Johann. G. Wissema

Leading the Third Generation University

Towards a comprehensive management theory of the 3GU

A balanced way of management and leadership inspire the professional workers on the one hand, while securing the demands of efficiency and quality on the other.

Foto: Gerd Altmann/Pixelio

"A difficult job – but someone has to do it." The title of a recent newspaper article (Bradshaw, 2010) will sound familiar to university leaders. "All-consuming, tiring and demanding – no wonder so few people want to take on the role of dean of a business school", the article continues. The attitude of a dean at a technical university in Indonesia also sounds familiar. He welcomed us to his office, but then demonstrated how he could escape to his lab via a backdoor. "I go there as soon as I can slip out of here", he said. Apparently, university management is a difficult job. The time is ripe for a new model for universities: the Third Generation University or 3GU for short. This article focus on three aspects of the 3GU management: organisational structure, marketing and human resource management.

From the very beginning, universities have been organised in faculties according to Aristotelian logic and its expansions; these faculties address certain scientific disciplines. This worked well during the era of mono-disciplinary research in the 19th and 20th centuries. Today, however, most research is transdisciplinary: scientists and engineers of several disciplines work together in a particular area of interest. In a university, such research groups are organised in cross-faculty teams. They consist of members of different faculties, often even from different universities, and increasingly include industrial researchers as well. This creates a matrix structure: the team members belong to their individual faculties but work within an entity of its own, with its own sources of income as it is the teams that acquire funds from industry or government grants (Figure 1).

Matrix structures in general signal a transitional phase as the new structure has not yet created enough confidence to replace the old, while the old structure, or rather its leaders, refuse to give way. A matrix structure is unstable because it is based on conflicting principles; in this case discipline-based versus subject-based research and education. This often results in conflicts that take a disproportionate amount of time to resolve and that take energy away from the job at hand.

There is a trend for cross-faculty teams to become organised as University Institutes rather than inter-faculty joint ventures, reporting directly to the Board of Management. Such Institutes comprise a range of disciplines. They are responsible for specialised Master courses, post-experience education and the awarding of (transdisciplinary) PhD degrees in their field. The University Institutes attract their own finance – from private and public funds – and cooperate with industry and start-ups. They show a good deal of entrepreneurial behaviour, in the scientific as well as the financial sense,

since they are responsible for their own financial well-being. University Institutes form networks all over the world often cooperate in international projects. Words like 'coopetition' and other amalgamations of the words 'cooperation' and 'competition' describe their behaviour very well. As University Institutes gain power at the expense of the faculties, the organisation is tilted (Figure 2).

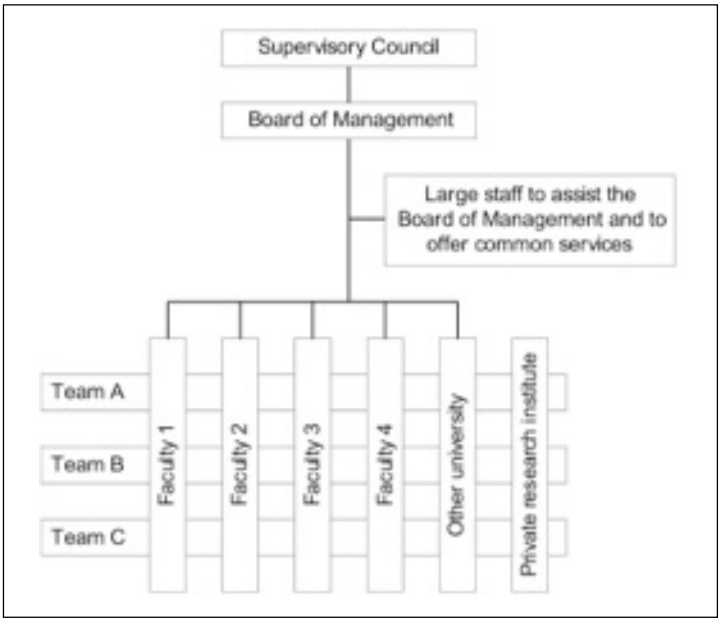


Figure 1: Traditional university organisation with faculties and cross-faculty transdisciplinary teams

