|  |  |
| --- | --- |
| Image result for business process map symbols  *Process improvement*  **A Concept Paper** | Abstract  This paper discusses the advantages of improving UWI’s operational processes to increase quality, speed, customer service, and reduce costs and errors, especially to support the strategies in new *Strategic Plan 2017-2022*. It calls for the establishment of a **Process Improvement Unit** that would facilitate such projects.  University Office of Planning  University of the West Indies  Dr. John A. Gedeon  July 21th, 2017 |

Concept Paper

University Office of Project Management

Contents

[Introduction 2](#_Toc488409242)

[Problem Statement & Rationale 3](#_Toc488409243)

[Three Levels of Process Improvement 3](#_Toc488409244)

[Identifying & Selecting Processes for BPR 4](#_Toc488409245)

[The Reengineering Model 9](#_Toc488409246)

[BPR Project Risks 11](#_Toc488409247)

[BPR Pilot Project 13](#_Toc488409248)

[Process Improvement Unit 15](#_Toc488409249)

[Conclusion 17](#_Toc488409250)

[References 17](#_Toc488409251)

APPENDICES

[Appendix A – Benefits of BPR 18](#_Toc488409252)

# Introduction

A number of situations have conspired for UWI to take a serious look at its organisational performance: the state of national economies, decline in government subventions, increased presence of both local and foreign competition, poor customer service, increasing enrollments, performance of aging legacy systems, high internal cost structure, and the sophisticated and demanding objectives of our new *Strategic Plan 2017-2022*.

There are many different improvement interventions or programmes that have been developed for addressing a multitude of organisational problems, such as Total Quality Management (TQM), ISO9000, Six Sigma, Performance Management Systems, Knowledge Management, leadership and management development, employee engagement, organisational development (OD), restructuring, and many others. Each is designed to address a particular issue.

High performance processes can have a positive impact on the many challenges facing UWI, as they cut across many of those challenges and deliver our product to students and stakeholders. *If there is something wrong with the process there will be something wrong with the product is produces*. While most managers are sensitive to job descriptions, tasks, and activities, few see end-to-end the underlying processes in which they are situated. A process is a set of related activities that change inputs into outputs that meet a customer’s requirements. If the customer is external, then it is a “core” process, if internal then it is called a “support” process. UWI is comprised of hundreds of processes and most of them are related but not always integrated (right hand vs. left hand).

Research (Hartt, 2012) has been done on processes, their problems, and impact on the organisation. The most counterintuitive finding has been that upwards of 80% of all organisational problems are caused by archaic or disconnected system--not by human factors (staff behaviour). Yet, we have no unit in UWI that addresses process problems. Dysfunctional systems create “dysfunctional staff” who are trying to grapple with an outdated process but are incorrectly perceived by management as the problem and are usually sent on training, which does not solve a *system* problem. Comments like “we have to bend the rules,” or “we have to go around the system,” (or make a “workaround” for a problem) are usually indicative a dysfunctional process (besides its performance measurements).

Most processes are high performance for the era and conditions that they were created in, but as the environment changes and they do not, they become dysfunctional causing manager to have to “out fires” and make “patches” instead of investigating what is causing these fires. Adding IT to a dysfunctional system just speeds up something that is not working. From time to time all processes will need improvement (alignment or adjustment) and the approach will depend on the current level of IT employed.

When founded in the 60s, UWI was a completely manual (paper-based) system and adopted IT much as businesses did starting with the large mainframes to do numerical activities such as payroll and other financial tasks. With the advent of PC’s in the 70s, desktop computers started to replace typewriters, but did little beyond utilising word processing to enhance an otherwise manual process (therefore no dramatic increase in performance). In the 80s and 90s, limited application software started to be acquired to process high-volume, transactional tasks in areas like finance, HR, and record keeping. Around 2005, enterprise software (Banner) was introduced to UWI which was able to integrate such diverse functions as the Bursary (payroll, invoice payments, etc.), Registry (admissions, registration, exams, etc.), and HR (hiring, training, leave, etc.). Each of the foregoing major divisions has modules that can process specific processes (listed in parenthesis) and can be added at any time to the basic package. The problems here is that each campus has customized the software differently and each customization makes major upgrades to a new version a very time consuming endeavor. These various states of IT that processes find themselves in and the approaches for each will be discussed later.

Process improvement requires a dedicated team of specialists in a number of different disciplines. This paper is a request to establish such a unit.

