

FINAL REPORT

I	The Name of the Institution to be evaluated	National Institute for R&D in Informatics (ICI), Bucharest
II	Evaluation Period	4 - 5 June, 2012
III	Members of the Team	
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The preliminary /final report should contain:

- 1) 1 page – Conclusions and recommendations;
- 2) At least N pages – observation of each evaluation team (N=number of teams);
- 3) 2 pages – justification of the mark awarded, for each of the 5 criteria, highlighting strengths and weaknesses, in accordance with the minutes/report of the visit;;
- 4) Only for institutions classified "A-": 2 pages - specific measures, targets and recommendations to be met in a time of 2 or 3 years.

Conclusions and recommendations

The Institute benefits from high-quality infrastructures, but does not fully exploit them to initiate cutting-edge research activities.

The quality of the R&D activities is strongly penalized by the lack of scientific and long-term vision within the Institute. Several teams do not appear to be articulated around scientific challenges or questions, but are rather driven by pragmatic development requests and funding opportunities. Overall, the Institute appears to be funding-oriented rather than driven by the quality of its research.

Effort is primarily spent on gaining projects, which penalizes the acquisition of knowledge, and long-term value.

The deployment of high quality infrastructures is one of the most valuable achievements of the institute. However, those infrastructures do not support a solid and high-value research activity. Lots of effort and resources are devoted to operating the infrastructures. Very few PhD students or senior researchers investigate scientific questions based on those infrastructures.

A similar conclusion is drawn about the participation of ICI in European projects. ICI appears to excel in joining projects and getting funding. However, ICI does not appear as a leader in those projects. It is generally in charge of developing and/or operating infrastructures, without much focus on the associated scientific challenges.

Some individuals have the quality required to conduct and promote high level research. However, this human resource capacity is spread across multiple teams. More generally, the management of human resources is missing a long-term vision, which results in highly non-uniform profiles, with an insufficient ratio of PhD students & PhD researchers. The institute has not been able to attract a young generation of researchers to foster innovation and stimulate the emergence of cutting edge research. The institute lacks a clear strategy to motivate the staff towards scientific contributions. The daily work of researchers appears to be more driven by project deliverables rather than by scientific curiosity.

In order to position ICI as a reference research center in Europe, a deep reorganization of the management is recommended, so as to promote a culture of research excellence. The scientific board should primarily define federating scientific objectives in some strategic areas of research. Then, the management should recruit and assign resources to reach a critical mass in these areas. Federating the researchers around key activities and challenges should foster the emergence of innovative solutions to relevant and timely problems, which in turns should increase the international visibility of ICI researches.

Observations related to Team 1

Thematic: Advanced Modeling and Optimization for High Performance

Lead: Neculai Andrei

The main research topics of the team are mathematical modeling, languages and advanced systems for modeling. The main contributions are: theoretical and computational developments for unconstrained optimization using conjugate gradient methods; algebraic oriented languages and compilers for linear optimization.

Neculai Andrei is a top class researcher with a very good publication record and international visibility. However, the rest of the team is much less visible, and its publication record is modest. The team has a good number of European and nationally funded projects, and achieves a good balance between scientific publications and work spent in the projects.

Build-up of young generation researchers is unclear, which raises issues regarding the evolution in time of the research activities. The team has 3 senior researchers and one assistant, the rest is composed of engineers.

The strong mathematical background ensures the capability of the team to work on several different applications. However, care should be taken to avoid possible dispersion.

The starting activity on humanoid robots is a goal at institutional level, but insufficiently motivated or substantiated by experience and infrastructures. The move from mathematical modelling towards humanoid robots is however relevant since the design of humanoid robots raises complicated control problems.

Observations related to Team 2

Thematic: Advanced Data Analysis and Modeling

Lead: Th. D. Popescu

The main research topics and results of the team are related to time series analysis and forecasting, change detection and diagnosis, applications of independent component analysis in blind source separation, time-frequency analysis.

The group builds on a strong mathematical background, and mainly works on applied research in some important fields such as energy, transport and forecasting of social and macro-economical data.

Theodor D. Popescu has a very good publication record and international visibility. The rest of the team is composed of researchers with a modest publication record. The team has a reasonable number of nationally funded projects.