Where have we seen such tilting before? Since the Second World War, companies have become organised according to the functional organisational model. If the faculties of Figure 1 are replaced by functional departments such as marketing and sales, manufacturing, R&D and finance, the result is a diagram of the functional organisation of companies. The advantages of functional organisations are obvious: good quality and supervision of the functional activities, increased efficiency and many possibilities for young people to develop in the functional area. The weak point of functional organisations is the communication and decision-making across the functions, as the only cross-functional body is the Board of Management. This worked perfectly for the commodity producers that created the post-war economic boom. When the markets shifted to specialty products, to be designed and manufactured individually, cross-functional teams, focusing on specific customer groups, products or regions, were introduced with coordinating powers for planning and decision-making. Their creation resulted in a diffuse power structure and it became clear that a more radical solution was required if the company concerned was to cope with the turbulence in markets and technology. The solution came in the 1980s and was called 'business unit management' (Wissema 1992). It consisted of three elements:

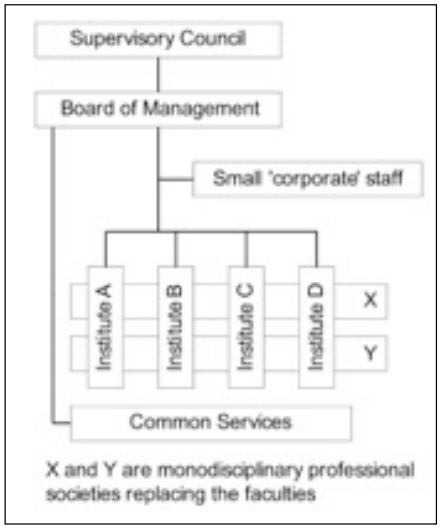


Figure 2: The organisational structure of the Third Generation University

1. Tilting of the organisation: turning it 90 degrees, in such a way that the cross-functional teams – now called business units – became the dominant element of the organisation while the corporate functional structures were either integrated in business units or became coordinating and supervising elements.

2. Empowerment: first of all by making the management of the business units profit responsible for 'their' customer group or product group; next, at the lower levels of management, by empowering every manager and worker to carry out his or her tasks according to their own best practices and insights.

3. Change of culture: from the introverted, company-oriented culture towards an entrepreneurial, extroverted, customer-oriented culture. From inside-out to outside-in. From "I work for my boss" to "I work for my customer".

The business unit structure is now widely applied in industry; it fosters entrepreneurial behaviour, innovation and customer orientation.

Coming back to universities, there are many parallels. Faculties consist of scientists who work mainly in multidisciplinary teams. Balancing the work of these teams with the requirements of the faculties takes a heavy time toll on academics. Changes within the system do not help much. The tilting of the organisation, as depicted in Figure 2, with its true empowerment of the institutes and a change of culture, very much resembles the shift from functional structures to business unit structures in enterprises. It equally results in transparent lines of responsibility, innovative and entrepreneurial behaviour and one-to-one contacts with industrial partners. Royal Dutch Shell, for

Keywords
University management
Third Generation University

Professor Dr. Ir. Johan G. (Hans) Wissema is the Managing Director of Wissema Consulting Ltd and Professor Emeritus in Innovation and Entrepreneurship at Delft University of Technology in the Netherlands.

instance, has Chief Scientists who maintain relations with academia and contract out fundamental research. They are organised according to subjects like catalysis; one can hardly imagine them being organised in chemical engineering, electrical engineering etc. Contracts with industry make the difference: the ground-breaking research of Venter and Hamilton, the American biologists who recently created the first organism with an artificial genome, research that is bound to win a Nobel prize, were sponsored by a 600 million dollar grant from ExxonMobile that hopes to create algal biofuels(Cookson 2010; The Economist 2010).

