

## SWOT ANALYSIS RESULTS

### Strategic Initiative #2

*Promoting Well-Being, Finding Cures*

#### Co-Chairs:

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## OVERVIEW

On 21 September 2011, the subcommittee for Strategic Initiative #2 (“Promoting Well-Being, Finding Cures”) met for two hours and generated a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis for the topic. The co-chairs and subcommittee for this initiative is charged with the fundamental topic of pursuing effective therapies and interventions that promote human well-being and correct/cure disorders. Key components of the initiative include the consideration of all forms of well-being across the human lifetime, and the integration of basic and applied research into a more unified translational and interdisciplinary approach that is keyed to specific problems within this realm of inquiry.

The generation of the SWOT analysis took place in a semi-structured format, with subcommittee members asked to contribute to each of the components of the analysis in turn. At the end, the lists were amended and reorganized to some degree through informal discussion. The original SWOT list in raw form as generated at the meeting is appended to this document; the analysis described below represents the comments of the subcommittee, with some organization added to shape the analysis toward a coherent narrative.

### Strengths

The strengths of the University of Kansas in this initiative generated by the committee focused on four fairly distinct factors, which are listed below.

#### **Strength of existing KU faculty in pursuit of this initiative**

It was noted that many of the faculty at KU in this area have highly visible national or international profiles, and that KU features accomplished research programs in all four of the “bold exemplars” associated with this theme on the Provost’s website. This included expertise in drug discovery and development, typical and atypical development, human health, and aging. In addition, it was noted that there are currently numerous centers that are playing leading national roles in NIH-mandated research areas (e.g., drug discovery, intellectual/developmental disabilities).

#### **Tradition of integrative and translational research in some areas at KU**

In addition to the strength of individual faculty, it was noted that KU already has an established commitment to theoretical and applied research, and features an emphasis on integrative, interdisciplinary research in many areas.

#### **Extant infrastructure for translational and interdisciplinary research at KU**

The research that will be necessary to pursue in advancing this initiative will be largely interdisciplinary/multidisciplinary in nature. Subcommittee members noted that interdisciplinary research and tradition is strongly encouraged in some areas on campus (behavioral and social sciences were noted specifically), and as reflected by the willingness to make joint appointments between departments and between research centers and departments. Numerous productive collaborations between KU faculty and researchers beyond KU were

mentioned. Finally, a substantial infrastructure for the preparation and administration of interdisciplinary grant efforts was also noted, particularly through two centers that specialize in interdisciplinary work, the Schiefelbusch Life Span Institute and the Higuchi Biosciences Center (although such infrastructure was not perceived to be sufficiently distributed through the institution as a whole; see weaknesses below). Finally, it was noted that KU possessed substantial technical expertise in some areas (e.g., spectrometry) that are necessary to support such interdisciplinary research.

### **General positive characteristics of KU**

A fourth factor of strengths for KU in this theme or initiative reduce to a set of general characteristics of the institution that the committee felt were advantageous in pursuit of this goal. One was the general level of collegiality among faculty and between faculty and administration at KU. Another was the tendency for faculty to bring their research into teaching. The last strength identified was the general sense that there was a clear intent to change or improve the institution through the strategic initiative process.

### **Weaknesses**

While the committee readily identified strengths of KU with respect to this initiative, they also readily identified weaknesses that currently serve as barriers or deficiencies to the goal of pursuing a research agenda in this domain. The weaknesses generated by the committee can be distilled into five factors, which did not seem as distinct as the strengths identified. Some of these groups are interrelated, but are nuanced and subtly different from others such that pooling them would lose some resolution in the discussion

#### **Emphasis of the teaching mission, to the detriment of the research mission.**

It was expressed that, over the past two decades, KU appears to have emphasized and promoted its teaching mission (the undergraduate teaching mission, specifically) over its research mission. Two weaknesses describe how the time commitment necessary to devote to teaching can interfere with the ability of productive researchers to compete nationally or internationally within the realm of their research. First, allowing the lion's share of hiring and promoting new faculty to occur through traditional academic departments may impede the progress of the institution in pursuit of the goals of this particular initiative; hiring within departments can be based on curricular needs, disciplinary constraints, or to serve the interests of specific extant programs within those departments. The achievement of this initiative may depend on the hiring of faculty on the cutting edge of their science, or who are interdisciplinary in nature; these hires tend not to be made within traditional departmental structures.