# Problem Statement & Rationale

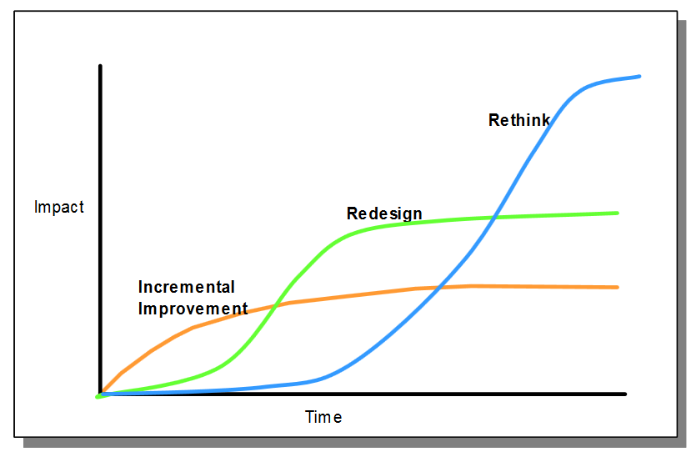
UWI has spent millions of dollars on enterprise and other process software, yet we are not realizing a dramatic increase in process performance in such areas as admissions, registration, course delivery, student services, research administration, and other core processes, *or* a significant decrease in costs. For instance, it can still take up to a year to hire someone, graduands still have to wait until October to graduate unlike the USA (with May graduations), admissions still can take a half a year to provide a response, registration is still a student nightmare for too many and cannot be done completely online, and many staff are doing mechanical tasks that can be automated (personnel is the biggest single category of university costs). Many of the students who are frustrated by these process will one day become alumni and when approached for donations they may not be too happy to give. Many processes are still a mix of manual and limited stand-alone application software, some with parallel redundant systems, and therefore, processes in UWI are still not standardised across campuses to create a seamless “One UWI” in the administrative or academic domains. The performance of core processes cannot fully support the sophisticated strategic objectives that the *Strategic Plan 2017-2022* demand.

The benefits of process improvement can be summarized as making processes, “better, faster, cheaper,” that is, more effective (better quality or service), efficient (less time and resources), and less expensive. It could expand current capacity or introduce new capabilities, if that is required. It provides better, more accurate, and real time information for management decisions. A complete list of benefits of process improvement can be found in Appendix A.

# Three Levels of Process Improvement

Figure 1 depicts the three approaches to process improvement: Incremental, Redesign, and Rethink. As the graph depicts, the time each requires to implement is directly proportional to its impact on performance *and* to the degree of risk involved.

Incremental improvements can usually be done at the departmental level and involve modifying tasks or documentation, especially at the individual level, and require only a part-time effort. For instance, adding a checklist or a job aid, or using a better method or technique. TQM or [*Kaizen*](https://www.mindtools.com/pages/article/newSTR_97.htm) can provide a lot of tools here. Redesign has a wider scope and may cut across more than one department, be more formal in approach, and utilise progress reporting. Here there may be new or better technology introduced, policies amended, or capacity or capabilities expanded.



*Figure 1*: Three Levels of Process Improvement. Source: BP Trends, Curtice – 2005.

Finally, Rethinking is the most radical intervention but has the biggest impact on performance, usually involves the whole process end-to-end, and it requires careful change management. “**Business Process Reengineering**” (BPR) falls into this category and is defined as (Hammer & Champy, 1993), “…the fundamental reconsideration and radical redesign of organisational processes in order to achieve dramatic improvement of current performance in cost, service and speed [by utilising IT].” It pretends that if one started the organisation today, how would the system be designed, with today’s transaction volumes, service standards, compliance requirements, challenges, and technology? The word “Business” in BPR was used as the methodology was first introduced to the private sector, but it applies to all processes—administrative or academic.

Rethinking can also mean consideration for outsourcing a function or process where it can be done less expensively, without unionised workers, and hopefully with better performance and reliability. While the proposed Process Improvement Unit would focus mostly on BPR, but it would also assist in the other two domains.

The ideal transactional process from a customer’s point of view is one that can be done completely online 24/7, in one sitting, and get an answer/decision/confirmation immediately (unless they have a very unusual situation). From the organisational point of view, an ideal process is one that can be handled from end-to-end with technology--that is--not require human intervention (except for unusual situations). In both instances quality and service is high and costs and rates of error are low.

# Identifying & Selecting Processes for BPR

Selecting a process for reengineering is a significant decision because of the magnitude of the BPR projects in terms of duration, money, manpower, and risk. If it is a core process it will always take at least two years on average, a significant budget to purchase IT equipment and software licensees, and train users. There are a lot of specialists required including (expensive) consultants. Disruption is also a factor: it is like performing open heart surgery on a patient that is running in a race. Therefore, the UWI will not be reengineering several different processes at once, especially if it is a core process and especially when it requires coordinating that exercise across four campuses.

Therefore, some type of identification, prioritisation, and selection process is necessary. As mentioned before, staff and management tend to think of work in terms of job descriptions, tasks, and activities, so process theory is mostly new to them. On one hand, the UWI could have an exercise to identify and classify all processes (core, support, and management processes) but that would take a year or two to accomplish by itself.

What are the possible sources of candidate processes for BPR? Core processes are the most likely as they deliver the UWI products and services to our students, clients, and other stakeholders. Potentially they have the greatest leverage for cost savings, quality improvement, and customer service which impacts on UWI’s image and brand, and therefore, enrollment, internationalization, and ranking efforts. Logically, in many instances, one would want to reengineer a core process before support processes because the latter are there to serve the former. Having said that, there are also critical *support* processes in their own right like IT, finance, and HR that can be considered, as some are emphasized in the new *Strategic Plan 2017-2022,* especially under the five “Agility” (AG) strategic objectives, whereas the core processes are more addressed in the four “Access” (AC) and three “Alignment” (AL) objectives. Whatever their type, these processes need to be in a high performance mode for the *Strategic Plan* to succeed.

Table 1 overlays the 12 strategic objectives onto the core processes to determine where they intersect. The list is not exhaustive but contains most of the core processes. The term “function” is used where there are a number of related processes under that heading. For example, non-academic student services include physical and mental health, accommodation, orientation, and financial assistance processes, amongst others.

