carefully and to share and consider extending the implementation of the most successful local approaches to securing student engagement.

Students also talked enthusiastically about a *Course Messenger* model that had been adopted in parts of the University. This enabled students to regularly provide feedback anonymously while the course was being delivered, with the aim of immediately addressing any specific issues or 'frustrations' relating to course delivery. The University is encouraged to evaluate the potential of mainstreaming this or similar approaches university-wide.

Quality management of doctoral education

Each school has its own doctoral programme to which all full-time and part-time doctoral students belong. The Vice President of Research and Innovation is responsible for the strategic management of doctoral education and, as with other degree education, all doctoral programmes follow the PDCA-based system of planning, implementing, monitoring and enhancing their activities. Common procedures for all the programmes are prescribed in the *Aalto Handbook*. School-level responsibility for each doctoral programme and its quality management lies with the Head of the Doctoral Programme and the school's Doctoral Programme Committee. Aalto University has an institution-wide Doctoral Education Working Group whose tasks include drafting the common guidelines for doctoral education as well as the development of doctoral education. At the school level, a working group of doctoral planning officers is responsible for discussing common issues and practicalities concerning doctoral education and actively sharing good practice.

The University is in the process of moving from an 'apprenticeship' model of doctoral education to a programme-based approach comprising six doctoral programmes mirroring the school and discipline structures; at the time of audit this was still fairly new and partly under construction. It was clear from the interviews with doctoral students that there is significant variability of practice across the schools, in particular in relation to the mechanisms for student representation and for formally providing feedback on their experience. It was highlighted during the interview with the President's Management Team (PMT) that the establishment and functioning of the doctoral programmes is recognised as an area for further improvement (cf. Chapters 6.2.2 and 9). The Audit visit confirmed that the creation of a system of school-specific programmes has clarified the position of doctoral education within the institution and the audit team encourages Aalto University to continue with this approach to ensure the consistency of quality management for doctoral education; currently for example, the online course feedback system is applied to the courses that doctoral students attend; however, other parts of doctoral education are not subject to a university-wide feedback system. The University is encouraged to develop a formal process for doctoral students to provide feedback on their wider learning experience as part of the *Annual Clock* cycle.

Quality management of key support services

Significant development has been undertaken in re-designing and harmonising the key support services and bringing them closer to students and staff. Twenty workshops were organised to discuss the change and involved 70 per cent of staff. One of the main goals of the reorganisation was to achieve a better balance between centralised and decentralised services. In the area of teaching and learning, support is provided by Aalto Learning Services (LES) – the University’s central department providing support to all students throughout their time at the University. After the restructuring, LES operate as a ‘hub and spoke’ matrix model, with learning services staff based in the schools, with reporting and accountability overseen centrally.

The formal phase of a two-year development project concluded in 2015 and the service units will now become subject to Annual Review, planning and long-term target setting built around the *Annual Clock* strategic management process. The Service Survey comprises common questions and service-specific questions prepared by the service staff. Some services, like Research and Innovation Services, conduct their own surveys for their internal customers. Furthermore, they also actively attend the schools’ events to gain information on their clients’ needs.

The Service Surveys already indicate a marked increase in user satisfaction and recognition of the quality and value of support being provided. There is clear evidence of collegiate working relationships between the professional services and the academic staff to develop a model that is streamlined, ‘fit for purpose’, supports the discipline needs of individual schools and the needs of specific stakeholders. During the interviews, students and staff were very complimentary about the quality, level of support and access to information provided by the support services and confirmed the shift from a focus on ‘regulations’ to a culture of proactive support and finding solutions.

The audit team recognises the significant progress that has already been made in the refocusing and redesign of degree education’s support services and of their key role in overseeing, embedding and supporting the quality system. The University is commended for what has been achieved and for the approach adopted. The audit material and interviews confirmed that Aalto University has a clear vision on how to develop and strengthen their internal services as well as established procedures to plan and evaluate their functioning.

6.2 Samples of degree education

6.2.1 Bachelor's Programme in Business and Master's Programme in Strategy

The Bachelor's Programme in Business and the Master's Programme in Strategy have systematic and well-established quality management procedures which support curriculum planning in an excellent manner. The implementation of the programmes is learning-centred and fully functioning. The development of teaching methods is emphasised and encouraged. Curriculum planning and review is participative: staff, students and stakeholders are actively involved in these processes and in the quality work and their views are considered. There is great commitment to quality management and continuous improvement in both programmes; the quality work has a clear enhancement effect on the programmes.

*The quality management of the Bachelor's Programme in Business and Master's Programme in Strategy is at an **advanced** stage.*

The Bachelor's Programme in Business consists of 180 ECTS. It includes the first-year core courses, specialisation studies, minor studies including the option for international exchange, and studies in languages and communication. The Programme awards the Bachelor of Science in Economics and Business Administration degree. The annual intake of students is around 300.

The Master's Programme in Strategy consists of 120 ECTS and awards the Master of Science in Economics and Business Administration degree. The annual intake of students is around 13. The Programme is organised in collaboration with the strategy specialisation in industrial engineering and management at the Aalto University's School of Science.

In 2013, the School of Business revised its bachelor's and master's programme offering, including these two programmes.

Quality management related to the planning of educational provision

The quality management of the programme follows the *Annual Clock* strategic management process, including annual programme review and curriculum planning processes. The main actors in curriculum planning for both the bachelor's and the master's programmes are the programme directors, who are supported by programme committees as well as the Vice Dean for Teaching and Learning who plays an important coordinating role. In addition, each specialisation area in the bachelor's programme is assigned a Bachelor's Coordinator.

Both the annual programme review and the annual curriculum planning cycle are systematic and functioning processes. The processes and responsibilities are clearly defined and the faculty from all departments are involved in the planning. Student feedback is systematically analysed in the review. The annual programme review supports continuous improvement of the programme and identification of improvement needs, which are discussed in the curriculum planning process. The curriculum planning starts at the beginning of the year and the annual review is completed

by the end of the year. Staff reported that the documentation and the clearly defined processes of the quality system are helpful to them in their daily work and as induction tools for new staff members. The interviewed staff stressed that the annual processes provide a structure to the year and guidance on key operational steps.

The annual curriculum planning is conducted both by key faculty members, within their specialisation areas, and jointly with faculty, staff and students. Emphasis in the planning process is put on the coordination of courses in order to avoid overlap and to ensure the progressive skills development of students.

According to the interviews and self-evaluation, the students' learning is in focus and there is a tight connection between theory, reflection and practice. In the definition of learning outcomes, the programmes have considered national legislation, the European Qualifications Framework, and the strategic goals of both the School and Aalto University. The School's *Assurance of Learning* plan provides guidelines about the teaching and learning approach and describes learning goals and objectives as well as assessment measures.

In developing the programmes, several elements are taken into account:

- International benchmarking and the views of stakeholders and the School's scientific and corporate advisory boards are considered. For instance, the revision of the Master's programme was preceded by discussions with leading consulting companies, a study of company needs and alumni interviews.
- The standards of international accreditation of business schools are also of importance for the programme development.
- The recommendations made in the accreditation and university-level TEE reviews have been considered in the revision of the programmes.

As a result, the learning outcomes (learning goals – the term used by the School) are now better defined and better aligned with assessment; professional relevance has been strengthened through extensive business cases and capstone courses.

In the master's programme, the main principle in the programme revision was to strike a balance between real-life needs and the strengths of the faculty in terms of its research expertise. Research is integrated in the programmes mainly through the teachers' involvement in current research as well as through thesis work. Innovation activities are integrated through business case-studies and capstone courses.

The programmes are designed to provide knowledge and skills for further studies. Employability skills, such as problem solving, teamwork, language and communication skills, are well considered in the programmes. In both programmes, students are encouraged to also complete studies abroad as part of their degrees. Aalto University's Open University and Aalto Executive Education offer opportunities to update and develop competence after graduation.

Quality management related to the implementation of educational provision

As mentioned above, the programmes aim to strengthen the focus on learning and emphasise the use of student-centred teaching and effective learning approaches. According to the interviews and the self-evaluation report, a variety of teaching and learning methods are used. After the revision of the curricula, case-studies and company projects have been increasingly used in the courses. The first-year core courses of the bachelor's programme are challenging for teachers and students since the classes are large. The lecture method is widely used in these courses. However, teachers try to find new ways to support interaction and student learning. Blended learning, a combination of face-to-face and online teaching, is one method used to promote interaction and personalised contacts between students and the faculty. Technical and pedagogical support is available to assist teachers in implementing new interactive methods. Based on interviews with staff and students, teaching and assessment are well aligned with the learning objectives of the courses. This is required by the international accreditations sought by the School of Business.

Course syllabi have been introduced for all courses. The syllabi include a detailed course schedule, a list of assignments, assessment criteria, and information on the availability of the instructors outside classes. Both teachers and students stated in the interviews that the course syllabus is a useful tool.

Based on the interviews and the self-evaluation, there is a real interest among the teaching staff in the continuous improvement of their teaching and courses. The teaching staff are encouraged to try out new innovative teaching and assessment methods and there is a culture of sharing ideas and experiences of teaching and learning methods within the faculty. According to the self-evaluation, the fact that the School earned both AACSB and EQUIS accreditations ensure the continuous development of the programmes, provide assurance of learning, and highlight corporate relevance and internationalisation.

The interviewed students confirmed that, based on their feedback, courses have been changed and new courses have been introduced. It should be noted that the tenure track system has increased the focus on teaching competence (cf. Chapter 7). Participation in pedagogical training is required in tenure track promotions. This development has clearly had positive effects on teachers' attitudes towards teaching and their willingness to develop their teaching skills.

