



SystemsX.ch

The Swiss Initiative in Systems Biology

10th Call for Proposals for SystemsX.ch Projects

The Federal Council proposed to provide funds to the SystemsX.ch initiative to foster systems biology research in Switzerland in its *Messages on Education, Research and Innovation for 2008-2011, 2012, and 2013-2016*, which were approved by the Swiss Parliament. This is the tenth call for proposals within the Swiss Initiative in Systems Biology.

Summary

The 10th Call for proposals of SystemsX.ch invites proposals for Medical Research and Development (MRD) Projects that develop or apply a systems approach to the study of disease in a medical, or ideally clinical, setting. This will be the last call for large research proposals within SystemsX.ch: the program will come to an end in 2018. Funding will be awarded to successful applicants for a three-year project for the period from 2015 to 2018. Teams of scientists from all SystemsX.ch partner institutions are encouraged to apply. Wider participation is desired: medical doctors or researchers working in a medical faculty or in a hospital in cooperation with basic science research groups are specifically encouraged to apply. The MRD project type focuses exclusively on *systems medicine*, i.e., projects should use a systems approach to study topics of medical or clinical relevance.

In addition, SystemsX.ch promotes public-private partnership by calling for proposals for Transfer Projects bridging the gap between academia and the private sector and lasting for at least 18 months.

Content

- Summary 1**
- Content 2**
- 1 What is Systems Medicine? 3**
- 2 What is SystemsX.ch? 3**
 - 2.1 Goals of SystemsX.ch 4**
 - 2.2 Scope of 10th Call for Proposals 4**
 - 2.3 Additional Information 5**
- 3 Types of Proposals 6**
 - 3.1 Medical Research and Development Projects (MRD Projects) 6**
 - 3.1.1 MRD Project Characteristics 6
 - 3.1.2 Duration, Finances 8
 - 3.1.3 Set-up of an MRD Consortium 8
 - 3.1.4 Own Contributions 9
 - 3.1.5 Who May Apply for MRD Projects? 9
 - 3.1.6 Documentation to be Submitted 10
 - 3.1.7 Submission Deadline 11
 - 3.1.8 SNSF Selection Procedure for MRD Proposals 11
 - 3.1.9 Selection Criteria 12
 - 3.1.10 Annual Scientific and Financial Reporting 12
 - 3.2 Transfer Projects to and from the Private Sector (Transfer Projects) 13**
 - 3.2.1 Transfer Project Characteristics 13
 - 3.2.2 Duration, Finances 13
 - 3.2.3 Set-up of a Transition Project Consortium 14
 - 3.2.4 Who May Apply for Transfer Projects? 14
 - 3.2.5 Documentation to be Submitted 14
 - 3.2.6 Submission Deadline 15
 - 3.2.7 SNSF Selection Procedure for Transfer Project Proposals 15
 - 3.2.8 Selection Criteria 16
 - 3.2.9 Annual Scientific and Financial Reporting 17
- 4 Appendix 17**
 - 4.1 Abbreviations 17**
 - 4.2 Partner Institutions of SystemsX.ch (as of December 2013) 17**

1 What is Systems Medicine?

The primary objective of systems medicine is to recognize a human disease or disease treatment as a complex system and to achieve an integral and comprehensive understanding of this system. This may involve (1) the collection and integration of various quantitative datasets obtained at multiple scales (from the molecular and cellular to the human individual scale), (2) the development and the application of data-driven approaches that identify patterns in such datasets that have predictive power in the prognosis of disease outcomes or the effect of treatments and (3) the generation of mathematical models integrating data and making predictions, e.g. about treatment outcome or disease trajectory. The study of disease systems in this framework requires interdisciplinary cooperation and a division of labor between basic biologists, computer scientists, engineers, statisticians, scientists practicing translational medicine, and clinicians. The present call for proposals is based on this definition of systems medicine.

2 What is SystemsX.ch?

SystemsX.ch is a simple partnership which enables institutes, competence centers, and scientific research groups to interact and cooperate by establishing common technological platforms and sharing collected data. The members of the partnership, i.e. the partner institutions, aim to position Switzerland among the world leaders in systems biology. SystemsX.ch will enhance and extend interdisciplinary research and education at the highest level in this field. It will develop and use the knowledge and tools necessary to expand our understanding of and ability to teach biology as an integrated quantitative science. It will foster the ongoing design, development, and application of advanced technology and the training of scientists and engineers in the special skills required to understand biological systems.