The fact that most recent publications only involve a single researcher has been justified by the fact that the group members are partly coming from other groups. This makes the definition of the group arguable in term of research thematic consistency. Many group members are also involved in the educational process at the University of Bucharest.

The presentation of activities was excessively detailed, and was missing summary conclusions about actual impact and vision. An effort should be conducted to better disseminate the research conducted in this group.

Observations related to Team 3

Thematic: Content Management and e-Services

Lead: Doina Banciu

The team is active in the following areas: management of digital content, development of Web applications based on digital objects recognition for the business environment, development of on-line services for citizens in relation to public administrations.

The team has a large number of European and nationally funded projects (3.6M€, 40% from Europe, most often as a small partner), but most of them appear to involve development work and government support rather than actual research.

Furthermore, the publication record of the team appears to be fairly weak, especially considering the large number of senior researchers in the group.

We note a large number of articles, but with little real international visibility (large majority of self-citations among record of citations). Florin Filip is an exception in the team since he has a solid publication record, nevertheless, he is also deeply involved in many other activities at different levels, which can hinder his, and participation to the definition of the future of the team.

The list of achievements refers to national visibility and honors, but no concrete description of the scientific activity/ies has been presented.

During the follow-up discussion, the 20-year history of ICI in library management was put in foreground, rather than the current emerging activities. It gave the impression that the main achievement of the team is related to the dissemination of digital libraries in Romania. The group appears to serve the government objectives, and primarily aims at promoting the information society to Romanian people (through digital library development). Very few factual scientific results have been achieved and presented.

The general thematic for the future is driven by general European objectives (future Internet), but no scientific focus has been identified within this general thematic.

Neither a clear research statement, nor a clear innovative research direction, fitting with the existing experience of the institute, has been presented for this team. The main risk for this team is its dependency on EU research programs without providing a well defined research direction.

Observations related to Team 4

Thematic: Operational Research: advanced research, models expertise, consulting.

Lead: Corneliu Resteanu

The team appears to have a wide range of interests, without a clear focus regarding its area of expertise. Many different sub-thematics are considered.

The team has shown a great ability to get funds from international and national research programs, including through collaboration with academy and/or industry. This highlights some form of dynamism of the team, and its effort to join European partnerships.

However, no project investigating some main fundamental scientific issue has been presented to the committee. This suggests a potential weakness to propose breakthrough research activities. This lack of focus is somehow confirmed by the list of projects, which includes many small projects (< 20 or 50k€). Research is highly applied in nature: the team has implemented optimization programs, and the papers mainly describe the optimizations implemented for particular systems. Few generic or universal achievements have been presented. This is justified by the fact that nowadays, the operational research area is closed on the majority of its main directions, and the specialized literature appreciates applications on practical areas more than minor theoretical up-dates.

The team has a reasonable number of publications, but only very few are internationally visible, with good citation record.

Observations related to Team 5

Thematic: Quality and Systems Evaluation

Lead: Alexandru Balog

The team develops methods, models and standards for evaluating the quality and usability of various interactive systems and services. The group contributes to the evaluation of public services and digital libraries.

The team is involved in a large number of EU and nationally funded projects: 1.5 M€ budget, among which 25% corresponds to European projects. In terms of societal impact, there appear to be some end results that are used by one ministry, and the team has developed a virtual reality-based learning platform with the purpose of being used by one branch of the military.

Similarly to several other teams of the institute, the scientific focus of Team 5 cannot be clearly identified. The section devoted to Team 5 in the Self-assessment Report presents a fragmented and repetitive bullets list, which describes research areas, not achievements or concrete proposed research.

Although quality and usability evaluation is a recognized area of research, no clear major scientific achievement is reported, and no clear research project has been proposed for the next 4 years. The team seems mostly focused on the use of current technology rather than research in the development of original solutions.

There is a reasonable number of publications, but only very few are internationally visible.

The most cited paper appeared in 'Journal of social sciences', which can be explained by the fact that the team focuses more on applied problems, rather than on fundamental ICT questions.

The team includes an ACM senior member (Costin Pribeanu), but his most cited papers have been written outside ICI (around 2001).

Observations related to Team 6

Thematic: Artificial Intelligence and Bioinformatics

Lead: Liviu Badea

The main research interests are in: Artificial intelligence research, with applications in bioinformatics and the Semantic Web; Image processing and analysis.

The team produces high quality research in key research areas.

