Future Budget Allocation Model (RFM) – Principles, models and incentives

DISCUSSION DOCUMENT
WORKING GROUP FOR A NEW ALLOCATION MODEL
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A guide for the reader

This is the first discussion document about a new model for the allocation of the governmental block grant – the RFM model (“rammefordelingsmodell” in Norwegian). This initial hearing will primarily concern the main issues that NTNU faces in its choice of model, and the implications that its choices may have. The next hearing (mid-October) will be more specific with regard to calculations and financial consequences that the recommended model(s) may have for the various units. The estimates will be based on the proposed national budget for 2017.

The discussion document:
Chapter 1 introduces the most important questions that the hearing must address, as well as the working group’s mandate. Chapter 2 describes key concepts and definitions, the current budget allocation models at selected institutions and the consequences of a possible continuation of NTNU’s current income allocation model (IFM). Chapter 3 describes the new funding system of the Ministry of Education and Research (KD), which enters into force in 2017. In Chapter 4, the working group discusses some general issues and principles that will apply regardless of the operative budget allocation model that is selected. Chapter 5 discusses the function to be fulfilled by a new budget allocation model and its role together with other instruments for strategic governance. Various alternatives are then outlined for the dimensions of the components in a future allocation model (base component, strategic component and performance-based component), illustrated by four alternative development paths for NTNU. Finally, we outline some issues related to the introduction of a new RFM. In Chapter 6, we look at relevant models for framework allocation that are used by selected universities internationally. In the appendix, two model alternatives relevant to NTNU are outlined. The two alternatives are an allocation model based on the methodology in the funding system of the Ministry of Education and Research, and an activity-based costing model. Chapter 7 invites comments on possible future incentives for NTNU. At the end, there is an overview of key terms and expressions used in the discussion document.

Supporting documentation
The working group has prepared a number of supporting documents in its work on the future RFM funding model. These provide important background information for the work and they have been posted on the website for the project (http://www.ntnu.no/fusjon/budsjettmodellen).

Five such supporting documents have been prepared. Background Note 1 provides a brief introduction to existing allocation models at the four merger partners and other Norwegian universities. In Background Note 2, we look at trends for the merger partners as well as the University of Oslo (UiO) and the University of Bergen (UiB) from 2004 to 2014. We describe how the composition of the grants has developed, the real growth in the grant allocations and potential causes of the development that has taken place. Background Note 3 briefly discusses some of the evaluations and the research conducted in connection with performance-based funding models for the higher education sector. Background Note 4 provides a brief description of current cash flows and the funding system for the higher education sector. Background Note 5 describes NTNU’s internal rental model.
The working group has commissioned Technopolis to conduct a survey of internal budget allocation models in selected European universities: “Universities’ internal budget models - Six European case studies”, which is available on the website for the project.

Chapter 1.2 launches the main questions for which we would like answers in the hearing. Text boxes have been included at intervals in the document with individual questions on which the working group would like additional comments and input. The deadline for comments is Wednesday 14 September at 1200.

1. Analysis of new model for allocation of the block grant: mandate and members

1.1 Background

Due to the implementation of the merger, the launch of a new academic and administrative organizational structure, as well as the introduction of a new funding system for the higher education sector, there is a need to develop a new model for internal allocation of the block grant that NTNU receives through the national budget.

The Rector has appointed a working group with a mandate to assess proposals for a new allocation model for NTNU. The model has been given the working title “Block Budget Allocation Model” (Rammefordelingsmodell, RFM). The allocation model is to be used as a tool for further internal allocation of the block grant that NTNU receives through the national budget.

The four merging institutions have had different budget allocation models. The three former university colleges had variants of the model that the Ministry of Education and Research uses for the entire higher education sector. For its part, NTNU has developed a distinctive model. However, all the merging institutions have adapted strategically to the incentives that form the basis for the performance-based component in the funding model of the Ministry of Education and Research (KD), and have shown good development for one or more parameters that trigger positive effects in the funding system. Each of the four models has been tailored to the distinctive character of the relevant institution in its own way, but this distinctive character is changed by the merger. For example, one could argue that NTNU’s model for income allocation (IFM) has not been adapted to the different and broader societal mission of the new NTNU, illustrated by factors such as greater emphasis on first-degree level education. This is explored in more depth in Chapter 2.4.

The models that have been in use have been continued in the specification of the budget limits for 2017, but from and including the budget year of 2018 a common model must be in place. This means that the model must be ready when the planning and budgeting process begins in the new year in 2017. The plan is that the Board will decide on the new model at a Board meeting to be held on 23 January 2017. Completion of the new model early in 2017 is important to enable the faculties to work on the development of their own models for further allocation to the departments.

In the efforts to develop proposals for a new model, we will have a dialogue with the organization through two hearings and dialogue meetings.

In the national budget for 2016, the Ministry of Education and Research defined the framework for the sector’s future funding model, after a lengthy process in which the institutions were consulted as
well. The new model has emerged as an adjustment of the model that the sector has had since 2002, and the changes are largely in line with NTNU’s input. In this process, NTNU’s concern was that the model should provide predictability through a high proportion of base funding; it should be performance-oriented, but transparent in the sense that it is possible to understand the relationship between results achieved and the budget allocation. At the same time, NTNU wanted a funding model that was easy to understand.

During the process of developing a new model for the sector, there was a great deal of discussion about fairness in the allocation of funds. Some institutions believed that the difference in the level of grants between the institutions was unfair. This was refuted by the Government. The level of the grant to the institutions is the result of political decisions over many years in total. The same will apply internally at NTNU. The level of the allocation between the various units at NTNU will vary, and it will not be possible to allocate funds to the faculties based on a principle of fairness or a principle of complete equality. At the outset, the new faculties bring with them the resources, the infrastructure and the cost level that they have; the working group has neither a mandate nor the prerequisites for reallocating resources between units at the starting point when a new model is to be introduced. The fact that different models may result in different budget development between the units is a different issue.

1.2 The most important consultation questions

A new budget allocation model must reflect the distinctive identity of the new merged NTNU. At the same time, it must provide scope for the further strategic development of the university. The merger must not simply be the sum of four institutions that join forces. It is intended to lead to development and quality improvement; see the Merger Platform. The main question is which budget model we believe can best support the desired development of the new NTNU. The mandate further emphasizes that a new allocation model must be as simple and transparent as possible.

The mandate establishes that the model is to have a base component, a performance-based component and a strategic component. We describe what the various terms mean in greater detail below. The different components and their relative proportions involve finding a balance along several dimensions, including:

- Long-term sustainability, predictability, potential for planning.
- Possibility to set priorities, ability to seize new opportunities.
- Adaptability and willingness to adapt.
- Reward for realizing productivity gains.
- Reward for results achieved.
- Strategic room for manoeuvre at different levels in the organization and the opportunity to develop activities, academic environments and infrastructure.

The choice of budget model is therefore a choice between weightings of different components of the model. One of the main questions on which we would like feedback is what the ratios between the base component, the performance-based component and the strategic component in a future allocation model should be.

A relatively large amount allocated for strategy and restructuring across the organization could provide opportunities for developing world-leading environments, focusing attention on innovation in education, ensuring good and effective administrative support systems across the organization, etc. In contrast to other universities, NTNU has been characterized by the ability and willingness to
allocate funds for such purposes. The initiative that led to the Nobel Prize in 2014 is the most prominent example.

A relatively large performance-based component allows for rewarding good results in areas that are important for NTNU. For example, since the funding system was introduced in 2002 we have seen a considerable increase in the number of publication points at NTNU. Publication points are not important per se, but it is important for NTNU to have a good culture for publication of research results. Publication is essential for recognition of NTNU as well as for NTNU’s influence and opportunities for cooperation with attractive partners. Publication is also important for the way that the overall scope of funding to NTNU develops.

A relatively large base component makes a long-term perspective possible for the faculties. A large base could also give the faculties latitude for setting their own priorities.

The mandate states that at least one of the proposals from the working group must be based on the principles in the model that the Ministry of Education and Research (KD) has developed for the distribution of funds to the sector. Another alternative is that NTNU develops its own model more independently of the principles in the model developed by the Ministry.

One of the questions on which we would like feedback is therefore whether the new allocation model should be based on the Ministry’s methodology or whether NTNU should have a model that it has developed itself based on other principles.

The model must have a performance-based component, according to the mandate. This raises the question of how the performance-based component should be structured. Should all or only parts of the activities be subject to incentives? Which indicators should count? Should incentives in the Ministry’s funding model be continued as incentives in NTNU’s Budget Allocation Model, and if so with what strengths/dimensions? Should NTNU’s model have other/new incentives?

We will simulate the effects of various models in the next hearing on the RFM allocation model. In principle, we have no basis for proposing extensive changes in the allocation of the basic grant between the units. But if there are particular factors or imbalances of which the working group should be aware when the basis for the allocation between faculties is to be calibrated, we would like feedback on these. These may either be historical circumstances or situations that lie ahead. If such comments are provided, we would like to ask for views on how the corrections could be funded.
The most important consultation questions are:

- Which budget model do we believe can best contribute to the desired development of NTNU in the future? What is the best way to support NTNU’s distinctive character as well as the aims and ambitions expressed in NTNU’s strategy “Knowledge for a better world” and in the merger platform?
- Which of the two model alternatives that the working group has investigated should form the basis for the new allocation model?
- Should the incentives in the Ministry’s funding model be continued as incentives in NTNU’s budget allocation model as well, and if so with what strength/dimensions?
- Input and ideas for possible other/new incentives that a future model should include?
- Should administrative functions and services be subject to incentives? Should there be separate incentives/indicators for administration?
- To what extent should the model also be used for the faculties’ further allocation to the departments?

At intervals in the document, there are also specific individual questions for which we would like feedback. These questions are placed in boxes.

1.3 The working group’s mandate

The working group is to assess proposals for a future model for allocation of the block grant for NTNU. The mandate for the working group was specified in the Rectorate meeting of 23 February 2016 and is available here: [Mandate for new budget model](#)

The mandate states that the group is to propose at least two different allocation models. At least one of the proposals must build further on the methodology of the new funding model from the Ministry of Education and Research, which becomes effective from 2017. The proposals must be based on the Board’s decision: NTNU’s academic and administrative organizational structure in effect from 01.01.2017, as well as the decision on 5+5 per cent productivity improvements during the period 2017-19; see [the Board’s decision](#) of 15.02.2016.

All proposed models must have a basic component and a performance-based component (incentives). The level of the allocation to strategy and restructuring funds at the institutional level must be continued.

The group must also evaluate the results and effects of the current models at the institutions. In addition, the group must evaluate how internal rent (jointly or per campus) can be integrated in the RFM allocation model. The mandate also specifies that the backlog of maintenance investments must be covered (cf. Information Item O-sak 28/14).

The group must assess how the information that the allocation model provides can be integrated in NTNU’s planning and budgeting processes, including proposing how phasing in of the new model should take place and any transitional arrangements in the implementation phase.
1.4 Composition of the working group

The working group has the following members:

- Director of Finance and Property Frank Arntsen (Chair)
- Dean Anne Borg, Faculty of Natural Sciences and Technology (NT)
- Head of Department Olav Bolland, Department of Energy and Process Engineering, Faculty of Engineering Science and Technology (IVT)
- Head of Department Dagfinn Dahl Dybvig, Department of Philosophy and Religious Studies, Faculty of Humanities (HF)
- Vice-Dean Hilde Grimstad, Faculty of Medicine (DMF)
- Associate Professor Torunn Klemp, Faculty of Teacher and Interpreter Education
- Roger Midtstraum, Chair of the Executive Committee for Engineering Education (FUS), Faculty of Information Technology, Mathematics and Electrical Engineering (IME)
- Vice-Rector Jørn Wroldsen, NTNU in Gjøvik
- Student Ingvild Sørli
- Employee representative Øystein Risa, Tekna (the Norwegian Society of Graduate Technical and Scientific Professionals) / Kristian Steinnes, Forskerforbundet (the Norwegian Association of Researchers) (deputy)

The secretariat has consisted of Roar Tobro (Chair), Morten Størseth, Lise T. Sagdahl, Andreas Slettebak Wangen and Jan Åge Øyen.

So far, the working group has held five meetings.

1.5 Grounding in strategy and the merger platform

According to the mandate, the allocation model must create the basis for:

- Fulfilment of NTNU’s statutory responsibilities and duties and other assignments from government agencies.
- High quality of education and research at NTNU.
- Realization of overarching strategic priorities at the central level and at faculty level.
- A long-term perspective for planning, investment and operations.
- Fulfilment of restructuring needs.
- Cooperation across academic environments and organizational units.

NTNU’s overarching goals are stated in the strategy Knowledge for a Better World. NTNU aims to create the basis for the development of knowledge and to create value – economic, cultural and social. We will make the best possible use of our main profile in science and technology, our academic breadth, and our interdisciplinary expertise to tackle the large and complex challenges faced by Norway and the world community. NTNU must be internationally outstanding. In selected areas, we aim to have academic environments that rank among the best in the world.

The merger platform

Profile and distinctive character

NTNU must be and must have a profile as a broad-spectrum university with a clear main profile in science and technology, and must represent a national hub in programmes of professional study.

High-quality programmes of study

Our students will experience teaching, learning, and learning environments of high quality and with stringent requirements for quality. The programmes of study will be subject to continuous quality development and they will be assured a good foundation for research. We will commit
resources and lay the foundation for excellent education. We will have academic environments that lead the international field in the quality of their programmes of study.

**Strong academic environments**

NTNU must have consistently high quality, and there are expectations that leading academic environments exist or will be developed throughout the breadth of the university. The doctoral programmes have high priority. So that we can contribute at the leading edge of international knowledge development, we will establish the basis for investing in first-class laboratories and infrastructure for our core tasks.