To achieve its ambitious goals, SystemsX.ch relies on the creative talents of its scientific and professional staff, and its ability to initiate and nurture partnerships between different SystemsX.ch projects and with other academic institutions, hospitals, private industry, and society. As a result of the first phase of SystemsX.ch (2008-2012), a total of about 125 SystemsX.ch projects were approved, involving more than 250 research groups and more than 1'000 scientists. The main part of the efforts have gone into the 14 large integrated research projects (RTD) and SyBIT, the SystemsX.ch IT backbone. The second SystemsX.ch phase started in 2013 with 20 new RTD projects and 6 Transfer Projects. In addition, the SystemsX.ch community encompasses all students, technicians and scientists involved in the Transition Postdoc Fellowships (TPdF), the Interdisciplinary PhD (IPhD) projects, as well as the former Interdisciplinary Pilot projects (IPP) and the Bridge-to-Industry projects (BIP).

The overall goal of the second phase (2013-2016+) is to sustain and reinforce the scientific and cultural advances realized in the first phase, to further expand and strengthen the systems biology research community in Switzerland and to expand the systems biology approaches into new scientific directions and into the private sector, with a particular focus on medically and clinically relevant systems biology research. Accordingly, the available funds will be distributed after peer review by the SNSF to support new projects.

The systems biology panel of the Swiss National Science Foundation (SNSF) regularly reviews the progress of SystemsX.ch as a whole. It is also responsible for evaluating all proposals of the present call.

You will find more information on the SystemsX.ch website: www.systemsx.ch.

2.1 Goals of SystemsX.ch

SystemsX.ch, the Swiss Initiative in Systems Biology, aims to:

- gather scientific competences on a national level to establish Switzerland at the forefront of the systems biology research with a particular focus on quantitative and predictive biology,
- set up and develop the cutting-edge technology required for systems biology research,
- implement a truly interdisciplinary research culture by connecting complementary disciplines to stimulate collaboration,
- establish collaborations with private industry and SMEs in various and individual forms of public-private partnership,
- educate PhD students, postdocs and young researchers for the future,
- facilitate systems-approach research in medical and clinical domains.

SystemsX.ch fosters interdisciplinary collaboration, promoting the systems approach in life science research between both public and private institutions. Public institutions are universities, university and public hospitals, and research institutions in compliance with paragraph 16 of the Swiss Research Law (420.1). Examples of private institutions include companies (industry), small- and medium-sized enterprises (SMEs) and private hospitals. According to applicable law, SystemsX.ch funds from the Swiss Government can only support public sector research.

2.2 Scope of 10th Call for Proposals

SystemsX.ch will support interdisciplinary projects that comply with the above definition of *systems medicine*. With the present 10th call for proposals, SystemsX.ch invites scientists from the SystemsX.ch partner institutions to apply for the new project type Medical Research and Development (MRD) and for Transfer (TF) projects. Scientists not previously associated with SystemsX.ch, and scientists bridging the private and public sectors are particularly encouraged to apply.

In this call, MRD Projects will be prioritized that:

- study disease as a complex system
- focus on systems biology approaches to medical and/or clinical questions
- combine both basic and clinically relevant research
- use quantitative approaches and integrate large, complementary datasets (either existing or newly collected) describing dynamic biological systems
- select non-biologists as PI.

In this 10th call, the following two project types will be supported:

1. **Medical Research and Development Projects (MRDs)** lasting until December 2018 (i.e. 3 years):
Priority will be given to consortia of moderate size (typically 3 to 8 research groups) that apply complementary and quantitative approaches to well-defined medical and clinical problems.
2. **Transfer Projects (TFs)** in the area of systems medicine in partnership with the private sector, lasting 18 to 24 months with the possibility of extension for a total of 36 months.

A total of **18.5 million CHF** will be made available to fund MRDs and TFs. You will find further details on each project type in chapter 3.