Liviu Badea is a top class researcher with a very good publication record, and international visibility in key conferences, and impact (many citations). However, the rest of the team is much less visible and their publication record is modest. The team has a good number of European and nationally funded projects.

The research objectives and thematics are clearly identified, and appropriate strategies are proposed to tackle the associated scientific questions. Good collaboration with medical/biological field exists. Thematic is relevant and timely. The research group has a high potential to expand in size if suitable PhD students are found.

One weakness of the team is its poor ability to attract young researchers and PhD students. An effort should be made to support the group in this task.

Observations related to Team 7

Thematic: Green Energy and Sustainable Development

Lead: Adriana Alexandru

The main team focus is on promoting efficient use of energy and the replacement of the fossil combustibles with renewable energy sources, using IT tools and services as an educational support.

The leader of the team has a good visibility, but mainly at the national level.

The team has been involved in a significant number of EU and nationally funded projects, but its scientific contribution (research) to these projects is not clear. The final impact of projects cannot be convincingly assessed. The group is mainly active in writing and coordinating projects. It lacks scientific focus.

The team has a very poor publication record with virtually no internationally visible publication (only one paper in an ISI indexed papers with non-zero impact factor and that is in the institute's journal). The text of publications O 285 and O 327 (in the "Others" area) overlap to a very large amount, the latter only adds a few experimental results, with the same conclusions as before. This duplication has been justified by the need for local dissemination.

Observations related to Team 8

Thematic: e-Health and e-Inclusion

Lead: Marilena Ianculescu

The team focuses on providing information resources (methodology, information systems) for the management of human, financial, material and information resources in health services.

The team has a high number of nationally funded projects, but its scientific contribution (research) to these projects is not explicit. More generally, as it is the case for several other teams of the institute, the research activity of ICI within the funded project cannot be clearly identified. Although one project in which the team was involved has been awarded at European level, the end-result and the impact of the projects on the ICI strategy could not be convincingly asserted.

The team has a poor publication record, with a low rate of internationally visible publications. The most important journal paper is in the institute's own journal. Some papers about ethical issues do not cite some of its sources: Publication O348 on ethics contains unreferenced text from a 1999 EU opinion on ethical issues of healthcare in the information society.

Observations related to Team 9

Thematic: Distributed infrastructures, tools and algorithms for eScience and eBusiness

Lead: Gabriel Neagu

The team contributes to the operational management of the South Eastern Europe Grid Infrastructure (SEE-GRID), with a particular attention to the Romanian sites participating in SEE-GRID. The team is deeply involved in GRID infrastructure management (a time consuming activity), and provides support for eScience oriented applications and communities. It acts as an IT contact point for the ministry, which is part of the mission of the Institute.

The team has shown a great ability to get funding from research programs (1.8M€, 75% national, 25% international), which confirms the importance and attractiveness of the infrastructure deployed by ICI. The team also supplies useful support to the other groups in ICI, and is very active in organizing activities of dissemination in Romania.

Although the most representative research projects coordinated by the team in the reported period were directly related with the deployed infrastructure, few scientific questions related to the deployment of the infrastructure are investigated. Of the five contributions mentioned in the report, four are on infrastructure operation, support, and application development. Few publications coming out of those projects have a significant impact (there is a majority of self-citations among the references to the papers of the team). The explanation given is that high-profile researchers are missing, because hiring rules and conditions are not attractive enough.

One researcher, Vasile Sima, has a different profile than the rest of the team. He is a top class researcher, with a very good publication record, and with international visibility and impact. He, however, produced a limited number of relevant publications in the past 5 or 10 years (except one in a IEEE journal paper in 2012, and a couple of others), and his work appears to be fairly isolated within the team.

Dr. Sima only recently joined the team. His strong mathematical background is clearly a key point for the development of the research activity of the team, but a major issue is related to the renewal of generations since very few young researchers have been recently hired by the team. In particular, Dr. Sima does not supervise any PhD student (partly due to administrative/legal issues).

There is no clear separation between the infrastructure management activities, and the actual and limited research performed by the team. Activity is concentrated on operating the infrastructure, but does not produce visible research. One PhD student splits his efforts between system operation and research.

Recommendation: Organize the team so as to clarify the division between the activities that make the infrastructure operational, and the ones that contribute to gain of knowledge and scientific contributions.