The interviews confirmed that the collection and utilisation of feedback is systematic in both programmes. Course feedback is collected from students in all courses. Programme-level feedback is systematically collected from all graduating students through two national surveys, organised by the *Finnish Business School Graduates* and by *Universities Finland*. Student feedback is also utilised in teachers' tenure track evaluations. Summaries of the feedback received from all courses of the programmes are considered as part of the annual programme review process. A good practice to encourage interaction between students and faculty is the concept of *Course Messengers*, an idea originally presented by the students. Students volunteer to collect feedback from fellow students and deliver the feedback to the teachers in regular meetings. The interviewed students confirmed that this action has improved the opportunities for students to give instant feedback and stated that teachers are responsive to the feedback.

The premises for the bachelor's students in Otaniemi enable students to study and work in groups in a creative learning environment. The students emphasised the need for all business students and students from other schools to be on the same campus in Otaniemi as a key factor for improving possibilities for multidisciplinary interaction and studies. To the extent that multidisciplinary is a key target of Aalto University, the audit team encourages the University to develop ways to measure it.

Participation in quality work

The interviews confirmed that the students and stakeholders are actively involved in the development of the programmes. Students, alumni and external stakeholders were involved in the renewal of the programmes. Workshops with practitioners and students were organised during the planning process of the bachelor's programme. Systematic discussions were conducted with key stakeholders of the master's programme representing working life.

The business student organisation is also active in quality work. For instance, they initiated the *Course Messenger* system.

Programme committees consist of faculty members, students and external stakeholders relevant to the programme. The programme committees have a role both in the design and evaluation of the programmes. However, as mentioned in the self-evaluation report, the role of the master's programme committee could be further strengthened (e.g. in the Annual Review process) and the roles of the corporate representatives could be systematised.

6.2.2 Doctoral Programme of Chemical Technology

The results of the Doctoral Programme in Chemical Technology are good in terms of time to completion and the doctoral students' professional development. There is some evidence that the existing quality work has an enhancement effect on the Programme, although the connection between the good results of the Programme and quality management is not yet very clear. The quality management procedures of the Doctoral Programme in Chemical Technology are relatively few in number and as yet they do not function as a system. Improving the consistency of supervision is a current priority, but it is too early to evaluate the impact of the changes being introduced. Information and data about the Programme are used inconsistently. Staff, students and external stakeholders participate in the quality work only partially. The procedures do not yet fully support the achievement of the institutional strategic goals set for the doctoral programmes.

*The quality management of the Doctoral Programme of Chemical Technology is at an **emerging** stage.*

The Doctoral Programme of Chemical Technology was established in 2011 and is managed by the School of Chemical Technology. The Programme comprises seven fields of research and is a joint effort between several departments (Biotechnology and Chemical Technology, Chemistry, Forest Product Technology, and Materials Science and Engineering).

The Programme consists of a research dissertation and 40 credits of taught courses. The duration of the Programme is four years of full-time studies. According to the audit material and interviews, the Programme has identified the need for developing courses to meet not only the scientific, but also the pedagogical requirements of doctoral training. The Programme has defined learning outcomes for the studies, which include both outcomes described in national regulations as well as outcomes defined in the School's own degree framework. Learning outcomes for the doctoral Programme are partly individual in nature since they relate to the individual research topic of each student and are defined by the supervisors. However, students require also soft skills development and courses in research method and ethics. The learning outcome of these courses could be more clearly defined at the beginning of doctoral studies. The audit team encourages the University to address this topic.

Most of the students have a working space on campus, whether they receive funding from the University or from external sources.

The research work of the doctoral students is accomplished in research groups within the departments or outside Aalto University in companies or research institutes. Teaching is a compulsory part of doctoral training; full-time doctoral students are expected to spend approximately 5% of their annual working time contributing to teaching.

Languages of instruction include Finnish, Swedish and English. The degree awarded after the completion of the Programme is Doctor of Science (Tech.). The annual student intake is approximately 45–50 students. The latest degree reform was conducted in 2013.

The number of students including those not attending is approximately 375 (Finnish legislation allows doctoral students to keep their status indefinitely before filing their thesis). The Programme includes full and part-time doctoral students. The number of doctoral candidates funded by the School is currently approximately 146. School funding is available for a maximum of four years and is decided on a yearly basis. In addition to this, there are a number of externally-funded candidates whose contracts vary.

Quality management related to the planning of doctoral education

Aalto University has common guidelines and processes for doctoral education detailed in the *Aalto Handbook*. These apply to all schools and are supplemented with school-specific instructions. Chapter 6.1 includes a discussion of the university-level quality management as it relates to doctoral education.

The School of Chemical Technology has its own instructions to guide the Programme's course development and research plan. The approval process of the curricula is clearly defined in the *Aalto Handbook*. The curriculum is approved by the School's Academic Affairs Committee (AAC) annually and the course information is communicated to students in the *My Courses* portal.

There are procedures and principles in place for selecting the supervisors: the School's AAC decides on the list of supervisors for each academic year; they must be selected from tenured staff. Typically, a professor supervises 6–7 doctoral students, but the audit team was told that there is no formal regulation about the number of students that a professor can supervise. Based on the interviews, each student usually has two supervisors, a tenured professor and an instructor. The instructor can be from a professional setting (e.g. industry) if the thesis is prepared cooperatively with industry. The tasks of the supervisors are prescribed in the *Aalto Handbook* for all doctoral programmes. However, the detail of the supervision arrangements is a tailor-made process agreed between the supervisor and a doctoral student.

Quality management related to the implementation of doctoral education

The Head of the Doctoral Programme is responsible for implementing the Doctoral Programme, including the evaluation and development of the Programme.

Admissions

A key step in a doctoral programme is the selection of students. The admissions process to the Doctoral Programme of Chemical Technology follows the common process prescribed for all the doctoral programmes at Aalto University. Common admission criteria and university-wide policies for doctoral students are confirmed yearly by the University's AAC. The schools organise admissions to the doctoral programmes at least once a year.

To enter the Programme, applicants must submit a study plan, a research plan, a supervision plan and a funding plan drafted in advance in cooperation with the intended supervisor. The administrative staff check the required documentation before forwarding to the appropriate committee. The School's Doctoral Programme Committee considers the applications and the School Dean makes the final decision. In brief, the application process and documentation are clearly defined. According to the self-evaluation report, the Programme has been aiming to unify the application process over the past five years.

The doctoral students interviewed by the audit team pointed out that it is common to have a personal contact in the School or at Aalto University before starting the application process. To ensure more diverse recruitment the School is advised to communicate more broadly about its doctoral programme and to encourage students from other institutions to apply. This is in line with the strategic aspiration of Aalto University to be a world-class internationalised institution. The School and the Programme are recommended to consider quality management procedures, which would monitor the effectiveness of this wider recruitment effort.

Managing the quality of doctoral training

Quality management procedures related specifically to doctoral training such as the thesis writing process and guidelines for doctoral dissertations are available on the *Inside* intranet.

Based on the interviews, students are encouraged to follow graduate-level courses, undertake literature reviews and participate in conferences. Opportunities to strengthen general skills (e.g. academic writing) are available through special courses that are offered by Aalto University, the School or nationally. Course performance is assessed via exams or other forms of assessment.

The Programme stresses the quality management of thesis writing, which includes a scientific peer review. Students can choose whether they submit a monograph or a cumulative thesis. They are also encouraged upon entering the Programme to publish. According to the self-evaluation report, most of the Programme's students publish from three to five peer-reviewed papers before graduation. As an example of setting quality targets, the staff interviewed noted that the Programme has started to focus more on the quality of the articles rather than the quantity as was the case previously.

According to the interviews, supervisors and instructors guide doctoral students on how to present their work and where. This individual guidance is usually necessary despite the extensive training provided on writing papers.

The *Aalto Handbook* specifies that students' progression must be reviewed at least once a year. The staff reported that in addition to this a procedure for a mid-term check after 18 months of studies has been introduced in the Programme to ensure the efficient monitoring of the doctoral students' work. Furthermore, students who are employed by the University are also subject to annual staff development discussions.

Finnish law allows doctoral students to postpone filing their dissertation indefinitely and some of the “part-time” students are in this situation. The Programme is primarily designed for full-time students, while allowing a part-time mode of attendance (with the ambiguous status of students on indefinite leave). This results in potentially misleading data regarding the actual status of the current part-time students and impacts upon the quality management procedures to monitor their progress. It is recommended that Aalto University address this issue as a matter of priority.

Based on the audit material, the pre-examination and examination of the dissertation are regulated and guided appropriately. For instance, the Programme has established common criteria for the pre-examiners. The approval of the dissertation, grading and recommendation of the degree is the responsibility of the School.

The audit team found that the supervisors and the instructors are highly active and strongly committed to the quality of the outcome of the research as evidenced by the success of students in finishing their theses and finding employment. The School also provides students with a good environment: many expressed the feeling that they are not isolated, even when working independently on their theses. The audit team considers this a notable strength. Approximately 90 per cent of all students finish their doctoral studies successfully within an average study time of five years. The unemployment rate of graduates is less than 3 %, which shows the strong professional relevance of the Programme. These good results, however, are related to the commitment of the supervisors and selection of students rather than as a consequence of a well-developed and embedded quality system.

Quality management of teaching and supervision

The School has guidelines for teaching competencies. All teaching staff, whether tenured or not, are evaluated and have opportunities to develop their pedagogical competencies by attending the University’s pedagogical training.

Guidelines for supervision are available on the *Inside* intranet. The supervisor, the instructor(s) and the doctoral student are required to draft a written supervision agreement specifying the supervision details, the responsibilities, rights and obligations of each party during the doctoral education process. The audit team commends the Programme on this good practice and encourages its continued development.