3GU Marketing

To our surprise, when asked about the size of her marketing department, the rector of the University of the Caribbean at Barranquilla, Colombia, answered: "Around sixteen people". They spend most of their time travelling the Caribbean to promote the university amongst potential students. KU Leuven R&D (LRD) is quite a different kind of marketing department. Leuven itself calls it a technology transfer cell but it does much more than transfer technology: it develops technoparks (they surround the city), negotiates contract research, creates new technology-based firms (86 up to this point with six successful IPOs; KUL also has a number of venture capital funds) and sells know-how. KU Leuven and its spin-off, IMEC, a high-tech campus in which leading enterprises carry out R&D activities, spend Euro 600 million per year on research. Half of this comes from the IMEC companies, the other half are university funds with 120 million coming from contract research as acquired via LRD. The initiative for cooperation with industry mostly comes from the academic staff; LRD negotiates and administers the contracts for which it retains a small percentage to cover its expenses. LRD also takes care of IP transactions for which it has specialised staff.

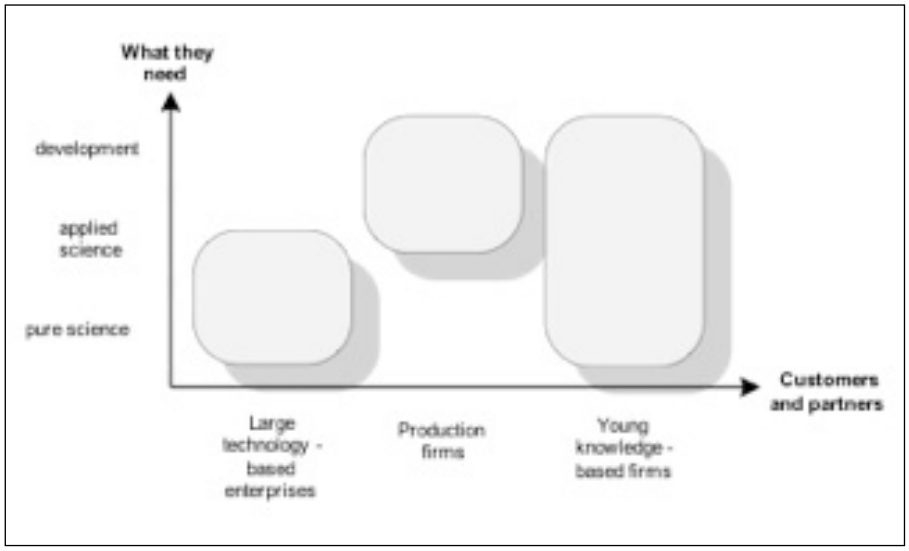
"There is a trend for cross-faculty teams to become organised as University Institutes rather than inter-faculty joint ventures, reporting directly to the Board of Management.

When creating a marketing department for a 3GU, one first of all needs to know which customer/partner categories are being served as different customers require different services. We like to think of three kinds of customers:

1. Large technology-based enterprises. Such enterprises are primarily interested in sharing fundamental research, much less so in product and process development as they can carry out these activities themselves better and faster.

2. Production firms. Companies that are not involved in fundamental change have no need for fundamental research. Their innovation efforts focus on product and process development while they may need applied research occasionally.

Figure 3: The market: the university's customers or partners and their needs



3. Young knowledge-based firms, either initiated by the university (spin-offs) or students or academics (technostarters). Research is their raison d'être. They often stem from a fundamental research project and they need applied research as well as development activities. If they are successful and if they stay independent, they become large technology-based enterprises.

The needs of the university's clients and/or partners are illustrated in Figure 3.

Let us now look at the market from the perspective of the university. There are basically two ways of promulgating know-how (Figure 4):