Table 1. *Core Processes vs. Strategic Objectives*

|  |  |  |
| --- | --- | --- |
| **Core Process/Function** | **Obj.** | **Strategic Objective Description** |
| 1. Student Enrolment Applications | AC1 | Removing barriers in order to increase access to tertiary and higher education at The UWI. |
| AC2 | |  | | --- | | Increasing The UWI customer-base through improving the competiveness of its products and service offerings to the marketplace. | |
| 1. Course Registration |  |  |
| 1. Course Delivery | AC3 | |  | | --- | | Enhancing the quality of teaching and learning and student development to deliver an exceptional student experience to all students enrolled in University courses. | |
| 1. Examination Process |  |  |
| 1. Student Services (academic) |  |  |
| 1. Student Services (non-academic) |  | Note: Depending on how it is interpreted, AG4 (in Table 2) may touch on student experiences outside of the classroom but this appears to be indirect (would apply to processes # 5-6-7-8). |
| 1. Student Development (outside the classroom) |  |  |
| 1. Graduation Process |  |  |
| 1. Faculty-Led Research | AC4 | |  | | --- | | Enhancing the quality, quantity and accessibility of The UWI Research and Innovation in order to drive greater impact regionally and globally as well. | |
| 1. Partnership Research (with external parties) | AC4 | (as above) |
| AL2 | Aligning The UWI core operations (T&L, Innovation & Research) to meet the specific needs of all sectors, for example: (1) the development of new programme offerings in collaboration with industry (2) industry utilising The UWI professors for consultancies, (3) The UWI students carrying out projects for industries, (4) The UWI starting spin-off companies, (5) industry commercializing The UWI research. |
| 1. Commercialisation of Innovations | AC4  AL2 | (as above) |
| 1. Consulting | AL2 | (as above, point #2) |
| 1. Community Outreach |  |  |
| 1. Global Outreach (Affairs) | AG1 | The UWI being globally responsive to the local needs of all stakeholders, including alumni, everywhere. |
| 1. Public Advisory Services | AL1 | Positioning The UWI as the University of choice to provide critical and informed research-driven analysis and recommendations on issues that impact Caribbean and global developments. |
| 1. General Fundraising | AG2 | Assisting The UWI to diversify revenue and improve cost structure. |
| 1. Alumni Involvement (includes fundraising) | AG2  AG4 | (as above) |
| 1. Marketing & Branding | AL3 | Positioning The UWI in the minds of all stakeholders, including alumni, as a single regional entity and not disparate campuses domiciled in different geographic locations. |
| 1. Communications & Public Relations |  |  |

One can realise from this table, that there is a heavy overlap between core processes and strategic objectives, although some core processes are not mentioned in the *Plan*. As stated before, it appears that most of the five Agility objectives are not concerned with core processes (except AG1). Therefore Table 2 was created to show how they overlap with *support* processes, but again, while it illustrates supports processes, it is not an exhaustive list.

Table 2. *Support Processes vs. Strategic Objectives*

|  |  |  |
| --- | --- | --- |
| **Support Processes** | **Obj.** | **Strategic Objective Description** |
| Global Affairs (outreach) (a core function in Table 1) | AG1 | The UWI being globally responsive to the local needs of all stakeholders, including alumni, everywhere. |
| * Procurement * Budgeting * Research Grants | AG2 | Assisting The UWI to diversify revenue and improve cost structure. |
| * All university administrative processes | AG3 | Reducing duplication and improving efficiencies in operating processes (e.g., Finance, Admin, HR, IT, Procurement, Maintenance, and M&C). |
| * Health, Safety, & Environment * Employee Engagement * Management Development * Other HR Processes | AG4 | Creating a caring, healthy and safe working environment to improve overall productivity and overall student, stakeholder, and alumni satisfaction. |
| * Technology in Teaching & Learning * Management processes Commercialisation (vendors) * All process that deliver services to students, clients, and stakeholders | AG5 | Positioning The UWI in the digital economy by utilising the digital space to create new educational products and services; enhance its commercial and business models, and improve its delivery modalities to all of its stakeholders, including administration. |
| * Curriculum or Programme Design | AL2 | Aligning The UWI core operations (T&L, Innovation & Research) to meet the specific needs of all sectors, for example: (1) the development of new programme offerings in collaboration with industry |

From this table one can see that virtually all processes are in play, therefore there are still many process candidates to consider for selection. Also it should be understood that not all candidates for reengineering necessarily come from the *Strategic Plan*, as there can be very dysfunctional processes that it somehow does not address. How can management prioritise this list and then finally decide on the first target process? A process or set of criteria can be applied to prioritise them.

A quick approach is to determine which process satisfies multiple strategic objectives simultaneously, this nexus of activity may be a good starting point. From this perspective the student applications process and the partnership research and commercialisation process both satisfy two objectives. So does the Alumni Involvement, which raises the question: do all objectives have the same importance or weight? Obviously not. Therefore, a second approach could be to use the strategy map of the *Strategic Plan* and work backwards to the processes that underlie it. The nexuses here are represented visually, that is, the objectives (circles) that have the most leverage are those which have many arrows emanating from them, hence, other objectives are dependent on them. The two objectives with the most leverage are AG4, “Foster a Creative, Caring, Accountable, Motivated, Professional (CAMP) Team,” and AG2, “Restore Financial Health to The UWI,” as many objectives are dependent on adequate competencies or resources, respectively. Each of these both do not point to a core processes but support processes found in the areas of Finance and HR.