The submission **deadline** for the proposals of this 10th call is **July 31, 2014**. The SNSF review panel will convene on October 14-15, 2014. Main applicants for (short-listed, if necessary) MRD proposals will be invited to present their proposal and discuss it with the SNSF panel.

2.3 Additional Information

Additional information about SystemsX.ch may be found at www.systemsx.ch. Please contact the SystemsX.ch Management Office if you have any further questions (admin@systemsx.ch 044 632 78 88).

3 Types of Proposals

3.1 Medical Research and Development Projects (MRD Projects)

Medical Research and Development (MRD) Projects are interdisciplinary research projects carried out by consortia of a moderate number of research groups (typically 3 to 8) with complementary expertise. Projects must show an interdisciplinary character by linking research groups from traditionally separate disciplines. They can focus either on the in-depth analysis of a particular disease using a systems approach as defined above, on quantitative and integrated approaches to medical problems, or on the development and implementation of novel technologies that possess clear potential to enhance the treatment or diagnosis of disease. All projects must contain quantitative elements and concern medically and ideally clinically based research. The overriding decision criterion is however the quality, originality and level of innovation of the proposed research.

A SystemsX.ch MRD Project is to be proposed and led by one main applicant. Non-biologists are encouraged to act as the main applicant. Their institution, the so-called host institution of the MRD Project, will be responsible for the administration, coordination, and reporting of the project. If a proposal is approved, the main applicant will manage his/her project and ensure that it is carried out in an appropriate manner. Generally, the consortium of an MRD Project should consist of researchers from at least two partner institutions, preferably including hospitals and/or the private sector. Scientists from non-partner institutions may also submit MRD proposals (see 3.1.5).

Previously approved RTDs may give an impression of how an MRD could be structured,. The 20 RTDs approved since 2012 can be found on the [SystemsX.ch website](#). Please note that MRDs will be restricted to 3 years without the option for extension (funding only possible until December 2018).

The main applicants (maximum of 15 proposals) will be invited to present and discuss their proposals with the SNSF review panel on **October 14-15, 2014**. If the number of submitted proposals is greater than 15, the international, interdisciplinary SNSF Review Panel and the SystemsX.ch Scientific Executive Board (SEB) will select a short-list by applying the selection criteria mentioned in chapter 3.1.9.

3.1.1 MRD Project Characteristics

Systems medicine covers a wide range of research methods, technologies, and development tools. Therefore, MRD Projects with different scopes can be envisaged. The following descriptions are only meant as examples.

- Interdisciplinary research projects that study a disease process as a complex system: This type of project will concentrate on the in-depth (mechanistic) analysis of a specific disease system or multiple systems using a systems approach. Projects should preferably demonstrate that they are implementing an integrated experimental and

theoretical research approach aimed at the comprehensive, quantitative understanding of complex processes underlying a disease. It is expected that such projects will culminate in tangible translatable advances in the specific disease area, e.g. by the development of mechanism based biomarkers or treatment options, or by using data from existing cohorts.

- Interdisciplinary research projects with a technological and/or engineering focus: to overcome the substantial technological limitations of systems medicine, SystemsX.ch will support integrated projects that target the development and implementation of novel and innovative technologies. Such technologies must possess the potential to overcome a documented limitation and broadly impact research in a wide range of disease systems. Technology oriented projects focused on data collection must be cutting edge and adhere to the idea of standardized data formats and verifiable data quality. Examples of technologically oriented projects include new approaches to the acquisition of data from human individuals, their tissues or extracted cells, to the development of *in vitro* model systems from human patients that are disease-relevant (e.g. biopsies, organoids, stem cells), new technologies for the computational analysis of such data, or integration of (quantitative) data sets and technologies for the targeted perturbation of disease-relevant model systems.

In reality, most MRD Projects will be a mix of the types described above. However, each project must contain substantial quantitative work in the context of medical and ideally clinical research using cutting-edge technology.

As far as the number of research groups involved and finances is concerned, it is the responsibility of the main applicant to find the optimal setting within the boundaries stated in this document. This is obviously dependent on the main activities (e.g. work with patients, wet lab, modeling) and the availability of different competences. SystemsX.ch defines an upper limit on time and available SystemsX.ch funds (see next section).