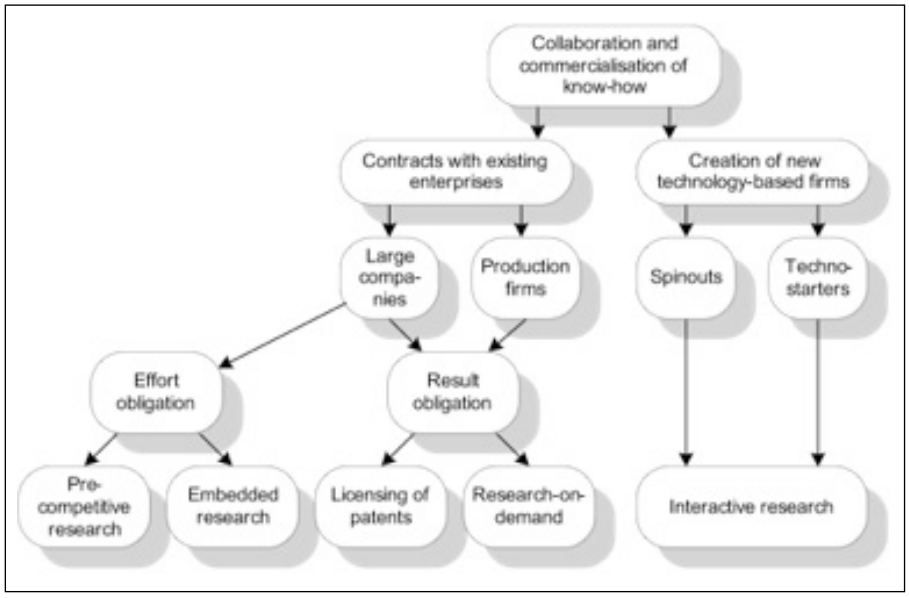


Figure 4: Patterns of collaboration and sale from the university's point of view

- through existing enterprises;
- through the creation of new enterprises.

The collaboration/commercialisation with existing firms can take two basic forms:

- Projects that concern a 'result obligation', meaning there is a concrete obligation from the university. The contracts are straightforward and have a well-defined output. One could say that the university sells a 'product'.
- Projects that concern only an 'effort obligation': In this case, the exact nature of the result cannot be specified in advance; parties simply collaborate in the hope that something useful will emerge. In this case, the university sells a 'service'.

In each of the two basic forms, two concrete forms can be distinguished. The two forms in the category of result obligation are:

1. Research-on-demand: The objectives and terms of reference of the research are well defined. The university will usually only accept projects that support a scientific interest.

2. Sale or licensing of patents: In this case, the research at the university has already been completed and a patent may have been awarded or applied for. With this know-how available, the university can try to find a buyer or user of the know-how.

The two forms in the category of effort obligation are:

1. Pre-competitive research: This form of research is meant to develop basic technologies that will be turned into applications by the sponsor(s) themselves. The client can be a single sponsor but more often the client is a group of companies and possibly other institutions, sometimes organised in a foundation.

2. Embedded research as carried out at the University of Cambridge. In this case, researchers from the university and an enterprise work together on the same location.

For the establishment of new enterprises there are, as we saw before, again two options:

Literatur:

Alvesson, M., Knowledge work and knowledge-intensive firms, Oxford 2005.

Baschab, J./Piot, J., The professional services firm bible, New York et al. 2004.

Bok, D., Universities in the Marketplace: The Commercialization of Higher Education, Princeton 2003.

Bright, D. F./Richards, M. P., The academic deanship: Individual careers and Institutional roles, Jossey-Bass, San Francisco 2001

Buller, J. L., The essential academic dean: A practical guide to College Leadership, Hoboken NJ 2007.

Clark, B. R. (ed.), Creating Entrepreneurial Universities: Organizational Pathways of Transformation – Issues in Higher Education, Pergamon 2008.

Conraths, B./Trusso, A. (eds.), Managing the university community: exploring good practice, European University Association, 2007.

Cookson, C., "It's life ... but not as we know it, a scientists create organism from four bottles of chemicals", in: Financial Times, 21st May 2001.

Economist, The, And man made life, editorial, p. 11, and: Genesis redux, pp. 81-83, May 22nd, 2010.

Jens, W./Jens, I., Eine Deutsche Universität – 500 Jahre Tübinger Gelehrtenrepublik, Reinbek b. Hamburg 2004.

Krahenduhl, G. S., Building the academic deanship: Strategies for success, ACE/Praeger Series on Higher Education, Westport CT 2004.

Lowendahl, Strategic management of professional service firms, Copenhagen 2005.

Maister, D., Managing the professional service firm, New York et al. 1993.

Maister, D.H., Practice what you preach, New York et al. 2001.

Maister, D.M./Green, C./Galford, R., The trusted advisor, New York et al. 2002.

Marshall M., Strategic Leadership of Change in Higher Education: What's New?, Routledge, 2007.

Müller-Stewens, G./Drolshammer, J., Kriegmeier, J., Professional Service Firms Branchenmerkmale und Gestaltungsfelder des Managements, Frankfurt 1999.