Observations related to Team 10

Thematic: Future Internet and Security

Lead: Eugenie Staicut

This team plays an important role in the development and administration of the internet in Romania. It implements the DNS in Romania, accessed by means of about 40 million queries a day, supported by a robust and fault tolerant architecture. Unfortunately, research activities and visibility are very limited, which is in part justified by the role it plays in the Romanian computing community. The scarcity of relevant international publication is justified by the large time dedicated to develop the infrastructure, really important in supporting other groups inside and outside the ICI.

The team focuses on applied research, implementing best-practice and state-of-the-art technology rather than investigating original solutions to address fundamental research questions. Typically, experiments are run to validate the technological choices before moving to real-life deployments.

Some research activities have been initiated in relation to cloud computing, but it has not yet achieved good visibility or maturity. Few scientific questions are addressed with respect to the infrastructure (only one PhD student).

Observations related to Team 11

Thematic: National Program Library

Lead: Dragos Barbu

The main activity of this team is to manage a national program library. This is an important achievement, but not a research activity. The activity of this team is focused on service deployment rather than on scientific achievement.

No prognosis could be made regarding the practical use of the library in the future, or its exploitation to address scientific questions.

The quality of R&D activities and their results (Proposed mark: 3)

The absolute number of publications is high. However, the quality of the publications, evaluated in accordance to the most recognized international indexes such as impact factor, number of citations, article influence score (and h-index of the researchers), is relatively poor, and should be improved. A few researchers publish consistently in visible international journals, but the majority of the 462 “other” publications is in national journals and in conferences of little visibility.

The publications in Romanian journals cannot be substituted for **international** visibility. CNCSIS B+ classification is virtually unknown outside Romania. Of the additional journals highlighted in the reply, the Romanian Journal of HCI is in Romanian language. “Studies in Informatics and Control” is ICI's home-grown journal, 80% of the quoted impact factor is due to self-citations from the same journal, which denotes very low relevance outside its own community.

Whilst several patents have been filled at the national level, no patent has been registered at the international level. This reflects the fact that ICI focuses on providing strategic input to their ministry, which is one of its missions, and does not investigate to transfer technologies in activities that could be exploited abroad. The same reason probably explains the absence of start-ups and spin-offs.

ICI has raised an impressive number of EC and nationally funded projects. However, most of them are dealing with infrastructure support rather than actual research. In addition, it appears that the ICI institute acts as a partner in European projects (not principal coordinator at the European level), with small funding ratio compared to the total budget allocated to the project.

ICI organizes or takes part in many dissemination events at national level. It also organizes COST annual meetings. However, this activity is not balanced by an equivalent rate of publications in international venues, through the main prestigious conferences or journals. The relatively poor international impact of ICI is balanced by the important role that ICI plays in Romania, as a consultant for the ministry.

Dissemination through the institute web site needs improvement, there is only a rudimentary search form for papers or projects with unstructured textual output, and the most recent highlighted project, SPOCS, is not found.

Human resources quality (Proposed mark: 4)

The ability of the ICI institute to attract highly educated young researchers with foreign experience is very low. There is a fairly low ratio of PhD researchers (6). Moreover, half of the PhD researchers are active in domains that are using ICT (science of education, agronomy, economy, etc) rather than in fields that contribute to the design of new ICT solutions.

The age distribution of ICI researchers is clearly bimodal (many old senior researchers and students). Intermediate researchers are missing. There are several teams where the senior

leader is nearing retirement with no replacement of similar caliber in sight.

The administrative staff represents a significant fraction of the total staff, which is only partly justified by the high number of projects in which the institute is involved.

Regarding the researchers' performance, we note that it is non-uniform; with highly visible research being concentrated in a few teams (1, 4, 6, 9). Often, most high-impact publications are due to the team leader only (in the case of team 9, to a senior researcher who has a completely independent research topic). There are teams whose main activity is not research (national program library, administration of RO top-level domain, producing CDs and web sites for museums). Other teams such as 7 and 8 have very weak concrete tangible results, most projects resulting in prototypes without widespread adoption; their publications are often repetitive presentations of their project activities.

Since most high-level publications depend on a few researchers, one could expect that other developers and researchers support them by building infrastructures that are relevant to validate fundamental concepts in real-life systems. The integration of those –potentially-complementary skills is however not explicit in the strategy of the Institute. In other words: given that few researchers are visible, it is not made apparent what the others do to support them.