3.1.2 Duration, Finances

For MRD Projects, the duration will be **three years** without the possibility of further extension. SystemsX.ch will fund MRD Projects to a **maximum of 2,500,000 CHF**¹. Funds can be only used until December 2018. As required by law, and in accordance with the Messages of the Federal Council on Education, Research and Innovation, **participating institutions must provide their own contributions** (in cash and/or in kind) to at least match the funds provided by SystemsX.ch. A letter of intended own contributions from the main applicant's institution must be attached to the proposal. However, details about the own contributions will be negotiated after approval of MRD Projects. Guidelines on the calculation of matching funds and allowable matching fund sources can be found below in section 3.1.4.

Moreover, additional funding from both competitive research foundations (SNSF, CTI, EU, NIH, etc) and from the private sector (industry, SME, etc.) is expected to be secured for new MRDs. Hence, the budget for each MRD Project will consist of the following four funding sources:

- Funding requested from SystemsX.ch
- Own contributions: matching funds (at least as much as SystemsX.ch funds) from the partner institutions (1) in cash and / or (2) in kind (see definitions below)
- Private industry: collaboration with partners from private industry and SMEs
- Others: funds directly linked to the project obtained from other competitive research institutions such as SNSF, CTI, EU, NIH, etc.

Note

The SystemsX.ch IT-backbone SyBIT will coordinate and provide, together with the various local IT support entities (e.g. Vital-IT), support for all approved MRD Projects in the form of bioinformatics, including implementation of data sharing. Please estimate your needs and plan accordingly (see chapter 3.1.6 part 2; Scientific Information, items 4 and 5).

SystemsX.ch also funds Transition Postdoc Fellowships (TPdFs), interdisciplinary PhD projects (IPhDs) and Transfer Projects (TFs). Any of these project types may be affiliated with an MRD.

3.1.3 Set-up of an MRD Consortium

It is up to the main applicant to compose the consortium of the MRD proposal. In general, all research groups at a SystemsX.ch partner institution are invited to participate in SystemsX.ch (for details see 3.1.5). It is highly desirable and recommended to **include research groups from a medical faculty** in the consortium. Under certain circumstances (e.g. no Swiss research group can provide the respective know-how), it is possible to include research groups located in a foreign country. However, SystemsX.ch funds can only be provided to the Swiss research groups involved. Please contact the Management Office to discuss specific cases.

Note: SystemsX.ch funds can only be used for Swiss academic partners. The private sector partners must cover their efforts using their own resources.

¹ This upper limit considers the fact that after the end of the SystemsX.ch initiative the partner institutions will implement respective structures to ensure sustainability of the systems approach in life science research. The limit also takes into account that other SystemsX.ch funding modes, specifically competitive IPhD and Transitional Postdoc Fellowships are available to increase the impact of projects.

3.1.4 Own Contributions

The “own contributions” principle is a mandatory prerequisite of receiving SystemsX.ch funding. This may materialize in cash and / or in kind.

Definitions

cash: funds which are invested strategically to support SystemsX.ch projects and which are made available to the research groups whose project proposal has been accepted by SystemsX.ch. They are to be transferred to the account of the research group in question and reported in the annual financial report of the institution.

kind: resources from the institutions' operating budget allocated explicitly to SystemsX.ch projects:

(1) Personnel paid from the institution's operating budget involved in SystemsX.ch projects according to the following table:

Table “in kind”: lump sum per category (including salary, social charges, overhead services, infrastructures) to be calculated pro rata (max. of 20% for professors).

Note: for clinicians and medical doctors, lump sums will be determined based on those of equivalently experienced researchers

Professor	270 kFr
Assistant Professor	200 kFr
Senior Researcher*	170 kFr
PostDoc*	130 kFr
Technician*	130 kFr
PhD student*	60 kFr

*only if salary is paid from the institution's operating budget

(2) From 2013 onwards: large equipment purchased from the institution's budget is eligible for SystemsX.ch purposes on a pro rata basis.

(3) Earlier investments (e.g. infrastructure platforms made available to SystemsX.ch): will be reported within the financial report of the first year. The Scientific Executive Board will determine the eligible amount on a case-by-case basis.

