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Is excellence enough in higher education: What more should a leading technical university offer?

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We hear a great deal about ‘top universities’ and high-quality education these days. It is important for a university to be highly-rated in the national and international ratings. When interviewed, university and faculty managers declare that they are leaders of top-quality institutions.

However, declaration of quality or assumption of quality is no longer enough. We live in days when the state, the media, students and potential students ceaselessly evaluate the performance of universities. University managers must therefore constantly attempt to maintain and raise the quality of their institution actively, even when funding is being reduced. For this, it is necessary to have a clear idea of what high-quality university education is.

It is easier to state what high-quality education is not. For example, it is not narrow-minded, not talent-restricting, not chaotic and disorganised, not leading to a dead end, not poorly-equipped, not unethical, not opportunistic, not cynical. It is less obvious what high-quality education really is.

Quality in higher education is widely regarded by professors and students simply as *excellence*, achieving extremely high standards in teaching and learning, in science, research and artistic activities. No doubt, *excellence* is very important, especially in a ‘top’ university. Our most brilliant professors and students are and should be the stars of the institution, and should receive strong support from the university managers and administrators. However, most of us are not the best in the world, and do not achieve *excellence* on a regular basis. Does that mean that we have no place or role in a high-quality university?

Surely *excellence* is too narrow a definition of quality in higher education. It is useful to look at quality parameters in other fields of human activity to see other aspects of quality that a ‘top university’ also needs to take into account.

In manufacturing industry, *perfection* is often important: zero defects, getting things right the first time, focusing on the process, not on inputs and outputs. *Perfection* is more important in the designing aircraft components than in university education, where getting things wrong can even be part of the learning process. Nevertheless, considerable perfection, for example in general aspects of university administration, is a mark of a high-quality university.

Another important aspect of the pursuit of *perfection* is the elimination of substandard practices.

Fitness for purpose, achieving the purpose defined by the customer or provider, is a quality parameter in many fields of human activity. University research and university teaching/learning should both be purpose-oriented, not purposeless. However, a narrow definition of the purpose is often counterproductive. The future is basically uncertain, and fitness for future purposes cannot be at all precisely predicted. Education is a preparation for life as a whole, and research should always be an adventure into the unknown. In education and in research, we need to be purposeful, but not to be inflexible.

For customers, *value for money* is an important consideration, and it can be regarded as an aspect of quality. It can be achieved by efficiency and effectiveness, by measuring outputs against inputs. Universities receive their funding from organisations and persons who require *value for money*. Efficiency is compatible with the main aims of a university – to educate and to do research. The services of a high-quality university are by no means cheap, and this needs to be made clear to funding bodies, but the aim should always be to provide *value for money*.

Top ‘research-oriented’ universities talk loudly about *excellence*. However, the higher education sector also includes ‘teaching-oriented’ universities and institutions, where the main aim is to *add value* to less academically gifted students. No doubt, institutions that *add value* successfully deserve to be considered as high-quality institutions. Research-oriented universities should also be aware of the need to *add value* to all their students and staff, including the less talented persons who find their way in.

Qualitative change (transformation) regards quality as a dynamic process. The teaching/learning process at a university aims to transform the student, to do something *to* her/him, rather than to provide something *for* her/him to consume. The idea is to enhance the student’s learner skills, to empower her/him, and in this way to add value. Research, too, is essentially a dynamic process of *qualitative change*.

Inputs that no doubt affect the quality of a university (however we may define it), are its *reputation*, its *facilities*, its *location*, the *qualifications of its staff* and the *academic level of its students before they begin their studies*.

The *reputation* of a university is based on how good it was in the past, on its past performance. Even the quality of its present staff and students is an outcome of past efforts to recruit them. The present *facilities* are inherited from the past. The university’s *location* is either a historical accident or the result of past efforts to locate it where it now is. The present *qualifications of the staff* and *academic level of the students* were acquired in the past. These inputs from the past are surely an aspect of a high-quality university: the international and national ranking tables

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tend to attach considerable importance to inputs, perhaps because they are less difficult to measure than processes and outputs. A glorious past is a great asset to a university, but it is a diminishing asset. It is an asset that needs to be developed, so that the future can be even more glorious than the past.