**Internationalization**

NTNU must have an international focus in its activities. All academic environments should pay attention to EU-funded cooperation in research and education.

**Multi-campus university**

NTNU is to be one university with campuses in three cities. This requires academic integration, division of tasks and leverage of complementary strengths and advantages.

**Academic synergy, interdisciplinarity**

Interdisciplinarity must be valued and encouraged. Subjects in the programmes of professional study at NTNU will have a solid foundation in disciplinary knowledge and a practice-oriented profile. The links between the professional and discipline-based programmes of study will mutually strengthen quality, and the academic expertise in these environments will be applied across boundaries.

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2. **Key concepts – today's budget distribution models**

2.1 **Terms in the funding system for the higher education sector**

Universities and university colleges are mainly funded through annual block appropriations from the Ministry of Education and Research (Section 260) and through income from collaborative and contract activities ("BOA")\(^1\). Other income represents a relatively small proportion of the funding basis for the sector.

The block grant from the Ministry of Education and Research (often called the basic appropriation) consists of a long-term, strategic **basic grant** and **performance-based grants** in education and research. The size of the performance-based grants depends on the results that the institutions achieve in relation to the performance indicators specified for the sector. In the funding system of the Ministry of Education and Research, the base component is a continuation of grants that have been provided throughout the lifetime of the institution. The performance-based grants function as **incentives** aimed at encouraging institutions to improve their results, and the indicators entail performance-based governance of the sector rather than activity- or input-based governance. In addition, there are direct **earmarked grants** for specific activities or purposes.

The funding system for the higher education sector distributes Budget funds among institutions – not among areas of activity, disciplines or internal organizational units. The institutions in the higher education sector are **net-budgeted organizations** with authority to use the funds granted from the

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\(^1\) **Activity with sponsored funding**: Projects where NTNU obtains support from national and international funding sources, without requirements for deliverables (counter-performance) when the agreement/contract is signed.

**Activity funded on a commission basis**: Projects for which NTNU receives payment from external principals, where there is a requirement for deliverables (counter-performance) when the agreement or contract is signed.
Ministry of Education and Research. Although the grant from the Ministry is divided into a basic and a performance-based component, it is allocated as a **total amount that the Board of NTNU is authorized to use** for various purposes. This means that the Board is given substantial strategic room for manoeuvre, and the Board has both the authority and the responsibility to undertake the further allocation of the block grant internally at NTNU.

### 2.2 Concepts in the RFM allocation model

According to the mandate, the model is to be used to distribute the block grant from the national budget to various areas of activity, purposes and cost centres internally at NTNU. NTNU has significant income from collaborative and contract activities (“BOA”) and some other sources. These sources of income are outside the model, but at the same time they influence the total availability of resources, the dimensions and thus the whole picture of NTNU’s budgets, use of resources and activities.

The mandate implies that a future model must include the following three main components:

**Strategic component:** The strategic component must fund or partly fund major strategic initiatives, restructuring activities or other joint initiatives at NTNU level. The Board determines the size and allocation of the strategic component. The internal strategic component currently makes up about 15 per cent of NTNU’s block grant.

**Performance-based component:** The performance-based component is intended to reward producing units for good achievement of goals in accordance with the specified incentive structure (based on quantifiable performance indicators). The Ministry’s funding system includes such performance-based components for research and education respectively. The Ministry provides no guidelines on whether the performance-based incentives should be continued internally at NTNU, and this will be up to NTNU itself. The size and the content of the performance-based components in the model will depend on how the new model is designed.

All three university colleges had used the Ministry’s performance indicators in their distribution models in both education and research, but with some differences in the weighting. NTNU’s model for income allocation (IFM) varies significantly from the Ministry’s funding model within education, while within research NTNU has several indicators in addition to those included in the Ministry’s model.

**Base component:** The base component is intended to provide stable long-term funding of all activities that are not funded by the strategic or the performance-based component. The base component is thus not dependent on the results achieved.

The figure below shows the relationship between the block grant from the Ministry of Education and Research, the internal redistribution in NTNU and the key concepts used.
NTNU is allocated a total basic grant consisting of a base component (about 70 per cent of the allocation), a performance-based component (about 30 per cent of the allocation) and any earmarked funds from the Ministry. The Board has authority to distribute this basic grant internally; to the faculties and central university administration/shared services. In principle, the external and the internal allocation model may be completely different, and there is no need for consistent incentives or grants from the departmental to the faculty level.

2.3 Collaborative and contract activities ("BOA")
According to the mandate, the allocation model is to be used for allocation of the block grant from the Ministry. Other income that NTNU receives is not directly included in the allocation model. By far the largest source of income here is collaborative and contract activities ("BOA"), which mainly accrue to the faculties in which the activity is generated.

There are several relationships between the activities funded through the block appropriation ("BFV" activities) and the activities funded through collaboration and contracts ("BOA"). The relationships can be shown as in the figure below:
- Indirect costs and research infrastructure expenses are charged to the BOA projects (costs are calculated based on the concept of research infrastructure resources in the Norwegian TDI full-costing model).
- Reclassification of salaries (the cost is transferred from the appropriation to an externally funded project).
- Internal funding of collaborative research projects charged to appropriation-funded activities ("BFV").

The extent of collaborative and contract funding varies widely between different faculties and academic environments. This reflects differences in external funding opportunities in different sectors, subject areas and academic environments, differences in disciplinary traditions and culture, but also variations in research quality.

For some faculties, activities based on collaborative and contract funding are crucial for their overall financial room for manoeuvre. Because the entire additional income from collaborative and contract activities accrues to the individual faculty, the faculties/academic environments have strong incentives to increase this income. At the same time, they bear a substantial risk in adapting their capacity and costs to fluctuations in activity and funding opportunities.

The lower the proportion of external funding, the more important the State grant becomes, in relative terms. Although external funding also “ties up” funds through internal funding, faculties with a high proportion of external funding have greater potential for establishing strategic room for manoeuvre than environments without such funding.

2.4 The current allocation models

The old NTNU’s allocation model – the Income Allocation Model (IFM) – is used to distribute 54 per cent of the basic grant from level 1 to level 2. The remaining 46 per cent is allocated as strategy and restructuring funds, an allocation to internal rent and direct allocations to shared services and the

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2 Please see background note 1 in which the current allocation models in the four merger partners and other Norwegian universities are discussed, as well as the allocation models for the current faculties at NTNU
central university administration. IFM consists of a base component and a performance-based component, both allocated to the education and research activities. In particular, the dimensions of the research allocation in IFM differ from the methodology in the Ministry’s funding model. The Ministry’s funding model does not divide the block grant into an education and research component. It is only on the results side that the Ministry’s funding model can be attributed to education and research respectively.

The former university colleges have used internal distribution models that are close to the methodology of the Ministry’s funding model. In comparison, the old NTNU’s IFM is significantly more detailed, with explicit dimensions of a research allocation (base and performance-related components). Considerable effort has been invested in establishing and revising the IFM model during the past twelve years. The aim has been to capture the distinctive character of different academic environments. The incentives in the IFM model coincide with and point in the same direction as the Ministry’s funding model, while the incentive strength varies based on priorities in university policy. IFM also differs from the Ministry’s funding model in that an attempt has been made to decompose both the performance-related and the base component. Parts of the base for education were stipulated in 2005, while other parts such as the infrastructure allocation were updated in 2014 after a review of the accounting figures for operation of infrastructure and salaries to technicians. The base in the IFM model also has an element called “Special Tasks”. This is an amount set aside for fixed tasks and initiatives that do not have a natural place in the technical calculation part of the model. An example of this is the allocation to the Faculty of Humanities for funding of the programmes of study in music. These amounts are not regarded as earmarked, but are included as part of the faculties’ block appropriation.

The greatest difference between the internal allocation models of the former university colleges and IFM is the calculation and distribution of the allocation for research. An overarching principle in IFM is that at institutional level as many hours of teaching as hours of research are to be funded, in accordance with specified standard figures for funding of teaching activities. Even though the number of funded teaching hours is equal to the number of research hours at the institutional level, they are not equal at faculty level. This is a consequence of differences in research intensity between the faculties. All faculties are secured a minimum research appropriation in that the basic appropriation in the IFM model for research is distributed according to the actual number of doctoral posts and the number of credits obtained. The performance-based grant for research in IFM ensures that this part of the grant accrues to the faculties based on results achieved in terms of indicators such as PhD degrees awarded, collaborative and contract income and publication points. Because the size of the entire allocation for research is based on teaching activities, and the allocation is then distributed more or less equally between a base component and a performance-related component, this results in redistribution effects between the faculties. The teaching-intensive faculties help to boost the research appropriation, while the research-intensive faculties will receive the greatest proportion of the performance-based research allocation.

2.5 Continuation of the old NTNU IFM model – consequences

As part of the assessment of relevant approaches to distributing budget allocations for the transition year of 2017, the effects were simulated through input of the activity of the former university colleges directly into the old NTNU model for income allocation (IFM). The working group has used the result of this simulation, together with qualitative evaluation of the model, to assess whether the IFM would be suitable as a model for allocation of the block grant for all of the new NTNU.
2.5.1 Assumptions for the simulations

IFM builds on various rates and calculations at the level of the programmes of study to calculate the basic grant for education and to reward the number of credits obtained (performance-based grant for education). These rates are intended to reflect the distinctive character of different programmes of study. At the same time, they represent a standardization that makes it possible to compare programmes of study across subject areas. Each programme of study is linked with three different rates: effort time, contact time and assessment time¹. Effort time is equal for all programmes of study, and varies only between bachelor’s and master’s level. Assessment time has three rates, while contact time has eight different rates. The effort time is used to calculate the base grant, while contact time and assessment time are used to reward the number of credits obtained. The figures for time spent that the faculties reported for the programmes of study in 2004 were used to determine the rates. Apart from some adjustments in 2013, the rates have been in effect since then.

To run a simulation including the university colleges directly in the IFM income allocation model, we needed to specify rates for all the programmes of study in the university colleges. Ordering a survey of the rates from the academic communities at the university colleges was regarded as requiring an inordinate effort. Instead, we used the programmes of study per area of study, which is a higher level than programmes of study in the Database for Statistics on Higher Education (DBH). Rates for the university colleges’ areas of study were then determined by finding similar programmes of study at the old NTNU.

This method involves the risk that we have set incorrect rates by overestimating or underestimating the input of resources for the university colleges’ programmes of study. We have therefore subjected to model to stress testing by setting extreme levels for the rates, and by setting a very high value for the basic grant. We found that the direction of the effects of the simulation was stable. Historical accounting figures were then identified for operation of infrastructure and salaries to technicians in order to set the level of the infrastructure component in the same way as for the old faculties at NTNU.

To understand the effects of the simulation, it is important to be familiar with how the research allocation in the IFM model is calculated. Because the education element of the IFM model is based on hourly rates for effort time, contact time and assessment time, it is possible to estimate a total number of hours for teaching. This number of hours then determines the dimensions of the research allocation (base and performance components), based on the principle that the IFM model must fund an equal number of teaching hours and research hours at the institutional level. The main aim of this link is that if education activity increases through an increase in the number of credits obtained, the research allocation will increase by an equal number of hours. The research allocation is then divided into a base and a performance-related component. The basic grant at the institutional level is kept constant, adjusted only for increases in prices and pay. The residual is the performance-based allocation to research, which will increase in line with growth in educational activities. The performance-based grant for research is allocated proportionately between the faculties based on results achieved in terms of indicators such as PhD degrees awarded, total collaborative and contract activity and publication points. The basis for research is allocated proportionately between the faculties by using the number of hours from the education side of the model, weighted with the actual FTEs in doctoral positions.

¹Effort time is a standardized number of hours for establishing an educational programme. Contact time is a standardized number of hours during which a student has two-way contact with a member of the teaching staff. Assessment time is a standardized number of hours spent on assessment of students.
2.5.2 Simulation results

The university colleges enter NTNU with a high level of education activity compared with research activity. At an overarching level, this reflects the fundamental difference in the mission in society, and thus the distinctive character, of the university colleges and the faculties at the old NTNU. The effect of this in the simulation is that the high intensity of teaching that is typical of the university colleges boosts the research allocation in the IFM model. This in turn leads to an increase in the research result. The university colleges’ results on the research indicators are thus not high enough for them in competitive terms to get back what they contributed to the increase in the research allocation.

It is the research-intensive technology faculties and the Faculty of Medicine at the old NTNU that benefit from an increased research allocation. In total, fitting the university colleges directly into the IFM model will therefore not lead only to a redistribution between the former university colleges and the faculties at the old NTNU, but also to a redistribution between education and research activities.

The table above shows the allocation that the university colleges bring into IFM compared with what they get back. IFM is a zero-sum game, so that in total NOK 73.4 million is redistributed between the former university colleges and the faculties at the old NTNU.

The table below shows the difference between the simulation in the old NTNU’s IFM and the budget allocation models of the former university colleges, and how the allocation shifts from education to research.
2.5.3 Continuation of IFM?
The simulation is based on the budget year of 2017. The former university colleges are input into the IFM allocation model as separate faculties. From 2017, the activities of the university colleges will be included as part of NTNU’s faculties, and the redistribution effects might then be mitigated through the “law of large numbers” in the faculties’ total allocations. However, the reorganization will affect the faculties in different ways. Certain faculties will have a significant change in the composition of their activities resulting from a different proportion of activity transferred from the former university colleges. This may in itself lead to redistribution effects between the faculties beyond those shown by the simulation.