3.1.5 Who May Apply for MRD Projects?

Faculty members of SystemsX.ch partners are eligible as main applicants. Experienced senior scientists from other Swiss research institutions are eligible as co-applicants (i.e. not main applicants). However, only SystemsX.ch partners and cooperating partners (according to the revised Research Law SR 420.1, Article 7, No. 4) are eligible to receive SystemsX.ch funding. Public hospitals can receive funding if the SystemsX.ch BoD approved a respective request (this will be done after reviewing the proposals).

If the institution is not already a SystemsX.ch partner, the successful MRD's hosting institution must apply to become a SystemsX.ch partner prior to initiation of funding.

3.1.6 Documentation to be Submitted

MRD proposals are to be submitted using the official forms consisting of the following:

Part 1: General Information

Part 2: Scientific Information

1. Summary: concise statement of the goals, milestones and significance of the project (1-2 pages)
2. International standing of all applicants in their field of research (2-3 pages in total)
3. Research plan (clearly structured, maximum 30 pages in total. **Note:** any pages exceeding 30 will not be considered):
 - 3.1. Overall research questions, specific goals, milestones and framework of the whole project, expected added value to systems medicine (max 5 pages)
 - 3.2. Research plan of each sub-project: state of the art, questions, methods, milestones (max 6 pages for each sub-project)
4. Justification of the systems biology approach, significance of the planned research for SystemsX.ch and future users (patients, private industry, economy, medicine, etc.) (1-2 pages)
5. Dissemination and bioinformatics: each project will have to provide a concise plan of how software tools, data sets and other resources will be **shared or made publicly available**.

Together with the various local IT support entities (e.g. Vital-IT), SyBIT will coordinate and provide support for all approved MRD Projects in terms of bioinformatics, including implementation of data sharing and dissemination (contact sybit@sympa.systemsx.ch). If bioinformatics, computational and data resources are needed, please describe the following (max 2 pages):

- 5.1 Estimated needs for bioinformatics data analysis, statistical analysis, visualization, etc.
- 5.2 Estimated needs for IT hardware resources for storage volume and computation
- 5.3 Estimated needs for software, middleware, platforms and services, open source or commercial, licenses
- 5.4 Planned provisioning for the above: resources already exist or new resources are necessary, directly or through SyBIT

Annexes:

- Three-year full cost budget (use Excel Budget forms provided on *mySNF*)
- Signed letter of commitment concerning own contributions from the host institution's management
- CV and publication list over the past 5 years of all applicants
- Existing contracts, letters of support of existing or potential industry partners, if applicable.

3.1.7 Submission Deadline

The MRD proposals are to be submitted by **July 31, 2014** using the SNSF web platform *mySNF* (www.snf.ch). After the completion of the submission on the web platform, the thereby compiled PDF-file must also be sent to admin@systemsX.ch.

Please note: for the SNSF to be able to guarantee *mySNF* access, new user accounts must be requested at the latest five working days before the deadline (from abroad: 2 weeks before the deadline). It is the responsibility of the applicants to ensure timely delivery of their proposal. SNSF and SystemsX.ch reject any responsibility for electronic, e-mail or any other problems.

3.1.8 SNSF Selection Procedure for MRD Proposals

The selection of the proposals will be preceded by a formal check by the SNSF administration. Proposals which fail to comply with the formal requirements will not be admitted to the next stage of the selection procedure and will be rejected if the defect cannot be easily remedied. The following formal requirements must be met:

- Compliance with the submission deadline (postmark)
- Use of the official forms and completeness of the proposal, written in English
- Eligibility of the main applicant and co-applicant(s)
- Acknowledgement of the need for the provision of own contributions in the case the proposal is approved for funding. In a preliminary step, only the host institution must sign a letter. A template is found on *mySNF*.

Proposals will be selected by the Systems Biology Review Panel appointed by the SNSF, consisting of more than ten international experts from relevant disciplines and six members of the National Research Council of the SNSF.