A training programme for supervisors is available. Based on the staff interviews, Aalto University usually asks their new professors to join this training programme. It would be advisable to consider training all supervisors including those who have been at the University for a while, particularly because doctoral education is shifting from the apprenticeship model to a more structured approach to doctoral training. Monitoring of supervisors (e.g. workload allocations, training) is not yet in place.

The interviews confirmed that, when required, it is possible to change supervisors or make changes to the agreed plans and that much attention has been recently paid to both supervision and study time with the aim of promoting completion within four years. However, it is too soon to evaluate the full impact of the actions already taken.

Providing and collecting feedback

Systematic procedures for collecting course feedback and graduate feedback (exit surveys) are organised by the University. The annual review of the students' progress is also seen as a way of sharing feedback between the doctoral students and their supervisors. However, additional feedback mechanisms for doctoral students would be needed in order to provide important information on the whole learning experience of doctoral students. The audit team also recommends that Aalto University and its doctoral programmes consider a university-wide path to promote this feedback. The need for a more developed feedback system and system of handling feedback are also identified in the self-evaluation report.

Other quality management mechanisms

Doctoral education is reviewed by the schools' doctoral programme committees and the Doctoral Education Working Group. In addition, the Annual Review and reviews of Scientific Advisory Boards (SABs) and Scientific and Artistic Advisory Board (SAAB) include doctoral education.

The School uses the University key performance indicators (KPIs) that are set for doctoral programmes and research. The most important indicator at the moment is the annual number of doctoral graduates. The follow-up of the indicators on the programme-level is linked to the *Annual Clock* strategic management process as with the other core activities of the institution. However, the concrete ways in which the Programme uses the data and information gathered through the *Annual Clock* was not clear. The Programme is recommended to clarify the procedures to be followed when targets set are repeatedly not achieved.

Interviewed staff pointed out that the quality management of the Doctoral Programme of Chemical Technology has developed since Aalto University was established. The quality management now provides a framework for improving the processes. Based on the audit visit, the audit team encourages the Programme to further develop the individual elements of the quality management into a functioning system that would support the Programme effectively.

Participation in the quality work

Staff members are involved in defining and implementing the quality management procedures.

External stakeholders are connected to the Programme through their involvement in joint research projects. As peer reviewers, they also participate in the Programme's quality management. The School's Doctoral Programme Committee includes representatives from each department.

As the self-evaluation report states, however, the challenge is to improve the involvement of students in the quality management processes and procedures. This should be possible given the participatory culture at Aalto University and could follow the example of the representation of the university-level doctoral student's guild in the University's Doctoral Education Working Group.

According to the interviewed staff, the Programme maintains contact with students for at least two years after they file their dissertation. The alumni system is managed at the university level. Although it was not possible to identify the current role of alumni in the quality management from the material or the interviews, the audit team considers this a missed opportunity given their potential to contribute to the Programme and recommends involving them into the quality work in the future.

In summary, it is recommended that the Programme further promote the role of students and alumni in its quality management procedures.

6.2.3. Bachelor's Programme in Engineering

The basic procedures for planning and implementing educational provision in the Bachelor's Programme in Engineering are fully functioning. The audit shows that the quality system provides guidance and clarity for curriculum development. A variety of teaching and assessment methods are used and the feedback procedures are systematic; however, there is some variation in how teachers respond to and utilise student feedback. Programme reform has been conducted in a systematic manner and the improvements made have already enhanced the Programme performance. There is also evidence of the participation of academic and administrative staff, students and external stakeholders in the quality work of the Programme.

*The quality management of the Bachelor's Programme in Engineering is at a **developing** stage.*

The Bachelor's Programme in Engineering is offered by the School of Engineering and leads to a Bachelor of Science (Tech.) degree. The degree conforms to the Bologna reforms: it includes 180 ECTS credits and the duration is three years of full-time studies.

The bachelor's studies prepare students to enter the master's level and enables them to develop expertise in energy technology, geoinformatics, geoenvironmental engineering, real estate economics, mechanical engineering, spatial planning and transportation engineering, building technology or water and environmental engineering. Students apply and are selected directly for the majors which include Mechanical and Structural Engineering, Energy and Environmental Technology and the Built Environment. The annual intake of new students is approximately 300. The total number of students in the Programme is currently around 950.

The Programme has just been revised as part of Aalto University bachelor's education reform. It has been running in this form since 2013. The first groups of students are expected to graduate in spring 2016.

Quality management related to the planning of educational provision

The Programme is managed by a Programme Director supported by the Bachelor Programme Steering Group. The role of the Programme Director has been strengthened. Based on the interviews and audit material, the Bachelor Programme Steering Group plays an important role in planning, monitoring and developing the Programme. The Programme has its own *Annual clock* synchronised with both the School's and the University's annual clocks. This evidently forms a functioning platform for the quality management at programme level.

The School of Engineering has a Degree Programme Committee that provides the guidelines and instructions for educational development, quality management and handling of student feedback. Instructions for curriculum planning are clearly documented in the *School of Engineering Handbook* and on the School's intranet pages. The development procedures are scheduled in the *Annual Clock*. The instructions are in line with Aalto University's guidelines which are documented in the *Aalto Handbook* and the University website. Curricula are confirmed by the School's *Academic*

Affairs Committee (AAC). The process descriptions and responsibilities related to the planning of educational provision are clear; the interviews confirmed that the revision of the Bachelor's Programme adhered to these guidelines.

Based on the self-evaluation and staff interview, the planning of the new curriculum was conducted in a comprehensive manner. Benchmarking surveys and consultation with industry were conducted in order to define the core competencies. Furthermore, feedback from staff, students and alumni were considered as well as recommendations made in different evaluations and assessments such as the Aalto University Teaching and Education Evaluation (TEE). It was also stated that Aalto University's strategy and the School's strategic plan were taken into account when planning the curriculum. One goal has evidently been to promote interdisciplinary expertise as one of the learning outcomes. Special minors for that purpose have been included into the new programme structure. The new Bachelor's Programme was designed to have more breadth and to be more generic than before in order to prepare students for different master's studies at Aalto University or elsewhere.

The intended learning outcomes of the Programme and individual courses are clearly defined. According to the self-evaluation report, the intended learning outcomes of the Programme were defined by the steering group for bachelor's degree reform. The feedback received from staff, students and external stakeholders was considered in this process. The intended learning outcomes for specific courses were defined by teachers and programme management on the basis of the learning outcomes set for the Programme.

The professional relevance of the Programme is taken into account in several ways. The core learning outcomes and competences are defined together with the industry; generic working life competencies are included as intended learning outcomes and practical training courses are offered to students in elective studies. The main emphasis, however, is to prepare students to enter master's level education. This was emphasised in the interview with teaching staff and also expressed clearly in the curriculum documentation. Lifelong learning is supported by offering courses through the Open University to non-degree students. According to the self-evaluation, the link between teaching and research is guaranteed by Aalto University's principle that each faculty member conducts research and teaches.

Quality management related to the implementation of educational provision

The learning material and assignments are now available on the *My Course* platform, which is a major improvement according to the students. Earlier, several platforms were used which was confusing for the students.

Based on the self-evaluation report, the teaching methods are selected by the responsible teacher in cooperation with the programme management. The aim is that the teaching methods are in line with the programme level learning outcomes and that they support the achievement of the learning objectives of the course. A variety of teaching and learning methods are used, such as lectures, exercises, demonstrations, laboratory work, individual or team-led projects,

interactive seminars etc. In addition, a variety of assessment methods are used ranging from traditional exams to more learner-centred assessment methods, which are becoming more frequent.

The importance of the development of teaching and the pedagogical culture was emphasised in the interviews. Both the staff and the students interviewed reported that the awareness of good teaching has increased as well as the variety of teaching and assessment methods used. Some students characterised this as “a huge change for the better in a pedagogical sense”. According to the interviewed staff and the self-evaluation report, the pedagogical training offered by Aalto University and the fact that teachers have been keen to attend the training has brought about this change. Teaching performance is also emphasised in the tenure track process for both recruitment and promotion (cf. Chapter 7). The Programme is commended for supporting the pedagogical development of the teachers and is encouraged to continue to introduce innovative teaching, learning and assessment methods as appropriate to and in line with the identified learning outcomes.

The number of courses offered in the new Programme has been reduced. As a consequence, some of the classes are larger than before which has caused some challenges in relation to facilities and teaching methods used. Furthermore, it was noted in the self-evaluation report that cooperation across the different departments has been somewhat of a challenge resulting in some scheduling problems. It was also indicated that communication and cooperation among teachers could be improved. In a large programme, this is of course challenging; however, the audit team encourages the Programme to find new ways for the teachers to cooperate and to provide opportunities to share good practices in teaching, learning and assessment within the Programme.

The Programme uses a well-established course feedback system. In parallel to the official Aalto University feedback system, teachers gather open feedback in various ways for their own instant use. For instance, students noted that many teachers collect mid-term feedback or even feedback after every lecture. Course feedback data are collected into a very thorough Programme Director’s Report, which shows the response rates, scores and trends course by course. The audit team found it a valuable tool for quality management. The interviewed students indicated that there are differences in how teachers respond to course feedback provided by students. The self-evaluation report mentions that the utilisation of feedback is an area which is currently being developed. Students also noted that the extent to which teachers inform students about the changes made based upon their feedback varies. However, students generally felt that their teachers are using the feedback effectively, considering the number of the students on the Programme.

Based on the staff interview and audit material, the *Annual clock* in its local adaptation has clearly supported the planning, implementation, monitoring and development of the Programme. It provides structure and support and steers the annual work; the staff know what to do and when. In general, it was noted in the self-evaluation and interviews that the quality work conducted in connection with the new Programme has already had positive effects (e.g. on student progression). Feedback has been collected from the first and second year students and follow-up actions have

been undertaken based on the feedback. This was also confirmed by the students and they especially welcomed the improvements that have been made to the HOPS process, academic advising and tutoring since the first cohort of students. It was noted in the self-evaluation that graduate questionnaires are analysed in order to monitor the working life relevance of the Programme. There are plans to evaluate the whole Programme after completing the first three-year cycle. The audit team encourages the School to complete this plan and continue the systematic enhancement and quality work.