The simulation above reveals the differences in activity at the former university colleges and the old NTNU, especially in the choice of how to fund research. This is closely related to the differences in social mission between regional, education-intensive university colleges and a national research-focused university. Unless further adaptations are made, it will not be possible to incorporate the new NTNU’s activities directly into the IFM model without triggering major redistribution effects between faculties and areas of activity.

The simulation in itself could be developed further by taking into account the distinctive character of the former university colleges, and, for example, differentiating how much of the university colleges’ education activities should be included in determining the dimensions of the research allocation. However, a differentiation between the previous university college environments and the faculties at the old NTNU might contribute to the preservation of old dividing lines. In addition, the underlying data in the model will be difficult to maintain over time as the activities are integrated into a new organization.

The working group feels that IFM has functioned as an appropriate allocation model for NTNU. It has prepared the way for good results and provided predictable financial latitude for action. However, we see that the model has drawbacks. First, the simulations showed that the model is not adapted to the social mission and distinctive character of the university colleges. The historical financing of the university colleges’ activities will shift from education to research. To weaken the resource base and the quality of education was not an objective of the merger as understood by the working group.

Second, IFM is an extremely detailed model with many parameters. In principle the model is transparent, but it is not perceived as such because it is so complicated. It would also be very burdensome for the organization to determine and revise the standardized figures for activity in the new organization. IFM is a variant of an activity-based costing model. See more about the evaluation of such models in Chapter 6.3.

The merger involves relatively large changes in the distinctive character of NTNU and the faculties as well as the dimensions of areas of activity. Because of this, and because IFM will not ensure a simple allocation model as required by the mandate, the working group believes that the new NTNU would be best served by a new allocation model rather than making adaptations to IFM.

3 New funding system for universities and university colleges from 2017

3.1 The most important changes in the basic and performance-based allocation
The current funding system for universities and university colleges (see background note 4) was introduced in 2002, and the individual components were adjusted in 2006 and 2009. In January 2015, an expert group proposed new changes in the funding system. The proposals were reviewed in the
report to the Storting on the structure of the university and college sector (Report St. 18 2014-15),
which was presented in the spring of 2015, and the final proposal for a new funding system was
considered as part of the national budget for 2016.

The main features of the funding system for universities and university colleges were continued with
a basic and a performance-based component. It was also proposed that the relationship between the
basic and the performance-based component should be continued at the sector level, which implies
that the basic component makes up 70 percent of the basic appropriation. Changes were proposed in
the incentives in the performance-based component. The new funding system is expected to be
introduced from and including the national budget for 2017.

The most important change in the incentives for education is that a new indicator is to be introduced
for candidates as a metric of degree completion. For research and innovation, a new indicator is
introduced for collaborative and contract-funded activity (BOA), the EU indicator is changed to apply
to all EU income and the calculation method for the publication indicator is changed.

### 3.2 The Ministry’s future performance indicators for education and research

<table>
<thead>
<tr>
<th>Today</th>
<th>From 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education incentives (open-ended budget)</td>
<td></td>
</tr>
<tr>
<td>Credits (6 categories A-F)</td>
<td>Credits (6 categories A-F)</td>
</tr>
<tr>
<td>Student exchange</td>
<td>Student exchange</td>
</tr>
<tr>
<td>PhD candidates</td>
<td>PhD candidates</td>
</tr>
<tr>
<td>Income from the EU (research collaboration)</td>
<td>Income from EU (all income)</td>
</tr>
<tr>
<td>Academic publishing</td>
<td>Academic publishing - changed calculation method</td>
</tr>
<tr>
<td>Income from RCN and RFF</td>
<td>Income from RCN and RFF</td>
</tr>
<tr>
<td>BOA income</td>
<td></td>
</tr>
</tbody>
</table>
Completion of credits: The current performance indicator for completion of credits is to be continued unchanged, with six funding categories (A-F). The indicator has an open-ended budget allocation 4.

Student exchange is continued as an indicator. The indicator has an open-ended budget allocation. It is a goal that at least 20 per cent of the students have a period of study abroad during their studies. Norway is currently below this goal, and the Ministry has announced that the number of exchange students will be weighted more heavily. Exchange through Erasmus+ will have an especially strong weighting.

A new indicator is to be introduced for graduates. The indicator will have an open-ended budget allocation. The indicator is intended to provide an incentive for closer follow-up of students and increased completion. The graduates included are specified in Orientering om statsbudsjettet 2016 for universitet og høgskolar (Blått hefte). The candidates comprise 6 categories (A-F), in the same way as credits.

The Government has indicated that the total incentive strength of the three indicators – credits, student exchange and number of graduates – will be at the same level in 2017 as it would have been if the current system had been continued. This implicitly means that the incentive for attainment of credits will be reduced, and that the rate for credits will be adjusted downward to compensate for the new graduate indicator and increase the weighting for exchange students.

The actual strength of the incentives in 2017, that is, the rates, will be specified through the national budget for 2017.

PhD graduates will be continued as an indicator. The number of PhD graduates has increased significantly in the past decade, but growth has stalled in recent years. There is potential for higher completion rates. The indicator will have an open-ended budget allocation. The open-ended allocation and fixed rate will ensure that the strength of the incentive is known, and it will ensure a more predictable link between the results that NTNU achieves and their weighting.

The EU indicator will be extended, so that all EU funds are part of the indicator. It includes cooperation in education and interregional cooperation, among other factors. The indicator will still have a fixed budget allocation5. The incentive will have a broader scope than the current indicator. The Government has announced that the incentive strength will be continued at about the same level.

The method for calculating the indicator for academic publishing has been changed. The new calculation method is more neutral between subject areas and increases the weighting for national and international co-publication. The indicator will still have a fixed allocation. The changes are in line with the recommendations of the National Publication Committee.

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4 An open-ended budget allocation means that fixed unit rates are linked with the performance indicators, so that all growth will be rewarded with an increased allocation.

5 A fixed budget allocation means there is a limit at sector level for the total appropriation linked with a given indicator. This means that the factors that determine the unit price are the size of the appropriation and the total outputs/weighting at sector level. To achieve growth from one year to another within a fixed allocation, an institution must show growth above the sector average on the relevant indicator.
Income from the Research Council of Norway will be continued as an indicator. Competition for funds from the Research Council of Norway encourages development of quality in research and can be a springboard to success in international competition arenas.

A new indicator has been introduced for activities based on collaborative and contract funding (BOA). The indicator will have a fixed budget allocation. The indicator is intended to provide incentives for greater collaboration with the working world, society, and industry.

3.3 Development contracts

In connection with the introduction of the new funding system, the Ministry wants to try out a scheme involving multi-year development contracts (performance contracts)\(^6\). The idea is that the Ministry, together with the institutions, will set goals that the institutions should achieve within three to four years. In the longer term, funding will be linked to the development contracts, but it must be possible to achieve the goals using existing financial resources. To evaluate the achievement of goals at the end of the development contract, there must be consensus on quantitative or qualitative indicators for the achievement of goals when the agreement enters into force.

Five institutions\(^7\) are to pilot the scheme of development contracts. NTNU is one of these. NTNU has assumed that the goals to be included in the development contract with the Ministry will also be part of our ordinary goal structure.

In the longer term, funding will be linked to the development contracts. The intention is that being a pilot institution will not involve any financial disadvantage. The Ministry will consider how funding

\(^6\)A report by the European University Association (EUA 2015) – “Performance-based funding of universities in Europe or off” shows that 14 European countries have development contracts as part of the national governance system for the higher education sector; in ten of the countries, the contracts have financial effects.

\(^7\)The University of Oslo, the Norwegian University of Science and Technology, the University of Stavanger, the University College of Southeast Norway and Østfold University College.
can be linked to the contracts, in dialogue with the institutions participating in the pilot. The Ministry will also consider at what stage development contracts should be introduced for all institutions.

4 Issues independent of the model

In this chapter, the working group discusses some key issues and principles that could apply regardless of the Budget Allocation Model chosen.

4.1 Interdisciplinary cooperation

The Merger Platform states that “NTNU’s academic breadth and interdisciplinary skills will contribute to sustainable social development. They will help to solve complex issues and improve understanding of the links between technology, society and the environment.” NTNU is to be a university that “values and encourages interdisciplinarity”. The mandate, too, emphasizes the importance of encouraging interdisciplinary collaboration.

Against this background, the working group has looked at possible obstacles to interdisciplinary and inter-faculty collaboration in teaching, research and infrastructure. Such obstacles may be linked with administrative, organizational, cultural and financial issues. Opinions have been gathered from the organization and discussed in the working group, supplemented with the members’ own experiences.

Ideally, a Budget Allocation Model should not place financial obstacles in the way of interdisciplinary cooperation. An allocation model can also encourage the desired behaviour by rewarding interdisciplinary cooperation through incentives or strategic funds. The effect at the departmental level will depend on how the allocation resulting from the allocation model is redistributed.

It would be difficult for a Budget Allocation Model to solve all the challenges related to interdisciplinary and other cooperation in NTNU’s organization. This must primarily be achieved through strategic and academic leadership and other organizational measures. Internal invoicing may also be a practical and necessary measure for administration of collaborative projects between different budgetary units. At the same time, it is important to minimize the transaction costs associated with internal invoicing. It is therefore necessary to create common guidelines for internal invoicing together with the new allocation model.

4.1.1 Interdisciplinary cooperation in teaching

Both NTNU’s IFM allocation model and most of the allocation models used by the former university colleges include mechanisms for promoting interdisciplinary teaching. These range from bonus schemes to income sharing and use of strategic funds.

The common feature for most of the mechanisms is that they have been introduced so as not to impede interdisciplinary teaching rather than being direct incentives to promote interdisciplinary cooperation. The most important mechanisms in the current four allocation models at the merged NTNU are:

- Strategic funds to reward / establish interdisciplinary teaching.
- Bonuses for common subjects (courses that are offered to several programmes of study) through higher rewards per credit completed.
- Income sharing between the owner of the programme study and the course owner in the allocation model.
- Historically determined basic appropriations intended to cover interdisciplinarity.
• Increased basic appropriation in order to offer compulsory courses for programmes of study at other faculties.

Interdisciplinary collaboration in teaching is perceived as most demanding in cases in which teaching staff from other faculties are used for a course rather than transferring entire courses between faculties. Agreements are made between units regarding financial compensation for services, but there are no clear guidelines for when such compensation can be claimed or for the cost to be used as the basis for this. The faculties’ financial room for manoeuvre seems to influence both whether compensation is claimed and the level of compensation. Standardized agreements and clear policies for which services can be billed internally and at what price could help to clarify expectations and minimize the transaction costs related to this type of inter-faculty teaching.

As shown in Chapter 3.2, the funding model for the sector will include an indicator for graduates. For society, it is naturally important that universities and university colleges produce graduates. However, whether this indicator should be continued internally at NTNU should be discussed. An indicator for the number of graduates in NTNU’s allocation model could potentially create new obstacles to inter-faculty collaboration. Several of NTNU’s programmes of study such as the Master of Science in Engineering programme and teacher education require cooperation between several faculties. Some faculties deliver courses with substantial completion of credits to programmes of study in which the students graduate from other faculties. Examples include mathematics and examen philosophicum (ex.phil.) To avoid building up parallel academic environments, it is important to find mechanisms that support cooperation across boundaries. One possibility is income sharing between the faculties according to the number of graduates.

4.1.2 Interdisciplinary research collaboration

Across the board, few financial obstacles to interdisciplinary research collaboration are perceived. To a greater extent, the obstacles are administrative or organizational.

The academic environments submit applications for external research funds together. The distribution of income/costs is clear at the time of the application and can be corrected during the implementation of the project. This mainly functions satisfactorily. The research incentives in the Ministry’s funding model are largely passed on to the environments that create the results. Activities based on collaborative and contract funding (BOA) are rewarded where they are expensed, regardless of who is the project owner. This principle should be continued.

Results based on publication points are allocated to the environment where the researcher is appointed. The current calculation of publication points has been criticized for “punishing” co-publication financially. The calculation method will be adjusted in the Ministry’s new funding system from 2017.

The old NTNU has a financial incentive for interdisciplinary academic supervision of PhD candidates. This incentive has worked satisfactorily and should be continued. The scheme has become even more relevant after the merger, where academic supervision of doctoral candidates takes place across the boundaries of the four previous institutions.

Researchers who participate in collaboration- and contract-funded activity (BOA) at other units will bring indirect costs as an addition to their own hourly rate into joint projects. The need for any internal funding is divided between the units by agreement. Costs are calculated in the same way for all units using the Norwegian TDI model (common full costing methodology) and all projects are handled in the project management system (Maconomy).
Interdisciplinary research collaboration entails a number of additional costs in the form of networking, adaptation and administration. NTNU’s interdisciplinary initiatives (strategic areas of focus) and enabling technologies are important arenas for creating the conditions for this and function as “seed capital” for creating interdisciplinary projects.

4.1.3 Cooperation on infrastructure

The working group has focused especially on obstacles to shared use of laboratories and workshops, and not on other infrastructure.

The introduction of the research infrastructure resources model in the sector has increased awareness of the costs related to laboratory operations. Increasingly, the costs are financed from collaborative and contract (BOA) activity through the research infrastructure resources, but there is still a need for considerable self-financing of research infrastructure resource costs in many BOA projects. The education activities and internal research projects are 100 per cent funded through appropriations (“BFV”).

The working group sees significant potential for shared use of laboratories across departments/faculties, and coordination of services to avoid duplication and thus low exploitation of the capacity. The obstacles to shared use are greatest in appropriation-funded activities, where there are no clear policies for which costs are covered by the faculties’ basic grant for infrastructure and which costs users from other units should cover. There is a correlation between the use of internal invoicing and the general financial room for manoeuvre in the individual units.