- The SNSF Systems Biology Panel and the SystemsX.ch Scientific Executive Board (SEB) will assess all the submitted proposals against the criteria specified below, and – if necessary – will short-list the most promising 15 proposals. Proposals that are not short-listed will be rejected.
- The Scientific Executive Board (SEB) of SystemsX.ch will evaluate the contributions of the short-listed proposals with respect to the goals of the SystemsX.ch initiative and the present call and forward its recommendations to the SNSF.
- The Systems Biology Panel will select the most promising projects amongst the short-listed proposals, based on an oral presentation by the applicants, the recommendations of the Scientific Executive Board of SystemsX.ch, and the final assessment of the panel. The main applicants of the short-listed proposals will be invited for this presentation and discussion with the SNSF Review Panel on October 14-15, 2014.
- The decisions must then be approved by the SNSF Presidium. The final decision is expected to be announced in November 2014.

3.1.9 Selection Criteria

The Systems Biology Review Panel will select the MRD proposals according to the following criteria:

- I. Contribution to the progress of systems biology approaches to medicine and integration into the overall SystemsX.ch initiative
- II. Scientific quality, including added value of the MRD Project as a whole, compared to the sum of its sub-projects
- III. Combination of basic and clinical research
- IV. Financial planning in general and distribution of the funding (total costs, own contributions, federal grant applications, third party funding)

In addition to the above-mentioned criteria, the standard scientific criteria set forth in the SNSF Rules of Procedure (Reglement über Gesuche SystemsX.ch, 3. Juli 2007) will apply:

- a) Scientific relevance and topicality of the proposal
- b) Originality of the questions
- c) Adequacy of the methodology
- d) Scientific track record of the applicants
- e) Expertise of the applicants concerning the proposal
- f) Feasibility of the proposal

The strategic evaluation by the SEB will be made in due consideration of the systems biology approach to medically relevant problems, its justification, and the significance for SystemsX.ch.

The decision will be based exclusively on scientific criteria. This means that the approved projects **must** (1) add value to systems medicine and (2) represent high scientific quality. If a substantial part of an MRD Project does not meet these criteria, the whole project will be rejected.

In case of equal scientific quality, proposals of consortia with participants from medical faculties will be given preference.

3.1.10 Annual Scientific and Financial Reporting

The annual scientific progress report of each MRD Project is to be submitted to the SystemsX.ch Management Office. The reports will be consolidated and passed onto the SNSF where they will be reviewed by the SNSF Systems Biology Review Panel.

The financial reports are also to be submitted to the SystemsX.ch Management Office, the following items being disclosed according to defined directives (cf. Partnership Agreement Article 38, No. 4):

- SystemsX.ch funds
- Own contributions “in cash” and “in kind” by the involved partners
- Contributions from the private sector (industry or SME)
- Additional third party funds from competitive research foundations (SNSF, CTI, EU, NIH, etc.) which support SystemsX.ch.

3.2 Transfer Projects to and from the Private Sector (Transfer Projects)

In addition to promoting top science at our partner institutions, SystemsX.ch aims to bring systems biology closer to various industries, SMEs and medical/clinical applications in hospitals. This can be catalyzed by the participation of private sector scientists in MRD Projects (see chapter 3.1). In 2012, SystemsX.ch created a new project category for the second phase. These projects, called “Transfer Projects” (TF), specifically promote public-private partnerships between academia and industries or SMEs in the field of systems biology. Another possibility for a TF, and particularly relevant to this call for proposals, is a collaboration between academia and a (private) hospital, to apply a systems approach to clinical questions. The aim of a TF in the context of the 10th call is to enhance and develop mutually interesting technologies or research relevant to the systems approach within medical and clinical research. The collaboration should enable academia and the private partner to work together on a set of medically relevant questions or methods.

Any sort of outsourcing of specific techniques, or beta-testing of equipment will not be considered. Similarly, no ‘fees for service’-like proposals will be considered. It also should be noted that SystemsX.ch funding can legally only be used to support research in public institutions.

TFs are a tailor-made cooperation between one (or several) research groups from both academia and the private sector (industry, SME, hospital, etc.). The number of (co-) PIs should be at least two (one academic, one private), but is not limited. TFs are awarded for two years, and may be extended, if successfully evaluated, for a third year.

3.2.1 Transfer Project Characteristics

The project must involve at least one research group from a SystemsX.ch partner institution. The scientific question or technique being addressed must be relevant to systems medicine and of general interest. A strong track record of the involved groups is expected. The requested SystemsX.ch funds must be matched (in kind or in cash) by the industry partner. In addition, the academic partner should make an additional contribution to the project (generally in kind).