Infrastructure quality and its rate of exploitation (Proposed mark: 5)

Without any doubt, the institute can be considered as a Romanian, but also European, center of excellence regarding the quality of its infrastructure (grid computing clusters, DNS management, digital library, property of its building). However, there is no high-quality research output resulting from the available infrastructure (in fact, the highly visible research is from groups that do not directly use it). Infrastructures do not create research opportunities, and are underused; notably in grid computing where the main usages come from Greece and Turkey. Junior staff is most often engaged to operate the infrastructure rather than to address research questions related to it.

Thanks to its infrastructure, ICI could be a major actor in transferring innovation from universities to industry. However, the link with academia does not seem to be effective. Partnerships have recently been signed with several universities, but they do not deal with technology transfer.

Management efficiency and quality of the research environment (Proposed mark: 3)

There are teams with highly competent leadership, but in others (7, 8, 3, 5) the leader, although senior, does not have the expected internationally recognized scientific credibility. In addition to scientific expertise, other essential criteria in appointing team leaders are of course proven expertise in management of research projects and ability to attract funding in order to attain the assumed research objectives. However, despite their importance, those competences cannot replace the scientific expertise, which should stay a mandatory criterion.

Staff is aware of research success criteria (dissemination through cited publications, numerous projects obtained by competition in relevant areas, etc), and no particular problem has been

identified from the point of view of individual motivations. However, the staff is more oriented towards short term application-oriented objectives, than towards long term impact and international visibility. This behavior is imposed by the need and the way to get funding for national R&D institutes (Short-term research objectives are activated according to strategic and scientific priorities of the Institute, the time span depending on requirements and circumstances of ongoing national research programs), but also by the lack of scientific vision and focus offered by the management, who should realize that short-term funding-oriented work cannot lead to long-term research growth, scientific impact and high reputation.

The scientific council admits to target market requirements (slide 14). This has the advantage to make the developments relevant from an industrial point of view, but might penalize the accumulation of knowledge on the long term.

Administrative procedures followed to assign staff to projects or to assess its performance could not be directly evaluated. We mainly report indirect cues and observations:

- No mechanism has been presented to reward outstanding research performance. More specifically, in the Self-assessment Report, page 4 (Recruiting Activities), it was mentioned that 28 young people were promoted as researcher or researcher assistant during the reported period, as a result of contests organized under the auspices of the Scientific Council of ICI in November 2010 (for research position) and December 2011 (for research assistant position). However, hiring new personnel (research assistant) or promoting in hierarchy does not equal evaluating and rewarding performance.
- No mechanism for stimulating new ideas in the institute has been set up.
- One or two of the most scientifically-involved researchers did not seem to be supported (size of team decreasing) to build a highly skilled team in new emerging domains.
- Self-assessment is based primarily on attracted funding; evaluation is done by the numbers, with publication count considered over tangible results, and honors of local significance substituted for competence and true international competitiveness and visibility.
- The reallocation of people to many different projects was not made explicit nor justified (e.g., SPOCS, which has been highlighted during the presentation, currently employs 28 people, some from completely unrelated teams).
- Although the funding level is high, there is repeated mention of inability of attracting skilled candidates, which might indicate a lack of flexibility in terms of remuneration. Regulations prevent flexible collaboration between university and institute (some senior researchers do not supervise any PhD student, despite their high potential).

The discussion with students revealed that more involvement of the supervisory staff is needed in some cases (one PhD student is essentially self-supervised and others could not indicate a specific mentor, just generic collaboration). Examples of supervision weaknesses: students are not guided in the selection of conferences (they propose, and it is always accepted), they are not used to consult top level journals in their fields (few recommendations of papers from supervisors), and fail to include research best-practices in their day-to-day work. Having in view that the Ph.D. advisers are members of Universities, the role of PhD students in the institute and conversely, the role of their research at ICI for their thesis need to be clarified.

The decisions are made by the scientific council, which has been elected, and include the most highly visible researchers. Researchers are much less represented in the board of directors. From the discussions with young researchers, it appeared that they have an acceptable autonomy in taking the decisions that drive their own research development. They inform about their decisions through regular weekly meeting and continuous discussions. However, some researchers did not sound open in their talk. During the discussion with PhD students, the motivation of a regular question was contested by another staff member who insisted to remain in the room to provide translation services. Some staff also declined to comment on satisfaction with organizational procedures. Hence, the committee had the feeling that the transparency could be improved.