What does the literature say about targeting processes for reengineering? Covert (1997) posits three criteria:

* Dysfunctional – which processes are the most ineffective?
* Importance – which processes have the greatest impact on our customers?
* Feasibility – which processes are at the moment most susceptible to accomplish a successful redesign? (‘low hanging fruit’ or ‘quick wins’ to build momentum)

In this model there is an absence of business strategy or goals as a criteria. Hakim, Gheitasi, and Soltani (2016) offer this process, “…identify and categorize business processes appropriately, identify business goals in implementing BPR and the indices related to those goals, evaluate the effect of each category of business processes on goals and indices, select appropriate business processes for BPR” (p.1135).

Finally, a white paper by Heah (2012, p. 3) suggests these guidelines by focusing on characteristics of the process itself (“process domain” means a cluster of related processes):

* The process domains must be major contributors to the organisation’s core competencies
* The process domains must be dysfunctional; i.e. they are the most problematic (e.g. fragmented, inefficient)
* The process domains must have the greatest impact on customers
* The process domains must be ready and feasible for dramatic change (e.g. due to high cost, loss of market share)
* The process domains must contribute to the organisation’s vision and objectives
* The level of risks for the process domains must be acceptable
* The process domain change must impact one or more of the following: cycle time, cost, process value, key issue, supplier performance, beats competition
* The process domains must have interrelationship with other functions/departments (i.e. they must be real process domains, not functional units) and the redesign will produce quick wins

Summarising the foregoing discussion of the literature, one can create a concise integrated list for process selection:

1. A process that supports the execution of the organisational strategy (the *Strategic Plan*) in one or more ways
2. A dysfunctional process where one or more of the following are a serious problem: cost, quality, customer service, convenience, cycle time, or other major issue
3. A process whose performance affects a lot of other processes
4. Because of the high failure rate for BPR projects, the candidate must be feasible and have acceptable risks (readiness, culture, resources, management commitment, internal politics, etc.)

Concerning ‘low hanging fruit’ or ‘quick wins,’ this advice is good for a start-off pilot project (discussed later in this paper), but once that has been done, the organisation needs to tackle its most critical processes even if they are not easy.

While the above criteria provides selection principles there are still many candidate processes to consider, therefore a useful tool may be a matrix that lists criteria and their weights and then score the top 5 - 10 processes derived from the discussion of the *Strategic Plan* or other quarters. Weighting is a value judgement and would have to be assigned by executive management. An illustration follows in Table 3.

Table 3. *Process Selection Scoring Matrix*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Criteria** | **Wgt.** | **Process-1** | | **Process-2** | | **Process-3** | | **Process-4…** | |
| Score | Points | Score | Points | Score | Points | Score | Points |
| Importance |  |  |  |  |  |  |  |  |  |
| Supports multiple strategic obj’s |  |  |  |  |  |  |  |  |  |
| Nexus process\* |  |  |  |  |  |  |  |  |  |
| Utilised by all campuses |  |  |  |  |  |  |  |  |  |
| Customer impact |  |  |  |  |  |  |  |  |  |
| Quality impact |  |  |  |  |  |  |  |  |  |
| Cost impact |  |  |  |  |  |  |  |  |  |
| Cycle time impact |  |  |  |  |  |  |  |  |  |
| Other critical issue |  |  |  |  |  |  |  |  |  |
| Project duration |  |  |  |  |  |  |  |  |  |
| Return on Investment |  |  |  |  |  |  |  |  |  |
| Feasibility |  |  |  |  |  |  |  |  |  |
| Level of risk |  |  |  |  |  |  |  |  |  |
| TOTALS |  |  |  |  |  |  |  |  |  |

Notes:

1. \*a process whose performance affects a lot of other processes (these can be core or support processes)
2. “Points” are “weight” values multiplied by the “score”
3. Each criteria would require a working definition

Matrix Key

|  |  |  |  |
| --- | --- | --- | --- |
| **Weight** | **Meaning** | **Score** | **Meaning** |
| 5  4  3  2  1  0 | Very high importance  High importance  Medium importance  Low importance  Very low importance  Not important | 3  2  1  0 | Fully satisfies  Substantially satisfies  Partly satisfies  Does not satisfy |

Source: [Toolbox.com](http://it.toolbox.com/blogs/enterprise-solutions/constructing-a-weighted-matrix-13125)

The processes then should be listed in rank order by total points and communicated to affected parties. The first pass on the matrix can be done intuitively, but if there are several processes that score very closely at the top, then more research may be required to actually determine how much a process actually “satisfies” a given criteria. For example, for “Return on Investment” projects costs versus their returns would have to be researched and calculated. In any instance, the Process Improvement Unit (PIU) as part of its mandate, should always be identifying and classifying organisational processes and create a process *structure* map, just like one would create an organisational chart to show the structure of personnel (reporting relationships).

Once a particular process has been identified then a proposal or business case must be drafted to be submitted to EMT for approval. This will require at least a cursory assessment of the current process, its problems, how it should perform after reengineering, its benefits including ROI, and costs in terms of finance, manpower, and duration. Because of high failure rates a discussion on the project risks and feasibility are needed. A rationale is required to show the basis of selection from other competing processes that were considered but not selected and why.