Shapiro, H. T., University Presidents – then and now, in: Bowen, W.G./Shapiro, H.T., Universities and their leadership, Princeton NJ, 1998.

McCaffery, P., The higher education manager's handbook: effective leadership and management in universities and colleges, Routledge/Falmer, 2004.

McKenna, P. J. and Maister, D. H., First among equals, New York et al. 2002.

Ringlstetter, M., Strategies and management of professional service firms (in German), Wiley-VCH, 2004.

Scott, M.C., The professional services firm, John Wiley & Sons, 1998.

Shattock, M., Managing Successful Universities, McGraw-Hill/Society for Research into Higher Education, 2nd edition, 2010.

Toffler, A., The Third Wave, Glasgow 1980.

Wachman M, Education of a university president, Philadelphia 2005.

Wissema, J. G., Unit Management: Entrepreneurship and coordination in the decentralised firm, London 1992.

Wissema, J. G., Towards the Third Generation University. Managing the university in transition, Cheltenham (UK) 2009. Wright, M., B. Clarysse, Ph. Mustar and A. Lockett, Academic entrepreneurship in Europe, Edgar Elgar Publishing Ltd, Cheltenham, 2007.

Summary

This article discusses three aspects of the management of Third Generation Universities: 3GU Organisational structure, 3GU Marketing and 3GU Human Resource Management.

1. Spinouts of scientific projects. In this case, the university or its subsidiary (LRD at KU Leuven) owns the know-how and takes the initiative.

2. Technostarters who use their thesis project (or another project that may not even be linked to their university education) as the base of their enterprise and who own the know-how or who license it from the university.

3GU Human resource management

Who will be the managers of the university? In a not too distant past, this question would have sounded superfluous. Hospitals were run by physicians, engineering consultants by engineers, law offices by lawyers, and universities by professors, the reason being that only professional leaders can have a vision on their subject, can motivate the professional or academic staff, supervise their work and make professional contacts. When organisations started to grow in size and complexity, managers were hired from outside the professional environment, partly because of the networks and management experience they brought with them, partly because not enough academics would be able or willing to take management positions. In certain cultures this works well: Silicon Valley executives frequently serve as deans of Stanford University and vice versa, but where such a high-tech culture does not exist, the results are mixed, except for former R&D managers who take up the role of Dean or President. When, however, a manager without research experience is hired, the results are mixed and it is better to fill management positions with academics who have leadership and entrepreneurial talents. The University Institutes are the ideal training ground for such managers. Naturally, such leaders would have to be willing to learn a good deal about management. They will have to accept that they should give up part (but only part) of their professional work in order to make time for leadership.

When creating a marketing department for a 3GU, one first of all needs to know which customer/ partner categories are being served as different customers require different services.

In contrast to the University Institutes and to counterbalance subject and functional interests, we prefer the University Board of Management to be composed of functional managers. The President should have a background in the management of complex professional organisations. The other members should be specialists in their fields. Such a composition of functional leaders at the top, academic leaders of the University Institutes, a team of experts supporting the Board of Management and professional managers to run the Common Services would provide for a balanced way of management and leadership that would inspire the professional workers on the one hand, while securing the demands of efficiency and quality on the other.

Rather than the laissez-faire approach to university management of the 2GUs, 3GUs have an active career development facility in their HRM department which identifies potential leaders and moves them to positions and courses where they can develop. Unfortunately, few universities take career management seriously which costs enormous amounts of money and causes much frustration. Only a few academics can become leaders; others become high-class scientists, excellent teachers or valuable staff in the marketing department. Those who have not developed in any of these areas, say, by the age of forty, should be assisted in finding other employment. Life-long employment contracts are perhaps the single most severe enemy of the 3GU.

Conclusion

Although much good information is available from the management of universities and much more from the literature of professional service firms of universities, much work still has to be done to arrive at a comprehensive and practical theory on the subject. Third Generation Universities offer an even more challenging task as they are part of a cluster of high-tech development and the application of the knowledge generated.

Kontakt:

Professor Dr. Ir. Johan G. Wissema
Wissema Consulting Ltd
E-Mail: jgw@wissema.com
www.wissema.com