#### **Inadequately promotion of the research mission**

A second, related weakness involved the perception that KU has not placed enough emphasis or reward on the research mission (this point can be dissociated from the question of whether the research mission is a priority, *vis à vis* the teaching mission). Here, the committee expressed the opinion that faculty research (particularly faculty successes and accomplishments in research) is often not broadly disseminated or promoted publicly on

campus or beyond it, and is insufficiently celebrated and rewarded. This makes KU vulnerable to having productive faculty “raided” or “poached” by other, perhaps more prestigious institutions. It was also suggested that, in a number of areas/disciplines within the university, the role of research in the university is not always well-understood.

### **Lack of critical mass at KU in certain areas on the cutting edges of science**

The committee perceived that KU has been slow to embrace hiring of faculty in emergent areas of specialization, and as a result, has missed a number of opportunities to establish KU as possessing an advantage in productive niches in translational science. Specific examples raised were in target identification for drug discovery, in the neurosciences, and in the emergent field of epigenetics. It was noted that many of the perceived strengths of KU are often historical, rather than current. Furthermore, the actual strengths of KU tend to be clustered within the productivity of a handful of individuals (note that nearly 90% of external funding is generated by about 10% of the faculty), which make those strengths fragile and vulnerable. It was noted that the involvement of the arts and humanities in the roles of translational (health/well-being) work at KU tend to be underutilized; this may reflect a lack of forward thinking about the cutting edge of those disciplines. While KU was characterized as being strong in health/well-being approaches at the level of the individual, structural/environmental/economic approaches to health and well-being were not particularly well-represented on the faculty. Finally, it was noted that many faculty who might retool or become re-engaged to fill interdisciplinary or emergent research niches have not done so (the probability of success in this realm was a matter of some discussion).

### **Institutional culture/barriers with respect to interdisciplinary research**

Although it was noted in the strengths section that KU has fostered interdisciplinary and integrative/translational research in some sectors, it was also noted that such facilitation was by no means broadly distributed across the institution. Committee members noted that there is no reward or incentive structure for interdisciplinary research or faculty entrepreneurship with respect to research within the scope of this initiative. Indeed, it was stated that the promotion and tenure process in some domains of the institution actually discourages it. Some committee members suggested that integrative or translational work on the kinds of problems associated with this initiative is not as recognized or valued as basic research across all areas of the university. Finally, it was acknowledged that research in the human domain will often require collaboration between KU-Lawrence and KUMed, but that substantial administrative, IT, and cultural barriers exist as impediments to success in this realm.

### **Lack of communication between potential scientific partners within the university**

As noted above, the committee implied that success of research relevant to this initiative will depend on the facilitation between disciplines on this campus. It was noted broadly that there are not good mechanisms for communication between disparate, or even closely-related disciplines separated by academic structures; specifically noted as an example was the disconnect between molecular biosciences and pharmacy, and that the perpetuation of disciplinary “silos” often resulted in missed opportunities to make connections between areas of strength within the institution. The lack of a clearinghouse for promoting collaborative jobs or

projects (similar to relational databases operated by Harvard and Stanford for their faculty) was seen as a weakness.

### **Lack of fundamental research infrastructure and facilities**

Finally, committee members felt that the physical infrastructure to support research was inadequate in many areas on the Lawrence campus. Research infrastructure, particularly in the College of Liberal Arts and Sciences, was singled out (faculty members recounted the need to bring in generators to address power outages in buildings where research materials needed to remain frozen). The lack of coherent planning and vision for infrastructure was also noted. Committee members indicated that such support could be characterized by inadequacies in key technologies in support facilities (e.g., NextGen DNA sequencing), as well as in human capital; several individuals pointed to uneven support of non-tenure-track researchers who work and support laboratories in various domains. Finally, the general dearth of institutional funds for conducting pilot studies in support of the pursuit of competitive external proposals was noted (this was noted especially for the humanities, but also for all of the sciences), as well as the general unavailability of bridge funds for investigators who find themselves at presumably transient gaps in external funding. Finally, it was noted that KU lacks coherent institutional policy or vision with respect to its pursuit of patents; this will be increasingly important to the institution as research within this initiative advances.