Regarding ethics, practices of good behavior are the normal rule for most of the staff. It seems however necessary to pay attention to potential problems of plagiarism or high redundancy between publications. As an example, the text of conference article O327 (from the "Others" list) contains practically the entire text of conference article O285, with the same title and conclusion, but 2 more authors, adding only a few experimental results. Publication O348 on ethics contains unreferenced text (sec. 2.1 and 2.2) from a 1999 EU document: http://ec.europa.eu/bepa/european-group-ethics/docs/avis13_en.pdf. Publication O169 includes text (paragraph following complex information and treatment decisions) appearing in a US Medicine library text: <http://nmlm.gov/outreach/consumer/hlthlit.html>. Another issue to consider the fact that much of the institute's publications appear in the home-grown journal SIC, led from the institute and with at least 4 members, including the director, on the editorial board. This conflict of interest is even more obvious for those editorial board members whose main and regular publications are in the journal.

Quality and credibility of the institutional development plan (Proposed mark: 2)

The development plan presents a convincing analysis of the problems to be solved in order to improve the performance of the institute. However it fails in proposing actual and coherent strategic actions and development directions to address the weak points.

Through the open discussions, a vision did appear for a few teams: ICI aims at embedding its mathematical background within decision making systems. However, there is no credible hint in the development plan that indicates a trend towards a shift from the current focus on infrastructure and project development towards cutting edge research. In contrast, some other teams gave the impression to follow the research directions defined at the European level, without identifying strategically important fundamental questions within those thematics.

ICI's future could be penalized by its current recruitment policy. The quality of the incoming personnel appears to be affected by the lack of vision of the management. There is an acknowledged need to seek more PhD students and junior researchers, but no concrete and credible plan has been defined to achieve this.

ICI appears as an infrastructure or service provider, and rarely as a real scientific partner, in

the numerous national and international collaborations that have been listed. There is little vision that would actively develop and exploit specific partnerships for given research topics.

Thus, although there is a large quantity of research project involvement, a significant shortcoming is the prevalent lack of a focused scientific role, centered on a specific research competence and concrete highly visible and impactful output.

Key research areas appear to be mathematical modeling, languages and advanced systems for modeling as well as distributed computing and bioinformatics, but those domains are only sustained by a few top researchers whereas the majority of the personnel are mainly involved in infrastructure and development based projects. The institute has many research teams and fails to achieve a critical mass in most of them. The development plan fails to define priorities. It does not attempt to filter out the non-performing and non-research-oriented activities, in favor of emerging and promising research areas.

Overall, and apparently due to its institutional profile as well as its management, the institute ends up promoting quantity (numerous successes in raising funding) over quality (lack of contributions published in high level scientific journals).

Specific measures, targets and recommendations to be met in a time of 2 or 3 years

This section presents the list of recommendations to drive the evolution of the Institute within the next 3-years. To better understand their respective scopes, each recommendation is followed by a description of the issues it is supposed to tackle.

Recommendation 1:

The management should define federating/concentrating scientific objectives and challenges in some key areas of research, and improve the critical mass in these areas. It should (1) define a limited number of research teams and scientific questions around people with established and internationally recognized research/publication records; (2) establish short-, mid- and long-term strategies, with concrete milestones and measurable objectives, to drive and monitor the development of each team, and (3) manage the hiring process based on the key scientific challenges defined for each team, by promoting profiles that are able to address those challenges.

Issues tackled by recommendation 1:

No actual development plan has been presented by the direction of the institute. The proposed strategic plan appears like a mission statement, rather than a description of the vision and of the strategic choices envisioned by the institute in the coming years. It is presented as a long list of bullet points, and lacks a coherent vision and measurable objectives. The valuable list of general objectives & thematics should be translated in terms of concrete actions.

The management does not seem to properly differentiate internationally visible research from development-based projects, or computing or software services. In addition, the scientific challenges addressed by some of the teams are not always clearly stated. This keeps them in a role of service provider, and prevents them to evolve towards scientific achievements.