University managers can and do attempt to keep improving the inputs, but their efforts should above all be directed at education and research processes leading to higher quality outputs. University managers must look to the future.

The Czech Technical University in Prague is the oldest technical university north of the Alps and the biggest technical university in the Czech Republic. It attracts well-prepared students from the Czech Republic and from Slovakia, though – like most technical universities – it fails to draw extensively enough on the talents of females. The university's staff includes many distinguished researchers. It has a wonderful location, in and around the centre of Prague, a beautiful city that has long attracted and welcomed artists and scientists. Thanks to past efforts, the university has quite good buildings and plenty of advanced equipment. Of course, the wealth of the Czech nation and of the Czech Technical University in Prague cannot be compared with that of the richest countries and institutions in the world, and CTU cannot expect to compete on inputs with MIT and Cambridge. Nevertheless, the inputs into CTU are considerable.

The university has good links with other institutions, inside the country and throughout the world. The universities and the research centres of the Czech Academy of Sciences form a strong research cluster in and around Prague, and collaboration with institutions all over the world is no longer a problem in the era of the internet and open borders. The inputs needed for a high-quality technical university are generally available, and the conditions in support of *excellence* in study and research are good.

Research and education institutions do not necessarily seek for *perfection* in all things. Not every research project is destined to work out 'as planned' – the most interesting results of all are unexpected. Not every student will receive A grades for every course. Nevertheless, university managers should try to root out unnecessary and systematic imperfection. At CTU, poor timekeeping and poor reliability of staff (and students) are tolerated to an excessive extent. Senior members of staff do not always set a good example in this respect. Our faculties accept poorly-qualified students into the first year, expecting to fail them, in order to receive fees for 'teaching' them. These are examples of *imperfection* that university managers should seek ways of reducing and marginalizing.

Fitness for purpose is still not always given enough attention at CTU in Prague, though much greater attention has been paid to it in recent years. Study programmes need to be reassessed quite frequently to ensure that they provide

what students want and what their future employers require. Pure research is quite widely considered more prestigious than applied research. Closer collaboration with industrial partners is helping to ensure that research done at the university corresponds with its partners' needs, with their requirements, and with their ability to innovate.

The high level of autonomy of the faculties from the university, of the departments from the faculty, and of individuals from their department, quite often leads to inefficiencies: for example, equipment and courses tend to be duplicated. Good performance on major projects requires teamwork, and teamwork suffers when people are too focused on expressing their autonomy.

Good research and good teaching may not be cheap, but they should not be unnecessarily expensive. Wasted money could always have been invested in something useful. Money will always be scarce, and *value for money* will always be an important aim to pursue.

In every institution, the main task of management is to support ways of turning the input into a more valuable output by *adding value*. There is perhaps too much accent on *excellence* at CTU in Prague, and there is not always enough effort to improve the performance of an average student, or of a student whose ambitions are not academic, or to carry out intermediate-level research projects with small local companies. Not all opportunities to *add value* are pursued vigorously.

Czechs are famously sceptical about everything, and are often fundamentally suspicious about change, which they may consider is more likely to be botched than to lead to a truly better situation. *Qualitative change* is at the heart of what a top university does, and it is necessary for university leaders to develop sophisticated change management skills that will introduce changes that are truly an improvement on what went before. Big and old institutions like CTU can be very resistant to change. However, universities are fortunate to have a regular annual inflow and throughflow of undergraduates, PhD students and young researchers and teachers. It is by responding well to dynamic impulses from the younger members of the community that CTU can ensure successful transformation through *qualitative change*.

University managers at CTU in Prague cannot afford to enjoy too much the static inputs that the institution has: its good location, its reputation, its talented staff and gifted students, and its more than adequate facilities and equipment. Their main task is organise the dynamic process that will transform these favourable inputs into appropriate *excellent, perfect, fit-for-purpose, value-for-money, added-value* outcomes.

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