An effective information system, at the level of Aalto University and the School, supports the quality management of the Programme, which produce significant sets of statistical information on the performance of the Programme. The systematic and useful information produced is used mainly for tracking the KPIs of both the School and the University. The interviews and the self-evaluation report indicated, however, the need for more specific information on monitoring the progression of students.

Participation in quality work

The interviews reflected good commitment of the staff and also students to the quality work. The students contributed to the development of the Programme by participating in different groups and committees such as the Bachelor Programme Steering Group whose role in quality work was emphasised in the interviews. It was also stated in the self-evaluation that there is now closer cooperation between the Programme and the student guilds (i.e. the student organisations).

As part of the programme reform, the key external stakeholders were identified and they were consulted throughout the planning process. The audit team commends this and encourages the School to continue to involve the external stakeholders in the quality work related to the Programme.

6.3. Research, development and innovation activities as well as artistic activities

Aalto University was founded with the goal of achieving international pre-eminence in education, research, innovation and artistic activities. The responsibility for research, innovation and artistic activities are clearly defined at the university and school levels. A number of international reviews are conducted to improve the quality of activities. The key performance indicators for research are more advanced than for artistic activities; this reflects the complexity of measuring performance in the arts. The PCDA cycle and the tenure track are seen as important mechanisms for strengthening quality. Academic and administrative staff and students as well as stakeholders are actively involved in the quality management.

*The quality management of research, development and innovation activities as well as artistic activities is at a **developing** stage.*

Functioning of the quality management procedures

Aalto University's strategic goals

Aalto University's 2012 strategy set the aspiration for its research profile and for its artistic activities. As part of the updated strategy taking the University to 2020, development goals for the research, art and creative activities were identified as follows.

- a. For research, the strategy states:

“Aalto University is an internationally acclaimed, multidisciplinary university where research and education are promoted hand-in-hand. We are dedicated to long-term, high-quality research of high scientific value and impact on society. Aalto University's unique profile – one of combining science and art, technology, economics and design – stimulates interdisciplinary collaboration and facilitates the birth of the new innovations.”

As a part of the recent strategy updating process (cf. Chapters 4 and 8), core competences were identified, with the aim of achieving excellence in four areas:

- *ICT and digitalisation*
- *materials and sustainable use of natural resources*
- *art and design knowledge building*
- *global business dynamics.*

Furthermore, three integrative multidisciplinary themes addressing global challenges, with high national significance, complete the institution's research priorities:

- *advanced energy solutions*
- *human-centred living environments*
- *health and well-being.*

b. For artistic activities, the strategy states the following aspiration:

“Aalto University develops multidisciplinary artistic and scientific collaborations across the boundaries of science and art. The University is an internationally acclaimed leader in art, architecture and design.”

Aalto University has also set short-term objectives for the production and exhibition of multidisciplinary artworks, the organisation of cultural events, and provision of basic art courses for the whole University community. The concrete realisation of the last objective is also recognised as an area for further development in the self-evaluation report.

Implementing the strategy

Two key committees are responsible for implementing the strategy for these two areas and their roles and responsibilities are described in the *Aalto Handbook*.

The Steering Group for Research and Innovation (RISG) is a university-wide committee, chaired by the Vice President of Research and Innovation. It supports the management and preparation of research and innovation-related matters. At the school-level, deans lead the process of developing their school's research strategy and priorities in line with the aims of the University Strategy. Since 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* available in the *Inside* intranet. The division of responsibility with respect to doctoral education is described and discussed in Chapters 6.1 and 6.2.2.

The Artistic Activity Steering Group (AASG), chaired by the Vice President for Art and Creative Practices, is responsible for developing the artistic activities at Aalto University. Four working groups focus on different sub themes. One of the working groups – Art in Academia – is the *Academic Affairs Committee's* (AAC) working body for artistic affairs, responsible for reporting on the quality and quantity of artistic activity. As the number of committees and working bodies supporting and coordinating artistic activity are relatively high, the University is advised to review their number and division of responsibilities and to address the need identified in the self-evaluation report for a better organisation that would bridge the different groups.

The mechanisms for managing the quality

A number of mechanisms are used to manage quality in these two areas.

Annual target setting, monitoring and evaluation of research as well as artistic activities are carried out through the PDCA-based *Annual Clock* strategic management process as for all the core activities of the institution discussed in detail in Chapter 4. The continual improvement of activities is a part of the PDCA cycle and is supported by the use of strategic tools to regularly redefine focus areas as well as funding re-allocations to ensure the alignment with strategy.

Research and artistic activities are regularly evaluated in an international context via peer review procedures and include:

- At the University level, the Research Assessment Exercises (RAE) use international panels to assess research quality. At the school level, the Scientific Advisory Boards and the Scientific and Artistic Advisory Board (SABs and SAAB) consist of international panels relevant to the field. Their latest biannual joint report *Reaching World-Class II* was provided in 2014 after review visits were conducted in all schools and included a set of recommendations for further improvement.
- At the level of individual staff members:
 - Professors and non-tenured academic staff receive annual feedback from the head of the department or the dean
 - Non-tenured academic staff undergo a comprehensive external peer review before being granted tenure
 - Peer review feedback is provided to individual staff on their funding applications, articles and conference papers.

The audit team commends the work and level of scrutiny of the SABs and SAAB since their international membership and frequency of meetings seem to play an important role in the ongoing quality management and enhancement of the schools and programmes. As a further enhancement the University is encouraged to explore overarching key strategic themes which each S(A)AB would engage with and report on.

Relevant domestic and international databases are systematically utilised when producing and gathering information on the quality and impact of both research and artistic activities.

Aalto University's set of key performance indicators (KPIs) for research partly uses the funding indicators developed by Ministry of Education and Culture (MEC). KPIs are used when monitoring and evaluating research in the *Annual Clock* strategic management process and the set of KPIs used effectively produce information for the quality management of research and innovation activities. They also serve internal monitoring and steering purposes as part of the *Annual Clock* process. However, the concrete use of KPIs and other data at the lower organisational levels was not as clear as their university-wide use in strategic management (cf. Chapter 6.2.2 the details on Doctoral Programme of Chemical Technology).

In addition, according to the self-evaluation report, Aalto University has identified the need for more systematic use and analysis of data and information on artistic activities. The audit team supports this aim. Furthermore, as Aalto University aims to expand the concept of artistic activities to all schools, it is encouraged to develop the procedures for monitoring and assessing its functioning and impact in a wider sense. Currently the KPIs for artistic activities are used only for measuring the success of the School of Arts, Design and Architecture. Aalto University is encouraged to supplement the KPIs for measuring university-wide artistic activity as distinct and separate from those normally used by the School of Arts, Design and Architecture. Also the most recent SAAB report includes a recommendation to continue to develop and embed the criteria for measuring artistic activity.

Research, innovation and artistic activities are also steered by university-level funding allocation criteria. As mentioned in Chapter 4, schools receive 70 per cent of their funding based on the number of tenure-track professors, institutionally defined significant research infrastructures, and service teaching; 20 per cent comes from the performance measured by the KPIs and 10 per cent is reserved for new strategic initiatives. As the number of tenure track professors plays a significant role in school funding, the evaluation procedures included in the tenure track system have a clear impact on the schools' operations and partly serve as a peer review tool and quality management procedure for the schools.

Aalto University also has a Research Ethics Committee, which provides ex-ante ethical evaluations as requested by the research groups.

Based on these findings, the audit team considers that the University employs a relevant and comprehensive set of tools and procedures for the quality management of research activities. However, the audit material and interviews confirm that the range of KPIs for artistic activities and their use are currently limited and will require further development.

Participation in quality work

Interviews confirmed that different personnel groups participate in the quality work related to research and innovation. The university-level RISG includes schools' representation via the vice deans. Doctoral students have their own university-level guild, which aims to inform the University on the issues relevant for the development of doctoral studies from the students' perspective. The guild has a representative in the university-level Doctoral Education Working Group.

Staff involvement in the quality management of artistic activities is currently limited to staff from the School of Arts, Design and Architecture. As Aalto University aims to achieve an interdisciplinary approach to involvement in artistic activities this goal should be reflected in a greater mix of staff and student participation in the quality management of this area.

The self-evaluation and interviews show that both the impact and improvement of artistic activities are closely tied to the variety of cooperative events, delivery platforms (especially the Design Factory model) and other activities carried out with internal and external stakeholders. In addition,

as platforms for innovation, the Aalto Factories play an essential role in enhancing and improving Aalto University's core activities (cf. Chapter 6.4) and are central to the mission of the University. Aalto University is encouraged to develop these activities into a systematic and institution-wide recognised way of working. This should be developed in line with clear institutional goals and targets, division of responsibilities and the relevant measures and evaluation mechanisms.

Interviews during the audit visit show a strong commitment from external stakeholders both to research and innovation as well as to artistic activities. This includes a high commitment to the quality management, such as participation in different projects and in University governance, membership in different steering groups at the different organisational levels, and providing formal and informal feedback as requested.

Quality management of key support services

The Research and Innovation Services provide support for external grant applications, managing research projects, and commercial exploitation of the research results. They were seen as an important actor in ensuring the quality and advancement of the research projects. As with other support service units, they participate in the *Annual Clock* strategic management process for target setting, monitoring and evaluation and are evaluated biannually via a joint Service Survey.