The management of human resources is missing a long-term vision, which results in highly non-uniform profiles, with an insufficient ratio of PhD students & PhD researchers. There is also a lack of follow-up with respect to the next generation; very weak intake of high-quality PhDs. Some individuals have the quality required to conduct and promote high-level research. However, this capacity is spread across multiple teams and a deep re-organization seems necessary to improve the overall research quality of ICI.

Recommendation 2:

Position the scientific vision of the Institute with respect to the opportunities (in terms of innovation and gain in knowledge, not only in terms of services) offered by the unique infrastructures deployed and operated by the institute. Separate infrastructure administration duties from research. Set up scientifically-oriented collaborations, and recruit researchers to take direct advantage of the available infrastructure, e.g. in the field of grid computing, network performance and QoS monitoring, etc.

Issues tackled by recommendation 2:

The deployment of high quality infrastructures is one of the most valuable achievements of the institute. Two prominent activities, namely the national library support and the top level domains management, however reflect that the infrastructures are primarily exploited to serve Romania, and not to investigate fundamental questions related to content access and management, or to network communications (mobile context, multiple TCP, etc.).

A major strength of ICI lies in the large number of EC and nationally funded projects. However, ICI does not appear as a scientific leader in those projects. It is generally in charge of developing and/or operating infrastructures, without much focus on the related scientific challenges.

Recommendation 3:

Establish a culture of research excellence, measurable through internationally visible research performance criteria. The scientific board should be articulated around key researchers, and should educate and encourage staff towards original scientific contributions, discourage and filter run-of-the mill publications, and promote projects that target tangible results, with long-term added value. Management processes should be implemented to promote good practices in professional ethics and research excellence. The Institute should focus on cutting edge, internationally visible research, so as to improve its publication record.

Issues tackled by recommendation 3:

The institute is led in a somehow overbearing way by a general manager (hierarchical decision process, with little involvement of young generation), but does not have a proper value system to stimulate internationally competitive research.

The quality of the R&D activities is strongly penalized by the lack of scientific and long-term vision within the Institute. The Institute appears to be funding-oriented rather than quality driven. Effort is primarily spent on gaining projects, which penalizes the acquisition of knowledge, and long-term value.

The institute lacks a clear strategy to encourage cutting edge research, and to motivate the staff towards high-impact scientific contributions. The work seems to be driven by project deliverables rather than by a scientific curiosity. There is a lack of scientific supervision, which is reflected by some examples of poor practices regarding the search in existing literature, or the paper writing process.

Despite its involvement in European projects, the main weakness of the institute consists in the lack of scientific achievements that have a significant international visibility. Too much effort is wasted on irrelevant publications, which lower the overall scientific credibility of the institute, maintain it as a development partner, and prevent it to play a major role in the scientific investigations carried out within those European projects.

Overall technical considerations, observations, conclusions:

The Institute benefits from high-quality infrastructures, but does not exploit them to initiate cutting-edge research activities.

The management fails to support and promote good research practices. Consequences are observed at three levels:

- The development plan lacks of vision, and does not identify major trends in future research development of the Institute. It does not identify which scientific issues should be primarily addressed in the future, i.e. in which fields the institute should achieve a significant gain in knowledge.
- With the exception of a few publications produced by some brilliant individuals, many publications have a small international impact, which reveals supervision weaknesses.
- Many researchers primarily focus on project deliverables, without a clear vision of their underlying scientific objectives.

Based on a high quality of infrastructure and on active and well-known senior researchers, the ICI institute has shown good abilities to attract funds from EU research programs. Merging groups to achieve a critical mass in key activities should foster the emergence of innovative research directions.

Bucharest, National Institute for R&D in Informatics (ICI) - FINAL REPORT

Proposed certification level: *A-* (final grade: 3.4)

Nr. crt.	Name, Surname	Signature
Evaluation TEAM		
1	Evaluator 1 - Francois ROUSSEAU	
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3	Evaluator 3 - Christophe DE VLEESCHOUWER	
4	Evaluator 4 - Gianluigi FOLINO	
5	Evaluator 5 - Marius MINEA	
Observers		
1	Coordinating Authority- MCSI – Bebe-Viorel IONICĂ	
2	CCCDI Representative – Rareș MEDIANU	
3	ANCS Representative – Antoaneta POPESCU	

Date: *17.07.2012*