In BOA activities, NTNU has systems and procedures that create the basis for clearly organized and standardized financial transactions in connection with shared use of research infrastructure resources. Appropriation-funded activities (BFV) have diverging practices for internal invoicing. This applies both between faculties/departments and between research infrastructure resources within the units. Some faculties/departments give other units more or less unlimited access to the use of laboratories without payment, while others bill the user’s unit for direct additional costs, often through agreements on an annual basis. Some units distinguish between education and research activities, so that the master’s degree students are given free access, while internally funded PhD students are billed for direct additional costs. Some research infrastructure resources invoice all users for total expenses based on the research infrastructure resources model. The advanced and specialized infrastructure resources in high demand and workshops that offer leading-edge expertise more often gain acceptance for billing higher prices internally than the somewhat simpler laboratories.

In the work on the new allocation model, there is a need to establish a clear policy for what infrastructure a basic grant is to fund, and the obligations this entails for the faculties. It would be natural to specify which services should be free of charge for internal research projects and educational activities. Principles should also be developed as the basis for transfer pricing where this is necessary to control demand or to cover direct additional costs.

Further development of the research infrastructure will largely depend on clear leadership. Incentives for high utilization and shared use will help to link academic strategic priorities with long-term budget planning, so that investments, operating expenses and possible research infrastructure

The working group requests views on whether the description of financial obstacles to interdisciplinary cooperation is comprehensive, and asks for input on whether there are obstacles that have been overlooked.
resource income are seen in context. The merger could yield significant gains if we succeed in realizing the potential for shared use.

4.2 Internal rent

At the former university colleges, the costs of renting premises were handled centrally by allocating a common appropriation to cover these costs. Increased rental costs were jointly allocated to all units in relation to the appropriation. The university colleges had no direct incentives for more efficient use of space beyond needs assessment and planning.

The Board of NTNU decided on a new model for internal rent in the spring of 2012. The internal rent model was intended to ensure effective management of the total space resources. The internal rent model has led to higher awareness of the cost of premises and considerably more efficient use of space, which has freed up resources at the faculties for the core activities. The demand for new premises is very low compared with the situation before 2012.

The internal rent model has a cost side and an income side for the faculties.

- **The cost side** is the tenant’s rental costs charged to the tenant. It is equal to the gross lettable area registered for the tenant in the real estate database, multiplied by the annual rental.

- **The income side** is the appropriation allocated in the budget to the faculties, the NTNU University Museum and the central administration to cover the cost of premises. In 2016, the appropriation is NOK 553 million, which is allocated outside the income allocation model.

The appropriation covers the cost of an estimated general budget for premises, as well as common space (areas that are a collective benefit for NTNU) and a standardized requirement for workspaces for master’s degree students. Excess provision of premises for workspaces (beyond the standardized area) is not covered by the appropriation. The allocation for premises is frozen for three years and it is evaluated every three years to take account of significant changes in activity. The budget for premises takes account of varying activities, the design of the buildings, the location, laboratory activities that require space, etc. The allocation does not cover office and research space that can be linked with collaboration- and contract-funded activity, termed BOA premises. The model is described in more detail in background note 5.

There is no direct connection between the cost of premises and the allocation.

4.2.1 NTNU in the time ahead – proposal for simplification

The working group proposes that the appropriation (income side) in the internal rent model be integrated in the new allocation model and should no longer be a separate allocation “outside” the Budget Allocation Model.

This could be achieved by freezing the appropriation at the current level and including it as part of a basic appropriation in the allocation model. This means that:

- The appropriation for units from the old NTNU is based on the appropriation in the internal rent model.
- The appropriation for units from the university colleges will initially correspond to the cost of premises that were fully funded at the time of the merger. This means there may be a lack of funding for new premises, for which commitments have already been made, which
accompany the units into the merger. This may require specific adaptations in a transitional phase. Needs for new areas, through growth in activities, are primarily funded through a performance-based component in the allocation model or through increased external income. The units must then set priorities between using the funding for more space or to strengthen the core activities. The Ministry’s allocation of new study places also entails increased basic funding intended to cover increased costs of premises among others.

The basic appropriation will be adjusted to finance common space in new buildings and partially finance strategic initiatives such as new research infrastructure in connection with campus development. Such projects are approved by the Board with an accompanying adjustment of the basic grant.

The working group recommends that internal rent for the merged NTNU be calculated in the same way for all units and all campuses.

The working group requests views on the proposal for phasing in the allocations to internal rent in the new RFM allocation model.

4.3 Principles for funding administration

The proposals from the Børresen committee have been distributed for comments in the organization. The future administrative organization of NTNU was initially discussed at a Board meeting on 15.06 (cf. S-sak 32/16) and the final decision will be made at a Board meeting on 26.08. At the same time, the Board will make a decision on how the improvements in efficiency planned for NTNU’s administration will be operationalized and distributed. The future Budget Allocation Model must support the choices made by the Board.

4.3.1 The current solution for funding of the administration

The funding of the administration at the old NTNU is currently divided into two:

- **The central university administration** at level 1 receives a direct allocation from the Board outside the IFM model for income allocation. The allocation is determined historically and adjusted annually only for increases in salaries and prices. Strategic development initiatives within the central university administration are partly funded through strategic funds (the RSO allocation for strategy and restructuring) and partly through the room for manoeuvre that is accumulated through the ordinary allocation. It is up to the directors to specify the dimensions for the departments within their overall budget. Several divisions, such as the IT division, NTNU Videre (NTNU’s Centre for Continuing and Professional Development), the Technical Division and the Property Management Division, can also use internal invoicing of other units to cover the total costs of services that are not included in the basic funding of the divisions.

- **The administration at the faculties and departments** is funded in parallel with the core activities directly through the faculties’ total budget allocation. It is up to each faculty to specify the dimensions for the administration within its overall budget. Development initiatives within the administration at the faculties and departments are funded through the room for manoeuvre accumulated through the ordinary allocation and BOA collaboration-and contract-funded activity.
At the three university colleges, the funding of the central administration is integrated in the allocation models. The dimensions are incorporated in the overall budget allocation:

- **The central administration** at the former university colleges is funded in principle through a direct link with the development within the core activities. At all three university colleges, the allocations that go to new study places (basic funding) are distributed between the academic environments and the central administration. At HiG and HiÅ, parts of the performance-based allocation for education go to funding of the central administration, while at HIST 100 per cent is passed on to the academic environments. In practice, however, the administration at the university colleges is budgeted in real terms in the same way as at NTNU.

- **Administration at the departments/faculties** is funded, in the same way as at the old NTNU, directly through the faculties’ total budget allocation.

### 4.3.2 Possible principles for funding of the administration

To support the requirements specified for the administration, the working group would like to launch some overarching principles for how the administration at NTNU should be funded. The principles could be regarded as valid irrespective of the RFM allocation model chosen and the organizational structure chosen.

The principles are based on the requirements specified for future administrative services in the *reports from the Børresen committee*. The funding of the administration must:

- Create the conditions for all units, students, employees and external partners to have access to a basic level of administrative services of equal quality regardless of financial room for manoeuvre and geographical location.
- Be scaled in line with the development in the core activities, and hereby:
  - Correspond to the priorities within the various areas of the core activities.
  - Provide incentives for common achievement of goals.
  - Be based on target results and performance indicators that can be measured and reported.
- Pave the way for administration to take place at the appropriate level and with the appropriate distribution of tasks between the levels, and hereby:
  - Facilitate flexibility in the way the tasks are performed and the level at which they are placed.
  - Not make it profitable to build up parallel administrations where this will have suboptimal effects.
  - Open the way for interdisciplinarity within administrative work as well.
  - Allow for exchange of competence in specialized administrative environments.
- Encourage continuous productivity improvements, and make it possible to realize the productivity gains to strengthen the core activities.
- Be predictable and open the way for possible strategic and long-term management and development of the administrative resources.

### 4.3.3 Possible ways to fund administration in the allocation model

In anticipation of the Board’s final consideration of the future administrative organization at the Board meeting on 26 August, some possible ways of funding the administration in an allocation model are described below. It would be possible to combine several of the ways, both keeping in
mind different conclusions about the organization of the administration in the short term and the possibility of changes in the organizational structure in the longer term as well:

**Funding of the central university administration through direct allocation:** The central university administration is allocated a fixed basic grant, which is adjusted for annual growth in salaries and prices. At the same time, the allocation will depend on the total grant allocation to NTNU through the national budget, and may fluctuate with this. This would imply a continuation of the current funding of the central university administration at NTNU.

**Performance-dependent central university administration – incentives of the core activities:** The central university administration could be made entirely or partly dependent on the incentives for the core activities, whether these are the Ministry’s incentives or self-composed incentives. This would make it possible to match the dimensions of the central university administration with the development in the core activities. At the same time, one could ensure that the administrative support to the various areas within the core activities was scaled and prioritized in line with developments (for example, more funding for teaching support if the weighting for education incentives is increased). This type of scheme would support a shared target profile and increased interdependence between the core activities and the administration.

**Performance-dependent central university administration – incentives/indicators specific to the administration:** The central university administration could be made entirely or partly dependent on incentives/indicators specific to the various administrative areas. This type of solution could help to size the central university administration according to the development in the core activities. In principle, one can also envisage incentives to encourage modernization and streamlining of administrative services more directly, but in practice it might be difficult to develop incentives and indicators that are precisely targeted/do not have unintended effects. Efforts to establish appropriate administrative incentives with corresponding indicators will therefore be demanding.

**Funding of the central university administration through cost attribution:** The entire budget allocation from the Board could be awarded to the faculties and then redistributed continually to the central university administration through attribution of costs to the activities within the core activities. Such attribution of costs can take place in the form of calculated overhead costs or can be based on cost drivers per faculty (such as the number of full-time equivalents in the TDI model). This type of arrangement could help to ensure that the dimensions of the central university administration match the development in the core activities. Adjustments to the size of the cost attribution would force rationalization/restructuring between the administrative levels in the organization. The transaction costs must be assessed against the benefits.

**Common service centre with or without use of service agreements:** Some administrative tasks can be organized and delivered as shared services to the whole of NTNU. It might be natural to establish a basic service level (volume and quality) that is available to all units – and that is funded directly from the Board or from level 1. Any administrative needs of the faculties beyond this can be addressed through:

- Purchase of administrative (additional) services from a common service centre through service agreements.
- Development of their own additional administrative capacity.
- Purchase of administrative services externally.

This type of funding solution could ensure coordination of administrative functions and processes as well as administrative interdisciplinarity, and could reduce the need for parallel administrations. The
resulting competition could force increased service quality and efficiency, and reduce the risk of building up parallel administrations/suboptimization. The Børresen committee recommends a more detailed assessment of an organization model with such service centres.

**Funding to processes and not to levels:** In the longer term, the funding of NTNU’s administrative functions could conceivably take place through organizational processes and not through the various levels in the organization. With this type of solution, the process managers in consultation with the unit managers would be responsible for finding the appropriate dimensions of the administrative support services for the process at each level.

**Use of development contracts:** It may also be relevant to introduce so-called development contracts (see Chapter 3.3) within the administration as well. Such development contracts could also be used to fund development and efficiency measures related to administration, for example, if several different levels of an administrative process enter into a development contract to optimize a process flow and workflow. The initiative would be granted an earmarked allocation and the desired target would be defined quantitatively or qualitatively in such a way that achievement of the target could be checked in retrospect after a specified period. Failure to achieve the target would then lead to reduced funding.

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**The working group requests views on which funding methods could be relevant for further investigation.**

5 **Components of the allocation model and development paths for NTNU**

According to the mandate, the model is to be used to distribute the block grant from the national budget to various areas of activity, purposes and cost centres internally in NTNU.

According to the mandate, a future allocation model must include the following three main components:

- Strategic component
- Performance-based component
- Base component

Below, we will first describe each of the three components in the allocation model, and let this form the basis for a discussion of how the model can be developed as a tool for strategic governance and further development of NTNU.

Because the allocation model distributes NTNU’s total budget allocation, which in total is fixed, trade-offs and priority setting will be needed. We describe the purpose of the various components, and the consequences that varying the size of the three components would involve. The components must be balanced in such a way that the model can create the conditions for:

- High quality of education and research at NTNU.
- Realization of overarching strategic priorities at the central level and at faculty level.
- A long-term perspective for planning, investment and operations.
- Encouraging restructuring and innovation in the organization.
5.1 The base component
The aim of a base component is to ensure the faculties long-term, stable base funding and strategic capability to promote quality, use of teaching and research facilities and basic research. The base component is not dependent on the results achieved.

The basic grant to the faculties at the former university colleges is sized according to the number of funded study places through the Ministry’s funding model, as well as historical allocations that have been continued. Because the main foundation for the basic grant is funded study places multiplied by the Ministry’s funding rates (A-F) for study places, the size of the basic grant correlates with the intensity of the academic environments’ teaching, research and equipment.

At the old NTNU, the faculties’ basic grant has been determined using the IFM income allocation model, and not based on funded study places in the Ministry’s funding model. The base component in IFM can roughly be divided between education (programmes of study and infrastructure), research (doctoral positions and infrastructure) and special tasks. In the internal rent model, the faculties’ space allocation is calculated, which is fixed for a period of three years. This can therefore be regarded as a basic grant provided outside the IFM model.

The former university colleges do not have an equivalent allocation of rent to the faculties. Even though the calculation methods for the basic grant differs between the former university colleges and the old NTNU, for all the institutions it reflects the differences in profile and breadth of the academic curriculum, research intensity and specialized tasks between different faculties/academic environments. At the old NTNU, it also reflects differences in the use of buildings.