Interviews with the research and support services staff as well as RISG members confirmed that the recent reorganisation of the administration and support services has been beneficial in supporting the needs and requirements of research. For instance, an efficient and useful risk analysis is carried out by the central service when preparing for applications and research agreements. The interviews revealed that staff members are in the process of learning to exploit the full potential of the reorganised services.

The audit team found that the quality management of the key support services for research and innovation works relatively well.

In the case of artistic activities, the most significant support provided by the University seems to be a variety of platforms and networks developed for this purpose. One of the next stages for delivering artistic activities to the entire University community is to identify options in providing more integrated approach for their support and their quality management.

6.4 Societal impact and regional development work

Effective societal impact is a key target of Aalto University. The interaction with external stakeholders is intensive and actions in this field are extensive, with a view to creating an innovation ecosystem around the University. External stakeholders are regularly consulted in a variety of fora that are often led by the University's top management. Societal impact and regional development work are covered in the quality management procedures but processes and indicators of this specific area need further development. A good set of key performance indicators is missing and the quality management of key support services is not fully functional yet.

*The quality management of societal impact and regional work is at a **developing** stage.*

Functioning of the quality management procedures

Aalto University's strategic goals

Societal impact is one of the key targets of Aalto. The strategic objective set for the societal impact in the 2012 Strategy states:

“Aalto University is an advocate which understands, anticipates and influences the needs of society. Aalto University prospers through being an active part of Finnish and international life. Our work is inspired by the needs of society and we seek to contribute to the development of society. This requires systematic dialogue and inspiring dialogue between Aalto and many different stakeholders, businesses as well as the public sector.”

In addition to this, the principles of developing societal impact as well as key areas of development are defined in the strategy.

Societal impact features strongly in research activities. External partners, notably corporations, are involved in research activities through joint research. Aalto University also collaborates with other higher education institutions to increase its impact.

Based on the interviews and audit material, the University's main impact on society is through its graduates. By its own definition, Aalto University aims to educate game changers and highly capable experts who are equipped with skills in teamwork, leadership and entrepreneurship. To achieve these goals, the University focuses on societal needs and cultivates close contacts with external stakeholders, notably in curriculum planning and review. According to the interviews, external stakeholders are involved in many of the degree programmes (cf. Chapter 6.1). They provide case studies, student assignments, thesis projects and function as external experts. Educational activities and reforms are carried out in close contact with them. According to the self-evaluation report and interviews, degree programmes are developed based on feedback from stakeholders and potential employers. External stakeholders are also members of programme committees.

It is clear that Aalto University has put a great deal of effort into developing multiple ways to interact with the society and to include working life in its core activities:

- The University employs “professors of practice” who bring information from working life to the academic community.
- Aalto University maintains platforms, factories, programmes and other means to support multidisciplinary activities with external partners. The factory model is a particularly innovative approach for enhancing external engagement and societal impact. The Design Factory, Media Factory and Health Factory are platforms combining the expertise of the different schools in the fields of product development, media and services. The factories are designed to facilitate collaboration in an environment where academic teams, researchers and students work together with companies and communities.
- The President and deans organise regular events for stakeholders.
- Alumni services keep in touch with the alumni through a monthly alumni news bulletin and regular events.

The goal of these interactions is to develop a local innovation ecosystem around the University by promoting the interaction of students and staff with external stakeholders. This is enhanced by the Aalto Startup Center, which provides support for start-ups. The external stakeholders who were interviewed consider that major advancements in multidisciplinary and entrepreneurship have been achieved since the establishment of Aalto University.

Working with stakeholders

The self-evaluation report identifies the key stakeholders to be the university sector, the Academy of Finland, Tekes, public research institutes and corporate partners. Based on the interviews Aalto University has chosen to have a limited number of strategic partnerships, which they define as deep, broad and long-term collaborations.

Based on the self-evaluation and interviews, however, the activities aimed at achieving societal impact and joint projects with corporate partners at Aalto University rely mainly on personal relations. Aalto University would benefit from more systematic procedures to share contacts, knowledge and networks. Sharing expertise of more experienced staff members might also support recently recruited staff members to build networks in the local innovation ecosystem.

The audit material describes a relatively large number of general principles and goals according to which the selection of external partners is carried out at different organisational levels. However, the audit team considers that Aalto University would benefit from a more clearly defined process of selecting key strategic partners and arranging partnerships in general. This gap was also mentioned as being an area for further development in the interview with staff related to the societal impact.

Managing the quality of societal impact

As for all the core activities of the institution, the annual target setting, monitoring and evaluation of societal impact are carried out through the PDCA-based *Annual Clock* strategic management process (cf. Chapter 4 for more details). Societal impact occupies a central place in the core activities of the University. It cuts through all University activities, such as basic research, education, artistic activities, collaboration with companies and the development of an innovation ecosystem locally and regionally, with the further aspiration to become a national and global player.

The *Aalto Handbook* describes the key staff responsible for this area, their main form of collaboration as well as the expected impact. The Vice President of External Affairs assists the President in strategic external relations and fundraising activities. The Vice President of Research and Innovation, among other responsibilities, operates the Research and Innovation Services, maintains and develops the domestic and foreign partnerships, and develops the innovation ecosystem. Furthermore, the roles of deans, heads of the departments as well as the whole University community are defined.

Aalto University has functioning procedures for monitoring and evaluating societal impacts and regional development work. As societal impact is mainly generated through research and education, it is included as an assessment aspect in the Research assessment exercise (RAE), as well as in the work of the Scientific Advisory Boards (SABs) and Scientific and Artistic Advisory Board (SAAB). The evaluation criteria included in the University's tenure track system take societal impact into account as an additional criterion.

Key performance indicators (KPI) for this area are not developed; currently the KPIs include the total income accrued from non-academic partners and graduate employment, which are areas closely monitored by the University. The lack of more extensive measurements of societal impact was recognised in the self-evaluation report and interviews. Measuring societal impact has been recognised nationally and internationally as a difficult area of quality management. The University has extensive activities related to achieving societal impact and is in a good position to develop indicators. The audit team encourages the University to take up the challenge. New KPIs could be developed together with input from staff and external partners by collecting all possible KPIs and selecting the most relevant ones. In the interviews, staff and external stakeholders came up with a relatively long list of possible KPIs, such as the number of start-ups, Aalto University's staff on company boards and partners' willingness to continue joint projects.

The participation of external stakeholders in reviewing the University's activities is systematic and active. The views and ideas of stakeholders are collected during specific events such as the "President's Circle" and the "Dean's Circle" as well as the President's "CEO Tour". The self-evaluation report explains that this information is utilised in the annual process. This was confirmed in the interviews with staff. As examples, the feedback resulted in updating the strategy, reshaping education, and developing incentive systems, evaluations and the University funding model. However, the process of using and analysing the collected information is not documented in the *Aalto Handbook*.

As noted in Chapter 4, the KPIs are part of the *Annual Clock* strategic management process, therefore their role is clearly defined at the University level. Based on the audit material and interviews it is not so clear how the information produced by monitoring and evaluation as a whole are used to improve societal impact. Between the *Annual Clock* strategic management process and more detailed and practical processes, there is a lack of documentation on the quality management for societal impact, including information in the *Aalto Handbook*.

Participation in quality work

Stakeholders are actively and regularly kept in touch with the development and planning of the University's activities. Based on the interviews, there are close connections between the top management and stakeholders. For instance, strategic issues are discussed with the stakeholders. The interviewed external stakeholders confirmed that the interaction is active. They considered that top management has been really responsive to their feedback and ideas.

Quality management of key support services

Based on the audit material and interviews Aalto University has functioning services, which support societal interaction and achievement of societal impact. Partnership and Alumni Services as well as Research and Innovation Services are located in the schools to assist interaction with external stakeholders. For instance, these services provide procedures and guidelines for externally funded research projects, evaluating risks and managing contracts. These procedures were confirmed in the interviews.

Feedback on services is collected via a biannual joint Service Survey. Their performance and relevance is monitored according to the *Annual Clock*.

The self-evaluation report recognises improvement needs for support services related to societal impact and states that the quality management of key support services is not sufficiently transparent. The audit team encourages the University to further develop transparent, harmonised and clearly described quality management procedures for the services supporting the achievement of societal impact. The quality management approach should also enhance sharing best practices across the University community.

Optional audit target: the tenure-track system's quality management

The tenure-track system was introduced in 2010 to support the strategic goals of the University. The system was reviewed several times and its quality system is rapidly evolving to ensure that it is systematic and embedded. Academic and support staff members as well as external stakeholders are involved in the quality work. The University community acknowledges that introducing the tenure-track system has been positive in increasing the attractiveness of academic careers and promoting the quality and diversity of applicants. However, the quality system for the tenure track is still very new and needs to be further tested and matured.

*The quality management of the tenure track system is at a **developing** stage.*

7.1 Functioning of the quality management procedures

Aalto University developed and established a tenure-track system in 2010 on the basis of the experience of other universities abroad. A tenure-track system provides assurance of lifetime employment and a career path for academic staff. The system generally consists of three ranks (as captured in Figure 7) – assistant, associate and full professor – and includes clear criteria and transparent procedures for recruitment and promotion. Since 2010, all permanent professors have been transferred to the tenure system; 253 positions have been allocated to the different schools, 232 of which have been filled to date; and 21 new professors have been promoted.