# The Reengineering Model

Now that the target process has been approved for reengineering, this paper proposes the framework in Figure 2, which outlines a standard BPR model. Phase-1 “Strategic Assessment” has already been developed fully in the previous section on selecting a process.

|  |
| --- |
|  |

*Figure 2:* Phases in a Comprehensive BPR Methodology.

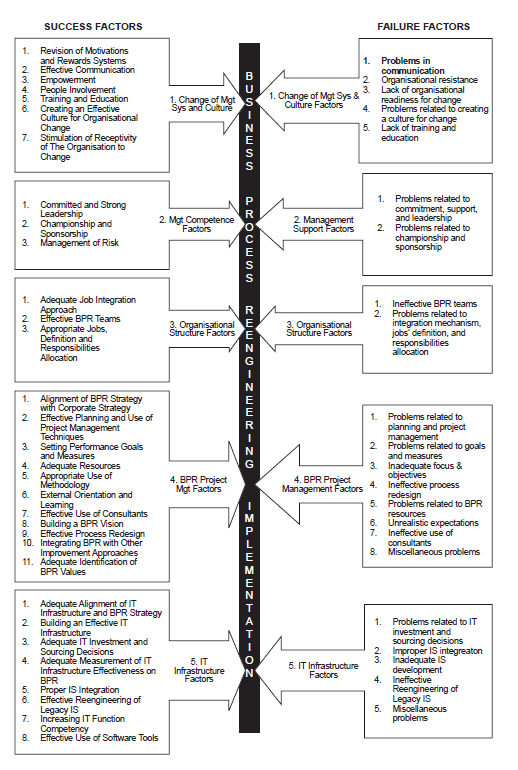
A review of the literature reveals that there are several overlapping BPR methodologies in existence. This model was created after examining them and has nine phases, which are discussed in summary fashion.

1. **Strategic Assessment** – In this phase the target process is identified by either its strategic importance (supporting the business model or strategy) or because improving it would provide a significant improvement in operational performance or decrease in costs. A proposal is then sent to executive management for approval, which would include risk and readiness information. A steering committee would be appointed once the project is approved.
2. **BPR Team Formation** - The BPR team is assembled with the appropriate skills and perspectives which include a project manager, process improvement and IT specialists, process owner and users, consultants, and related parties, as required. They would be trained in the BPR methodology and create a *Terms of Reference* document that would guide the balance of the project.
3. **Process Analysis** - The selected process is mapped in a flowchart to depict the flow of work, activities, staffing, resources, information/documents, decision points, controls and standards, reporting, and its relationship to other processes. At that point, its performance can be assessed in terms of speed (cycle time), costs, quality, customer service, and other important criteria. This will represent the baseline to which the new process will be compared. It also examines the causes of performance problems so these can be addressed in the redesign. A refined process vision will then be developed to guide redesign.
4. **Process Redesign** - This can be done in a number of ways like benchmarking what other organisations are doing with a similar processes and will be dependent on what is currently available and affordable in terms of software and hardware. The rule here is to pretend that one is starting the organisation today as if it had never existed before—that is—for the current challenges, with current technology, and current customer needs. This redesigned process is then mapped which becomes the blueprint for development to include new policies, procedures, documentation, job descriptions, IT infrastructure, and training requirements.
5. **Process Development** - Up until now, everything has been done on paper, and it is time to purchase, install, and network all infrastructure required, create all the new documentation, and train all process operators. The databases will need to be populated from the existing process data pools. Finally, a change management and communications plan would be fully developed, as many BPR projects fail due to staff resistance (parts of this may come earlier if required).
6. **Pilot Testing** – Before rolling out the new process it must be tested for functionality, integration with other software, load testing, and other recommended tests. The operators and customers are exposed to the new system for feedback and changes are made based on testing results. Finally, a migration plan is drawn up that covers moving from the old to the new system, often with a parallel overlap period until they are certain that the new process can fully perform under a wide array of conditions.
7. **Process Roll-out** - At this point the new process is commissioned and closely monitored to see how it is performing.
8. **Process Improvement** - Software bugs will surface and be corrected and non-IT process problems will be encountered and addressed. The staff and customer must also be monitored for work and service problems, respectively. After the system settles down, the old process can be terminated and the new process documented such that local IT staff can make any future programming changes (without calling in consultants). If warranted, the process can be dynamically modelled to play “what if” by changing operational variables and examining the impact on the outcomes.
9. **Process Upgrade** - All software developers will have new versions of their applications that may provide more features or customization, speedier processing, increased security, or other useful features. At some point these new versions will need to be installed to improve process performance.

To grasp the magnitude of the reengineering task the fully articulated BPR model is available under separate cover. Of course, this model will be customised for the particular process and situation that it will be used for. Besides a merger there is probably no more of a complex and complicated task than BPR, which the literature documents high failure rates for and is the subject of the next section.

# BPR Project Risks

Reengineering presents many risks because it cuts across so many parts of the organisation simultaneously: workflow, IT, control systems, customers, staff, incentive systems, competencies, organisational structure, strategy, culture, leadership, management, measurements, regulations, politics, project management, budgeting, and others. Figure 3 outlines the success and failure factors for BPR from a journal article that reviewed the literature at the time (1999) to catalogue all the factors. If you are interested in explanations for each factor you can read the full article [here](http://www.bus.iastate.edu/nilakant/MIS538/Readings/BPR%20success%20and%20failure%20factors.pdf).