Based on the description above, there is reason to assert that the nature and academic profile of the merger partners are taken care of in the current basic grant. The basic grant in a new allocation model should help to put the faculties in a position to cover activity-independent costs to maintain the teaching offered, a grant to cover internal rent and a historical element to safeguard their distinctive character. For example, this distinctive character could reflect research time, historical allocations to specific initiatives, and allocations to technical teaching and research infrastructure tailored to the needs of different study programmes and research activities.

5.2 The performance-based component
The performance-based component is to be used to provide incentives for and reward behaviour that supports the performance targets established for the higher education sector and/or by NTNU itself. The purpose of financial incentives is therefore to provide budgetary recognition to the units that meet performance targets through production results in terms of the specified indicators.

There are both explicit and implicit incentives. Explicit incentives provide financial compensation for the results achieved in relation to defined performance indicators. Implicit incentives can be described as gains achieved more indirectly through given forms of organizational behaviour – for example, that one keeps the gains resulting from savings, reduced staffing, better use of space, etc.

In the Ministry’s funding system, it is the incentive component that provides the institutions opportunities for extending their own room for manoeuvre by increasing the budget allocation.

5.3 Strategic component
The strategic component must fund or partly fund major strategic initiatives, restructuring activities or other joint initiatives at NTNU level. The Board specifies the content of the component, and the funds are ultimately allocated to the faculties and central university administration/shared services.
In NTNU’s budget allocation, 15% is currently reserved as an allocation for strategy and restructuring (ramme for strategi og omstilling, RSO). The intention is that about 10 per cent goes to funding of recruitment positions, and about 5 per cent goes to other initiatives. Through the previous Board decision (see S-sak 7/13), there has been discussion about how large the strategic room for manoeuvre should be. Efforts to establish room for manoeuvre have been made for several years, and it has been decided that the portion of the funding that does not go to recruitment positions should make up about 5 per cent of the total allocation. The table below shows the budget allocation model for strategy and restructuring (RSO) funds for 2016:

<table>
<thead>
<tr>
<th></th>
<th>Allocation for RSO</th>
<th>In % of tot RSO alloc.</th>
<th>In % of tot allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recr. positions</td>
<td>394,956</td>
<td>59 %</td>
<td>9 %</td>
</tr>
<tr>
<td>Strategic initiatives</td>
<td>271,671</td>
<td>41 %</td>
<td>6 %</td>
</tr>
<tr>
<td>Total</td>
<td>666,627</td>
<td>100%</td>
<td>15 %</td>
</tr>
</tbody>
</table>

As the table shows, in 2016, 9 per cent was allocated to funding of recruitment positions, and 6 percent to other strategic initiatives. Examples of strategic initiatives include scientific equipment, Onsager research excellence and innovative education. NTNU NanoLab is an example of an initiative developed using strategic funds.

Strategic funds are also allocated, which are managed by units in the Central University administration. An example here is funds to the Student and Academic Division and the IT division for the development of alternative forms of assessment and more innovative education.

Because the number of recruitment positions funded by the Ministry is significantly lower, the proportion of the total block grant that goes to strategy and restructuring at the three university colleges is not comparable with what is included in the RSO allocation as NTNU defines this allocation. The same applies if recruitment positions are disregarded.

5.4 An allocation that encourages restructuring

The community around us, and thus NTNU’s social mission, is constantly changing – and NTNU will always need to be able to carry out strategic changes, adaptations and reorganization of its activities based on internal needs, political priorities and trends in society.

How the RFM model can encourage such strategic changes and reorganization is therefore a key question. A clarification of principle is whether the role of the allocation model should be to *force the restructuring processes*, or whether the model’s role should be to *open the way for enabling the restructuring processes to be performed* at the right time and at the right pace.

5.4.1 Use of strategic funds to encourage restructuring

By increasing the strategic funds (strategy and restructuring funds), the Board can fund restructuring across the organization in a goal-oriented way where the Board believes that this is necessary.
5.4.2 Development contracts and redistribution of the base component

The base component can also be used to encourage restructuring. Even though this remains unchanged from year to year, the Board can reallocate a fixed portion of the base component to fund so-called development contracts between the Rector and the faculties. Here, specific target profiles are set for what a unit is to achieve during a fixed period. The unit is then assigned funds to finance the initiative. If the target is not achieved, the allocation lapses.

5.4.3 Are there incentives for restructuring?

Restructuring involves launching changes that get the organization to move in the desired direction. In principle, the incentives related to the core activities in the allocation model (for example, the education incentive) will be an indirect incentive for restructuring. Declining demand in society for one type of education will lead to a shortfall in income for the relevant faculties and create a need for restructuring to a greater or lesser extent.

Another approach might be to create direct and quantitative incentives for restructuring, for example, compensation per full-time equivalent that switches organizational affiliation. The risk of this type of incentive is that the organization may be induced to implement change for the sake of change and not based on strategic decisions to ensure that goals are met.

5.4.4 Incentive strength and speed as a means to encourage restructuring

The incentives directed at the core activities may also implicitly force restructuring. The strength of these incentives will be significant for how strongly the allocation model indirectly stimulates restructuring. Strong incentives will force restructuring more than weaker incentives. To press the point, a high base component could also enable a unit to ignore the financial policy signals expressed through the allocation model.

Similarly, the speed of the incentive could help to stimulate restructuring. The two-year lag in the performance-based incentives in the Ministry’s funding model gives the institutions 1-2 years to pick up development signals and implement necessary restructuring measures in advance of the reduced budget allocation. An increase of the budget allocation would be likely to have the opposite effect – the institution has a strong need to increase its capacity, but the allocation to enable this only materializes after two years.

Conversely, institutions experiencing a decline may need to reduce the effect of the incentives, so that the units manage to adapt to upcoming shortfalls in income.

In summary, strong incentives lead to strong restructuring needs; weaker incentives and a higher base lead to lower restructuring needs, but probably stronger real restructuring capability.

5.4.5 Trends versus fluctuations

An important point in governance based on incentives and the associated indicators is whether the changes represent real trends or random fluctuations and variance. An incentive-focused allocation model with relatively fast-acting incentives will result in strong fluctuations based on short-term changes in the quantitative indicators. In extreme cases, it is conceivable that this could lead to restructuring based on chance fluctuations rather than real, longer-term trends.

A means of ensuring that the policy signals are based on more long-term changes in societal needs/demand might be to use averages over several years as the basis for the incentive indicators.
5.5 Dimensions of the components in the allocation model

Regardless of the rates, indicators and allocation mechanisms included in an allocation model, the final sum of the allocations is a given: NTNU’s total block grant over the national budget. One of the main issues in work on a new allocation model is therefore to determine the proportions of the various components in the model: the performance related, base and strategic component.

As we have seen in Chapter 5.4, different proportions of the components in the allocation model will result in different restructuring capability and needs for restructuring. Stability, long-term sustainability and predictability will vary correspondingly. The working group has tried to map the scope of possibilities by outlining various alternatives for the proportions of the components. The figures below contrast various dimensions and illustrate their consequences.

5.5.1 Explanation of figures

The range of possibilities for the three components that make up an income allocation model can be illustrated using radar or spider charts. The diagrams have three axes, one for each of the components in the allocation model. The axes extend from the centre of the diagram to the outside point in each corner. Each of the coloured triangles represents various alternatives in the model with different proportions between the three components. The total for each alternative amounts to 100 per cent - which is NTNU’s total block grant over the national budget. The further outwards towards a corner in which the model alternative is marked, the larger the proportion of this component in the allocation model.

The allocation model must support the strategic priorities of the Board and management. The split between the three components is a tool for realizing the priorities and development paths specified by the Board, and for making essential trade-offs between different interests (see the consultation questions in Chapter 1.2). In other words, the different model alternatives represent different development paths for NTNU. At the time that the new allocation model is introduced, the scope for changes in direction will be limited, but this will increase over time, depending on the results that NTNU achieves in relation to the performance incentives in the Ministry’s funding system, among other factors.

An attempt has been made to describe each alternative from the standpoint of both the Board and the faculties. As a minimum, the strategic component includes recruitment positions – approximately 10 per cent of NTNU’s total budget allocation. Any use of development contracts is included along this axis. This is the key strategic component that is determined by the Board of NTNU. The size of the faculties’ own strategic funds is determined by the faculty and is funded from the model’s other components.

As a reference point, the weighting in the Ministry’s funding model (red dotted line) and NTNU’s IFM model (orange solid line) has been incorporated in the model. Only recruitment positions are included in the strategic component, because this varies from year to year depending on the specific initiatives that the Ministry grants.

5.5.2 Stability versus incentives for change

In Alternative A in the figure below, the base component is weighted, while in Alternative B the performance-based component is weighted. Both the alternatives include only the minimum requirement for strategic funds defined in the mandate (15 per cent). If the performance-based component is increased, the base component will be reduced and vice versa.
Alternative A

Alternative A illustrates an NTNU that gives priority to stability and long-term sustainability for the faculties, where the faculties are also given the opportunity to continue their historical adaptations and distinctive character. In these alternatives, the academic environments closer to decisions on measures that may strengthen academic quality in the faculty’s core areas. An example of this is decisions about investments in academic infrastructure and laboratory development. This alternative creates great potential for fast decisions and thus enables faculties to develop new opportunities quickly. A high base proportion gives the faculties great adaptability to change, but not necessarily great willingness to make changes.

In this alternative, the Board’s opportunity to influence NTNU’s development is primarily through interdisciplinary strategic priorities and common restructuring measures. From the Board’s point of view, great autonomy at faculty and/or department level will involve a risk that the use of resources and investments at the university as a whole will not be optimal.

With regard to productivity improvements, the faculty’s opportunity to keep the benefits of efficiency measures will make it easier for the faculty to give priority to the initiatives that have the most impact for their own unit. On the other hand, the sum of individual decisions at departmental and faculty level will not necessarily be optimal for NTNU as a whole.

The results achieved will not be rewarded as strongly through the performance-based component, which will reduce the faculties’ potential for increasing their budget allocation. For the same reason,
this alternative could result in a weakening of NTNU’s overall ability to raise increased funding from the Ministry’s model.

With this type of funding model, one could imagine that the Board would want to influence the development of the faculties through more direct targeting or earmarking of the faculties’ allocations.

**Alternative B**

Alternative B provides for an NTNU in which performance has a stronger impact. The total funding to each faculty depends more strongly on the ability to create the results that the relevant incentives are designed to encourage. The alternative provides good opportunities for increased budgets and expansion for faculties that deliver strong performance and good results on the targets and incentives included in the model. The downside is the risk of funding cuts if the targets are not met, both for NTNU as a whole and for the individual faculties. Alternative B will give the faculties less predictability than Alternative A.

Alternative B will also give the Board greater influence directly through the funding model than Alternative A. As well as the strategic component, the Board sets the targets and incentives in the performance-based component. This gives the Board strong influence over NTNU’s future development. Indicators can be set to achieve change and improvement, but also to strengthen areas that are already good. Examples include publishing, number of credits completed and number of graduates, and increased activity based on collaborative and contract funding (BOA). However, the Board could also include other indicators directly adapted to NTNU’s distinctive character, such as indicators related to art and innovation. In this alternative, the incentives do not need to be carved in stone. The incentives may be changed (in terms of both direction and strength) to match the areas in which the Board wants improvements.

In practice, the incentives in the funding system have rewarded improvement and growth in volume more than quality, partly because it is difficult to find precisely targeted indicators to encourage improved quality in both education and research (discussed in more detail in Chapter 7).

### 5.5.4 Higher proportion of strategic funds

In Alternative C and D, a large strategic component is given priority. If this component is to increase, either the base component or the performance-based component (or both) must be reduced.
**Alternative C and D**

Common to Alternatives C and D is that the Board gains great direct influence in both models. Alternative D results in the greatest influence, with both a large strategic component and a large performance-based component. While a large strategic component provide scope for clear strategic governance, a high strategic component will result in greater unpredictability for the faculties because decisions on funding are largely outside the faculties’ direct control. Correspondingly, the faculties’ room for manoeuvre is reduced in terms of allocating and giving priority to their own strategic initiatives within their allocation. The trade-off is thus the balance of autonomy related to strategic funds – should this rest with the Board or the faculties? Alternative D results in the lowest predictability for the faculties. This type of alternative would probably also require a higher proportion of the activities to be defined as shared expenses (such as investments and operation of laboratories, rent).

A higher proportion of strategic funding gives the Board great scope for funding that targets specific initiatives in terms of quality, development and restructuring. This could be achieved through allocation of funds by the board to high-priority development areas. Examples include development of more innovative programmes of study, development and recruitment of academic staff, development of further world-leading research environments, joint interdisciplinary initiatives aimed at new “grand challenges” in society, new enabling technologies, etc.

Funds from the strategic component can also channelled through the use of development contracts that provide long-term funding and set specific requirements for achievement of goals to enable the
funding to continue. Subjecting funding from the strategic component to competition within the university could also be envisaged.

One could argue that Alternative C, with a small performance-based component, but a large strategic component and a relatively large base component, is the alternative that best supports quality development. This alternative combines predictable finances for the faculties – and thus relatively large strategic room for manoeuvre for the faculties – with potential for the Board to implement goal-oriented measures to improve quality, funded from the strategic component.

The choice of an allocation model is therefore a choice between weightings of various components in the model. We would like feedback (including reasons) on how the ratios between the base component, the performance-based component and the strategic component in a future allocation model should be.