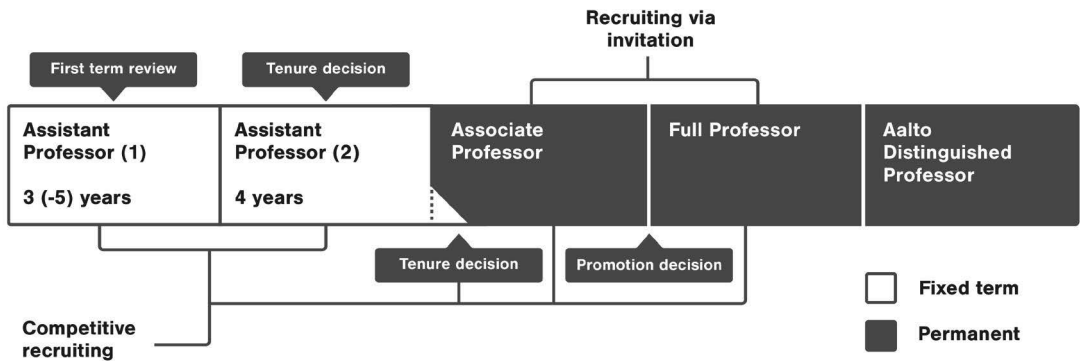


FIGURE 7: Aalto University's tenure track career path

The tenure-track system is meant to support and steer the implementation of various aspects of the university's strategy (e.g. multidisciplinary and the aspiration to achieve "world-class" status). It is part of an overall human resource management approach that stresses several objectives, such as the development of professional competences.

The roles and responsibilities in ensuring the quality of the tenure-track system are clearly specified:

- The President decides on how to allocate tenure positions, based on the deans' proposals and the University's strategic priorities, and makes the final decision for appointment and promotion in the tenure-track system.
- The deans have responsibility for managing the fixed-term positions in their schools.
- The Provost is responsible for monitoring and developing any aspects of the academic career management system.
- The Provost is assisted by a newly-established university-wide tenure-track working group. Similarly, the schools have permanent tenure-track working groups. For handling the tenure track recruitments and promotions, there is a permanent university-level tenure track committee, each school has a permanent tenure track committee. The departments establish *ad hoc* committees for each recruitment or promotion case.
- The human resources functions are carried out by (a) a centralised service whose director is part of the Presidents Management Team (PMT) and (b) decentralised personnel in the schools. The schools' human resource representatives report to the deans and to the human resource director; they meet every other week and all human resource personnel meet two to three times a year. This ensures a common approach and the exchange of good practices.
- An annual workshop is part of the *Annual clock* but the University acknowledges that the clock needs to be more fully implemented.

A variety of activities support the professional development of tenured academic staff, including staff orientation, leadership training, mentoring and annual performance evaluations. Support is also provided for staff members who fail to gain tenure and are asked to leave.

The audit team identified a number of good practices at the University. These include the fact that the tenure clock is adjusted for parental leave and other legitimate circumstances; the strategic goal of multidisciplinary is promoted through double-school affiliation; and external peers are involved during the application and promotion process.

The recruitment process is thorough and includes invitations to shortlisted candidates for a two-day visit that includes a series of interviews and a public lecture to demonstrate teaching skills. The criteria for promotion take into account teaching, alongside research and societal impact. The importance of good teaching is stressed across all professorial ranks: at 30 per cent, the weight of teaching remains the same across an individual career (while the weight of work focusing on societal impact in relation to research can increase to 30 per cent at the highest career rank). In addition, the School's Teaching Competence Assessment Committee must endorse a candidate before a position or a promotion is offered.

The system combines common features and disciplinary interpretations in an appropriate way: the quality standards and the procedures in the tenure track system are the same across all schools; the university-wide criteria are interpreted locally to adjust to disciplinary differences.

Aalto University will address any complaint but complainants are expected to turn to an external arbitration process if they are unsatisfied with the explanations provided by the University. Having a more complete system of handling complaints and grievances could strengthen the quality management of the tenure system, particularly because it provides opportunities to analyse patterns of grievance, develop systematic ways of dealing with them and address underlying issues.

The introduction of the tenure track system led to the departure of a number of teachers on fixed-term contracts; this was a difficult transition for the disciplines that rely on external practitioners as teachers. In addition, and as to be expected, there were some signs that the allocation of posts across the schools was a difficult and somewhat contentious exercise.

Overall, however, the audit team found the tenure-track system and its quality management processes to be clear, systematic, embedded, understood and accepted by the University community and the external stakeholders. The tenure-track system is recognised as one of the major policies implemented by Aalto University. The following positive effects were mentioned in the interviews: the system has clarified the career path of young scholars, enlarged the number of applicants and increased their overall quality; it has enhanced the international attractiveness of the University, and increased the number of women in permanent teaching positions. International recruitment rose from 20 to 70 per cent and the percentage of women in tenure-track positions has now reached 24 per cent. The University leadership attributes to the tenure system a significant increase of research productivity.

The introduction of the tenure track system coincided with a significant number of retirements and occurred at a time where the financial situation was favourable. Aalto University will need to be vigilant that the process continues to be fair and transparent in a time of diminishing resources. In addition, the University has recruited a large number of young academics who will wish to be promoted. The University is providing good support to ensure their development. Given the current financial situation, which is challenging, the University is advised to make demographic projections to analyse how its academic staff profile will evolve by rank and school in the mid-term in order to adjust its recruitment and promotion practices accordingly.

7.2 Participation in the quality work

The development of the tenure-track system started as a project. It has been reviewed and refined three times. It is no longer run as a project but is embedded in the University activities.

A workshop was organised in 2014 to review the tenure-track system. Over 80 staff members identified the strengths of the system as well as key areas for further development. These were systematically addressed and discussed in a workshop in October 2015.

In addition, changes were introduced to systematise the quality management of this area, such as collecting statistical data and feedback from multiple sources (i.e., tenure-track candidates, human resource personnel, schools' advisory boards and regular development workshops) and on a recurring basis; establishing university-wide and school-level tenure-track working groups to assist with the development of the tenure-track system; and introducing an annual development clock.

The audit team found that the quality management of tenure track is being refined on an on-going basis. Data and statistics are collected regularly and monitored at every meeting of the university level tenure-track working group. Overall the tenure-track system has received a great deal of attention to ensure that it is rigorous and fair and that the quality management ensures its on-going improvement. Crucially, while there was evidence that processing applications was resource-intensive, there was no evidence that the workload generated by the quality management procedures of this area was unreasonable and burdensome.

Thus, the elements are in place for systematic quality management, including ensuring the participation of all relevant stakeholders in the monitoring and review of this area. The University clearly recognises the strategic importance of the tenure-track system as well as the importance of having clear and fair processes. However, the quality system for the tenure track is still very new and needs to be tested and matured as the self-evaluation report acknowledges.

The quality system as a whole

The quality management of Aalto University covers all key aspects of the university operations and is connected to its strategic aspirations. Responsibilities and tools are clearly identified. The quality system has been devised and refined with contributions from staff, students and external stakeholders. There is good evidence that the system has contributed to improvements and that the University community finds it helpful in providing guidance for day-to-day operations. The development of the operations is based on an existing quality culture. The University is seeking to ensure the systematic collection and analysis of data across all areas and to embed a shared quality culture across all levels of the institution.

*The quality system as a whole of Aalto University is at a **developing** stage.*

8.1 Comprehensiveness and impact of the quality system

The quality system at Aalto University is comprehensive. It is presented in the *Aalto Handbook* which provides detailed guidance on all academic and administrative activities while the *Annual Clock* specifies the milestones of the quality management cycle. The quality management extends to all core activities: degree education, research and innovation, artistic activities, societal impact, support services and the University Board. The latter undergoes an annual review that includes interviews of all Board members by the Board chair.

The quality system includes a range of tools and procedures that combine formal and informal approaches, as well as quantitative and qualitative methods. In line with the international aspirations of Aalto University, external views are collected through international accreditations, visiting boards, international reviews of teaching and research and the involvement of external stakeholders in curriculum development and in the Aalto factories. It is noteworthy that staff, including in the support services, engage in international benchmarking in order to ensure that the international aspirations of the University are achieved. Quality performance indicators are used to measure progress in all core areas.

The system produces a great deal of information and data and an infrastructure is now in place to support the data management system. Data collection and analysis are in the process of becoming more systematic and made available to the appropriate staff.

The quality management procedures effectively support the development of activities. However, the systematic implementation of the procedures varies in two ways. Firstly, implementation varies by sector and is most thorough in education and research; the definition of quality in innovation and societal impact will need further clarification (there is no national or international agreement yet on appropriate key performance indicators, KPIs). Secondly, implementation varies by disciplinary area and is most thorough in business and engineering education. Aalto University is conscious of the need to harmonise quality processes across the institution while it is justifiably concerned with avoiding standardisation in order to deliver its creative and entrepreneurial agenda.

Multiple examples were provided of the impact of the quality system such as upgrading course contents, and identifying weak teachers and providing an adequate response to the problem (e.g. further academic development). Academic and support staff members have welcomed the *Aalto Handbook* for its clear and shared guidelines to accomplish key tasks. Crucially, the University used its quality management results to respond to the latest budgetary cuts imposed by the Government. In addition, quality management is integrated into the University's strategy and supports it. After the establishment of the University, the quality officers were asked to develop a quality system that would be in line with and support the delivery of the University strategy, which was being developed in parallel. Quality mechanisms have contributed to the development of both the strategy and the *Aalto Handbook*: the starting points of the strategy were two comprehensive external reviews (of research in 2009 and of teaching in 2011) while the *Aalto Handbook* has been constantly refined through the *Annual Clock*.

The updated strategy taking the University to 2020 signals the greater integration of the University through the identification of four crosscutting themes: excellence, multidisciplinary, entrepreneurship and societal impact. The challenge will be to develop indicators for excellence in core areas other than research (where international consensus is already strong) and to find effective ways to monitor progress in multidisciplinary, entrepreneurship and societal impact. Applied to the area of education, these goals might mean revising once more of the course offerings in order to deliver the strategy.

Quality enhancement is also delivered by staff development training: this embraces support staff and academic staff; most significantly leadership training is being provided across all hierarchical levels to ensure appropriate succession planning for the next generation of leadership.