*Figure 3*: Summary of key success and failure factors in BPR.

Source: “BPR implementation process: an analysis of key success and failure factors” (Al-Mashari et al., 1999)

This level of risk reinforces the case for a full-time dedicated staff in a Process Improvement Unit to implement the BPR project—it cannot be a few individuals’ part-time assignment—and it needs careful and constant attention by management and the project team.

# BPR Pilot Project

To demonstrate the efficacy of BPR, the University Office of Planning has decided to apply BPR to the research grants system with the assistance of all stakeholders involved. Grants are important because they fund the research process where many innovations can emerge plus enhance the stature of the University in published literature. Grants are awarded from donor agencies, governments, private sector partnerships, and other quarters. The grants process itself has three phases: 1) pre-award, 2) grant management (post-award), and 3) close out. BPR usually makes the assumption that there is inadequate IT to enable high process performance, but in this case, there exists grant module software--as part of a wider Banner enterprise resource planning (ERP) system--that is already operational.

The main problem with the grants processes is primarily in the pre-award phase. There are a lot of applications from many different departments and faculty who are not always aware of the system requirements to submit certain information at the appropriate time and follow general protocols. Therefore there exist a set of practices that vary from individual to individual instead of a standard procedure that everyone follows. This causes all sorts of problems especially when the bursary, legal unit, and ethics committees do not see information that it needs to make decisions until *after* the award. Because research funding requests are not in the system before awards much of the time, management cannot view, plan for, and manage that traffic. Sometimes redundant proposals are circulating or several departments are approaching the same donor for funding.

The objective of the pilot project would be to fully utilise the grants module affordances (software interactions, database, documents, reports, alerts, etc.) in designing a complete process where all stakeholders know their roles and procedures. This may involve an amendment to policies governing this activity, creation of supporting documentation and procedures, revising reporting protocols, training, and incidence procedures (what happens when someone does not follow the procedures). The new process should be able to accommodate every type and size of grant from any source.

Table 4 outlines the phases and activities involved in the pilot project. Note that it follows the BBR methodology in general but is customised by the fact that the software (module) is already operational.

Table 4. *Grants Process Pilot Project Work Plan*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACTIVITIES** | **2017** | | | | **2018** | | | |
| **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| **Phase 1: Project Selection** |  |  |  |  |  |  |  |  |
| 1. Review pilot process possibilities |  |  |  |  |  |  |  |  |
| 1. Draft pilot process project proposal |  |  |  |  |  |  |  |  |
| 1. Proposal sign-off by stakeholders |  |  |  |  |  |  |  |  |
| 1. Sensitise all affected parties |  |  |  |  |  |  |  |  |
| **Phase 2: Project TOR & Teams** |  |  |  |  |  |  |  |  |
| 1. Select project team members |  |  |  |  |  |  |  |  |
| 1. Train the team in BPR skills |  |  |  |  |  |  |  |  |
| 1. Prepare project terms of reference |  |  |  |  |  |  |  |  |
| 1. Develop work schedule for team |  |  |  |  |  |  |  |  |
| **Phase 3: Map & Analyse Process** |  |  |  |  |  |  |  |  |
| 1. Study the Grants module software affordances |  |  |  |  |  |  |  |  |
| 1. Conduct process owners interviews on each campus |  |  |  |  |  |  |  |  |
| 1. Map existing processes |  |  |  |  |  |  |  |  |
| 1. Analyse processes performance and issues |  |  |  |  |  |  |  |  |
| **Phase 4: Re-design Process** |  |  |  |  |  |  |  |  |
| 1. Benchmark other similar processes |  |  |  |  |  |  |  |  |
| 1. Set performance parameters for new process 2. (given module affordances) |  |  |  |  |  |  |  |  |
| 1. Redesign new process (on paper) |  |  |  |  |  |  |  |  |
| 1. Get sign-offs on new process design |  |  |  |  |  |  |  |  |
| **Phase 5: New Process Development** |  |  |  |  |  |  |  |  |
| 1. Create new policies |  |  |  |  |  |  |  |  |
| 1. Create new documentation & procedures |  |  |  |  |  |  |  |  |
| 1. Order/install any hardware or software required |  |  |  |  |  |  |  |  |
| 1. Review all pre-award cases for status |  |  |  |  |  |  |  |  |
| 1. Conduct required pilot tests |  |  |  |  |  |  |  |  |
| 1. Get sign-offs on new process documentation |  |  |  |  |  |  |  |  |
| **Phase 6: Implementation Roll-out** |  |  |  |  |  |  |  |  |
| 1. Set process roll-out date |  |  |  |  |  |  |  |  |
| 1. Train process users in new design |  |  |  |  |  |  |  |  |
| 1. Commission new process |  |  |  |  |  |  |  |  |
| 1. Write pilot project report & lessons learnt |  |  |  |  |  |  |  |  |
| 1. Monitor, evaluate, and adjust the system |  |  |  |  |  |  |  |  |

# Process Improvement Unit

The proposed *Process Improvement Unit* (PIU) would reside in the University Office of Planning (UOP) and under the University Project Management Office (UPMO). The staff would be dedicated full time not only to BPR projects but in educating UWI in more incremental process improvement techniques that can be used at the department, faculty, or divisional levels. To see what the latter may look like, see the University of Sheffield’s [Project Improvement Unit](https://www.sheffield.ac.uk/piu/services). At the Redesign level, Macquarie University’s [Business Process Improvement Initiative](https://staff.mq.edu.au/support/business-process-improvements/whats-involved) unit facilitates process user teams to improve their processes.