5.6 Introduction of the RFM allocation model
In Chapter 5.5, the size of the three components – base, performance-related and strategic – was discussed at the institutional level. With the introduction of a new allocation model, a principle must be established for determining the components at faculty level. The size of the strategic component is set at the institutional level, and the allocation to the faculties will vary from year to year because the strategic funding is in principle temporary. In the following section, we disregard the strategic component when we discuss the faculties’ allocations, and define these as:

\[ \text{Allocation} = \text{Base} + \text{Performance} \]

In 2017, the faculties’ allocations are based on the merger partners’ existing internal allocation models. The working group has no reason to assert anything other than that the current faculties’ allocation largely reflects and takes care of their individuality and academic profile. The allocation therefore seems to be appropriately sized based on the current core activities, and as a natural zero point for the introduction of a new allocation model. Against this background, we propose that the allocations during the introductory year be specified as the faculties’ allocations in 2017, corrected for changes in pay and prices. Any growth in the performance-based component is taken into account in the total budget allocation and given the incentives that have been adopted in the allocation model. We also propose that the base component can be adjusted given the principles for changing the base that are approved for the allocation model. The faculties’ allocations during the introductory year of 2018 can therefore be presented as:

\[ \text{Allocation} \text{ 2018} = (\text{Allocation} \text{ 2017} \times \text{Price changes}) + \Delta \text{Base} + \Delta \text{Performance} \]

5.6.1 Calibration of the base allocation and the performance-based allocation
The specification of the size of the faculties’ base and performance-based component is a key element in the structure of the allocation model. This can be done in several ways. We have considered two alternatives as realistic, and ask for feedback on these. The alternatives determining the base are considered regardless of the model alternatives in Chapter six.

Alternative 1: Base as residual
This alternative implies that the levels of the allocation and the performance-based component are specified when the model is introduced. The difference between these two is the base. This practice was used during the introduction of the Ministry’s funding model in 2002. The expert group that in
2015 proposed a new funding model for the higher education sector also recommended that the base should be specified as a residual. This alternative can be represented as:

\[ \text{Base } 2018 = \text{Allocation } 2018 - \text{Performance } 2018 \]

The effect of alternative 1 is that the level of the base in the new allocation model is determined by the new performance-based component in the allocation model, which in turn depends on the incentive strength of the indicators. If the performance-based component in the new allocation model is higher than it was in the faculties’ old budget models, this will cause the base to be adjusted downward, and vice versa.

**Alternative 2: The base is continued on the basis of a historical level**

In alternative 2, the level of the allocation and the base are specified when the model is introduced. The difference is the performance-based component. With this alternative, we need to compose a historical base appropriation for the new faculties. Because the existing budget models of the merger partners all have the base as a component, this is feasible.

\[ \text{Performance } 2018 = \text{Allocation } 2018 - \text{Base } 2018 \]

The effect of alternative 2 is that the faculties are secured a minimum level for the base allocation equal to the historic initial level. The level of the performance-based component is determined by the historical basic grant. This means that the strength of the incentives that form the basis for the performance-based component must be determined within a fixed allocation at the institutional level. This may lead to redistribution effects between the faculties in the introductory year. Setting limitations on the increase/decrease in the performance-based component for each faculty in 2018 should therefore be considered.

### 5.6.2 Introduction of performance indicators

Regardless of which alternative is chosen for determining the level of the base and performance-related component, there is a need to discuss how to set the initial level of the performance indicators to be included in the performance-based component. The consequences of this choice will be greatest for Alternative 1. In the Ministry’s funding model, there is a lag of two years between the results achieved and the budgetary effect. For example, credits completed in 2014 have a financial effect in 2016. The same applies to the merger partners’ existing budget allocation models, except for NTNU in Ålesund, which uses projected figures for rewarding the attainment of credits.

In the introductory year for a new performance-based component that could also include new indicators, it might be appropriate to use multi-year averages for the performance indicators. The aim of this measure is to even out extraordinary fluctuations in the results achieved, and to take into account the fact that in the production year the faculties did not know what the new indicators would be. For example, the consequence of performing very well on an indicator, combined with alternative 1, is that the basic grant at the time the model was introduced would be set at a lower level than it would have been in a year of lower performance. Because the level of the basic grant will probably be linked with the faculties for a long period, it is especially important that random fluctuations do not have too great an effect. We therefore consider it practical to use an average of at least three years for the performance indicators that are introduced in the faculties’ performance-based component. For the introductory year of 2018, this may mean that the starting point is the average of the performance indicators for the years from 2014 to 2016 inclusive. This is especially important if alternative 1 is chosen, but should also be considered if alternative 2 is chosen.
addition, use of a moving 3-year average of the indicators should be considered when the new allocation model is introduced and in ordinary operation.

6 Main models

We have mapped various budget models that are used at various universities and university colleges – in Norway and abroad. These findings are summarized in Chapter 6.1.

Based on these findings, and the guidelines in the mandate, we have considered two models in particular as relevant for NTNU’s allocation model:

- A model based on the methodology in the Ministry’s funding model
- A model based on activity-based costing methods.

Both models are described below, but the working group recommends that the work ahead should be focused on preparing an allocation model based on the Ministry’s methodology for the funding model adapted to the needs and distinctive profile of the new NTNU. It will not be possible to complete the development of an allocation model based on costs and activities by the deadline required by the mandate for the introduction of a new allocation model for the budget year of 2018. In addition, maintenance and updates of this type of model would place great demands on data capture, which in turn would require substantial administrative resources.

6.1 Models based on principles/ideal types that have been identified

The working group has commissioned Technopolis to conduct a survey of internal budget allocation models at selected European universities: “Universities’ internal budget models - Six European case studies”. The summary from the report has been translated from Swedish below:

“Our task has been to conduct case studies of the internal funding models at several European universities. We have chosen two universities in Sweden, two in the UK, one in France and one in Germany. We have tried to find universities that resemble NTNU to a reasonable extent in terms of their size and profile. The task has also involved discussing the models, not least with regard to the balance between performance-based funding and other resource channels. The study does not cover external funding; here, we address the direct government grant to the university.

The six universities use a wide range of internal funding models. Government funding for one university, Paris-Sud, is based on a five-year contract with the Ministry. The bulk of this grant is distributed through the organization to faculties and departments with no criteria other than the actual costs of each unit. A small portion may be used freely for strategic investments or other investments in addition to the fixed costs. Although the system provides some stability, it also makes the university highly dependent on the contract with the Ministry, and the university has no great influence should the Ministry want to make cuts in the budget. Paris-Sud thus has limited control over its resources.

The two British universities are relatively performance-oriented. At the same time, they differ from each other. One, in Bristol, has an internal allocation of funds that is clearly performance-based, in which the income of the schools and other units is reinforced with additional resources. The income is aggregated at the faculty level, to avoid the risk of large fluctuations from year to year. In comparison with the Norwegian or Scandinavian systems, this is a strongly performance-focused system, in which those who succeed in raising funding of various kinds are rewarded with more resources.
The other British university, Loughborough, allocates its funds internally in a different way. A single person (the Provost) has the power to allocate the resources as he or she considers best. A small staff of finance administrators is available to the Provost. Various types of statistics and other data are available as a basis for deciding on the allocation, but the Provost is not obliged to use them. The system may seem strange, but it works well and we have not picked up any signals of particular dissatisfaction with the result of the allocation. Of course, it becomes extremely dependent on one individual.

KTH uses a budget model consisting of a fixed component that makes up just over half of the resources, a performance-based component that represents a quarter, and a portion for strategic or targeted investments representing just under a quarter. In this way, funds are distributed from the central level to KTH’s ten schools, which then distribute the funds to units and departments based on similar principles. However, there are some variations.

Chalmers has recently developed a new model, which will be phased in over the next six years. The basic concept of the model is that a combination of fixed resources and performance-based resources, as well as strategic funds, will cover 75% of the costs for each employee, at least at the departmental level. The remaining funds must be obtained from external funding. The new system is an ambitious attempt to create a model that is performance-oriented and at the same time provides long-term and stable coverage of costs at the individual level.

The German example, TU Berlin, has a model that allocates a combination of strategic funding and performance-based funding, primarily from the faculty level to the departmental level. The university’s professors - chairs - are funded from the central level, and make up a large part of the non-external resources for research and the resources for teaching. The faculties’ distribution of performance-based and strategic resources goes, for example, to investment in young researchers and greater equality.

Various categories of budget models can be identified from the above examples. A first variant consists of long-term contracts between the university and the Ministry, which include different performance- or result-based components. The institution may establish an equivalent contract between the faculties and the central level.

A second variant is to allocate a very large part of the fixed governmental resources for performance. A small portion may be kept by the central level for specific strategic initiatives. In principle, such a system requires well-developed indicators for research and teaching, which are transparent and recognized, and which provide reasonable stability and a planning horizon at departmental level, while rewarding individual performance. It is then important that the indicators genuinely cover all activities of the institution; research, education and collaboration, with all of their aspects.

A third variant is a balanced combination of fixed resources from the central level and down to the organization, performance-based funding (both research and teaching), and strategic initiatives. The question is then the balance to be found between these three main components, and which performance-based indicators should be used. A fairly wide range of indicators could be envisaged. If there are more than two levels in the university’s organizational structure, as at KTH, the key principles of the allocation are copied or repeated with regard to the next level (normally from faculty to department level).

We believe that this third variant is the most suitable for NTNU, which then has to decide on the balance that should apply to the different funding streams, as well as the performance indicators to be used. As far as the latter is concerned, we suggest that NTNU could find inspiration from Chalmers,
where, in contrast to KTH, utilization is one of the indicators. It is probably important that all parts of the new NTNU have the opportunity to receive a performance-based resource allocation, whether it reflects research, training or interaction with the business community and society. NTNU must also consider how the model should be implemented at the different levels of the organization, as well as the period that should form the basis for measurement of performance.”

6.2 Model based on the methodology in the Ministry’s funding model
The working group has looked at the possibilities for an income allocation model that continues the principles, the approach and fundamentally the same incentives as in the Ministry’s funding model for the higher education sector.

The working group assumes that:
- The strategic component is set independently of the model choice, as stated in the working group’s mandate.
- The content of the base component is not to be broken down or specified, but changes from year to year should be clearly identified. This is in line with the Finance Committee’s recommendation, and as this is followed up in the Ministry’s funding model.

The model does not specify how to fund internal elements within the institution such as the allocation to internal rent (see Chapter 4.2). However, as a general principle, by specifying the base according to the Ministry’s methods, one will arrive at budget allocations that take into account the current levels of such grants. The initiatives are then funded through a combination of base and performance-related allocations. New study places and increased impact from the incentives could give the faculties increased financial room for manoeuvre in the same way as the institutions can increase their room for manoeuvre in the Ministry’s funding model.

How the central university administration/shared services should be funded cannot be deduced directly from the Ministry’s funding model. This is a model-independent decision, and it would be possible to choose several variants of funding without violating the overall principles. See Chapter 4.3.

6.2.1 Description of the model
As illustrated in the figure, the internal Budget Allocation Model consists of the same three components that the mandate requires (strategic funds, incentives and basic funding). The figure below also illustrates the allocations that make up the budget for the faculties and the central university administration/shared services. Below the figure there is an explanation of each of the components in the allocation model. How the performance and the base component in the model can be defined is discussed in Chapter 5.6.
**Strategic funds**: As a direct consequence of the working group’s mandate, a strategic component is incorporated in the allocation model. The Board determines the size of this component, and the funds ultimately go to the faculties and the central university administration/shared services either through direct allocations or through redistribution by the Rector. This is illustrated in the figure above. This component will thus be the first to be determined in the budget allocation.

**Performance-based component/incentives**: In principle, the Ministry’s incentives will be passed on to the faculty level in the model. However, the working group would recommend that adaptation of the incentives be considered in the form of changed weighting and/or new incentives that support NTNU’s distinctive profile and social mission as a broad-spectrum university.

At the heart of this issue is the question of the appropriate incentive strength – and by extension, the appropriate relationship between a fixed basic grant and a fluctuating performance-based grant. As we have described in background note 3, it is difficult to document the effect of the financial incentives and it is therefore difficult to specify the right dimensions.

As NTNU’s budget allocation is given, any new incentives must be funded by reducing other components in the allocation model. This reinforces the need for clear trade-offs between the components as described in Chapter 5.

The incentives in the allocation model are discussed in more detail in Chapter 7.

As is clear from the assumptions described in the introduction, the Ministry’s funding model does not provide guidelines for whether the incentives should also be passed on to the central university administration/shared services. This is therefore indicated as a decision point in the figure with a question mark. It must thus be decided whether
selected incentives should also apply to the central university administration/shared services, and if so, to what extent. As we have described previously, this is practised in different ways in the sector – among the merger partners as well. See Chapter 4.3, where funding of the administration discussed.

**Base component:** In the Ministry’s funding model, the base component is a fixed portion of the appropriation. The base component is continued each year with the addition of growth in salaries and prices, and only special allocations such as new and discontinued study places change the base component. The base component is the funding model’s way of safeguarding historical decisions, and a full breakdown of the base component’s content is not possible.

As shown in the figure above, both the faculties and the central university administration/ shared services are allocated a basic grant. The base component for the faculties and the University Administration will include grants that have previously been outside the old NTNU’s IFM, such as the allocation to cover the cost of premises (internal rent). The budget allocation will take account of the current levels of such grants and the activity will be funded through a combination of basic and performance-based allocations. New study places and increased impact from the incentives could then give the faculties financial room for manoeuvre in the same way as the institutions can increase their room for manoeuvre in the Ministry’s funding model.

6.2.2 **Assessment of the model**

Because the rates in the new funding model from the Ministry of Education and Research are not known, it is currently not possible to perform specific simulations of what the grants made through such a model might look like. However, the methodology for calibrating the base will ensure that the zero point for the budget allocation depends on the old model – and the budget allocations will change over time because the composition of the budget allocation is changed.