8.2 Quality culture

The quality system is based on a definition of quality as excellence. The concept of research excellence is accepted by the University community and measured through well-established international benchmarks. The process is enhancement-led and supportive of staff and students.

The enhancement approach extends to the quality system itself, which is constantly evaluated and refined through the *Annual Clock*. For instance, the KPIs have been refined and changed to make them more operational and, recently, to align them with the updated strategy (2016 edition).

Rather than speaking about quality management, the choice was made to speak about the “Aalto way” and to acknowledge excellence through such informal and affirming mechanisms as the “Aalto high five parties” and the “Aalto achievement of the year”, both of which celebrate staff achievements in specific areas.

Although the quality system is somewhat implicit and not named as such, it has benefited from consultation of the University community. Key documents (such as the 2012 and the 2016 strategies, and the *Aalto Handbook*) were the results of an inclusive process, involving discussions with all categories of staff, students and external stakeholders, as well as other consultation mechanisms such as surveys. All whom the audit team interviewed were positive about the responsiveness of the University to their views and the effectiveness of the quality management. The University leadership acknowledges, however, that more work needs to be done to reach and engage staff below the level of department heads.

8.3 The quality system as a whole

The merger has given Aalto University the unique opportunity to establish a very coherent approach across multiple processes of the institution such as the quality management, the funding allocation model, tenure track, entrepreneurship, industrial partnerships, and curriculum reform. Given the rapid progress accomplished in a very short time-span, it would be easy to forget that the University was established only five years ago. There is clear convergence of strategic vision and operation across the three parent institutions and identification with the new university appears to be developing very well. Few references to the three founding institutions were made during the site visit even if the merger process – as to be expected – is not quite finished. The audit team recognises that the quality policy and supporting quality system have been very well conceived, designed and implemented effectively, and are linked in a very coherent manner to a number of important procedures.

As the quality system is further developed, the University leadership is aware that the institution’s quality culture should be more widely shared vertically, across the hierarchical levels, and horizontally, across all schools. There is awareness as well that the system must remain agile and able to deal with unexpected situations as well as being supportive of specific disciplines and pedagogical needs. Given Aalto University’s ambition to deliver innovation for Finland, it is also essential that the quality management does not become too risk-averse and too bureaucratic. As the University moves forward, it will be important to watch for signs of fatigue that may be accumulating as a result of the many reforms that have been carried out since the merger and the numerous internal and external evaluation processes. It is clear, however, that Aalto University has an excellent capacity to manage change as demonstrated by what it has accomplished in a very short time.

9.1 Strengths and good practices of the quality system

Strengths

1. The quality policy is comprehensive, based on an inclusive consultation process, and balances the need for a university-wide approach and local adaptations in the schools. The approach is designed to support the strategic goals of the University. It provides clear milestones and explanations on how to manage the quality of all activities and promotes the engagement of staff, students and stakeholders in quality management.
2. There is a clear commitment to providing a high-quality experience for all students. The objectives for degree education are closely aligned to the University's strategy. The quality system supports this by producing both qualitative and quantitative data, including student feedback. Faculty are fully supported in the development of pedagogic practice. The tenure track process requires active engagement in teaching practice for all academic staff and the School's Teaching Competence Assessment Committee must endorse a candidate before a position or a promotion is offered.
3. Aalto University has developed good relationships with its stakeholders who show strong commitment to the University and its core activities. This includes a commitment to the quality management, such as participation in different projects and in University governance, membership in different steering groups at the different organisational levels, and providing formal and informal feedback as requested.
4. The University organises a number of international reviews, which provide useful benchmarks for teaching and learning, research and artistic activities.
5. The University is commended for the rigorous way in which it introduced and fine-tuned the tenure process. The audit team found the tenure-track system and its quality management process to be clear, systematic, embedded, understood and accepted by the University community and the external stakeholders.

Good practices

1. The University has reorganised the administrative support services to achieve two aims: to seek the right balance between the central support units and those located in the schools and departments, and to shift the culture of the administration to a customer-oriented service culture. The Q7 Network is a good example of this: it coordinates quality management across the university and ensures an effective interface with students and staff, including the senior leadership.
2. The University is supportive of students' initiatives, notably in the area of quality management. Two examples include (i) the *Course Messenger* that enables students to regularly provide feedback anonymously while the course is being delivered with the aim of immediately addressing any specific issues or 'frustrations' relating to course delivery; (ii) the 'quality parties', which provide informal ways by which the University promotes a quality culture.
3. The University produced its own guide to support and promote excellence in teaching practice. *'Get inspired! A guide to successful teaching'* embodies the aspiration of embedding 'deep-learning' approaches and supporting independent, student-centred, critically-reflective learning. This document guides the active development of pedagogic approaches, particularly in the context of re-thinking and redesigning modes of assessment.
4. As platforms for innovation, the Aalto Factories play an essential role in enhancing and improving Aalto University's core activities. The factory model is a particularly innovative approach to enhancing external engagement and societal impact.
5. The quality management extends to the Board who engages in a yearly self-review, which includes an interview of each member by the Board chair.
6. Aalto University is engaged in succession planning. It is preparing the next generation of leaders by providing leadership training at all levels of the organisation.

9.2 Recommendations

1. There was some evidence of variability of practice concerning students receiving feedback on their work, whether it was in the implementation of HOPS (personal study plan) in the undergraduate cycle or in relation to doctoral students' progression. The University is encouraged to establish clear aims and core requirements for academic advising and doctoral supervision and scheduling opportunities for students to formally receive feedback and to discuss their plans and their performance. In addition, the feedback sought from doctoral students was limited to their course work. It would be advisable to integrate a formal process in the *Annual Clock* cycle for doctoral students to provide feedback on their wider learning experience.
2. Promoting multidisciplinary in research and teaching and enhancing societal impact are two strategic goals of the University. The University is encouraged to develop indicators to monitor these two areas.
3. The University is encouraged to consider introducing a periodic review (e.g. every five years) of the overall efficiency of its entire quality system. This would complement the current processes that fine-tune the system incrementally.

4. The University is encouraged both to establish a standard approach to outline course descriptions, and to ensure that core requirements and standards are met by all schools. This would involve clear descriptions of the outline syllabus, teaching approach/learning experience, numbered and explicit learning outcome statements, along with their associated strategies for assessment and feedback for the students for each course.
5. Aalto University will need to be attentive that the tenure process continues to be fair and transparent in a time of diminishing resources. In addition, the University is advised to make demographic projections to analyse how its academic staff profile will evolve by rank and school in the mid-term in order to adjust its recruitment and promotion practices accordingly.
6. The University is encouraged to review and assess the number of committees both from the point of view of efficiency for the institution and the workloads for individual staff members.

9.3 The audit team's overall assessment

The quality system of Aalto University fulfils the FINEEC criteria for the quality system as a whole and for the quality management as it relates to basic duties. None of the audit targets are at the absent stage, and the quality system as a whole (audit target 6) is at the developing stage.

The audit team proposes to FINEEC Higher Education Evaluation Committee that Aalto University passes the audit.

9.4 Higher Education Evaluation Committee's decision

In its meeting on 13th June 2016, the Higher Education Evaluation Committee decided, based on the proposal and report of the audit team, that the quality system of Aalto University meets the FINEEC criteria for quality systems as a whole and quality management of the higher education institution's core duties. Aalto University has been awarded a quality label that is valid for six years beginning on 13th June 2016.

APPENDIX 1: Table of the audit targets and criteria

TARGETS	CRITERIA		
	Absent	Emerging	Developing
<p>1. Quality policy</p> <p>The quality policy shows an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> • rationale and definition of the quality system's objectives and responsibilities • accessibility of the quality policy to internal and external stakeholders • linking to the institution's overall strategy. 	<ul style="list-style-type: none"> • The quality policy's rationale, objectives and division of responsibilities are at an early stage of development and are only partially defined. • The quality policy is not fully accessible and does not sufficiently take into account the information needs of internal and external stakeholders. • The quality policy is insufficiently linked to the institution's overall strategy. 	<ul style="list-style-type: none"> • The quality policy's rationale, objectives and division of responsibilities are clearly defined and the result of an inclusive process. • The quality policy is accessible to all internal and external stakeholders, taking their information needs into account. • The quality policy is clearly linked to the institution's overall strategy. 	<ul style="list-style-type: none"> • The quality policy's rationale, objectives and division of responsibilities are defined in explicit terms and the result of a thorough and wide process. • The quality policy is accessible and actively communicated to all internal and external stakeholders. • The quality policy is an integral part of the institution's overall strategy.

TARGETS

CRITERIA

	Absent	Emerging	Developing	Advanced
<p>2. Quality system's link with strategic management</p>	<p>The quality system and quality work show an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> • ability to meet the information needs of strategic and operations management • procedures for the use and communication of quality information • functionality at different organisational levels • division of responsibility • commitment in the execution of roles and responsibilities in the institution's quality work. 	<ul style="list-style-type: none"> • The quality system and the information it produces serve only partially the needs of strategic and operations management. • Procedures for the use of and communication of quality information are weak or uneven. • The quality system functions unevenly across the institution. • The division of responsibility is only partially effective, with variable commitment in the execution of roles and responsibilities in the institution's quality work. 	<ul style="list-style-type: none"> • The quality system and the information it produces serve strategic and operations management. • Established procedures ensure that the information produced is put to use and communicated systematically within the institution and to external stakeholders. • The system works evenly across different organisational levels and units. • The division of responsibility is effective, and roles and responsibilities in the institution's quality work are executed with commitment. 	<ul style="list-style-type: none"> • The institution has well-established and excellent procedures that systematically produce information for strategic needs, and the information is put to systematic and wide use. • The institution has well-established and excellent procedures for communicating information to different personnel groups, students and external stakeholders. Communication of the information is active and up-to-date. • The quality system works effectively across all organisational levels, in a way that adds value to and enhances the quality of the institution's operations. • Managers and members of the community are committed to enhancement and the embedding of a quality culture.