It is envisioned that the PIU would facilitate the major projects but not actually do all the reengineering work itself. In this model a consultant would be hired and assigned to plan, develop, and deliver the process project with the assistance of affected staff, process owners, our IT departments, and other support functions. The PIU would have project oversight and assist the consultant in navigating UWI’s regulatory, systems, organisational, cultural, and political landscape to make the project successful.

Given that role, in terms of staffing the PIU would require at least three personnel. A specialist in process reengineering and improvement, an IT expert in workflow and enterprise software, and networks (and [process simulation](http://www.ariscommunity.com/business-process-simulation), if possible), and a project manager. While IT personnel understand their craft they are usually not trained in process improvement or reengineering, thus sometimes they “soup up” a dysfunctional manual system which is called “paving the cow path” in BPR lingo. That is why a (non-IT) process specialist is required to assist in the larger picture of the process architecture and change management. The project manager would be in charge of the master plan utilising *Microsoft Project* to track and report on the project and ensure that resources are available when required. When the IT specialist is not involved in the BPR project they would be assisting in upgrading enterprise software, as new versions become available.

From the foregoing discussion it is apparent the different processes are in different states of sophistication regarding how they utilize IT and software. BPR can address many but not all process situations. Table 5 catalogs these different states in the ‘configuration’ column and then describes typical problems with those types of processes and finally an approach to address those types of problems. The PIU would assist in all--if time and resources are available. Process simulation is a sophisticated function that could added to the portfolio of services as resources and technology permit.

Table 5. *Process IT Configurations and Improvement Approaches*

|  |  |  |
| --- | --- | --- |
| **Process Configuration** | **Description & Possible Problems** | **Improvement Approach** |
| **Completely Manual Process** | A completely paper-based process is very slow as only one task at a time can be processed (i.e., whoever has the application form or file), there is no digital storage of data, and it is only shared in summarized form in periodic reports (if done at all) long after the transactions (no access to real time data). Also, if someone is on vacation the whole process stops. This system usually requires one or more face-to-face visits by the customer to complete all transactions. Processes involving number crunching (spreadsheets) are more error prone when a human is using a hand-held calculator. | Business Process Reengineering |
| **Manual Process Using Productivity Software** | Generic ‘productivity software’ also known as Office software (*Word, Excel, PowerPoint, Access*, *Outlook*, etc.) is often introduced to assist an otherwise manual process, but the process itself is not transformed and the data remains on someone’s PC hard drive, not accessible by others. Workflow still goes from desk-to-desk with all the other problems of a completely manual system. | Business Process Reengineering |
| **Process Using Function- Customized Stand-Alone Software** | Here customized software is introduced like procurement, timetabling (assigning classrooms), or online classrooms software to perform specialized tasks. While this is an improvement, these systems need to be customized to user requirements and many times cannot directly interface with [enterprise software](http://www.webopedia.com/TERM/E/enterprise_application.html), and therefore remain stand-alone applications. If surrounding activities remain manual, the process can still take a long time to complete and there is no realisation of savings in personnel costs. | Business Process Reengineering  [Interfacing](http://www.computerworld.com/article/2593623/app-development/application-programming-interface.html) with Enterprise Software |
| **Processes Utilizing Enterprise Software** | Enterprise software attempts to integrate many different functions in large organisations (by utilising specialized “modules”) on a common platform and database where data is entered once and is available to everyone performing operations. Unfortunately, if left strictly to IT staff, it can be installed as if it were another application without taking time to map or understand which existing processes to incorporate and how, which will not result in dramatic improvements in process performance. Some other problems with enterprise software can be found [here](http://www.cio.com/article/2397802/enterprise-resource-planning/13-common-erp-mistakes-and-how-to-avoid-making-them.html). | If not properly reengineered, then:  Business Process Reengineering  If BPR was done in implementation, then:  [Process Simulation](http://www.ariscommunity.com/business-process-simulation) (Modeling)  Process Continuous Improvement |
| **Upgrading Enterprise Software** | Assuming the enterprise software has utilised the BPR approach, the next major intervention will be upgrading to new versions that allow more functions or affordances. The major problem here will be upgrades of the customized parts of the software which need to be treated on a case-by-case basis and are, therefore, very time consuming. | Process Simulation  Process Continuous Improvement |

Given the different improvement approaches in the foregoing table, the PIU cannot solely rely on the BPR method when addressing process issues but must apply a customised approach, given the situation. Much of the time it will be a variation of the full BPR methodology, as is the case for the pilot project.

# Conclusion

Given the fact that up to 80% of all organisational problems have their roots in a dysfunctional process and the new *Strategic Plan* requires a high performance mode of operations fit for the 21st Century, there must be a unit capable of facilitating this endeavor. The IT departments--while supplying the critical IT infrastructure--are not trained to reengineer by themselves. HR--while offering training, incentives, change management, and industrial relations expertise--does not have competencies in the system side of operations. The proposed Process Improvement Unit (PIU), if adequately staffed, can facilitate BPR and the savings generated will pay many times over its costs of operation. It is strongly suggested that this unit be formalized with a dedicated budget. If this concept paper is agreed to in principle, the exact job descriptions, other details and costs of the PIU will be submitted for further scrutiny. UWI is competing for global standing and cannot afford *not* to move fully and boldly into the digital age to fulfill its *Triple A* goals.