An allocation model based on the Ministry’s funding model continues the simplicity in the Ministry’s funding system, and can be said to be reasonably predictable. Depending on how large the performance-based component turns out to be, the base component in the model will continue all or part of the historical decisions. When this is combined with clear incentives in the correct proportions (see Chapter 5.5), the working group believes this could provide an appropriate balance between historical decisions and forward-looking development. This is especially important with regard to NTNU’s distinctive profile and the breadth of its activities, and creates opportunities for development within a predictable framework.

The Ministry’s funding model for the sector includes clear incentives for education and research, but we believe that other/additional incentives may be needed to ensure adequate funding for achieving goals within NTNU’s distinctive profile and social mission as a broad-spectrum university.

The common thread in these issues is therefore the need to set an appropriate level for the performance-related and the base component – and thus find an appropriate balance between stability and dependence on performance. See Chapter 5 in this connection, where this is highlighted as a key issue.

6.3 **Allocation model based on activity-based costing**

An activity-based costing (ABC) model is not a Budget Allocation Model in itself, but a methodology for visualizing total costs as a basis for payment for planned and approved activities based on the actual use of resources. In an ABC model, one would periodically identify the total costs for various approved activities - and finance the activities based on these costs. This type of funding model is based on historical costs, and thus also on the historical quality and individual characteristics of the
activities to be funded. The ABC methodology would not in itself be able to determine the right quality and scope for the activities. The quality level established and thus the level of resources committed to different programmes of study, for example, is not an objective question, but a political issue at the university. The Board may choose to give priority to quality within one area of study or to individual programmes of study over others.

As stated in the working group’s mandate, all model proposals must have a basic component and a performance-dependent component in the form of incentives. This implies that in this approach we must try to link cost standardization to incentives for the core activities. This presents challenges because an ABC model is intended to reflect actual use of resources, while the RFM model is intended as a tool for determining the allocation aimed at creating incentives for desired behaviour and stable funding conditions over time. This means that in the model description we will attempt to draw parallels from ABC as an analysis methodology to an outline of the RFM model based on these principles. In this context, we will create our own concept of an “activity-based costing RFM allocation model.”

We also draw parallels to the old NTNU’s IFM income allocation model, which is a hybrid between an incentive model and an ABC model. The IFM is based on standard costs for selected activities and resources, which form the foundation for the faculties’ base, and which are linked with incentives for the core activities.

As shown in Chapter 4.3, funding of central university administration/shared services can be based on a model-independent decision, and is therefore not discussed further in this model description.

6.3.1 Description of the model
In principle, an activity-based costing RFM model is based on defining the budget allocations for the faculties and possibly the central university administration/shared services based on a set of activity-specific standardizations of the cost level in the core activities.

As illustrated in the figure, the internal Budget Allocation Model consists of the same three components that the mandate requires (strategic funds, incentives and basic funding). The figure below also illustrates the allocations that make up the budget for the faculties and the central university administration/shared services. Below the figure there is an explanation of each of the components in the allocation model.
Strategic funds: As described in Chapter 6.2, a strategic component will be incorporated as a direct consequence of the working group’s mandate.

Performance-based component/incentives: The performance-based component could consist of a variety of incentives – both continuation within the Ministry’s incentive areas and possibly in new incentive areas. An important distinction between the Ministry’s incentive component and the incentive component in an activity-based costing RFM model is that here new rates would be developed to reflect actual costs and cost differences/individual characteristics within the institution. Just as the Ministry has different rates (A–F) for the education incentive, this type of model could have its own calculated rates based on the actual (or desired) cost level within a programme of study or course, preferably at as low a level as possible. The old NTNU’s IFM model solves this by setting rates at study programme level, which are intended to reflect the differences in teaching intensity between study programmes.

The working group has not specified which indicators and cost standard notations could be used as the basis for determining the incentive rates.

As described in Chapter 6.2, a possible continuation of the incentives to the central university administration/shared services is marked as a decision point in the figure above.

Base component: In an RFM model based on activity-based costing, it would be natural to try to design the faculties’ base component in terms of calculations and cost standardizations within both the education and the research area.

In the old NTNU’s IFM, the basis for education is designed through modelling at study programme level, by defining standardized credits offered that take into account the size and breadth of the study programme, and that determine the size of the basic allocation. In addition, all faculties are ensured a minimum research allocation in that the research base is distributed in terms of actual employees in doctoral positions and completion of credits.
We have not specified which indicators and cost standardizations should be used as the foundation for designing the basic allocation.

**Need to balance the allocations:** NTNU’s total budget allocation will be the starting point for all allocation through the RFM model, regardless of the rates and distribution mechanisms in the model. As the figure above illustrates, cost standardizations will probably lead to a need to balance the allocations in the model. This may occur because the internal allocation of resources is independent of the Ministry’s funding model. In the old NTNU’s IFM model, this is referred to as closing the gap, which means that IFM calculates a higher total allocation than the Ministry’s model. The balancing in IFM is achieved by adjusting the hourly rates, which means that the infrastructure component and special tasks are shielded and fully funded regardless of the amount assigned for closing the gap.

As we have discussed in Chapter 1.2 in which the key consultation questions were launched, a relationship that is viable for the organization must be established between the performance-related and base components. By extension, another issue that needs to be considered is how to cover the need for balancing that arises between the block grant and standardized costs, and whether this should influence the performance and base components in different ways or in parallel.

6.3.2 Assessment of the model

From the perspective of administration and management, the greatest advantage of an RFM model geared to activity-based costing is the precision and the insight it provides in the financial description of the activities. Given that it is up-to-date, this type of model can reveal inefficient and cross-subsidized operation at both a general and an operational level, and thus provide a useful tool for decision-makers. The model also provides good potential to set the desired cost level for various activities and thus good potential to give priority to resources targeting an activity that is regarded as particularly important.

To design the base component from scratch provides transparency compared with a base component continued for historical reasons. However, the fact that a model is transparent does not mean it is easy to understand. It is possible to identify the components of the old NTNU’s IFM model, but the feedback from the organization is still that it is complicated and therefore difficult to understand. The reasons for this are the wealth of detail and the relatively intricate allocation mechanisms built in to capture individual characteristics of a wide range of different subject areas.

It would be highly demanding to develop and introduce an activity-based costing RFM model in the time we have available. The main reason for this is that we do not have system and data capture practices that make it easy for us to extract costs and cost drivers distributed by activities. The development of the model therefore demands extensive involvement of the entire organization. In the longer term, updating and maintenance of such a model would also require considerable capacity from the whole organization (for example in the form of time recording).

Because there are no objective criteria for “good enough” quality in most of the activities and opportunities offered at NTNU, through the model one must not only find the historical cost level, but set standards for the desired quality and quantity. This is not a simple exercise.

The working group considers it unlikely that it would be possible to introduce an RFM model based on activity-based costing by the budget year of 2018, as the mandate requires. The working group believes it is important that NTNU has an allocation model from 2018 that provides a reasonably predictable operating context in the change process that organization is undergoing. Against this background, the working group believes that an activity-based costing allocation model is not viable for the merged NTNU.
7. Which incentives does NTNU need?

Little research has been conducted on the effect of performance-based funding systems in education and research, both in Norway and internationally. According to the Finance Committee, research suggests that performance-based funding systems have the potential to change institutional behaviour. However, the use of performance-based funding creates tensions between autonomy and control, and this tension increases with the proportion of funding that is performance-based and the further down in the institutions this works. See background note 3 for more detailed discussion.

Use of financial incentives in public-sector organizations is controversial. Incentives influence the choice of data collected to describe and measure the trend in the core activities. It is therefore important to find the right incentives that can contribute to the desired behaviour. Several reports on best practice in the funding of education and research internationally indicate that the incentives work best if they target the institutions’ core areas and most important goals. Having a funding model with indicators and incentives seems to have an effect in itself. However, the effect must not be overestimated. Desired changes also demand clear strategic priorities, good participatory processes, development of common culture, policies, and the like.

Incentives other than the financial ones may be just as important to motivate the employees in the organization. If tasks are perceived as meaningful, the result may be a strong commitment without the use of incentives and performance-based funding schemes. At worst, incentives that do not coincide with what motivates an organization may be counterproductive. Incentives and quantitative performance indicators demand measurement of results, reporting and control, which in itself may have negative effects on the motivation of employees in a knowledge organization.

NTNU has a broad and complex social mission, and it is challenging to design effective incentives for this. How commitments to different aspects of the university’s mission in society should be reconciled and balanced is also not a given. Some achievements are easier to measure than others. Financial reward for some goals may channel efforts away from other important goals. It is therefore demanding to find the right composition and strength of different incentives. The incentives must be strong enough for the institutions to perceive a real effect (SRI International 2013).

The performance-based funding model in the higher education sector has had stable indicators over time. The Storting has decided that most of the indicators must be continued, and the Government says it will increase the performance-based proportion over time.

Since 2002, there have been several evaluations and studies that provide some insight into the funding system. The Finance Committee discusses incentive theory and summarizes systematic knowledge available about the effects of funding systems. The expert group states:

“In summary, in the period of just over a decade since the current funding system was introduced, there has been quantitative growth in the form of increased production of students/graduates, credits, exchange students, publication points and doctorates. Against this background, it can be concluded that the funding system has worked in accordance with the objectives.”

However, there are few clear conclusions in this report and in other analyses in terms of the effects of incentives in the Norwegian system. Nor does the Government explore this issue in depth in its proposal for a revision of the funding model. The Government states that:
“Based on the good results and the expert group's analyses, the Government believes that Norwegian higher education and research are best served by continuing the main features of the funding system.”

In this chapter, the working group invites comments on which individual incentives a future allocation model should include.

7.1 Incentives and performance indicators in the Ministry’s funding system from 2017

Chapter 4.2 describes the changes and the new incentives in the Ministry’s funding system in effect from 2017. The future performance indicators are summed up in the table below.

<table>
<thead>
<tr>
<th>Incentive for</th>
<th>Indicator</th>
<th>Result</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of credits</td>
<td>Number of credits produced</td>
<td>Six funding categories, A-F</td>
<td>Open</td>
</tr>
<tr>
<td>Student exchange</td>
<td>Incoming and outgoing students</td>
<td>Fixed rate per student</td>
<td>Open</td>
</tr>
<tr>
<td>Number of graduates</td>
<td>No. of graduates according to the regulations for degrees and vocational training</td>
<td>Six funding categories, A-F</td>
<td>Open</td>
</tr>
<tr>
<td>PhD graduates</td>
<td>No. of PhD candidates</td>
<td>Fixed rate per graduate</td>
<td>Open</td>
</tr>
<tr>
<td>Income from the EU</td>
<td>Income from the EU in NOK</td>
<td>Framework for total appropriation in the sector;</td>
<td>Fixed</td>
</tr>
<tr>
<td>Academic publishing</td>
<td>No. of publication points (new calculation method)</td>
<td>total production at sector level</td>
<td>Fixed</td>
</tr>
<tr>
<td>Income from RCN and RFF</td>
<td>Income from RCN and RFF in NOK</td>
<td>Framework for total production at sector level;</td>
<td>Fixed</td>
</tr>
<tr>
<td>BOA income</td>
<td>Other BOA income in NOK</td>
<td>Framework for total production at sector level;</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

The working group would like points of view on which of the Ministry's incentives should be included in the new allocation model for NTNU and on whether some of the incentives should be given relatively greater weight to encourage increased quality.

- Points of view on which incentives in the Ministry’s funding system should be included in the allocation model.
- Points of view on the strength/dimensions of the individual incentives.

7.2 NTNU’s own incentives in the allocation model?

In the light of the discussion above, the working group is reluctant to introduce a high number of incentives in the RFM model because:

- It is difficult to provide evidence that incentives work.
- More incentives might have the following results:
  - Each incentive has less effect.
  - The allocation model becomes more complex and less transparent.
  - More administration, control and reporting.
  - The incentives might counteract each other and thus have unintended effects, such as the creation of new barriers to interdisciplinary collaboration.
- New incentives must be funded. This might have redistribution effects and create distortions because of differences between faculties in the composition of their funding.

As a basis for the hearing process, we will outline some possible new incentives within the areas of results described in the mandate, in the merger platform and in NTNU’s strategy. These may be
assessed as supplements or substitutes for the incentives in the Ministry’s funding system. At the same time, we point out that the allocation for funding internal NTNU incentives will not be open-ended, as is the case with some of the Ministry’s incentives. New NTNU incentives would have to be financed within NTNU’s total grant allocation.

We also point out that it is easier to develop financial incentives for quantitative performance indicators and cost efficiency than to reward academic development and increased quality. An alternative to financial incentives may therefore be to use strategic funds or to introduce development contracts. Such measures would also have an incentive effect, at the same time as they could provide opportunities for improved performance management and reduce the problems involved in developing accurate performance indicators. An example of this from NTNU today is the system of rewards for research environments that obtain funding approval in the EU’s research programmes. This scheme is funded from the strategy pool (RSO).

The incentives included in the new RFM model are important tools for realizing NTNU’s main objectives, as they are expressed in NTNU’s strategy, the merger platform and the working group’s mandate. Important guidelines for work on a new model should ensure that the model:

- Promotes NTNU’s main profile in science and technology and its role as a broad-spectrum university.
- Encourages higher quality in education and research.
- Helps to strengthen cooperation with the working world and the business community.
- Provides incentives for the organization to increase external funding.
- Encourages the development of more innovative programmes of study.
- Provides the faculties and the units with the strategic room for manoeuvre that they need.