Details concerning intellectual property rights should be addressed by the academic and industrial partners prior to submission.

As far as the number of research groups, project duration and finances is concerned, it is the responsibility of the main applicant to find the optimal setting within the boundaries stated in this document.

3.2.2 Duration, Finances

The duration of the project can be between 18 and 24 months. If successful, it can be extended to 36 months in total. SystemsX.ch will fund TFs with a maximum of up to CHF 300'000. The private partner institution must provide resources for internal or external research (in cash and/or in kind) to minimally match the SystemsX.ch contributions. A corresponding letter of commitment must be attached to the proposal. **Note:** SystemsX.ch money can only be provided to Swiss public partners. Additional funds both from the academic institution and competitive research foundations (SNSF, CTI, EU, NIH, etc.) should complement the full cost budget.

Hence, the budget of a TF consists of the following four funding sources:

- Funding requested from SystemsX.ch (for the academic research groups)
- Private partner: resources (at least as much as SystemsX.ch funds) contributing to the TF (in cash and/or in kind)
- Own contributions: resources from the academic partner institution (in cash and/or in kind; see 3.1.4.)
- Others: funds directly linked to the project obtained from other competitive research institutions such as SNSF, CTI, EU, NIH, etc.

3.2.3 Set-up of a Transition Project Consortium

It is up to the main applicant to compose the consortium. The SystemsX.ch Management Office offers to act as a broker in connecting interested applicants from both academia and the private sector. Please contact the Management Office to get support.

3.2.4 Who May Apply for Transfer Projects?

Faculty members or experienced scientists of SystemsX.ch partners are eligible as main applicants. The partners from the private sector are eligible as co-applicants. However, only SystemsX.ch partners and cooperating partners (according to the revised Research Law SR 420.1, Article 7, No. 4) are eligible to receive SystemsX.ch funding.

If the hosting institution is not yet a SystemsX.ch partner, it must apply to become one upon approval by the SNSF.

3.2.5 Documentation to be Submitted

The proposals for TFs are to be submitted using the official forms consisting of the following:

Part 1: General Information

Part 2: Scientific Information

1. Summary: concise statement of the goals, milestones and significance of the project (1 page)
2. International standing of all applicants in their field of research (max. 1 page in total)
3. Project plan (clearly structured, maximum 10 pages in total. **Note:** any pages exceeding 10 will not be considered):
 - a) Research questions
 - b) State of the art
 - c) Methods
 - d) Milestones
 - e) Expected added value
4. Expected impact on systems medicine and industrial interaction in future (max. 1 page).

5. Justification of the systems biology approach, significance of the planned research for SystemsX.ch and future users (patients, private industry, economy, medicine, etc.).
6. Dissemination and bioinformatics: each project will have to provide a concise plan of how software tools, data sets and other resources will be shared with the private partner or made publicly available.
7. Together with the various local IT support entities (e.g. Vital-IT), SyBIT will coordinate and provide support for all approved RTD projects in terms of bioinformatics including implementation of data sharing and dissemination (contact sybit@sympa.systemsx.ch). If bioinformatics, computational and data resources are needed, please describe the following (max 2 pages):
 - 6.1 Estimated needs for bioinformatics data analysis, statistical analysis, visualization, etc.
 - 6.2 Estimated needs for IT hardware resources for storage volume and computation
 - 6.3 Estimated needs for software, middleware, platforms and services, open source or commercial, licenses
 - 6.4 Planned provisioning for the above: whether resources already exist or new resources are necessary, directly or through SyBIT

Annexes:

- Full cost budget (use Excel Budget forms provided on *mySNF*)
- Signed letter of commitment concerning resources for the project by the private partner
- CV and publication list of all applicants over the past 5 years
- Concept of IPR-treatment if the proposal is funded.

3.2.6 Submission Deadline

The proposals for TFs are to be submitted by **July 31, 2014** using the SNSF web platform *mySNF* (www.snf.ch). After the completion of the submission on the web platform, the thereby compiled PDF-file must also be sent to admin@systemsX.ch.