# References

Al-Mashari, M. & Zairi, M. (1999). BPR implementation process: an analysis of key success and failure factors. *Business Process Management Journal*, Vol. 5 No. 1, pp. 87-112.

Covert, M. (1997). Successfully Performing BPR. Visible Systems Corporation. Retrieved July 14, 2017: http://www.ies.aust.com/pdf-papers/bpr.pdf

Curtice, B. (2005). Three Levels of Process Improvement. *BPTrends*.

Hakim, A., Gheitasi, M., & Soltani, F. (2016). Fuzzy model on selecting processes in Business Process Reengineering. *Business Process Management Journal,* Vol. 22 No. 6, pp. 1118-1138.

Hammer, M. & Champy, C. (1993). *Reengineering the Corporation: A Manifesto for Business Revolution*. Harper Business, New York, NY.

Hartt, D. (2012). Pushing Management’s Buttons to Improve Performance. *International Society for Performance Improvement*, Toronto Conference.

Heah, S. (2012). BPR - pragmatic approach to breakthrough process selection. White Paper. Dimension Data. Retrieved July 14, 2017: https://www.dimensiondata.com/en-AU/Downloadable%20Documents/Pragmatic%20Approach%20to%20Breakthrough%20Process%20Selection%20White%20Paper.pdf

Appendices follows…/

# **Appendix A – Benefits of BPR**

The following are the general benefits of BPR:

**Performance Improvement:**

1. Up to 80% of all organisational problems are caused by dysfunctional systems (processes) that were designed for an earlier era and staff trying to cope with them (outing fires)
2. More work/cases can be processed by the system simultaneously so productivity is increased
3. Customer convenience comes from ‘one-sitting’ processing from anywhere at any time (no need to come to the campus several times to transact business)
4. Dramatically shortens processing (cycle) time by using databases which allow for more parallel activities to be done simultaneously, unlike manual or serial processes where only one person has the file at time and there are delays in forwarding that file to the next individual or work is waiting in que on someone’s desk to be processed
5. Process time is also shortened by removing non-value adding tasks and by adding programming rules into the software instead of humans making these routine decisions (automation)
6. It allows staff to do higher order things that involve thinking, creativity, and problem-solving while technology does the boring, mechanical, repetitive tasks
7. Quality is improved by having one standardised way of completing each task (not a collection of individual practices)
8. When a system changes, especially with the use of software, it forces a change in human behaviours (that training often fails to do)
9. Systems are designed to handle a wide variety of cases so that a supervisor does not need to come into the picture to state how unusual cases will be handled and slow down the process
10. Workflow software routes the case to the next available operator (where humans are involved) instead of work sitting on someone’s desk causing a delay while they are sick or on vacation
11. Work is performed where it makes the most sense; units can operate in geographically remote locations but be linked by networks (perfect for the Caribbean)

**Cost Reduction:**

1. Costs are significantly reduced because a computerised system needs less humans to operate it (payroll costs are around 70% of total expenses at UWI)
2. Costs are also reduced by minimizing *rework* (poor quality) which is having to do things a second or third time because they were not done right originally and the fact that less paper is used in the system as most documentation is digital
3. Academically, online and blending learning are more convenient for the student which saves the university money in providing physical resources (classrooms, maintenance, security, parking, etc.), and widens its market reach regionally and globally

**…/**

**Process Control:**

1. Due to automated checks or controls (which are minimized), the amount of human approvals required is greatly reduced thus speeding up processing time
2. Where decisions or approvals must be made by humans, it is done at the lowest level thus reducing delays
3. Allows staff (or customer) to know the exact status of a job in real time instead of a customer having to call several departments to ascertain same; the customer only deals with one person if there is a problem
4. Real time (dashboard) reporting is enabled for monitoring and decision making; it uses ‘traffic lights’ for visual representation of important leading indicators (red, yellow, green)
5. Staff are automatically alerted when something needs attention, data needs to be entered, a report needs to be made, or something is completed (they don’t have to rely on their memories)

**Knowledge Management:**

1. Recordkeeping is vastly improved as data is automatically captured by the system at the point of the transaction and put into a common database so it is locally sharable
2. More information can be shared across the enterprise when databases are integrated showing the ‘big picture’
3. Searching for something (a case, person, information, or document) is fast and easy as everything is in digital format and tagged; time management research indicates that workers spend 1.5 hours a day (6 weeks per year) just looking for information
4. Communications are improved and delays minimized by technology
5. Provides complete “paper” trails for auditing and reduces corruption by making all transactions transparent
6. Information is backed up offsite so in the event of a catastrophe data will not be lost and operations can be continued in another location with minimal disruption

**For Manufacturers/Businesses:**

1. Allows for mass customisation of products/services like ordering a new Dell computer with all the options available (not one size fits all)
2. In some cases, the process itself can produce a *competitive advantage*--like Walmart’s or Amazon’s supply-chain management--where few competitors can compete on price
3. Reduces the amount of resources, stock, or inventory necessary to manufacture or support the product ([Just-in-Time](http://www.investopedia.com/terms/j/jit.asp) processes)
4. Reduces time for inventory taking, human errors, and pilferage with barcode scanning and [RFID](http://www.technovelgy.com/ct/technology-article.asp)

🙞