In addition, the incentives should:

- Be precisely targeted in terms of stimulating desired changes.
- Be predictable and transparent.
- Be realistic and simple to operationalize and to document.
- Be effective - be strong enough and work fast enough.
- Match employees’ «intrinsic motivation».

**Points of view on proposals for requirements that new incentives must fulfil.**

### 7.3 Possible new incentives

Several possible new incentives in the allocation model that have been discussed in the working group are outlined below, with comments. Here, we also refer to the Finance Committee’s analysis and background note 3 which includes an extensive discussion of possible new incentives and performance indicators. The report from Technopolis also includes examples of incentives used at six Nordic and European universities.

#### 7.3.1 Incentives for improved education quality

The working group seeks proposals for incentives that more precisely stimulate improved quality of education. Ideas that have been launched are based on:
• Indicators of quality based on key figures from Studiebarometeret (information from the national student survey on the quality of education).
• Applicants per study place.
• The number of (relevant) job placements after one year (graduate survey).
• Award of status as a Centre of Excellence in Higher Education (SFU)

It could be objected that the results from the Studiebarometeret national student survey are not very suitable as indicators of education quality, either individually or aggregated. On the other hand, there may be reason to believe that the underlying figures in the student barometer would improve if the figures were used in such a context. Similarly, a performance indicator based on the number of applicants per study place would primarily be an indicator of attractiveness, where results are also affected by other external factors. Applicant numbers therefore do not necessarily reflect the quality of study programmes. At the same time, one could argue that the number of applicants to individual programmes of study is in fact related to quality. If one assumes that students are rational decision-makers over time, the level of applications to a programme will be an indicator of perceived quality in the market. The number in (relevant) jobs is also a possible indicator that is influenced by many other factors. A fourth alternative is to introduce an extra reward for environments that achieve the status of a Centre of Excellence in Higher Education (SFU). The basis for the designation of such centres is an extensive and thorough assessment of education quality. The counter-argument is that Centre of Excellence status is an incentive in itself where reinforcement is not needed (little additionality).

7.3.2 More innovative programmes of study

In the mandate, the working group is explicitly requested to evaluate incentives that could encourage more innovative programmes of study. Because it is difficult to define and measure what “innovative education” means at any time, the working group does not recommend the development of performance-based incentives directed at innovative education. In the working group’s opinion, development of higher quality in education and more innovative education should rather be encouraged through strategic funds or development contracts instead of through new incentives through the performance-based component.

7.3.3 Incentives for increased research quality

In principle, the working group believes that the incentives and the indicators included in the Ministry’s funding system are adequate and that there is no need for specific new incentives within research. Ideas for incentives that the working group has discussed are:

• Citations.
• Co-publication with universities that are proven world leaders.
• Cooperation with world-leading academic environments.
• ERC/Centre for Research-based Innovation (SFI)/Centre of Excellence (SFF)/Environment-friendly Energy Research (FME) grants.
• Researcher mobility.
The Finance Committee proposed that an indicator for citation should be considered as well as and not instead of the publishing indicator. Such an indicator will be investigated by the Ministry of Education and Research. The Finance Committee proposed that income from European Research Council (ERC) should be awarded double points in the EU indicator, but the Government believed that participation in the ERC programme is so prestigious in itself that stronger incentives for this are not needed. Similar arguments could also be used regarding the national Centre of Excellence (SFF)/Centre for Research-based Innovation (SFI)/Environment-friendly Energy Research (FME) programmes.

Incentives tied to researcher mobility have been launched in various contexts, including the situation of younger researchers. The Government did not include such an indicator in the funding system on the basis that it would have included very few people and would potentially have had little effect, in addition to involving more reporting.

- Proposals (with reasons) for precisely targeted and measurable new performance indicators for improved research quality?

7.3.4 Increased external funding

All income from collaborative and contract-funded activities (BOA) will be included as a performance indicator in the Ministry’s new funding system from 2017. BOA income is a strong incentive in itself because of the financial room for manoeuvre that it generates. In the working group’s opinion, there is no need for further incentives and performance indicators in addition to this.

7.3.5 Incentives for increased interaction with the working world and the business community/innovation

Innovation is one of NTNU’s four areas of activity, but it is not included in the Ministry’s performance-based funding system beyond being picked up indirectly by the BOA indicator that will be included in the Ministry’s new incentive system from 2017. We would like proposals, with reasons, for incentives that encourage increased innovation activity and extended cooperation with the business community and the working world, including the public sector. For example, there may be indicators that capture such collaborative activities that are not reflected in BOA activities. The report from Technopolis mentions several possible indicators that could be considered.

- Proposals (with reasons) for precisely targeted and measurable new performance indicators for increased innovation activity?
- Proposals (with reasons) for new indicators that can measure the extent of cooperative activities with the working world and the business community?

7.3.6 Incentives for dissemination/outreach/public relations

Like innovation, dissemination, outreach and public relations are areas that do not form part of the Ministry’s performance-based funding system. However, certain faculties at the old NTNU currently reward dissemination and outreach in internal allocation models. As part of the work with the new funding model, the Ministry of Education and Research has signalled that an indicator for dissemination will be investigated, and we refer to this initiative. Work in the dissemination...
committees has shown that it is demanding to document dissemination aimed at both the public and at users. Development of textbooks is an example of such dissemination activity that is not covered by the publishing incentive.

- **Proposals (with reasons) for suitable new performance indicators for dissemination, outreach and public relations?**

### 7.3.7 Incentives for artistic quality

On 1 April 2016, the working group for «Quality in artistic activities» presented an investigation into the opportunities to develop more reliable and regular documentation of architectural and artistic activities at NTNU, including the feasibility of establishing suitable indicators for developing quality in the architecture and the arts. It has proven difficult to find suitable performance indicators and funding schemes geared to the individual character of these disciplines. As important as funding, this is a question of acknowledging and showcasing these disciplines for NTNU’s role as a broad-spectrum university. The report on «Quality in artistic activities» points out that it is difficult to find constructive quantitative indicators of quality development, but has proposed a registration system - which in turn could form the foundation for performance-based funding and incentives. Development of suitable indicators in the area will probably take longer than the period before the new allocation model becomes effective in 2018.

- **Should performance indicators be developed for the arts in the new RFM model?**

### 7.3.8 Internal interdisciplinary cooperation

Obstacles to interdisciplinary cooperation may be linked with administrative, organizational, cultural or financial issues; see the discussion in Chapter 4.1 in above.

Ideally, a Budget Allocation Model should not place financial obstacles in the way of interdisciplinary cooperation. An allocation model can also encourage the desired behaviour by rewarding interdisciplinary cooperation through incentives or strategic funds. The effect at the departmental level will depend on how the allocation resulting from the allocation model is redistributed.

Against this background, the working group believes that the RFM model does not need to include special incentives to encourage interdisciplinary cooperation.

### 7.3.9 Faculty-specific/“local” incentives

As well as incentives at the central level, there may be a need for local and discipline-specific incentives at faculty/department level.

- **Views on whether there is a need to develop local incentives in redistribution models that are developed at faculty and department level?**
- **What requirements should be set for such incentives?**

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7.3.10 Incentives aimed at administration?
See Chapter 4.3, in which the working group discusses principles and possible ways to fund NTNU’s administrative services. As outlined here, incentives and performance indicators related to administration considerable in theory. It may be difficult to develop incentives and indicators that are precisely targeted/do not have unintended effects. We would like comments on what might represent appropriate incentives or performance indicators for administrative functions.

- Proposals (with reasons) for suitable performance indicators aimed at administration?

7.4 Further distribution of the incentives in the allocation model to level 3?
The faculties at NTNU have had the same freedom to create their own internal allocation models that NTNU has had at the institutional level. We have mapped the models that the faculties at the old NTNU use to distribute the allocation to the department level (level 3); see background note 1. This survey shows that in practice there are eight different models for distribution of the allocation to level 3.

There may be several reasons for faculties to establish allocation models for level 3 that do not resemble the central model. The central model is intended to result in an allocation with a long-term horizon and to create incentives for the desired behaviour. The incentives in this model treat all faculties equally, while the prerequisites for achieving good results on the various indicators are not the same between the faculties. The faculties have a distinctive character that they want to preserve and support. Apart from this, the faculties have various strategies and desires for behaviour that is not adequately covered by the central model. For the faculties, academic autonomy and financial scope of action is inherent in the design of a separate Budget Allocation Model, besides raising external funds.

However, there may be some advantages in creating a system with incentives from the national model that are passed all the way on to level 3. This would make the system transparent and easy to understand. Even if NTNU chose not to follow the national model, one could still have the same incentives at level 2 and level 3 internally at NTNU. This would mean that all departments encounter the same incentives, which could be helpful when the institution has large common goals to be achieved, regardless of the academic environment.

Technopolis also discusses this in its report:
“In order to in fact create a model with impact on the performance on individual level, performance-based distribution of funding should not only be made from central level to the faculties, but also further down in the organisation, to departments, and eventually to research groups and individuals. However, this does not necessarily mean that exactly the same distribution model ought to be applied through the whole organization”

Even though the institution has cross-cutting incentives, choices could be included for the strength of the incentives. In this way, a balance would be created between centrally determined cross-cutting incentives, while the faculty level would have the opportunity to determine the strength of the
incentives. The working group feels that the faculties should have great freedom to design their budget allocation models.

- Views on whether incentives in the RFM should be passed on to the department level as well?
- In this case, what degree of freedom should the faculties have in relation to determining the strength of cross-cutting incentives?
<table>
<thead>
<tr>
<th>Glossary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base component</strong></td>
</tr>
<tr>
<td>In the funding system of the Ministry of Education and Research, the base component is a fixed proportion of the allocation, which has been specified since the origin of the institutions. In RFM, the base component is intended to provide stable long-term funding of all activities that are not funded by the strategic or performance-based component. The base component is thus not dependent on the results achieved.</td>
</tr>
<tr>
<td><strong>Basic grant</strong></td>
</tr>
<tr>
<td>See block grant</td>
</tr>
<tr>
<td><strong>Block grant</strong></td>
</tr>
<tr>
<td>The institution’s total basic grant consisting of a base component (about 70 per cent of the allocation), a performance-based component (about 30 per cent of the allocation) and any earmarked funds from the Ministry. The concept is used synonymously with basic grant.</td>
</tr>
<tr>
<td><strong>BOA - Collaboration- and contract-funded activity</strong></td>
</tr>
<tr>
<td>Activities with external funding. See directive F-07-13 for definitions: <a href="https://www.regjeringen.no/no/dokumenter/rundskriv-f-07-13-reglement-om-statlige-/id734714/">https://www.regjeringen.no/no/dokumenter/rundskriv-f-07-13-reglement-om-statlige-/id734714/</a></td>
</tr>
<tr>
<td><strong>Budget allocation model</strong></td>
</tr>
<tr>
<td>In the budget process, a model for distributing the allocation to the institution internally between units</td>
</tr>
<tr>
<td><strong>Components of the model</strong></td>
</tr>
<tr>
<td>The Budget Allocation Model is to have three components: a base component, a performance-based component, and a strategic component; see Chapter 2</td>
</tr>
<tr>
<td><strong>Earmarked allocations</strong></td>
</tr>
<tr>
<td>In the Ministry’s funding model, these are allocations earmarked for specific activities or purposes.</td>
</tr>
<tr>
<td><strong>Fixed allocation</strong></td>
</tr>
<tr>
<td>Used when referring to components in the funding system. Components where a ceiling is defined for the budget allocation have a fixed allocation.</td>
</tr>
<tr>
<td><strong>Funding system of the Ministry of Education and Research/ The Ministry’s funding system</strong></td>
</tr>
<tr>
<td>All government funding channels for universities and university colleges, both the direct basic grant from Ministry of Education and Research and national competitive arenas. The Ministry of Education and Research is introducing a revised funding model in 2017; see Chapter 3</td>
</tr>
<tr>
<td><strong>IFM - Income allocation model</strong></td>
</tr>
<tr>
<td>Budget allocation model developed for NTNU in 2005 and revised in 2013. The model is a hybrid based partly on (standardized) costs for different activities.</td>
</tr>
<tr>
<td><strong>Incentive</strong></td>
</tr>
<tr>
<td>An incentive is something that motivates someone to carry out a particular action. See Chapter 7.</td>
</tr>
<tr>
<td><strong>Indicator</strong></td>
</tr>
<tr>
<td>A observable phenomenon that shows the status of another phenomenon that is not directly observable.</td>
</tr>
<tr>
<td><strong>Internal rent</strong></td>
</tr>
<tr>
<td>Internal rent is the rent of premises at NTNU for in-house users. <a href="https://innsida.ntnu.no/wiki/-/wiki/norsk/internhusleie">https://innsida.ntnu.no/wiki/-/wiki/norsk/internhusleie</a> Internal rent with the related regulations has currently not been introduced for the former HiG, HiÅ and HIST.</td>
</tr>
<tr>
<td><strong>Net budgeted agencies</strong></td>
</tr>
<tr>
<td>Agencies with special powers for accounting of income and expenses outside the national budget on a gross basis</td>
</tr>
<tr>
<td><strong>Open-ended budget</strong></td>
</tr>
<tr>
<td>Used with reference to components in the funding system that do not have a fixed/delimited budget allocation, but where the size of</td>
</tr>
<tr>
<td>Component</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Performance-based component</td>
</tr>
<tr>
<td>RBO - Performance-based redistribution</td>
</tr>
<tr>
<td>RFM - Budget Allocation Model</td>
</tr>
<tr>
<td>Strategic component</td>
</tr>
<tr>
<td>Transparency</td>
</tr>
</tbody>
</table>