Please note: for the SNSF to be able to guarantee *mySNF* access, new user accounts must be requested at the latest five working days before the deadline (from abroad: 2 weeks before the deadline). It is the responsibility of the applicants to ensure timely delivery of their proposal. SNSF and SystemsX.ch reject any responsibility for electronic, e-mail or any other problems.

3.2.7 SNSF Selection Procedure for Transfer Project Proposals

The selection of the proposals will be preceded by a formal check by the SNSF administration. Proposals which fail to comply with the formal requirements will not be admitted to the next stage of the selection procedure and will be rejected if the defect cannot be easily remedied. The following formal requirements must be met:

- Compliance with the submission deadline (postmark)
- Use of the official forms and completeness of the proposal, written in English
- Eligibility of the main applicant and co-applicant(s)

Proposals will be selected by the Systems Biology Review Panel appointed by the SNSF, consisting of more than ten international experts from relevant disciplines and six members of the National Research Council of the SNSF.

- The Scientific Executive Board (SEB) of SystemsX.ch will evaluate the contributions of the submitted proposals with respect to the goals of the SystemsX.ch initiative and forward its recommendations to the SNSF
- The Systems Biology Review Panel will assess the proposals according to the criteria specified below, and taking into account the recommendations of the Scientific Executive Board of SystemsX.ch
- The decisions must then be approved by the SNSF Presidium. The final decision is expected to be announced in November 2014

3.2.8 Selection Criteria

The Systems Biology Review Panel will select the TF proposals according to the following criteria:

- I. Contribution to the progress of systems biology approaches to medicine and integration into the overall SystemsX.ch initiative
- II. Scientific quality including added transfer value of the project
- III. Contribution to the public-private partnership
- IV. Financial planning in general and distribution of the funding (total costs, own contributions, federal grant application, third party funding)

In addition to the above-mentioned criteria, the standard scientific criteria set forth in the SNSF Rules of Procedure (Reglement über Gesuche SystemsX.ch, 3. Juli 2007) will apply:

- a) Scientific relevance and topicality of the proposal
- b) Originality of the questions
- c) Adequacy of the methodology
- d) Scientific track record of the applicants
- e) Expertise of the applicants concerning the proposal
- f) Feasibility of the proposal.

The strategic evaluation by the SEB will be made in due consideration of the systems biology approach to medically relevant problems, its justification, and the significance for SystemsX.ch.

The decision will be based exclusively on scientific criteria. This means that the approved projects **must** (1) add value to systems medicine and (2) represent high scientific quality. If a substantial part of a project does not meet these criteria, the whole project will be rejected.

3.2.9 Annual Scientific and Financial Reporting

The annual scientific progress report of each TF is to be submitted to the SystemsX.ch Management Office. The reports will be consolidated and passed on to the SNSF, who will review them.

The financial reports are also to be submitted to the SystemsX.ch Management Office, the following items being disclosed according to defined directives (cf. Partnership Agreement Article 38, No. 4):

- SystemsX.ch funds
- Own contributions “in cash” and “in kind” by the involved academic partners
- Contributions by the private sector (industry or SME) to the SystemsX.ch project
- Additional third party funds from competitive research foundations (SNSF, CTI, EU, NIH, etc.) which support SystemsX.ch

4 Appendix

4.1 Abbreviations

BoD	Board of Directors (all Presidents and Rectors of SystemsX.ch partner institutions)
CTI	Commission for Technology and Innovation
EU	European Union
IPhD	Interdisciplinary PhD Project
MO	SystemsX.ch Management Office
MRD	Medical Research and Development
NIH	National Institute for Health
RTD	Research, Technology and Development
SEB	Scientific Executive Board (scientists of different Systems Biology fields & partner institutions)
SER	State Secretary for Education and Research
SME	Small and Medium-sized Enterprise
SNSF	Swiss National Science Foundation
SUK/CUS	Swiss University Conference
TF	Transfer Project
TPdF	Transition Postdoc Fellowship

4.2 Partner Institutions of SystemsX.ch (as of December 2013)

ETH Zürich (leading house)	University of Bern
EPF Lausanne	University of Fribourg
Friedrich Miescher Institute	University of Geneva
Paul Scherrer Institute	University of Lausanne
Swiss Institut of Bioinformatics	University of Neuchâtel
University of Basel	University of Zurich
Università della Svizzera italiana	