## **Opportunities**

The discussion of opportunities external to KU for pursuit of this theme generated a series of positive conditions that might well facilitate success in this initiative. Once again, it was observed that the individual opportunities could be reduced to five factors.

### **Widespread public support for the initiative**

Across Kansas, the US, and the world, it was perceived that there was considerable support for the goals of the initiative. There is increasing interest in personal health and well-being, and this was viewed as highly advantageous for the success of the initiative. It was noted that this might well allow KU to frame the message and market it within the State of Kansas, which might provide an edge to those who are particularly eager for this type of information.

### **Entrepreneurial opportunities inherent in the initiative**

It was also noted that the initiative to develop cures or promote well-being has the potential to spawn many economic and entrepreneurial endeavors, involving partnerships with industry, and direct marketing of research-related products. This is particularly true, given the recent abdication of the pharmaceutical industry for its own basic research. It was suggested that this emphasis would allow for the effects or impact of research to be calculated in terms of economic metrics.

### **Existing local and global conditions poised to facilitate the initiative**

The existence of new communication channels (e.g., social media) were seen as having great potential for bettering collaboration of KU scientists with other scientists, and with the populations that they study to facilitate progress in this initiative. Increased presence of KU within the state may well facilitate access to populations necessary for research to advance this initiative. Furthermore, it was perceived that the need for research related to initiative will not fade, but is expected to increase for the foreseeable future.

### **Availability of external funding to pursue and sustain the initiative**

With increased recognition of health disparities, and the emphasis on generative science to advance medical, behavioral, or social interventions and treatments (e.g., see the NIH translational research initiative), it was noted that nearly all federal funding structures are organized around the goals of this particular theme. Furthermore, other sources of funding (e.g., industry and foundations) are seeking to support the goals of this theme as well.

### **Availability of expertise to allow KU to pursue the initiative**

Finally, it was noted that expertise to facilitate KU's pursuit of this initiative exists around the US, and that under the right conditions, KU may be in a position to attract this expertise. Mechanisms exist to analyze existing structures and make key hires to bridge historically separate areas that might be synthesized to address critical problems in this domain of science.

## **Threats**

The final category of the SWOT analysis involves the identification of threats external to the institution in pursuit of this initiative. Here, we found that a number of threats enumerated by the committee could be reduced to three basic categories.

### **Public lack of understanding of role of research**

It was widely acknowledged that the public does not always fully understand the role of empirical inquiry in the attainment of societal and individual problems; in particular, the contribution of *basic* research to more integrated, problem-oriented approaches (such as represented by this initiative) is generally not well-understood or supported by the public. Furthermore, research is often not promoted or viewed positively by the media or by societal entities responsible for its sustenance (e.g., legislatures, politicians, policy-makers).

### **Competition from other institutions**

Other institutions, many of whom are better-funded than KU, can and will attract productive and cutting-edge faculty away of this institution. The relatively small population (and tax base) of the state of Kansas make KU vulnerable to being "outgunned" by other institutions in the quest for the best faculty and in competitions for external funding.

### **Effect of current economic and social climate on KU's ability to sustain the initiative**

While external funding is clearly available for pursuit of this initiative, the sources of that funding in the current economic climate are exceedingly vulnerable. Federal, state, and private funding for basic and applied is increasingly susceptible to cuts or elimination. In addition, societal conditions (issues of privacy and confidentiality, less publicly available information) have made access to important research populations more difficult in the last several decades. Finally, scientists generally have little expertise in calculating the economic effects of their research; the degree to which this is increasingly important in facilitating this initiative will put us at a proportional disadvantage.

### **Public perception of KU's mission and the choice of priorities**

A last threat involves the focus of KU's priorities. It was suggested that, too often within the State of Kansas, KU has sought to be "everything to everyone." It was generally acknowledged that this comprehensive strategy cannot be sustained in the current economic and social climate, and that KU likely will face hard choices in choosing promising directions for enhancing strengths in the future, and that such choices may have political consequences within and beyond the institution.