TARGETS

CRITERIA

	Absent	Emerging	Developing	Advanced
3. Development of the quality system	<p>The HEI shows an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> procedures for evaluating or developing the quality system or overall view of the functioning of the quality system. 	<ul style="list-style-type: none"> The institution has in place procedures for evaluating and developing the quality system but these procedures may not always be fit for purpose and/or effectively used for the system's further development. Institutional oversight of the functioning of the quality system needs to be strengthened. 	<ul style="list-style-type: none"> The HEI has in place well-functioning procedures to evaluate and develop the quality system. The institution is able to identify the system's strengths and areas in need of development, and development work is systematic. 	<ul style="list-style-type: none"> The HEI has well-established and systematic procedures for regularly evaluating and developing the system. The institution is able to efficiently identify the system's strengths and areas in need of development. There is clear evidence of the system's successful development work.
<i>Follow-up section for the HEIs subject to the second audit:</i>	<p>The HEI shows an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> development work following the first audit. 	<ul style="list-style-type: none"> The development of the quality system after the first audit has not been systematic or effective. 	<ul style="list-style-type: none"> The development of the quality system after the first audit has been systematic. The system works better than before. 	<ul style="list-style-type: none"> After the first audit, the HEI has systematically improved the functionality and fitness for purpose of the quality system. Special attention has been given to the workload produced by the system. The system has been developed in a successful and effective manner.

The fulfilment of the following criteria is reviewed separately for each core duty and optional audit target:

TARGETS

CRITERIA

	Absent	Emerging	Developing	Advanced
<p>4. Quality management of the core duties, including essential services supporting these</p> <p>4a) Degree education</p> <p>4b) Research, development and innovation activities, as well as artistic activities</p> <p>4c) Societal impact and regional development work (incl. social responsibility, continuing education, open university and open university of applied sciences education, as well as paid-services education)</p> <p>4d) Optional audit target</p>	<p>The quality system shows an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> • quality management procedures used to achieve the goals set for the core duties • participation of the institution's personnel groups, students or external stakeholders in quality work related to the core duties • quality management of essential services supporting the core duties. 	<ul style="list-style-type: none"> • The quality management procedures are in place but insufficiently developed. The procedures do not fully support the achievement of institutional strategic goals set for the core duties. • The information provided by the quality system is as yet insufficient for the development of the core duties. Information use is sporadic and/or information collection is an end in itself. • Personnel groups, students and external stakeholders are only partially involved in quality work. • The quality management of key support services is not functional. 	<ul style="list-style-type: none"> • Functional quality management procedures advance the development of the institution's core duties and the achievement of goals set for the operations. • The quality system produces relevant information for the development of the core duties, and the information is used for this purpose. • Personnel groups and students are involved in quality work. External stakeholders also participate. • The quality management of key support services functions relatively well. 	<ul style="list-style-type: none"> • The HEI has systematic and well-established quality management procedures that provide excellent support for the development of the institution's core duties and the implementation of its overall strategy. • The institution has systematic and excellent procedures used to produce information for the development of the core duties. There is clear evidence that information is used systematically and successfully. • Personnel groups and students are committed and actively involved in quality work. Special attention has been given to the workload generated by the quality management procedures. External stakeholders are also systematically involved in quality work. • The HEI has systematic and well-established procedures for the quality management of key support services. There is clear evidence that these procedures function well.

The fulfilment of the following criteria is reviewed separately for each degree programme:

TARGETS	CRITERIA			
	Absent	Emerging	Developing	
<p>5. Samples of degree education: degree programmes</p> <p>Planning of the programme</p> <ul style="list-style-type: none"> • Curricula and their preparation • Intended learning outcomes and their definition • Links between research, development and innovation activities, as well as artistic activities, and education • Lifelong learning • Relevance of degrees to working life. <p>Implementation of the programme</p> <ul style="list-style-type: none"> • Teaching methods and learning environments • Methods used to assess learning • Students' learning and well-being • Teachers' competence and occupational well-being. <p>Participation</p> <ul style="list-style-type: none"> • Participation of different personnel groups, students and external stakeholders in quality work related to the degree programme. <p>Effectiveness of quality work</p> <ul style="list-style-type: none"> • Suitability of key evaluation methods and follow-up indicators and their impact on the achievement of goals. 	<p>The quality system shows an absence of or major shortcomings in the:</p> <ul style="list-style-type: none"> • quality management procedures related to the planning of the programme • quality management procedures related to the implementation of the programme • participation of the institution's personnel groups, students or external stakeholders in the development of the programme or • effectiveness of the quality work related to the programme. 	<p>The quality management procedures related to the planning of educational provision are not fully functional and do not provide sufficient support to the planning of the programme.</p> <ul style="list-style-type: none"> • The quality management procedures related to the implementation of educational provision are not fully functional and do not provide sufficient support to the implementation of the programme. • Personnel groups, students and external stakeholders only partially participate in quality work. • There is little evidence of the effectiveness of the quality work related to the programme. 	<p>The quality management procedures related to the planning of educational provision are fully functional and support the planning of the programme.</p> <ul style="list-style-type: none"> • The quality management procedures related to the implementation of educational provision are fully functional and support the implementation of the programme. • Personnel groups and students participate in quality work. External stakeholders also participate. • There is evidence that quality work has an enhancement effect on the programme. 	<p>The quality management procedures related to the planning of educational provision provide excellent support for the planning of the programme. They are systematic and well-established.</p> <ul style="list-style-type: none"> • The quality management procedures related to the implementation of educational provision provide excellent support for the implementation of the programme. They are systematic and well-established. • Personnel groups and students participate actively in quality work. External stakeholders are also systematically involved. • There is clear evidence of the enhancement effect of the quality work.

	Absent	Emerging	Developing	Advanced
6. The quality system as a whole	<ul style="list-style-type: none"> • The HEI has only individual and unrelated quality management procedures. • There is no evidence of the procedures' impact on the development of the operations. 	<ul style="list-style-type: none"> • The quality management procedures do not yet form a functioning and unified system. • The quality system encompasses some of the HEI's core duties but there is little evidence of the system's impact on the development of the core duties. • The institution's quality culture is only just emerging. 	<ul style="list-style-type: none"> • The quality management procedures constitute a functioning system. • The quality system covers the essential parts of the core duties of the HEI and provides support for the development of the operations. There is evidence that the system has an impact on the development of the core duties. • The development of the operations is based on an existing quality culture. 	<ul style="list-style-type: none"> • The quality management procedures form a dynamic and coherent system. • The quality system covers all the core duties of the HEI and provides excellent support for the institution's overall strategy and the development of the operations. There is clear evidence that the system has an impact on the development of the core duties. • The institution has a well-established quality culture, characterised by wide participation, commitment and transparency.

APPENDIX 2: Stages and timetable of the audit

Audit agreement between FINEEC and Aalto University	30.3.2015
Nomination of the audit team	18.9.2015
Submission of the audit material	3.11.2015
Information and discussion seminar at Aalto University	11.12.2015
Audit visit	26.–28.1.2016
FINEEC Higher Education Evaluation Committee's decision on the audit result	13.6.2016
The report is published	15.6.2016
Concluding seminar	22.6.2016
Follow-up on the quality system's development	In 2019

APPENDIX 3: Programme of the audit visit

Tuesday 26 January	
9.00–10.10	Interview with President, Provost and Vice Presidents
10.10–11.00	Interview with the University Board representatives
11.10–12.00	Interview with the Deans
13.00–13.50	Interview with the Directors of Services
14.00–14.50	Interview with teaching staff
15.00–15.50	Interview with students
16.00–16.50	Thematic interview: Quality management of societal interaction and regional development
17.00–17.50	Interview with external stakeholders
Wednesday 27 January 2016	
9.00–9.50	Thematic parallel interviews: Quality management of education, groups A and B
10.30–11.20	Thematic parallel interviews: Quality management of research, groups A and B
12.30–13.20	Thematic interview: Quality management of the tenure track system
13.30–14.20	Bachelor's Programme in Engineering: interview with staff
14.30–15.20	Bachelor's Programme in Engineering: interview with students
15.30–16.20	Parallel interviews: Bachelor's Programme in Business + Masters Programme in Strategy: staff Doctoral Programme in Chemical Technology: staff
16.30–17.20	Parallel interviews: Bachelor's Programme in Business + Masters Programme in Strategy: students Doctoral Programme in Chemical Technology: students
Thursday 28 January 2016	
9.00–9.50	Thematic interview: Quality management in the educational fields of Arts, Design and Architecture, staff
10.00–10.50	Thematic interview: Quality management in the educational fields of Arts, Design and Architecture, students
11.00–11.50	Interview with support services staff
15.00–16.00	Interview with and preliminary feedback to the President's Management Team (PMT)

The Finnish Education Evaluation Centre (FINEEC) is an independent, national evaluation agency responsible for the external evaluations of education from early childhood education to higher education in Finland. It implements system and thematic evaluations, learning outcome evaluations and field-specific evaluations. Moreover, FINEEC supports providers of education and training and higher education institutions in matters related to evaluation and quality assurance, as well as advances the evaluation of education.

Audits of the quality systems of higher education institutions have been implemented in Finland in accordance with the principle of enhancement-led evaluation since 2005. The objective of the audits has been to support Finnish institutions in developing quality systems that correspond to the European principles of quality assurance and to demonstrate that functional and consistent quality assurance procedures are in place in Finland both in institutions and at the national level. In the audits, institutions are supported in their efforts to reach their strategic objectives and in directing future development activities in order to create a framework for the institutions continuous development.

This report presents the audit process of Aalto University and the results of the audit.

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